Base Load Power Hub (BLPH)

SDV/BDV AND TIGHT SHUT-OFF XV VALVES - MANUFACTURERS RECORD BOOK (FINAL DOSSIER)

Document Number: 1724000204-QC-DB-00011

Document Class: 2

1	03/12/2025	Accepted for Construction (AFC)	VF	LP	MR
0	20/10/2025	Issue for Review (IFR)	VF	LP	MR
Rev.	Date	Description	Prepared	Reviewed	Approved
Fluitek Valves					

Revision / Change Log

Rev.	Description
0	Issue for Review (IFR)
1	Accepted for Construction (AFC)

HOLDS LIST

No.	Description
1	
2	
3	
4	

Base Load Power Hub (BLPH)

SDV/BDV AND TIGHT SHUT-OFF XV VALVES

SDV/BDV AND TIGHT SHUT-OFF XV VALVES - MANUFACTURERS RECORD BOOK (FINAL DOSSIER) - INDEX

Document Number:1724000204-QC-LIS-00012

Document Class: 2

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

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Sign	Date
ROSETTI MARINO S.p.A.	28/01/2025

Rev.	Date	Description	Prepared	Reviewed	Approved
01	30/12/2024	Accepted for Construction (AFC)	M. Mariani	L. Patelli	F. Buttironi
00	22/05/2024	Issue for Review (IFR)	L. Patelli	M. Rocchetti	F. Buttironi

Fluitek Valves

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PART 1 – DESIGN DOSSIER

SECTION	DESCRIPTION

01 **List**

1724000204-MD-LIS-00001 – Document Register

02 **Diagrams**

PFD - NOT APPLICABLE
P&ID – NOT APPLICABLE
ESD - NOT APPLICABLE
Isometrics – NOT APPLICABLE
1724000204-IN-DG-00006 Pneumatic Diagrams and Wiring
Block Diagrams- NOT APPLICABLE
Computer Systems Architectural Diagrams - NOT APPLICABLE

03 **Drawings**

1724000204-IN-DA-00004- General Arrangement Drawings
Plot Plains – NOT APPLICABLE
Layouts- NOT APPLICABLE
Discipline Drawing NOT APPLICABLE
Detailed Shop Drawing- NOT APPLICABLE

04 **Project Procedures and Specification**

Project Management – NOT APPLICABLE
Engineering- NOT APPLICABLE
Procurement/ Supply- NOT APPLICABLE
Construction- NOT APPLICABLE
Installation- Transportation- NOT APPLICABLE
Hook-up- NOT APPLICABLE
Start-Up- NOT APPLICABLE

05 **Piping Classes- NOT APPLICABLE**

06 **Calculation Notes**

Discipline Calculation Notes/Sheets – NOT APPLICABLE
1724000204-IN-CA-00003 – Activities Calculation Notes/ Sheets
Weight and Centre of Gravity Reports- NOT APPLICABLE

07 **Equipment Requisition**

123A90-DDL-IN-MR-40031

08 **Data Sheet**

1724000204-IN-DS-00007 Instrument and Valves Data Sheet

Fluitek Valves	Table of contents

PART 2 – DESIGN DOSSIER

SECTION	DESCRIPTION

01 Acceptance

Derogations and queries register with signed copies - NOT APPLICABLE
Internal and external Inspection report –VTE 240062
Conformity with technical specification certificates- DEC 240062
Acceptance qualification list– NOT APPLICABLE
Document confirming takeover/hand over between parties- NOT APPLICABLE

02 Certificates Manufacturing Reports and Procedures

Authorities and parties' acceptance and release certificates/ report- NOT APPLICABLE
Materials Certificates (including consumables, such as electrodes and paint)- MTC 240062
Weighing and Centre of Gravity certificates- NOT APPLICABLE
Warranty Surveyor's certificates- NOT APPLICABLE
Floating and Marine registrations (Clarifications)- NOT APPLICABLE
Nameplate with CE Marking

04 Manufacturing Records and Procedures

1724000204-QC-ITP-00002 – Inspection and Test Plan
Marking Drawings and traceability- Included into 1724000204-IN-DA-00004
Non- Destructive Testing certificates- M.PTE.0; M.MTE.0; RT certificates;
PMI Records
Dimensional control Certificates- (Included into Test records)
Painting certificates
NCR's and Waiver Reports (if any)
Welding and preheating Book procedures- NOT APPLICABLE
1724000204-MAT-PRO-00008- Actuator Painting procedure
1724000204-MAT-PRO-00009- Valve Painting procedure
Worker Qualification (Painters, NDT operator)
1724000204-QC-PRO-00010- Factory Acceptance Procedure
1724000204-IN-LIS-00013- ATEX register
PED Certificate
Inspection Release Note IRN 240062

05 Test Record

Test Records
Actuator Manufacturing Records
Production Test Results Records- NOT APPLICABLE
Mechanical Completion Records- NOT APPLICABLE
FAT Records

Fluitek Valves	Table of contents

1	11/07/2024	As per comments	MM	LP	FB
0	20/05/2024	First Issue	LP	MR	FB
Rev.	**Date**	**Modifications**	**Issued**	**Verified**	**Approved**

PART 1 - DESIGN DOSSIER

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01: List

Document Register

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Base Load Power Hub (BLPH)

SDV/BDV AND TIGHT SHUT-OFF XV VALVES

SUPPLIER MASTER INFORMATION REGISTER

Document Number: 1724000204-MD-LIS-00001

Document Class: 3

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

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Sign	Date
V. Barratta	24-01-2025

Rev.	Date	Description	Prepared	Reviewed	Approved
02	17/01/2025	Issue for Information (IFI)	Ivana Rizzo	A. Alborghetti	M. Carrara
01	22/05/2024	Issue for Information (IFI)	Ivana Rizzo	A. Alborghetti	M. Carrara
00	21/02/2024	Issue for Information (IFI)	Ivana Rizzo	A. Alborghetti	M. Carrara

Fluitek Valves

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SMIR - REGISTRO DOCUMENTI / *SMIR - SUPPLIER MASTER INFORMATION REGISTER*

Ordine n°/*order nr.*	1724000204	Fornitore/*Supplier:*	FLUITEK ORSENIGO VALVES S.R.L.	
data / *dated:*	02/02/2024	Codice F./ *S. Code:*		
Commessa / *Job:*	123A90 - CROSSWIND BLPH	Indirizzo/ *address :*	VIA DEI LIVELLI DI SOPRA 5/724060 COSTA DI MEZZATE (BG) ITALY	
Descrizione / *Description*	SDV/BDV AND TIGHT SHUT-OFF XV VALVES	Persona di riferim./ *contact person:*	Sig. MAURO CARRARA	
Macrofase / *Phase*				

Pos.	Document nr. Client (1)	Doc Client Rev. (1)	Document nr. Internal	Document nr. Internal Rev. (2)	Document nr. Supplier (3)	Doc Supplier Rev. (3)	Titolo Documento / *Document title* (4)	Disciplina / *Discipline* (5)	Blocco Classe / *Class Block* (6)	Docum. Format (7)	first issue date (8)	Third Party Approval (I/A)	KEY Document Ingegneria	Documents subject to liquidated damages	AS-BUILT	Document Approval (I/A)
							CONTROL DOCUMENTS									
1	1724000204-MD-LIS-00001	00	1724000204-MD-LIS-00001	00	240062_SDRL	0	SUPPLIER MASTER INDEX REGISTER (SMIR)	INS		A3	23/02/2024					A
							QUALITY DOCUMENTS									
2	1724000204-QC-ITP-00002	00	1724000204-QC-ITP-00002	00	240062_ITP	0	INSPECTION AND TEST PLAN	QUA		A4	01/03/2024		X	x		A
3	1724000204-IN-CA-00003	00	1724000204-IN-CA-00003	00	240062_PERFORMANCE TABLE	0	ACTUATOR SIZING AND TORQUE TABLE	INS		A4	08/03/2024					I
5	1724000204-IN-DA-00004	00	1724000204-IN-DA-00004	00	240062_GAD	0	VALVE,ACTUATOR AND ASSEMBLY GENERAL ARRANGEMENTS DRAWING and NAMEPLATE DRAWINGS	INS		A4	01/03/2024		X	x	X	A
~~6~~	~~1724000204-IN-DA-00005~~	~~00~~	~~1724000204-IN-DA-00005~~	~~00~~	~~240062_ACTUATOR GAD~~	~~0~~	~~ACTUATOR GENERAL ARRANGEMENTS and NAMEPLATE DRAWINGS~~	~~INS~~		~~A4~~	~~01/03/2024~~	~~DELETED~~			~~X~~	~~A~~
7	1724000204-IN-DG-00006	00	1724000204-IN-DG-00006	00	240062_PNEUMATIC & WIRING DIAGRAMS	0	PNEUMATIC DIAGRAM and WIRING	INS		A3/A4	08/03/2024				X	A
10	1724000204-IN-DS-00007	00	1724000204-IN-DS-00007	00	240062_IDS	0	INSTRUMENT AND VALVES DATA SHEETS	INS		A4	15/03/2024				X	A
	1724000204-MAT-PRO-00008	00	1724000204-MAT-PRO-00008	00	240062_ACTUATOR PAINTING PROCEDURE	0	ACTUATOR SURFACE PREPARATION AND PAINTING PROCEDURES	QUA		A4	15/03/2024					
11	1724000204-MAT-PRO-00009	00	1724000204-MAT-PRO-00009	00	240062_VALVE PAINTING PROCEDURE	0	VALVES SURFACE PREPARATION AND PAINTING PROCEDURES	QUA		A4	15/03/2024					A
12	1724000204-QC-PRO-00010	00	1724000204-QC-PRO-00010	00	240062_TEST PROCEDURE	0	FACTORY ACCEPTANCE TEST PROCEDURE AND REPORT (including FET Procedure)	INS		A4	15/03/2024					A
							CERTIFICATES									
13	1724000204-QC-DB-00011	00	1724000204-QC-DB-00011	00	240062_MRB	0	SDV/BDV AND TIGHT SHUT-OFF XV VALVES - MANUFACTURERS RECORD BOOK (FINAL DOSSIER)	CERT		A4/A3	19/07/2024					A
14	1724000204-QC-LIS-00012	00	1724000204-QC-LIS-00012	00	240062_MRB INDEX	0	SDV/BDV AND TIGHT SHUT-OFF XV VALVES - MANUFACTURERS RECORD BOOK (FINAL DOSSIER) - INDEX	QUA		A4	29/03/2024					A
17	1724000204-IN-LIS-00013	00	1724000204-IN-LIS-00013	00	240062_ATEX REGISTER	0	ATEX REGISTER	INS		A3	19/07/2024					A
							SPARES & MAINTENANCE DATA									
18	1724000204-IN-MAN-00014	00	1724000204-IN-MAN-00014	00	240062_IOM MANUAL	0	SDV/BDV AND TIGHT SHUT-OFF XV VALVES - TECHNICAL OPERATING AND MAINTENANCE MANUAL – COMPLETE	INS		A4	15/03/2024					A
20	1724000204-COM-LIS-00015	00	1724000204-COM-LIS-00015	00	240062_SPIR FORM	0	SPARE PART AND SPECIAL TOOLS INDEX REGISTER (COMMISSIONING, 2-YEAR's OPERATION)	INS		A4	03/06/2024					A
							HANDLING, SHIPPING & SITE INSTALLATION									
21	1724000204-QC-PRO-00016	00	1724000204-QC-PRO-00016	00	240062_PACKING PROCEDURE	0	PREPARATION FOR SHIPPING WITH HANDLING AND STORAGE PROCEDURES	LOG		A4	15/03/2024					I

Notes:

(1) Numero documento Cliente
Document number assigned by final Client
(2) Numero documento interno
Document number internal
(3) Numero documento Fornitore (assegnato dal Fornitore)
Document number assigned by Supplier
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(6) Blocco Classe: Specifica, Disegno, Report, Data Sheet, etc. (compilato da Rosetti)
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(7) A4, A3, A1 (compilato dal Fornitore)
A4, A3, A1 (Supplier)
(8) Data prevista per l'emissione del documento (compilato dal Fornitore)
Foreseen date for the first issue (Supplier)

02: Diagrams

PFD
P&ID
ESD
Isometrics
Block Diagrams
Computer Systems Architectural Diagrams

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02: Diagrams

Pneumatic Diagrams and Wiring

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Base Load Power Hub (BLPH)

SDV/BDV AND TIGHT SHUT-OFF XV VALVES

PNEUMATIC DIAGRAM and WIRING

Document Number:1724000204-IN-DG-00006

Document Class: 2

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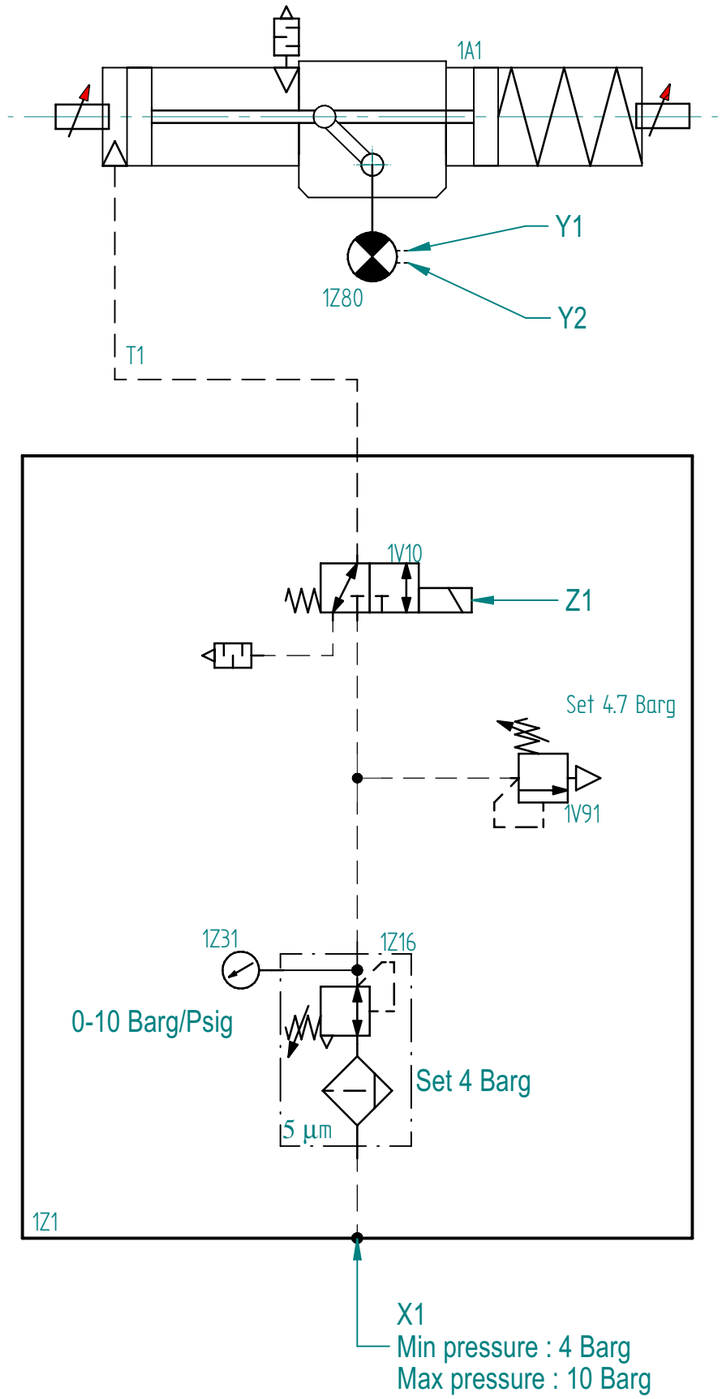
Sign	Date
V. Barratta	08-01-2025

Rev.	Date	Description	Prepared	Reviewed	Approved
03	19/12/2024	Accepted for Construction (AFC)	ROTORK	ROTORK	ROTORK
02	02/08/2024	Accepted for Construction (AFC)	ROTORK	ROTORK	ROTORK
01	10/05/2024	Accepted for Construction (AFC)	ROTORK	ROTORK	ROTORK
00	10/04/2024	Issue for Review (IFR)	ROTORK	ROTORK	ROTORK

Fluitek Valves

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PNEUMATIC



Rev	ECN	Revised	Rev. Approved	Date	Change Description
0-0	ECO-0023560	D.Caprai	L.Pecorari	2024-04-04	First issue

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Title: E1F2G1H01A0A1J3L1R0

Created	D.Caprai	2024-04-02
Checked	D.Caprai	2024-04-04
Approved	L.Pecorari	2024-04-04

Drawing Number: AF7703PDA01
Rev: 0-0
Size: A3
Sheet 1 of 2

Template Issue :24/02/2020-SR

BILL OF MATERIAL					
Pos	Description	Size	Manufacturer	Model	Material
1A1	QUARTER TURN PNEUMATIC ACTUATOR, SPRING RETURN, SPRING TO OPEN		ROTORK	*see Tag Number Table	*see Tag Number Table
1V10	SOLENOID VALVE, DIRECT ACTING, 3/2 UNIVERSAL TYPE, SPRING RETURN	1/4"	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	AISI316L
1V91	PRESSURE RELIEF VALVE, FREE EXHAUST	1/2"	N.G.I.	D10	AISI 316
1Z1	CONTROL PANEL		RFS	-	AISI316L
1Z16	FILTER REGULATOR, SELF RELIEVING, FILTER WITH MANUAL DRAIN	1/4"	BIFOLD	SH06-FR-SR-MD-10-X1	AISI 316L
1Z31	PRESSURE GAUGE, GAUGE TYPE	DN 63	WIKA	233.50	AISI316
1Z80	LIMIT SWITCH BOX, 2 ELECTRIC CONNECTION	-	SOLDO	SQN120E-20X23L7	AISI 316

RFS Item	Tag No.	ACTUATOR MODEL	ACTUATOR MATERIAL
1	25-BDV-022	CP/S-035-080A/AA	CAST IRON
2	25-BDV-005	CP/S-055-200A/BA	CAST IRON
3	25-BDV-007	CP/S-055-200A/BA	CAST IRON
4	25-BDV-010	CP/S-055-200A/BA	CAST IRON
5	25-BDV-013	CP/S-055-200A/BA	CAST IRON
6	25-BDV-016	CP/S-055-200A/BA	CAST IRON
7	25-BDV-019	CP/S-055-200A/BA	CAST IRON

N°	Description	Type	Size	Manufacturer	Material
T1	PNEUMATIC TUBING	POWER LINE	1/2"	SANDVIK or EQUIVALENT	AISI 316L
-	TUBE FITTINGS	DOUBLE FERRULE	ACCORDING TO TUBING SIZE	FITOK	AISI 316
-	SILENCER - BUG SCREEN	SFEX	ACCORDING TO PORT SIZE	-	AISI316
-	THREADED UNIONS		ACCORDING TO COMPONENT SIZE	R.F.S.	AISI316

Connection	Description	Size
X1	PNEUMATIC CONNECTION TO CONTROL PANEL (INLET)	1/2" NPT (Female)
Y1 - Y2	LIMIT SWITCH BOX MICRO ELECTRIC CONNECTION	M20x1,5 (Female)
Z1	SOLENOID VALVE ELECTRIC CONNECTION	M20x1,5 (Female)

FUNCTION	DESCRIPTION
1) REMOTE OPERATION:	1A) VALVE ACTUATOR CLOSE STROKE: ENERGIZE SOLENOID VALVE 1V10.
	1B) VALVE ACTUATOR OPEN STROKE: DE-ENERGIZE SOLENOID VALVE 1V10.

NOTES
THE SCHEMATIC IS SHOWN WITHOUT PNEUMATIC AND ELECTRIC SUPPLY
THE ACTUATOR IS SHOWN IN OPEN POSITION

Rev	ECN	Revised	Rev. Approved	Date	Change Description
0-0	ECO-0023560	D.Caprai	L.Pecorari	2024-04-04	First issue

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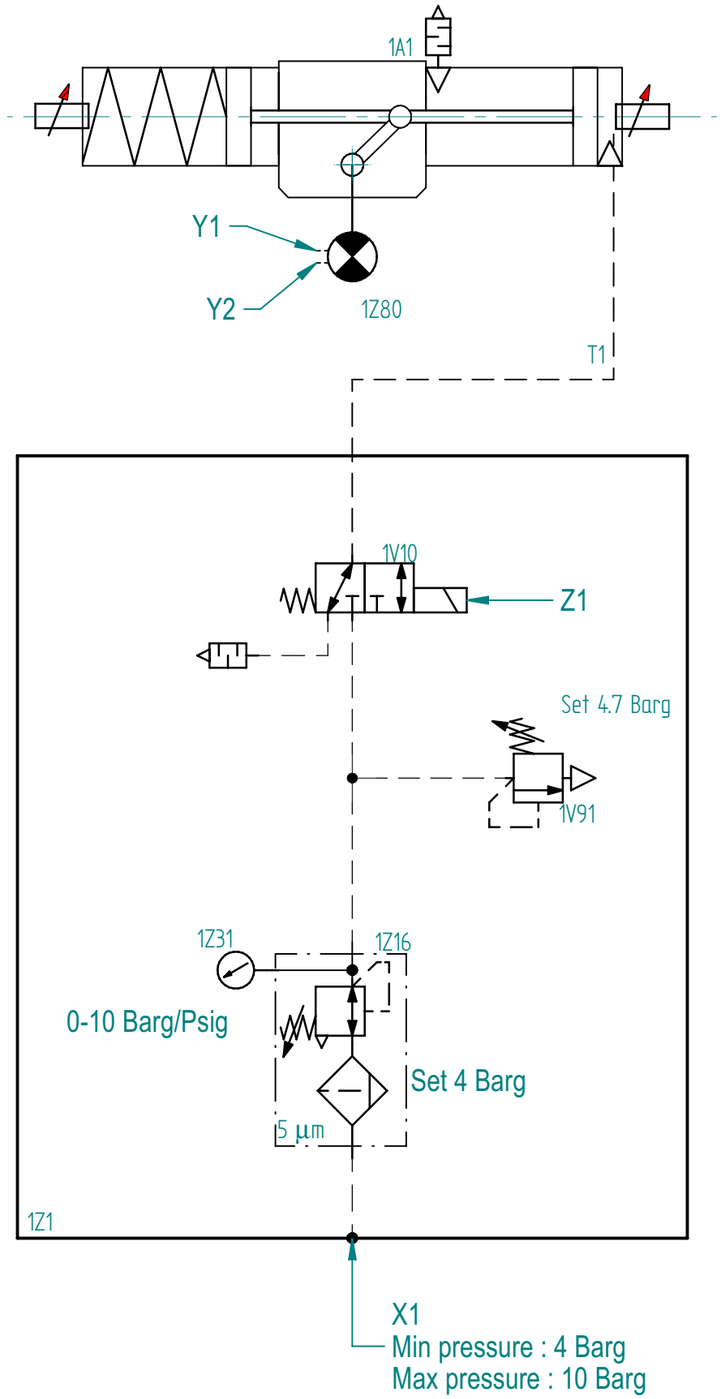
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Created	D.Caprai	2024-04-02
Checked	D.Caprai	2024-04-04
Approved	L.Pecorari	2024-04-04

Drawing Number: AF7703PDA01
Rev: 0-0
Size: A3
Sheet 2 of 2

Template Issue :24/02/2020-SR

PNEUMATIC



Rev	ECN	Revised	Rev. Approved	Date	Change Description
0-0	ECO-0023560	D.Caprai	L.Pecorari	2024-04-04	First issue

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Title
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Created	D.Caprai	2024-04-03
Checked	D.Caprai	2024-04-04
Approved	L.Pecorari	2024-04-04

Drawing Number
AF7703PDC01

Rev
0-0

Size A3 Sheet 1 of 2

Template Issue :24/02/2020-SR

BILL OF MATERIAL					
Pos	**Description**	**Size**	**Manufacturer**	**Model**	**Material**
1A1	QUARTER TURN PNEUMATIC ACTUATOR, SPRING RETURN, SPRING TO CLOSE		ROTORK	*see Tag Number Table	*see Tag Number Table
1V10	SOLENOID VALVE, DIRECT ACTING, 3/2 UNIVERSAL TYPE, SPRING RETURN	1/4"	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	AISI316L
1V91	PRESSURE RELIEF VALVE, FREE EXHAUST	1/2"	N.G.I.	D10/S	AISI 316
1Z1	CONTROL PANEL		RFS	-	AISI316L
1Z16	FILTER REGULATOR, SELF RELIEVING, FILTER WITH MANUAL DRAIN	1/4"	BIFOLD	SH06-FR-SR-MD-10-X1	AISI 316L
1Z31	PRESSURE GAUGE, GAUGE TYPE	DN 63	WIKA	233.50	AISI316
1Z80	LIMIT SWITCH BOX, 2 ELECTRIC CONNECTION	-	SOLDO	SQN120E-20X23L7	AISI 316

RFS Item	Tag No.	ACTUATOR MODEL	ACTUATOR MATERIAL
8	25-SDV-001	CP/S-035-080A/AA	CAST IRON
9	25-SDV-023	CP/S-035-100A/BA	CAST IRON
10	64-SDV-001	CP/S-035-080A/AA	CAST IRON
11	25-XV-004	CP/S-035-080A/AA	CAST IRON
12	25-XV-006	CP/S-035-080A/AA	CAST IRON
13	25-XV-008	CP/S-035-080A/AA	CAST IRON
14	25-XV-009	CP/S-035-080A/AA	CAST IRON
15	25-XV-011	CP/S-035-080A/AA	CAST IRON
16	25-XV-012	CP/S-035-080A/AA	CAST IRON
17	25-XV-014	CP/S-035-080A/AA	CAST IRON
18	25-XV-015	CP/S-035-080A/AA	CAST IRON
19	25-XV-017	CP/S-035-080A/AA	CAST IRON
20	25-XV-018	CP/S-035-080A/AA	CAST IRON
21	25-XV-020	CP/S-035-080A/AA	CAST IRON
22	25-XV-021	CP/S-035-080A/AA	CAST IRON
23	25-XV-024	CP/S-035-080A/AA	CAST IRON
24	50-XV-001	CP/S-035-100A/BA	CAST IRON
25	50-XV-002	CP/S-035-080A/AA	CAST IRON
26	50-XV-003	CP/S-035-100A/BA	CAST IRON
27	50-XV-004	CP/S-035-080A/AA	CAST IRON
28	80-XV-001	CP/S-035-080A/AA	CAST IRON

N°	Description	Type	Size	Manufacturer	Material
T1	PNEUMATIC TUBING	POWER LINE	1/2"	SANDVIK or EQUIVALENT	AISI 316L
-	TUBE FITTINGS	DOUBLE FERRULE	ACCORDING TO TUBING SIZE	FITOK	AISI 316
-	SILENCER - BUG SCREEN	SFEX	ACCORDING TO PORT SIZE	-	AISI316
-	THREADED UNIONS		ACCORDING TO COMPONENT SIZE	R.F.S.	AISI316

Connection	Description	Size
X1	PNEUMATIC CONNECTION TO CONTROL PANEL (INLET)	1/2" NPT (Female)
Y1 - Y2	LIMIT SWITCH BOX MICRO ELECTRIC CONNECTION	M20x1,5 (Female)
Z1	SOLENOID VALVE ELECTRIC CONNECTION	M20x1,5 (Female)

FUNCTION	DESCRIPTION
1) REMOTE OPERATION:	1A) VALVE ACTUATOR OPEN STROKE: ENERGIZE SOLENOID VALVE 1V10.
	1B) VALVE ACTUATOR CLOSE STROKE: DE-ENERGIZE SOLENOID VALVE 1V10.

NOTES
THE SCHEMATIC IS SHOWN WITHOUT PNEUMATIC AND ELECTRIC SUPPLY
THE ACTUATOR IS SHOWN IN CLOSE POSITION

Rev	ECN	Revised	Rev. Approved	Date	Change Description
0-0	ECO-0023560	D.Caprai	L.Pecorari	2024-04-04	First issue

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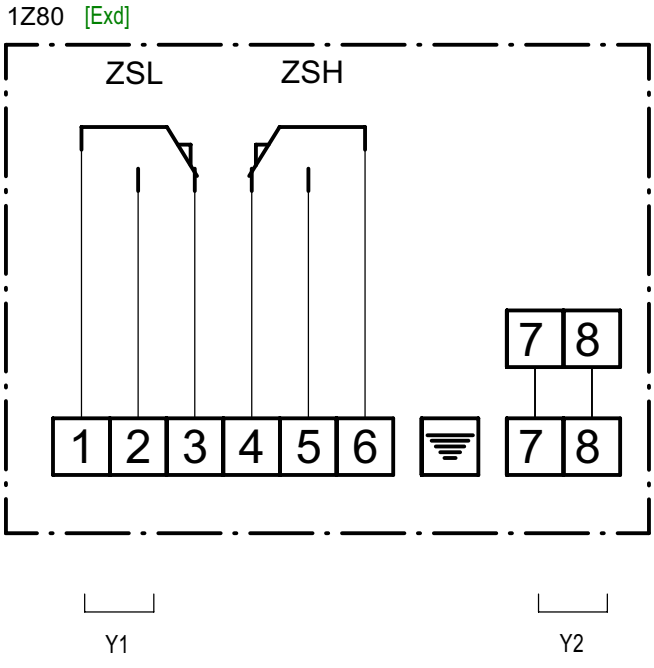
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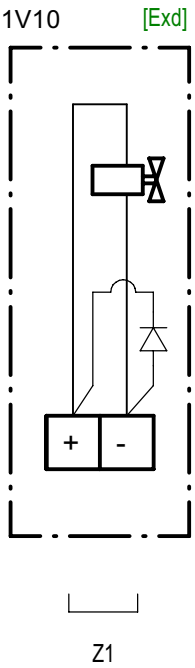
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Created	D.Caprai	2024-04-03	Drawing Number: AF7703PDC01 — Rev: 0-0
Checked	D.Caprai	2024-04-04	
Approved	L.Pecorari	2024-04-04	Size: A3 — Sheet 2 of 2

Template Issue :24/02/2020-SR

Rev	ECN	Revised	Rev. Approved	Date	Change Description
0-0	ECO-0023560	D.Caprai	L.Pecorari	2024-04-05	First issue





THE LIMIT SWITCHES ARE SHOWN WITH
THE VALVE IN INTERMEDIATE POSITION

closed contact
open contact

limit switch		Limit switch function VALVE POSITION open	interm.	closed
ZSL	1-2 NO			■
	1-3 NC	■	■	
ZSH	6-5 NO	■		
	6-4 NC		■	■

Connection	Description	Size
Y1	LIMIT SWITCH BOX ELECTRIC CONNECTION	M20x1,5 (Female)
Y2	LIMIT SWITCH BOX ELECTRIC CONNECTION (plugged)	M20x1,5 (Female)
Z1	SOLENOID VALVE ELECTRIC CONNECTION	M20x1,5 (Female)

Item	Description	Manufacturer, Model and Features
1V10	SOLENOID VALVE	BIFOLD, mod. FP06P-S1-04-32-NU-V-77A-24D-57 - ATEX/IECEx - 24Vdc, 5,7 Watt - Exd IIC T4/T6 - IP66
1Z80	LIMIT SWITCHES BOX	SOLDO, mod. SQN120E-20X23L7- ATEX/IECEx - Ex II 2GD Ex d IIC T4/T6 - IP66
ZSL	SPDT HERMETICALLY SEALED MAGNETIC PROXIMITY SWITCH	Rating [5A@250Vac / 5A@28Vdc]
ZSH	SPDT HERMETICALLY SEALED MAGNETIC PROXIMITY SWITCH	Rating [5A@250Vac / 5A@28Vdc]

Template Issue :2018-05-10

rotork® Fluid Systems
Lucca - Italy
www.rotork.com

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Document type	WIRING DIAGRAM	
Created	D.Caprai	2024-04-02
Checked	D.Caprai	2024-04-04
Approved	L.Pecorari	2024-04-04

Title **WIRING DIAGRAM**

Drawing Number **AF7703WD01** Rev 0-0

Size A4 Sheet 1 of 1

Base Load Power Hub (BLPH)

SDV/BDV AND TIGHT SHUT-OFF XV VALVES

PNEUMATIC DIAGRAM and WIRING

Document Number: 1724000204-IN-DG-00019

Document Class: 2

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

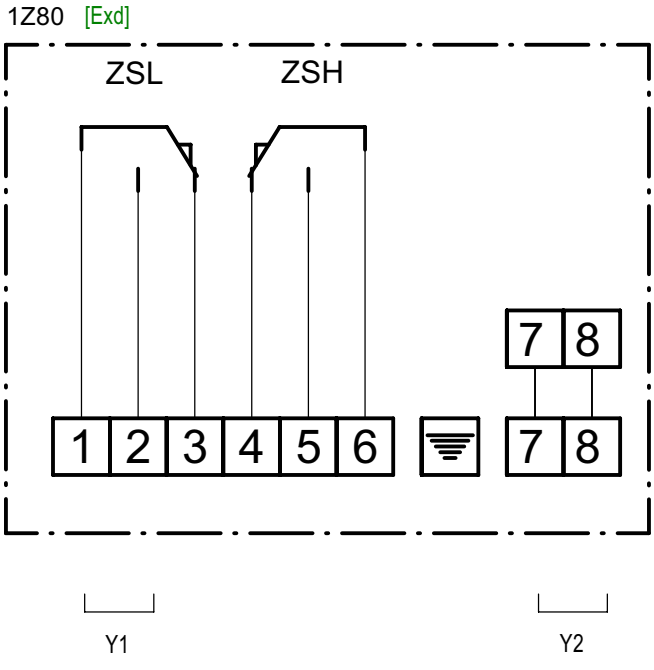
Sign	Date
V. Barratta	30-01-2025

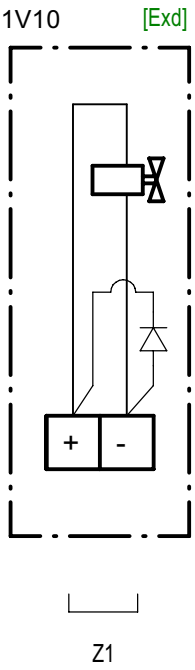
Rev.	Date	Description	Prepared	Reviewed	Approved
01	29/01/2025	Accepted for Construction (AFC)	ROTORK	ROTORK	ROTORK
00	13/11/2024	Issue for Review (IFR)	ROTORK	ROTORK	ROTORK

Fluitek Valves

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Rev	ECN	Revised	Rev. Approved	Date	Change Description
1-0	ECO-0026916	S.Davini	M.Lorenzetti	2025-01-21	UPDATED





THE LIMIT SWITCHES ARE SHOWN WITH
THE VALVE IN INTERMEDIATE POSITION

closed contact
open contact

limit switch		Limit switch function VALVE POSITION open	interm.	closed
ZSL	1-2 NO			■
	1-3 NC	■	■	
ZSH	6-5 NO	■		
	6-4 NC		■	■

RFS Item	Tag No.
1	50-XV-005

Connection	Description	Size
Y1	LIMIT SWITCH BOX ELECTRIC CONNECTION	M20x1.5 (Female)
Y2	LIMIT SWITCH BOX ELECTRIC CONNECTION (plugged)	M20x1.5 (Female)
Z1	SOLENOID VALVE ELECTRIC CONNECTION	M20x1.5 (Female)

Item	Description	Manufacturer, Model and Features
1V10	SOLENOID VALVE	BIFOLD, mod. FP06P-S1-04-32-NU-V-77A-24D-57 - ATEX/IECEx - 24Vdc, 5,7 Watt - Exd IIC T4/T6 - IP66
1Z80	LIMIT SWITCHES BOX	SOLDO, mod. SQN120E-20X23L7- ATEX/IECEx - Ex II 2GD Ex d IIC T4/T6 - IP66
ZSL	SPDT HERMETICALLY SEALED MAGNETIC PROXIMITY SWITCH	Rating [5A@250Vac / 5A@28Vdc]
ZSH	SPDT HERMETICALLY SEALED MAGNETIC PROXIMITY SWITCH	Rating [5A@250Vac / 5A@28Vdc]

Template Issue :2018-05-10

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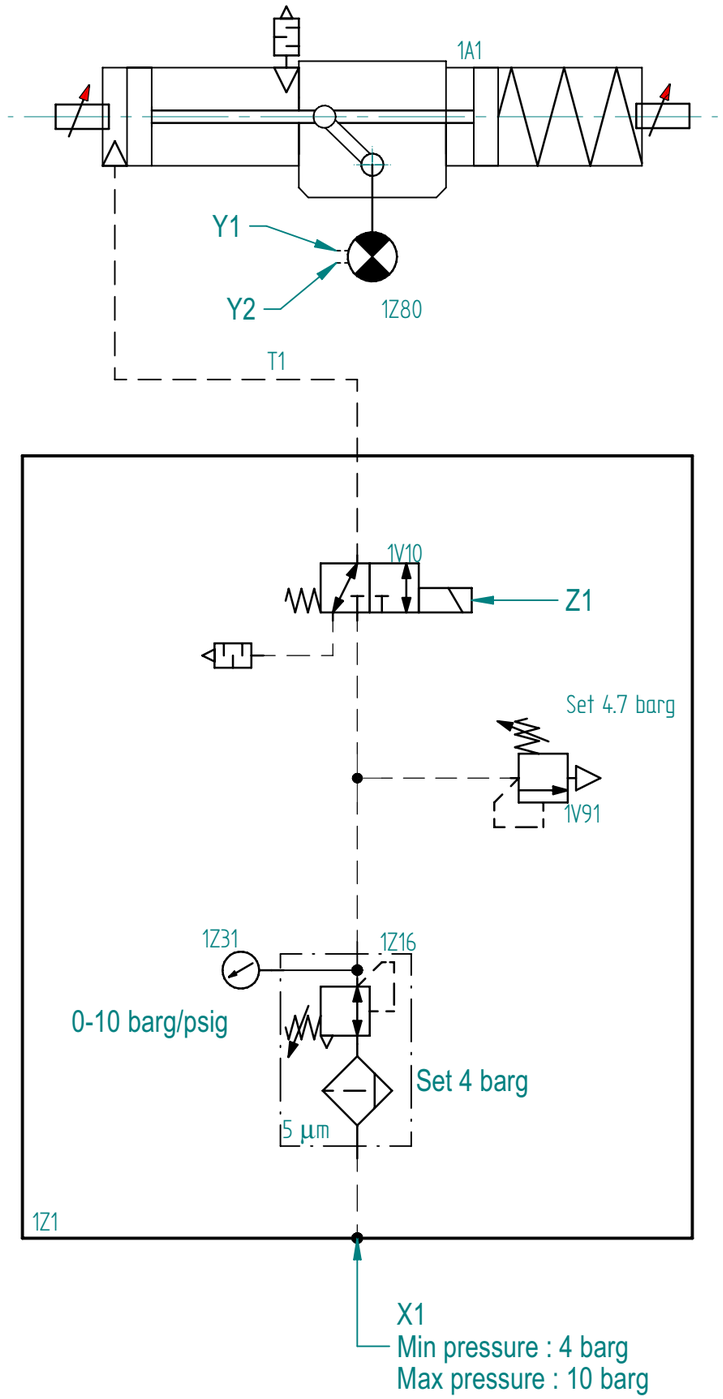
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Document type: WIRING DIAGRAM

Created	S.Davini	2024-10-25
Checked	S.Davini	2024-10-25
Approved	L.Bernini	2024-10-25

Title: WIRING DIAGRAM
Drawing Number: AF7888WD01
Rev: 1-0
Size: A4
Sheet 1 of 1

PNEUMATIC



Rev	ECN	Revised	Rev. Approved	Date	Change Description
1-0	ECO-0026916	S.Davini	M.Lorenzetti	2025-01-21	UPDATED

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Title
E1F2G1H02A0A1J3L1R0

Created	S.Davini	2024-10-25
Checked	S.Davini	2024-10-25
Approved	L.Bernini	2024-10-25

Drawing Number
AF7888PDA01

Rev
1-0

Size A3 Sheet 1 of 2

Template Issue :24/02/2020-SR

BILL OF MATERIAL					
Pos	**Description**	**Size**	**Manufacturer**	**Model**	**Material**
1A1	QUARTER TURN PNEUMATIC ACTUATOR, SPRING RETURN, SPRING TO OPEN		ROTORK	*see Tag Number Table	*see Tag Number Table
1V10	SOLENOID VALVE, DIRECT ACTING, 3/2 UNIVERSAL TYPE, SPRING RETURN	1/4"	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	AISI316L
1V91	PRESSURE RELIEF VALVE, FREE EXHAUST	1/2"	N.G.I.	D10/S	AISI 316
1Z1	CONTROL PANEL		RFS	-	AISI316L
1Z16	FILTER REGULATOR, SELF RELIEVING, FILTER WITH MANUAL DRAIN	1/4"	BIFOLD	SH06-FR-SR-MD-10-X1	AISI 316L
1Z31	PRESSURE GAUGE, GAUGE TYPE	DN 63	WIKA	233.50	AISI316
1Z80	LIMIT SWITCH BOX, 2 ELECTRIC CONNECTION	-	SOLDO	SQN120E-20X23L7	AISI 316

RFS Item	Tag No.	ACTUATOR MODEL	ACTUATOR MATERIAL
1	50-XV-005	CP/S-035-100A/BA	CAST IRON

N°	Description	Type	Size	Manufacturer	Material
T1	PNEUMATIC TUBING	POWER LINE	1/2"	SANDVIK or EQUIVALENT	AISI 316L
-	TUBE FITTINGS	DOUBLE FERRULE	ACCORDING TO TUBING SIZE	FITOK	AISI 316
-	SILENCER - BUG SCREEN	SFEX	ACCORDING TO PORT SIZE	-	AISI316
-	THREADED UNIONS		ACCORDING TO COMPONENT SIZE	R.F.S.	AISI316

Connection	Description	Size
X1	PNEUMATIC CONNECTION TO CONTROL PANEL (INLET)	1/2" NPT (Female)
Y1 - Y2	LIMIT SWITCH BOX MICRO ELECTRIC CONNECTION	M20x1.5 (Female)
Z1	SOLENOID VALVE ELECTRIC CONNECTION	M20x1.5 (Female)

FUNCTION	DESCRIPTION
1) REMOTE OPERATION:	1A) VALVE ACTUATOR OPEN STROKE: ENERGIZE SOLENOID VALVE 1V10.
	1B) VALVE ACTUATOR CLOSE STROKE: DE-ENERGIZE SOLENOID VALVE 1V10.

NOTES
THE SCHEMATIC IS SHOWN WITHOUT PNEUMATIC AND ELECTRIC SUPPLY
THE ACTUATOR IS SHOWN IN CLOSE POSITION

Rev	ECN	Revised	Rev. Approved	Date	Change Description
1-0	ECO-0026916	S.Davini	M.Lorenzetti	2025-01-21	UPDATED

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Title: E1F2G1H02A0A1J3L1R0

Created	S.Davini	2024-10-25
Checked	S.Davini	2024-10-25
Approved	L.Bernini	2024-10-25

Drawing Number: AF7888PDA01
Rev: 1-0
Size: A3
Sheet 2 of 2

Template Issue :24/02/2020-SR

03: Drawings

Plot Plains
Layouts
Discipline Drawing
Detailed Shop Drawing

NOT APPLICABLE

File: COPERTINA .xlsx
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03: Drawings

General Arrangement Drawings

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Base Load Power Hub (BLPH)

SDV/BDV AND TIGHT SHUT-OFF XV VALVES

VALVE,ACTUATOR AND ASSEMBLY GENERAL ARRANGEMENT DRAWING AND NAMEPLATE DRAWING

Document Number: 1724000204-IN-DA-00004

Document Class: 2

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
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4	APPROVAL NOT REQUIRED

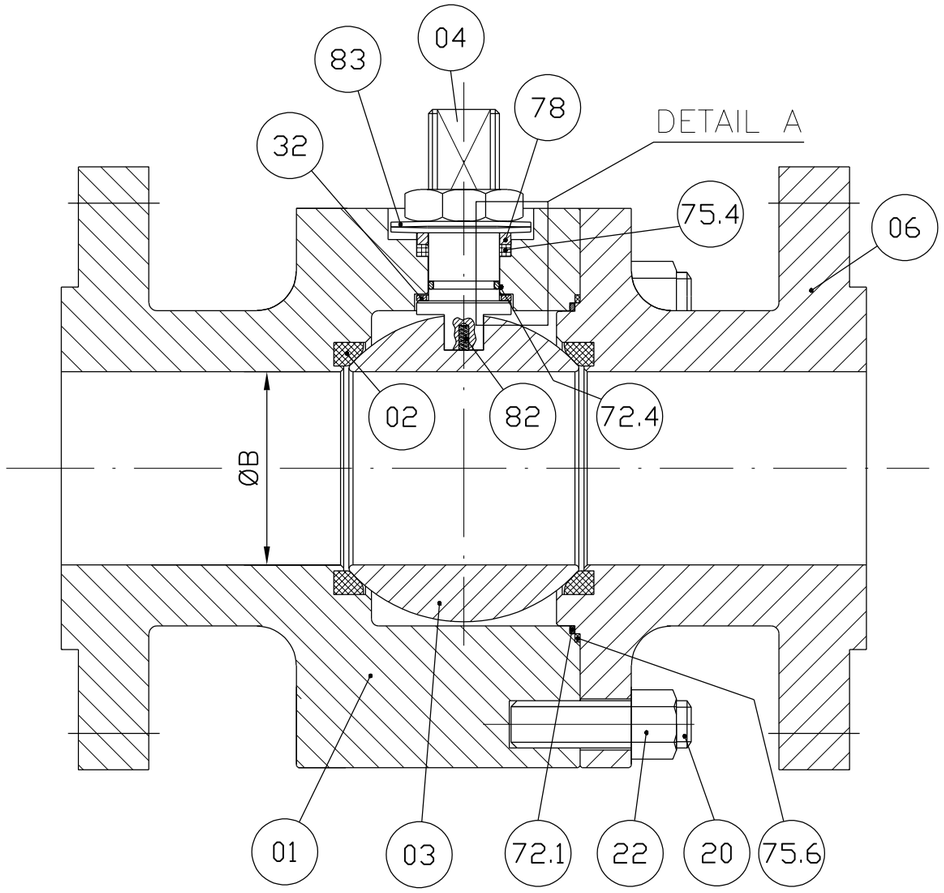
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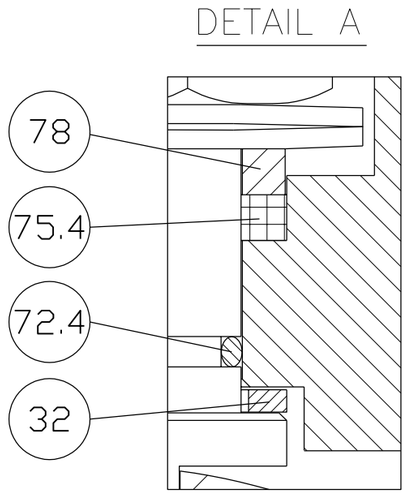
Sign	Date
V. Barratta	09-08-2024

04	02/08/2024	Accepted for construction (AFC)	S. Madahar	D. Barcella	L. Mora
03	02/07/2024	Issue for Review (IFR)	S. Madahar	D. Barcella	L. Mora
02	10/05/2024	Issue for Review (IFR)	S. Madahar	D. Barcella	L. Mora
01	16/04/2024	Issue for Review (IFR)	S. Madahar	D. Barcella	L. Mora
00	28/02/2024	Issue for Review (IFR)	S. Madahar	D. Barcella	L. Mora
Rev.	Date	Description	Prepared	Reviewed	Approved

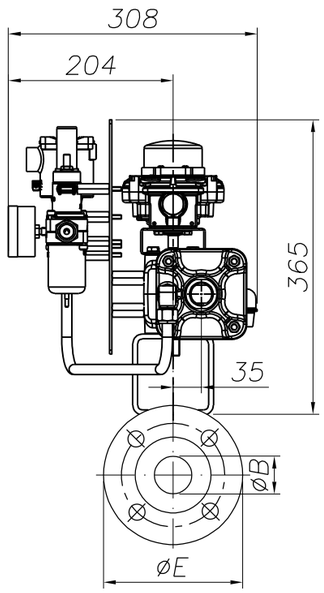
Fluitek Valves

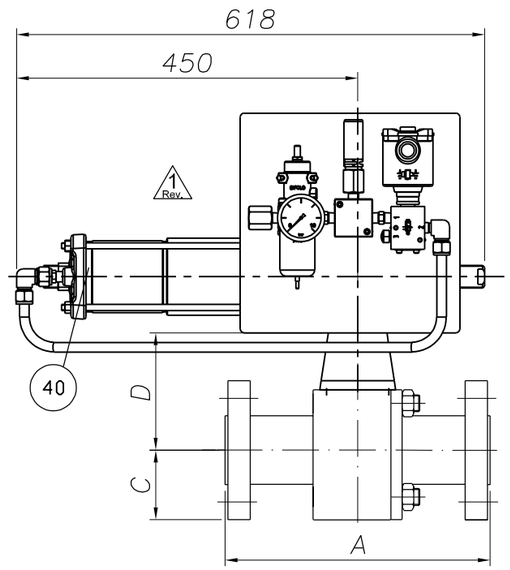
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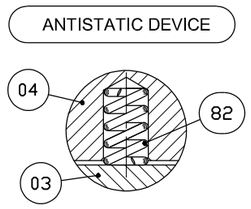




POS.	PART. NAME	MATERIAL
01	BODY	A182 F316/316L
02	SEAT	RPTFE
03	BALL	A182 F316/316L
04	STEM	API 6A CRA UNS N07718
06	CLOSURE	A182 F316/316L
20	STUD	A193 B8M
22	NUT	A194 Gr.8M
32	THRUST BEARING	RPTFE
40	PNEUMATIC ACTUATOR	MFR. STD.
72.1	FLANGE O-RING	VITON GLT/AED
72.4	STEM O-RING	VITON GLT/AED
75.4	STEM GASKET	GRAPHITE
75.6	FLANGE GASKET	GRAPHITE
78	PACKING RING	A479 Tp.316
82	ANTISTATIC DEVICE	INCONEL X750
83	BELLEVILLE WASHER	AISI 301







REMARKS:

- Dimensions are in mm
- Design acc. to API 6D
- Face to face acc. to ASME B16.10/API 6D
- Flange connection acc. to ANSI B16.5
- Antistatic device acc. to API 6D

(*): To Be Confirmed

POS:	ITEM:	DATA SHEET:	TAG:	Q.TY:	SIZE:	CLASS:	ENDS:	A	ØB	C	D(*)	ØE	Valve Weight (kg):	Actuator Weight (kg):	Tot. Weight (kg):
01	10	BS03C01RFH	25-BDV-022	1	1"	300	RF	165	25	62	92	124	7	34	41

1 Rev.

2 Rev.

CUSTOMER :	ROSETTI MARINO S.p.A.						
P.O. N. :	1724000204 123A90A/REV.1						
JOB N. :	240062						
Rev.	DESCRIPTION	DRAWN	DATE	CHK'D	DATE	APPV'D	DATE
3							
2	ISSUED FOR APPROVAL	S.Madahar	22/04/2024	D.Barcella	22/04/2024	L.Mora	22/04/2024
1	ISSUED FOR APPROVAL	S.Madahar	15/04/2024	D.Barcella	15/04/2024	L.Mora	15/04/2024
0	FIRST ISSUE	S.Madahar	26/02/2024	D.Barcella	26/02/2024	L.Mora	26/02/2024

DRAWING NOT IN SCALE

Fluitek Valves

DESCRIPTION: GENERAL ASSEMBLY DRAWING

VALVE TYPE: SPLIT BODY FLOATING BALL VALVE

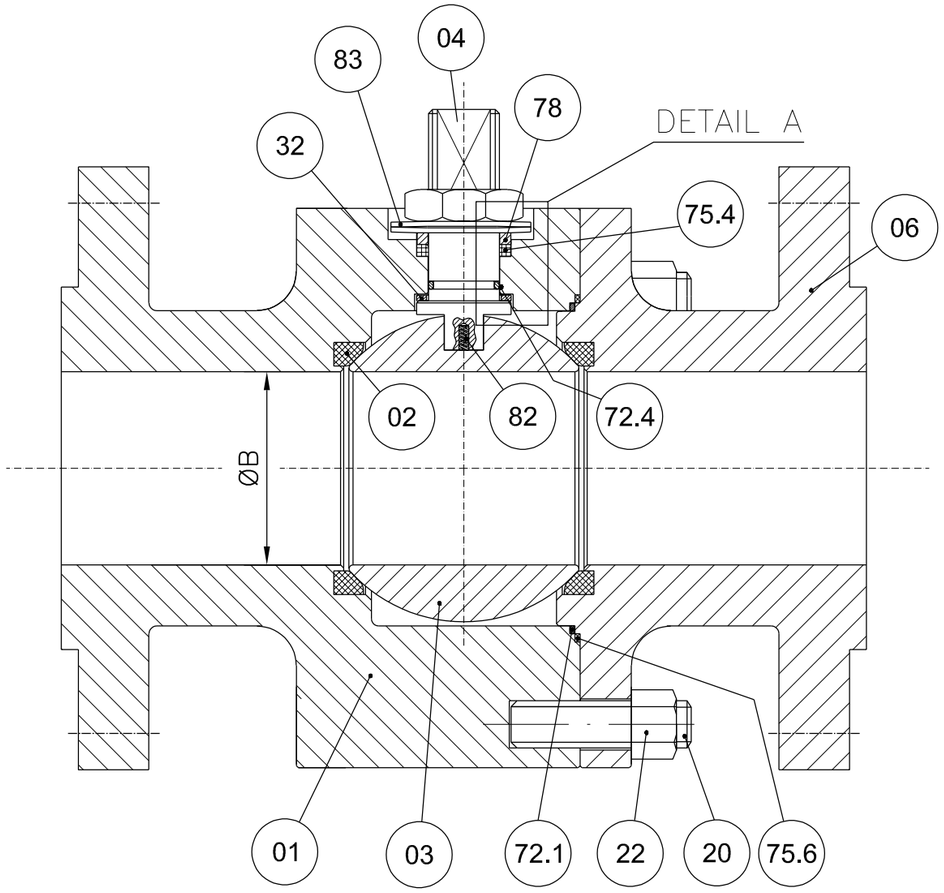
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CHK'D: D.Barcella	DATE: 26/02/2024
APPV'D: L.Mora	DATE: 26/02/2024

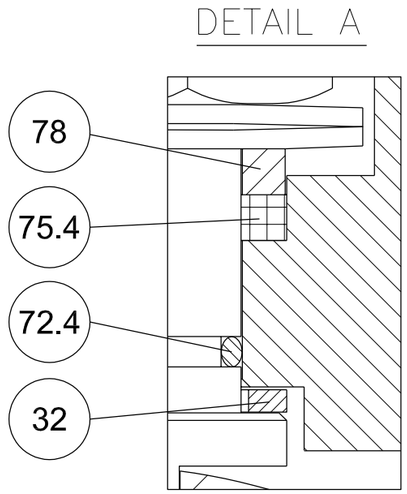
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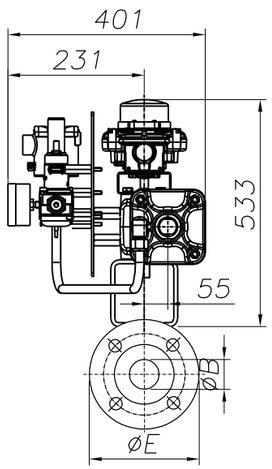
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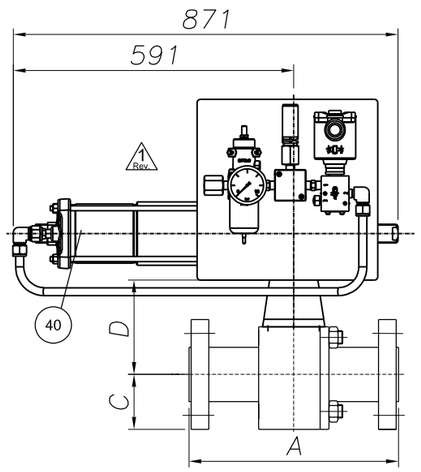
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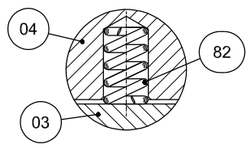


POS.	PART. NAME	MATERIAL
01	BODY	A182 F316/316L
02	SEAT	RPTFE
03	BALL	A182 F316/316L
04	STEM	API 6A CRA UNS N07718
06	CLOSURE	A182 F316/316L
20	STUD	A193 B8M
22	NUT	A194 Gr.8M
32	THRUST BEARING	RPTFE
40	PNEUMATIC ACTUATOR	MFR. STD.
72.1	FLANGE O-RING	VITON GLT/AED
72.4	STEM O-RING	VITON GLT/AED
75.4	STEM GASKET	GRAPHITE
75.6	FLANGE GASKET	GRAPHITE
78	PACKING RING	A479 Tp.316
82	ANTISTATIC DEVICE	INCONEL X750
83	BELLEVILLE WASHER	AISI 301





ANTISTATIC DEVICE



REMARKS:

- Dimensions are in mm
- Design acc. to API 6D
- Face to face acc. to ASME B16.10/API 6D
- Flange connection acc. to ANSI B16.5
- Antistatic device acc. to API 6D

(*): To Be Confirmed

1 Rev.

POS:	ITEM:	DATA SHEET:	TAG:	Q.TY:	SIZE:	CLASS:	ENDS:	A	ØB	C	D(*)	ØE	Valve Weight (kg):	Actuator Weight (kg):	Tot. Weight (kg):
02	20	BA03C01RFH	25-BDV-005	1	4"	300	RF	305	102	127	209	254	74	95	169
03	30	BA03C01RFH	25-BDV-007	1	4"	300	RF	305	102	127	209	254	74	95	169
04	40	BA03C01RFH	25-BDV-010	1	4"	300	RF	305	102	127	209	254	74	95	169
05	50	BA03C01RFH	25-BDV-013	1	4"	300	RF	305	102	127	209	254	74	95	169
06	60	BA03C01RFH	25-BDV-016	1	4"	300	RF	305	102	127	209	254	74	95	169
07	70	BA03C01RFH	25-BDV-019	1	4"	300	RF	305	102	127	209	254	74	95	169

CUSTOMER :	ROSETTI MARINO S.p.A.						
P.O. N. :	1724000204 123A90A/REV.1						
JOB N. :	240062						
Rev.	DESCRIPTION	DRAWN	DATE	CHK'D	DATE	APPV'D	DATE
3							
2	ISSUED FOR APPROVAL	S.Madahar	22/04/2024	D.Barcella	22/04/2024	L.Mora	22/04/2024
1	ISSUED FOR APPROVAL	S.Madahar	15/04/2024	D.Barcella	15/04/2024	L.Mora	15/04/2024
0	FIRST ISSUE	S.Madahar	26/02/2024	D.Barcella	26/02/2024	L.Mora	26/02/2024

2 Rev.

DRAWING NOT IN SCALE

Fluitek Valves

DRAWN: S.Madahar — DATE: 26/02/2024
CHK'D: D.Barcella — DATE: 26/02/2024
APPV'D: L.Mora — DATE: 26/02/2024

SIZE: A3 | SCALE: N.A.

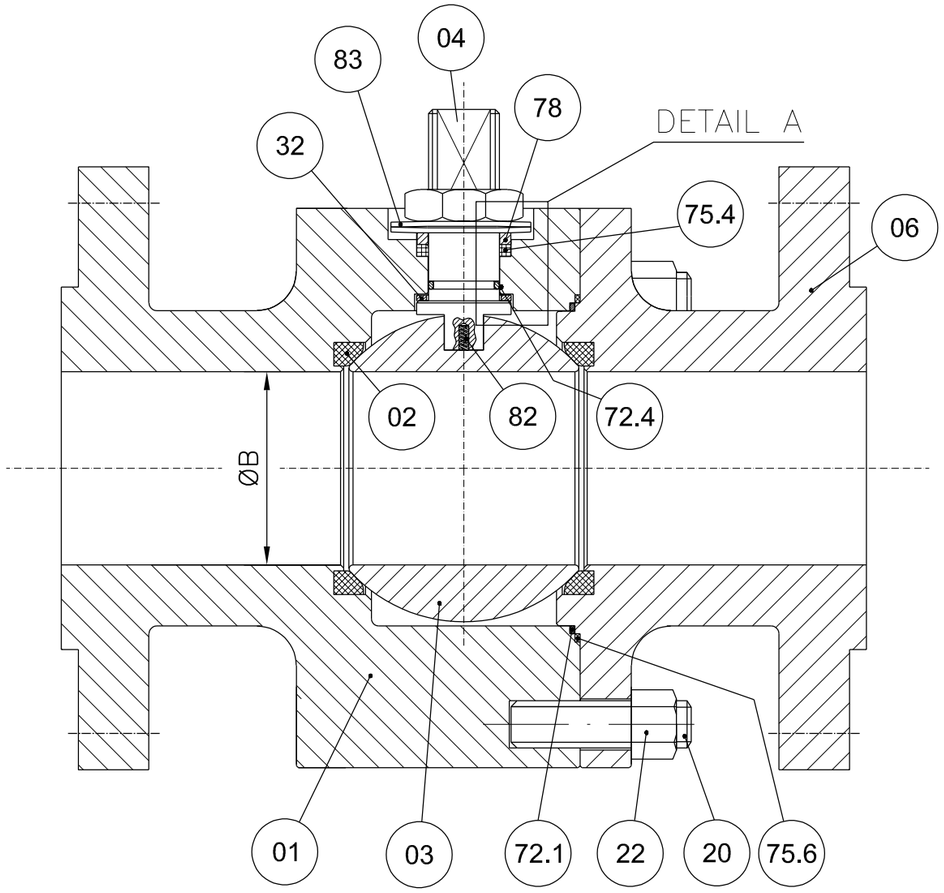
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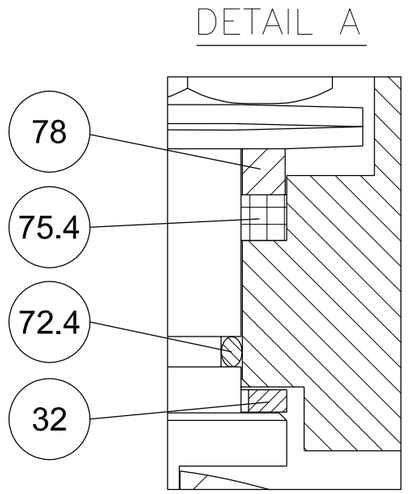
DESCRIPTION: **GENERAL ASSEMBLY DRAWING**

VALVE TYPE: **SPLIT BODY FLOATING BALL VALVE**

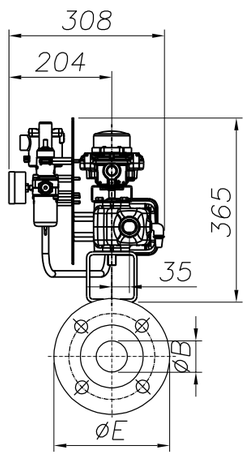
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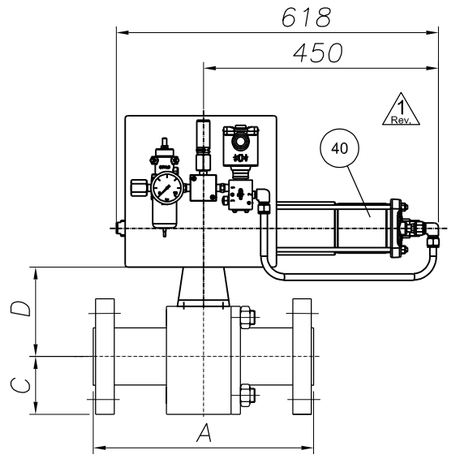
Rev.: 2



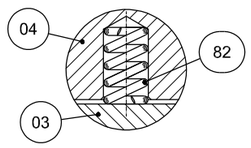


POS.	PART. NAME	MATERIAL
01	BODY	A182 F316/316L
02	SEAT	RPTFE
03	BALL	A182 F316/316L
04	STEM	API 6A CRA UNS N07718
06	CLOSURE	A182 F316/316L
20	STUD	A193 B8M
22	NUT	A194 Gr.8M
32	THRUST BEARING	RPTFE
40	PNEUMATIC ACTUATOR	MFR. STD.
72.1	FLANGE O-RING	VITON GLT/AED
72.4	STEM O-RING	VITON GLT/AED
75.4	STEM GASKET	GRAPHITE
75.6	FLANGE GASKET	GRAPHITE
78	PACKING RING	A479 Tp.316
82	ANTISTATIC DEVICE	INCONEL X750
83	BELLEVILLE WASHER	AISI 301





ANTISTATIC DEVICE



REMARKS:

- Dimensions are in mm
- Design acc. to API 6D
- Face to face acc. to ASME B16.10/API 6D
- Flange connection acc. to ANSI B16.5
- Antistatic device acc. to API 6D

(*): To Be Confirmed

POS:	ITEM:	DATA SHEET:	TAG:	Q.TY:	SIZE:	CLASS:	ENDS:	A	ØB	C	D(*)	ØE	Vlv. WT. (kg):	Act. WT. (kg):	Tot. WT. (kg):
08	80	BS03C01RFH	25-SDV-001	1	1"	300	RF	165	25	62	92	124	7	34	41
10	100	BS03C01RFH△	64-SDV-001	1	1"	300	RF	165	25	62	92	124	7	34	41
11	110	BS03C01RFH	25-XV-004	1	1"	300	RF	165	25	62	92	124	7	34	41
12	120	BS03C01RFH	25-XV-006	1	1"	300	RF	165	25	62	92	124	7	34	41
13	130	BS03C01RFH	25-XV-008	1	1"	300	RF	165	25	62	92	124	7	34	41
14	140	BS03C01RFH	25-XV-009	1	1"	300	RF	165	25	62	92	124	7	34	41
15	150	BS03C01RFH	25-XV-011	1	1"	300	RF	165	25	62	92	124	7	34	41
16	160	BS03C01RFH	25-XV-012	1	1"	300	RF	165	25	62	92	124	2 Rev. 7	34	2 Rev. 41

(*): To Be Confirmed

POS:	ITEM:	DATA SHEET:	TAG:	Q.TY:	SIZE:	CLASS:	ENDS:	A	ØB	C	D(*)	ØE	Vlv. WT. (kg):	Act. WT. (kg):	Tot. WT. (kg):
17	170	BS03C01RFH	25-XV-014	1	1"	300	RF	165	25	62	92	124	7	34	41
18	180	BS03C01RFH	25-XV-015	1	1"	300	RF	165	25	62	92	124	7	34	41
19	190	BS03C01RFH	25-XV-017	1	1"	300	RF	165	25	62	92	124	7	34	41
20	200	BS03C01RFH	25-XV-018	1	1"	300	RF	165	25	62	92	124	7	34	41
21	210	BS03C01RFH	25-XV-020	1	1"	300	RF	165	25	62	92	124	7	34	41
22	220	BS03C01RFH	25-XV-021	1	1"	300	RF	165	25	62	92	124	7	34	41
23	230	BS03C01RFH	25-XV-024	1	1"	300	RF	165	25	62	92	124	7	34	41
28	280	BS01C01RFH	80-XV-001	1	1"	150	RF	127	25	54	95	108	6	34	40

CUSTOMER :	ROSETTI MARINO S.p.A.
P.O. N. :	1724000204 123A90A/REV.1
JOB N. :	240062

Rev.	DESCRIPTION	DRAWN	DATE	CHK'D	DATE	APPV'D	DATE
3							
2	ISSUED FOR APPROVAL	S.Madahar	22/04/2024	D.Barcella	22/04/2024	L.Mora	22/04/2024
1	ISSUED FOR APPROVAL	S.Madahar	15/04/2024	D.Barcella	15/04/2024	L.Mora	15/04/2024
0	FIRST ISSUE	S.Madahar	26/02/2024	D.Barcella	26/02/2024	L.Mora	26/02/2024

DRAWING NOT IN SCALE

Fluitek Valves

DRAWN: S.Madahar — DATE: 26/02/2024
CHK'D: D.Barcella — DATE: 26/02/2024
APPV'D: L.Mora — DATE: 26/02/2024

SIZE: A3 — SCALE: N.A.

ALL RIGHTS OF THIS DRAWING ARE RESERVED.

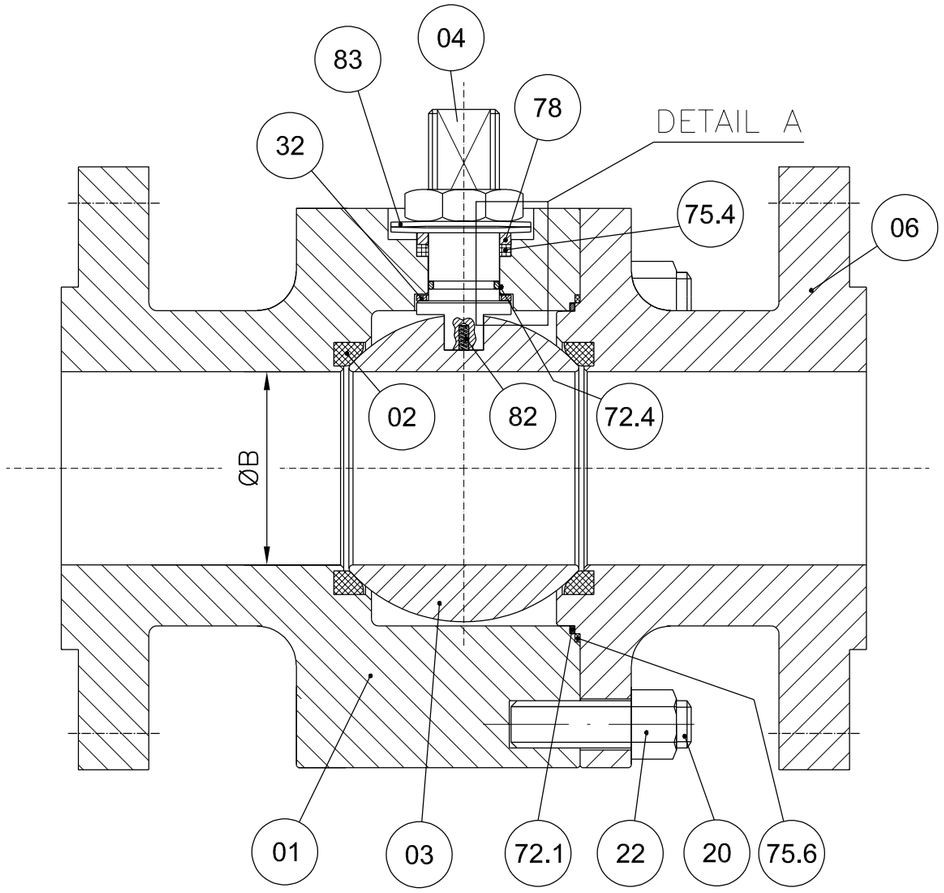
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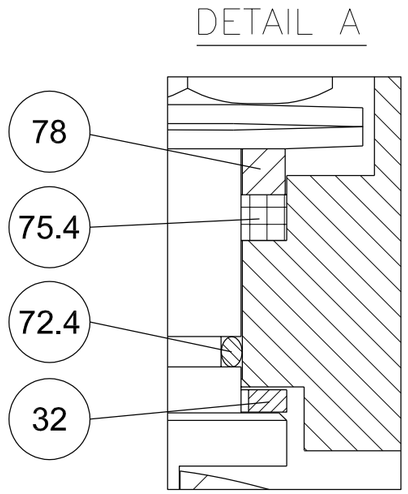
VALVE TYPE:

SPLIT BODY FLOATING BALL VALVE

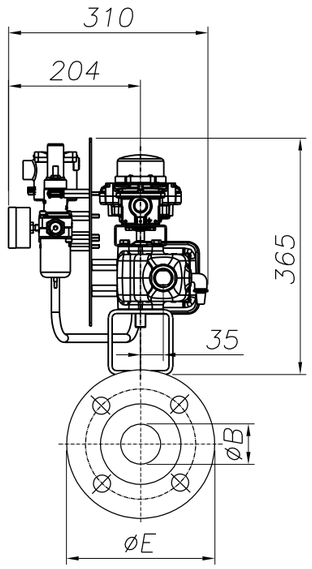
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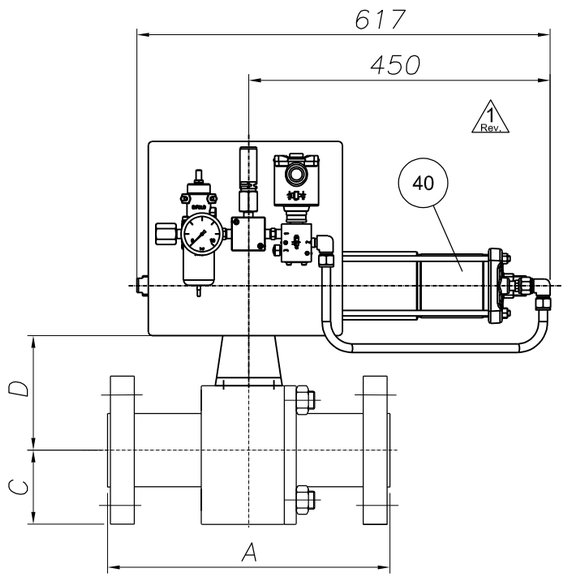
Rev.: 2

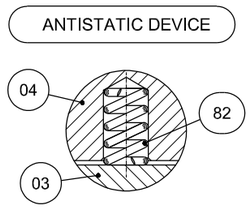




POS.	PART. NAME	MATERIAL
01	BODY	A182 F316/316L
02	SEAT	RPTFE
03	BALL	A182 F316/316L
04	STEM	API 6A CRA UNS N07718
06	CLOSURE	A182 F316/316L
20	STUD	A193 B8M
22	NUT	A194 Gr.8M
32	THRUST BEARING	RPTFE
40	PNEUMATIC ACTUATOR	MFR. STD.
72.1	FLANGE O-RING	VITON GLT/AED
72.4	STEM O-RING	VITON GLT/AED
75.4	STEM GASKET	GRAPHITE
75.6	FLANGE GASKET	GRAPHITE
78	PACKING RING	A479 Tp.316
82	ANTISTATIC DEVICE	INCONEL X750
83	BELLEVILLE WASHER	AISI 301







REMARKS:

- Dimensions are in mm
- Design acc. to API 6D
- Face to face acc. to ASME B16.10/API 6D
- Flange connection acc. to ANSI B16.5
- Antistatic device acc. to API 6D

(*): To Be Confirmed

POS:	ITEM:	DATA SHEET:	TAG:	Q.TY:	SIZE:	CLASS:	ENDS:	A	ØB	C	D(*)	ØE	Valve Weight (kg):	Actuator Weight (kg):	Tot. Weight (kg):
09	90	BS03C01RFH	25-SDV-023	1	1-1/2"	300	RF	190	38	78	146	155	18	36	54

1 Rev.

2 Rev.

CUSTOMER :	ROSETTI MARINO S.p.A.
P.O. N. :	1724000204 123A90A/REV.1
JOB N. :	240062

Rev.	DESCRIPTION	DRAWN	DATE	CHK'D	DATE	APPV'D	DATE
3							
2	ISSUED FOR APPROVAL	S.Madahar	22/04/2024	D.Barcella	22/04/2024	L.Mora	22/04/2024
1	ISSUED FOR APPROVAL	S.Madahar	15/04/2024	D.Barcella	15/04/2024	L.Mora	15/04/2024
0	FIRST ISSUE	S.Madahar	26/02/2024	D.Barcella	26/02/2024	L.Mora	26/02/2024

DRAWING NOT IN SCALE

Fluitek Valves

DESCRIPTION: GENERAL ASSEMBLY DRAWING

VALVE TYPE: SPLIT BODY FLOATING BALL VALVE

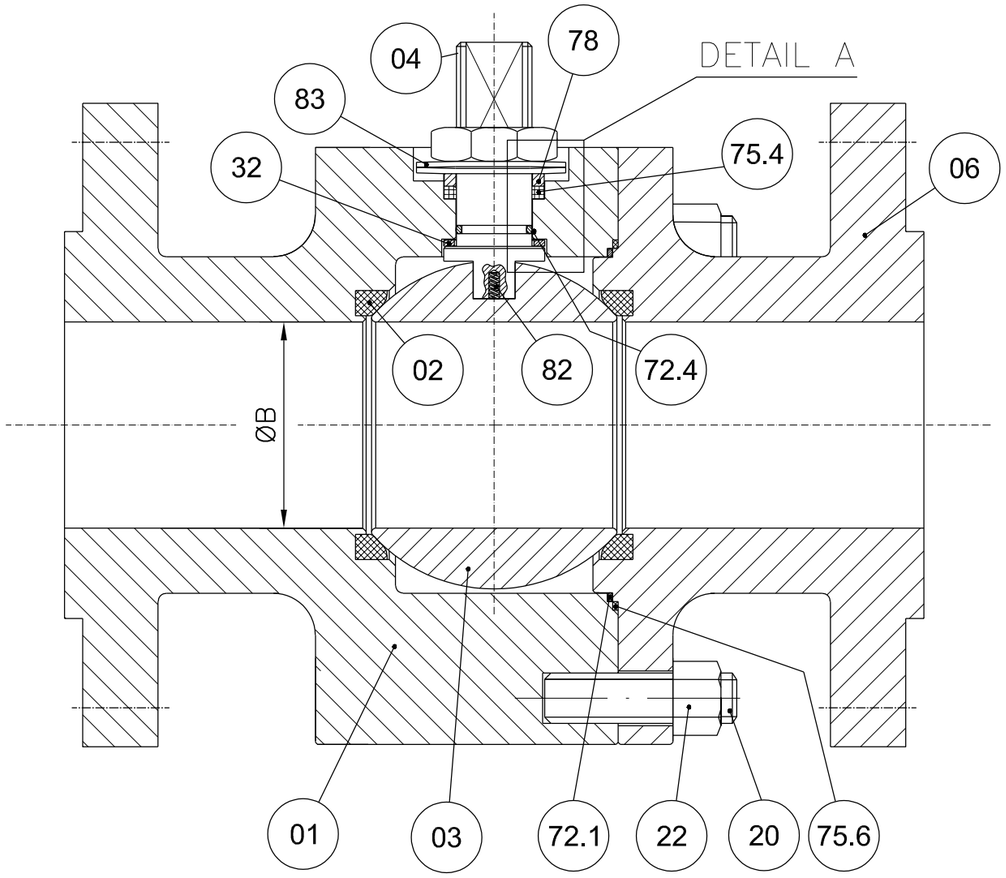
DRAWN:	DATE:
S.Madahar	26/02/2024
CHK'D: D.Barcella	DATE: 26/02/2024
APPV'D: L.Mora	DATE: 26/02/2024

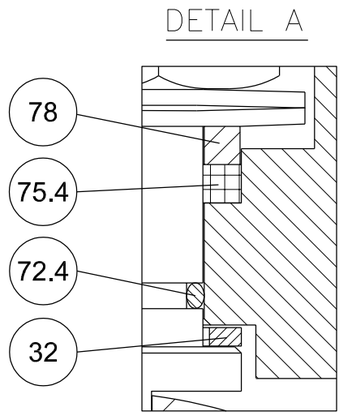
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ALL RIGHTS OF THIS DRAWING ARE RESERVED.

DRAWING NAME: D240062-09

Rev.: 2

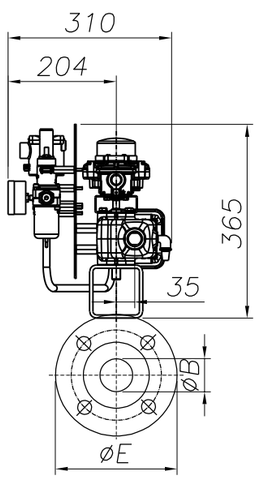


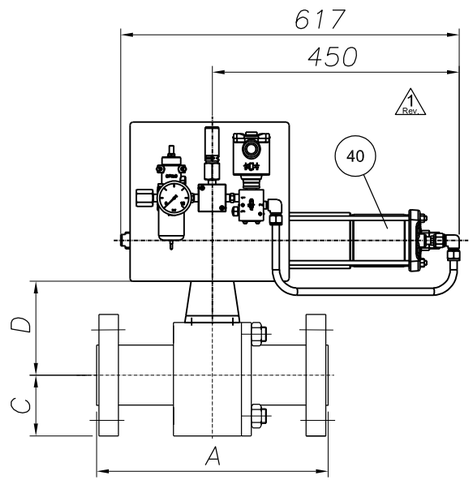


POS.	PART. NAME	MATERIAL
01	BODY	A182 F53
02	SEAT	RPTFE
03	BALL	A182 F53
04	STEM	A182 F53
06	CLOSURE	A182 F53
20	STUD	A193 B7+HDG (1)
22	NUT	A194 Gr.2H+HDG (1)
32	THRUST BEARING	RPTFE
40	PNEUMATIC ACTUATOR	MFR. STD.
72.1	FLANGE O-RING	VITON GLT/AED
72.4	STEM O-RING	VITON GLT/AED
75.4	STEM GASKET	GRAPHITE
75.6	FLANGE GASKET	GRAPHITE
78	PACKING RING	A479 Tp.316
82	ANTISTATIC DEVICE	INCONEL X750
83	BELLEVILLE WASHER	AISI 301

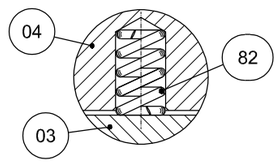
NOTE:

(1) HDG: Hot Dip Galvanised (ASTM A153)





ANTISTATIC DEVICE



REMARKS:

- Dimensions are in mm
- Design acc. to API 6D
- Face to face acc. to ASME B16.10/API 6D
- Flange connection acc. to ANSI B16.5
- Antistatic device acc. to API 6D

(*): To Be Confirmed

POS:	ITEM:	DATA SHEET:	TAG:	Q.TY:	SIZE:	CLASS:	ENDS:	A	ØB	C	D(*)	ØE	Valve Weight (kg): (1 Rev.)	Actuator Weight (kg): (1 Rev.)	Tot. Weight (kg):
24	240	BS01F01RF	50-XV-001	1	1-1/2"	150	RF	165	38	64	105	127	18	36	2 Rev. 54
26	260	BS01F01RF	50-XV-003	1	1-1/2"	150	RF	165	38	64	105	127	18	36	2 Rev. 54

CUSTOMER :	ROSETTI MARINO S.p.A.						
P.O. N. :	1724000204 123A90A/REV.1						
JOB N. :	240062						
Rev.	DESCRIPTION	DRAWN	DATE	CHK'D	DATE	APPV'D	DATE
3							
2	ISSUED FOR APPROVAL	S.Madahar	22/04/2024	D.Barcella	22/04/2024	L.Mora	22/04/2024
1	ISSUED FOR APPROVAL	S.Madahar	15/04/2024	D.Barcella	15/04/2024	L.Mora	15/04/2024
0	FIRST ISSUE	S.Madahar	26/02/2024	D.Barcella	26/02/2024	L.Mora	26/02/2024

DRAWING NOT IN SCALE

Fluitek Valves

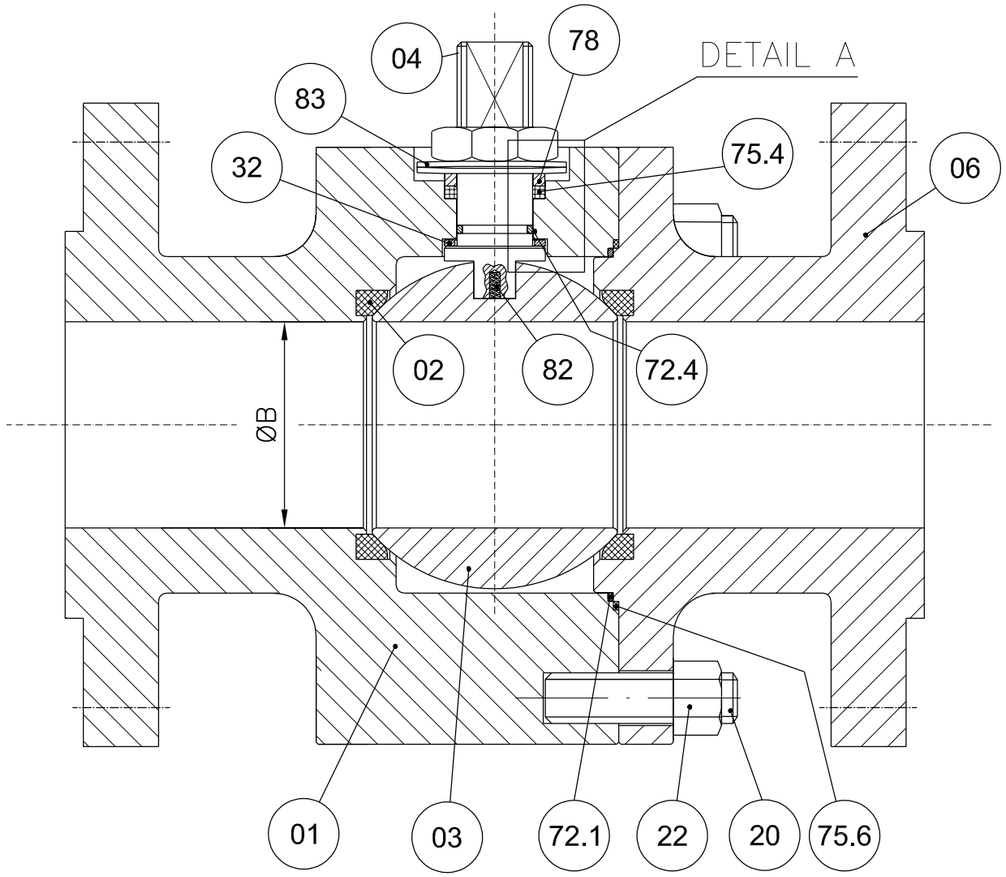
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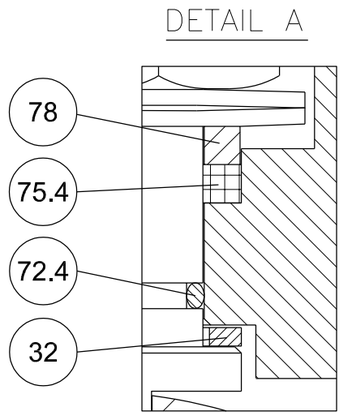
VALVE TYPE: SPLIT BODY FLOATING BALL VALVE

DRAWN: S.Madahar	DATE: 26/02/2024	
CHK'D: D.Barcella	DATE: 26/02/2024	
APPV'D: L.Mora	DATE: 26/02/2024	
SIZE: A3	SCALE: N.A.	ALL RIGHTS OF THIS DRAWING ARE RESERVED.

DRAWING NAME: D240062-24-26

Rev.: 2

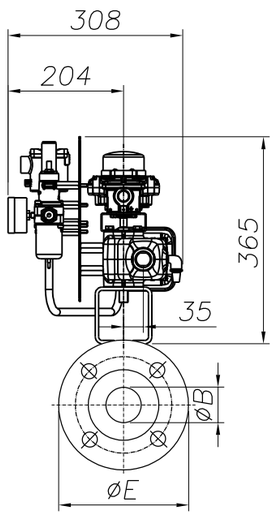


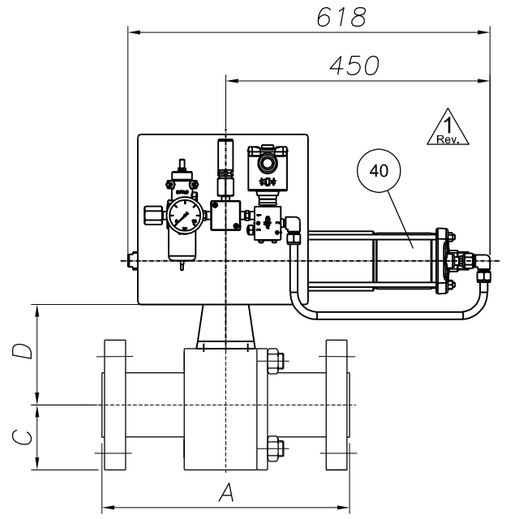


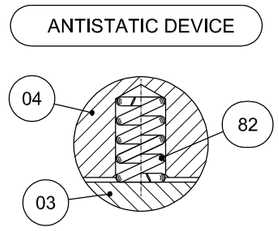
POS.	PART. NAME	MATERIAL
01	BODY	A182 F53
02	SEAT	RPTFE
03	BALL	A182 F53
04	STEM	API 6A CRA UNS N07718
06	CLOSURE	A182 F53
20	STUD	A193 B7+HDG (1)
22	NUT	A194 Gr.2H+HDG (1)
32	THRUST BEARING	RPTFE
40	PNEUMATIC ACTUATOR	MFR. STD.
72.1	FLANGE O-RING	VITON GLT/AED
72.4	STEM O-RING	VITON GLT/AED
75.4	STEM GASKET	GRAPHITE
75.6	FLANGE GASKET	GRAPHITE
78	PACKING RING	A479 Tp.316
82	ANTISTATIC DEVICE	INCONEL X750
83	BELLEVILLE WASHER	AISI 301

NOTE:

(1) HDG: Hot Dip Galvanised (ASTM A153)







REMARKS:

- Dimensions are in mm
- Design acc. to API 6D
- Face to face acc. to ASME B16.10/API 6D
- Flange connection acc. to ANSI B16.5
- Antistatic device acc. to API 6D

(*): To Be Confirmed

POS:	ITEM:	DATA SHEET:	TAG:	Q.TY:	SIZE:	CLASS:	ENDS:	A	ØB	C	D(*)	ØE	Valve Weight (kg):	Actuator Weight (kg):	Total Weight (kg):
25	250	BS01F01RF	50-XV-002	1	1"	150	RF	127	25	54	95	108	6	34	40
27	270	BS01F01RF	50-XV-004	1	1"	150	RF	127	25	54	95	108	6	34	40

1 Rev.

2 Rev.

CUSTOMER :	ROSETTI MARINO S.p.A.
P.O. N. :	1724000204 123A90A/REV.1
JOB N. :	240062

Rev.	DESCRIPTION	DRAWN	DATE	CHK'D	DATE	APPV'D	DATE
3							
2	ISSUED FOR APPROVAL	S.Madahar	22/04/2024	D.Barcella	22/04/2024	L.Mora	22/04/2024
1	ISSUED FOR APPROVAL	S.Madahar	15/04/2024	D.Barcella	15/04/2024	L.Mora	15/04/2024
0	FIRST ISSUE	S.Madahar	26/02/2024	D.Barcella	26/02/2024	L.Mora	26/02/2024

DRAWING NOT IN SCALE

Fluitek Valves

DRAWN: S.Madahar — DATE: 26/02/2024

CHK'D: D.Barcella — DATE: 26/02/2024

APPV'D: L.Mora — DATE: 26/02/2024

SIZE: A3 — SCALE: N.A.

ALL RIGHTS OF THIS DRAWING ARE RESERVED.

DESCRIPTION:

GENERAL ASSEMBLY DRAWING

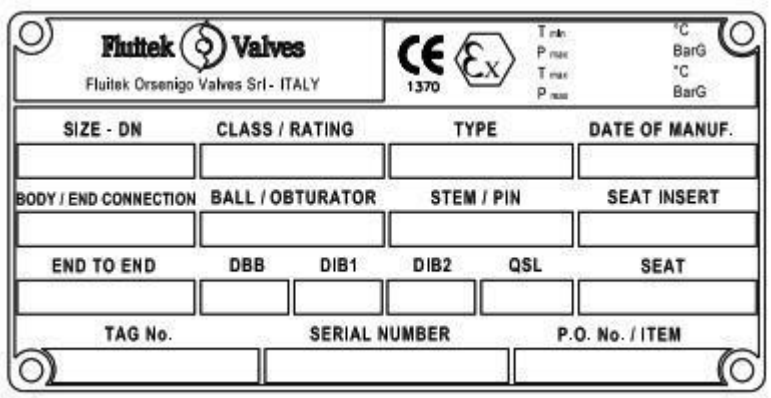
VALVE TYPE:

SPLIT BODY FLOATING BALL VALVE

DRAWING NAME: **D240062-25-27**

Rev.: 2

NAMEPLATE VALVES DRAWING



NAMEPLATE DIMENSION: 100mm x 50mm
70mm x 30mm
47mm x 25mm
36mm x 25mm
32mm x 25mm
based on size of the valve.

NAMEPLATE MATERIAL: 316 Stainless Steel

FLUITEK ORSENIGO VALVES S.r.l.

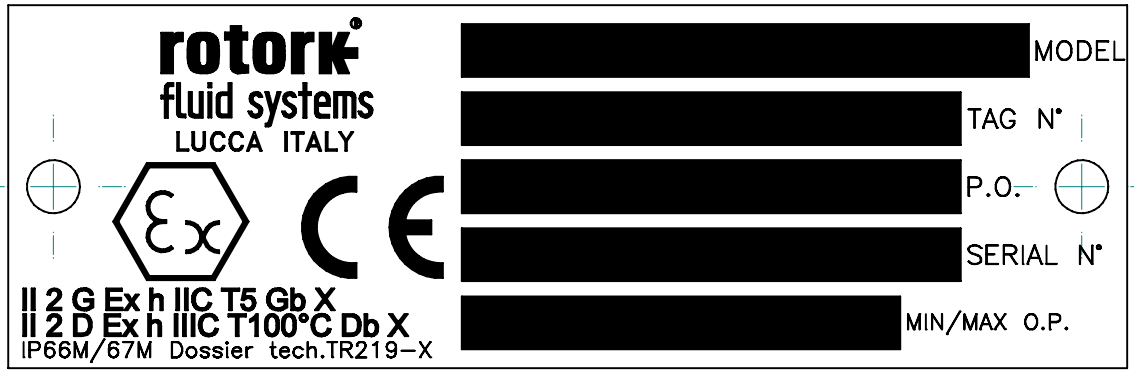
Documento Distribuito ed autenticato in forma elettronica
Document distributed and certified through electronic system

01	06/2024	First issued	L. Mora	L. Patelli	F. Buttironi
00	02/2024	First issued	C. Festa	P. Bellini	C. Zini
Rev.	**Date**	**Modifications**	**Issued**	**Verified**	**Approved**

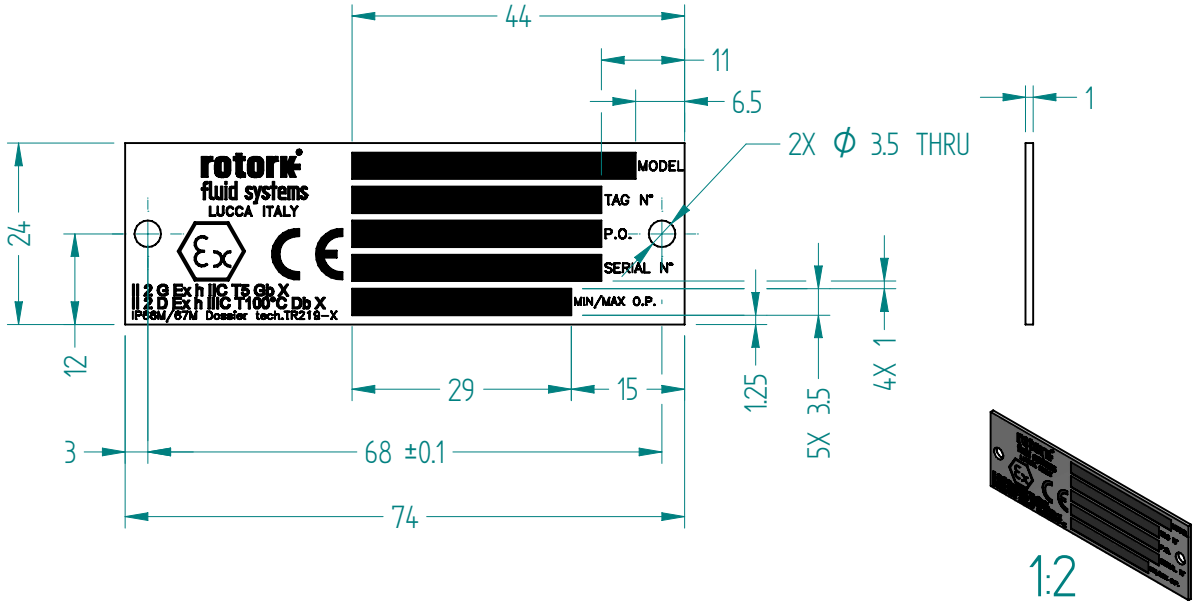
Rev	ECN	Revised	Rev. Approved	Date	Change Description
1-0	ECO-0022721	A. NICOLINI	M.Romiti	2024-02-05	AGGIORNATA MARCATURA E GRAFICA; UPDATED MARKING AND GRAPHICS

NOTES:
1. POLISHED STEEL : SCREEN-PRINTED BLACK TEXT 0.05mm HIGH
2. MAINTAIN THE TEXT DIMENSIONS ACCORDING TO THE PROPORTION OF SCALE

NOTA :
1. FONDO LUCIDO CON SCRITTE SERIGRAFATE IN NERO 0.05 mm
2. RISPETTARE LE DIMENSIONI DELLE SCRITTE SECONDO LE PROPORZIONI DELLA SCALA



SCALE 2:1



UNLESS OTHERWISE STATED									
	Linear				Radii/Chamfers		Angles	
General tolerances toISO 2768-m	0.5 - 6	± 0.1	(400) - 1000	± 0.8	0.5 - 3	± 0.2	upto 10	± 1°
Remove all burrs and sharp edges	(6) - 30	± 0.2	(1000) - 2000	± 1.2	(3) - 6	± 0.5	(10) - 50	± 0°30'
	(30) - 120	± 0.3	(2000) - 4000	± 2	Over 6	± 1	(50) - 120	± 0°20'
	(120) - 400	± 0.5						

Material: AISI 316

Treatment: -

rotork Fluid Systems
Lucca - Italy
www.rotork.com

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Document type: Detail Drawing

Dimensions in mm

Scale 1:1

Title TARGHETTA CARAT. ATT. CP -ATEX -ENG

Created	A. NICOLINI	2004-04-20
Checked	P.P. PARADISO	2004-04-20
Approved	P.P. PARADISO	2004-04-20

Drawing Number TG21750E

Rev 1-0

Nominal Mass 0,01 kg | Size A4 | Sheet 1 of 1

Template Issue :2018-05-10

Base Load Power Hub (BLPH)

SDV/BDV AND TIGHT SHUT-OFF XV VALVES

VALVE,ACTUATOR AND ASSEMBLY GENERAL ARRANGEMENT DRAWING

Document Number: 1724000204-IN-DA-00018

Document Class: 2

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

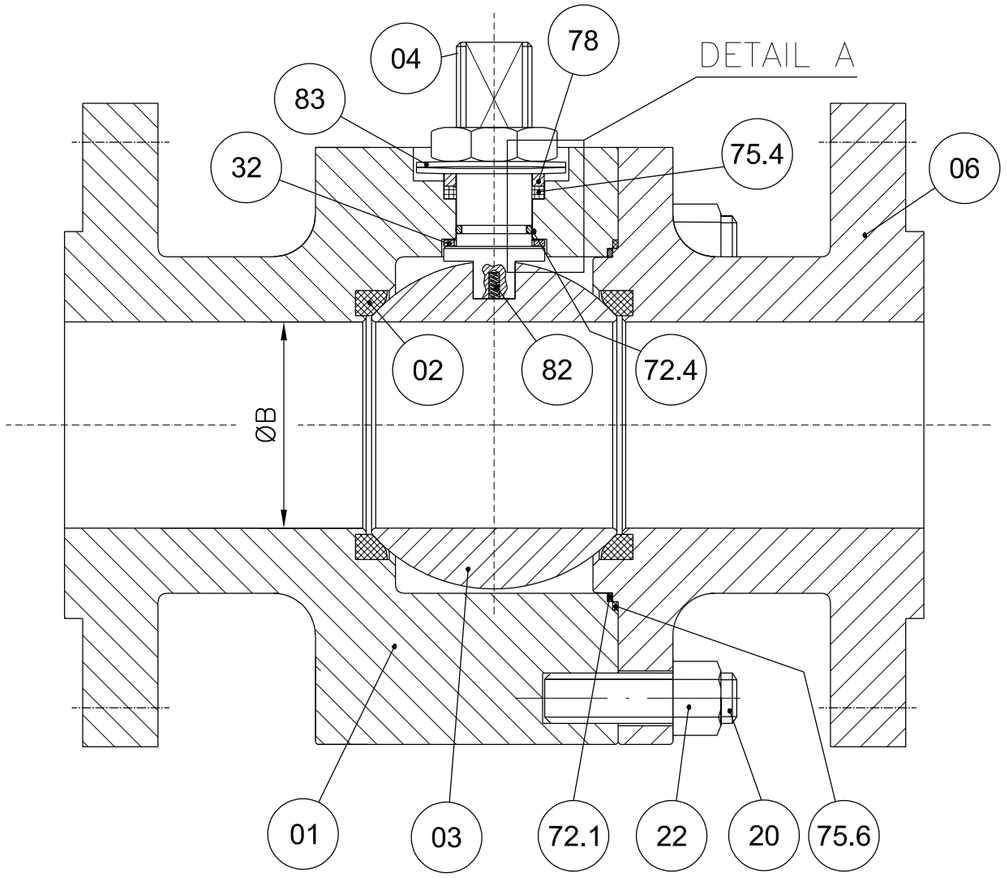
NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

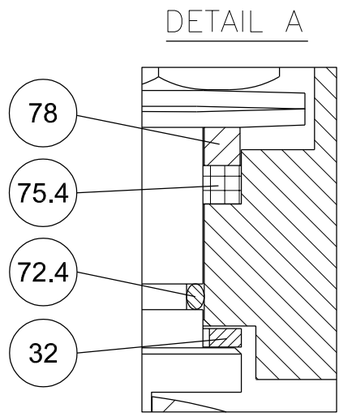
Sign	Date
V. Barratta	07-11-2024

Rev.	Date	Description	Prepared	Reviewed	Approved
01	05/11/2024	Accepted for Construction (AFC)	S. Madahar	D. Barcella	L. Mora
00	15/10/2024	Issue for Review (IFR)	S. Madahar	D. Barcella	L. Mora

Fluitek Valves

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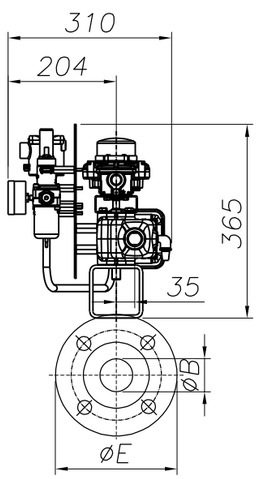


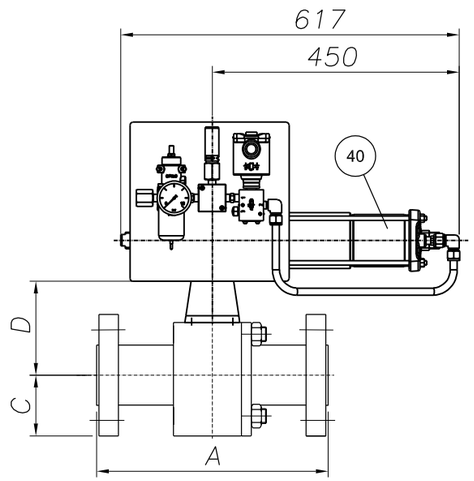


POS.	PART. NAME	MATERIAL
01	BODY	A182 F53
02	SEAT	RPTFE
03	BALL	A182 F53
04	STEM	A182 F53
06	CLOSURE	A182 F53
20	STUD	A193 B7+HDG (1)
22	NUT	A194 Gr.2H+HDG (1)
32	THRUST BEARING	RPTFE
40	PNEUMATIC ACTUATOR	MFR. STD.
72.1	FLANGE O-RING	VITON GLT/AED
72.4	STEM O-RING	VITON GLT/AED
75.4	STEM GASKET	GRAPHITE
75.6	FLANGE GASKET	GRAPHITE
78	PACKING RING	A479 Tp.316
82	ANTISTATIC DEVICE	INCONEL X750
83	BELLEVILLE WASHER	AISI 301

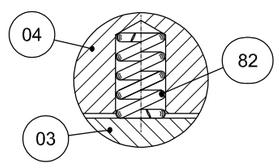
NOTE:

(1) HDG: Hot Dip Galvanised (ASTM A153)





ANTISTATIC DEVICE



REMARKS:

- Dimensions are in mm
- Design acc. to API 6D
- Face to face acc. to ASME B16.10/API 6D
- Flange connection acc. to ANSI B16.5
- Antistatic device acc. to API 6D

(*): To Be Confirmed

POS:	ITEM:	DATA SHEET:	TAG:	Q.TY:	SIZE:	CLASS:	ENDS:	A	ØB	C	D(*)	ØE	Valve Weight (kg):	Actuator Weight (kg):	Tot. Weight (kg):
01	340	BS01F01RF	50-XV-005	1	1-1/2"	150	RF	165	38	64	105	127	18	36	54

CUSTOMER :	ROSETTI MARINO S.P.A. CIG 9931200D7D
P.O. N. :	17240000204 23A90A
JOB N. :	240396

Rev.	DESCRIPTION	DRAWN	DATE	CHK'D	DATE	APPV'D	DATE
3							
2							
1							
0	FIRST ISSUE	S.Madahar	04/10/2024	D.Barcella	04/10/2024	L.Mora	04/10/2024

DRAWING NOT IN SCALE

Fluitek Valves

DRAWN: S.Madahar — DATE: 04/10/2024

CHK'D: D.Barcella — DATE: 04/10/2024

APPV'D: L.Mora — DATE: 04/10/2024

SIZE: A3 — SCALE: N.A.

ALL RIGHTS OF THIS DRAWING ARE RESERVED.

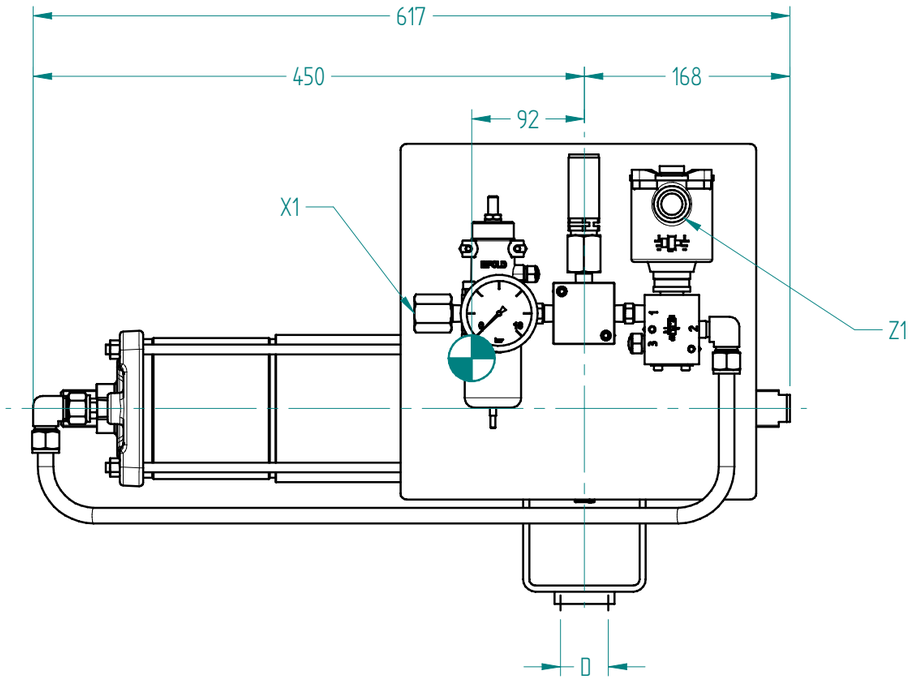
DESCRIPTION: **GENERAL ASSEMBLY DRAWING**

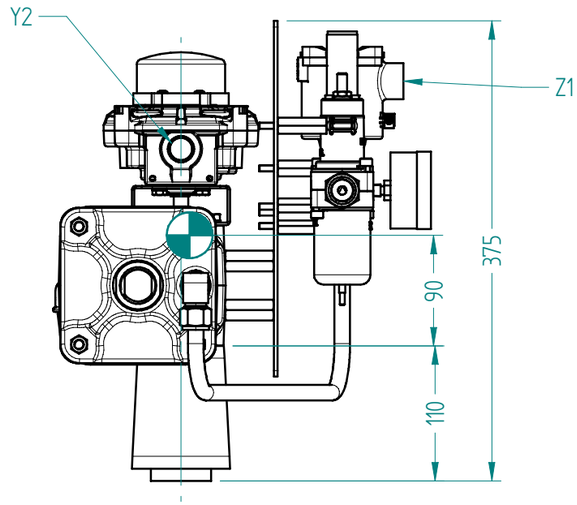
VALVE TYPE:

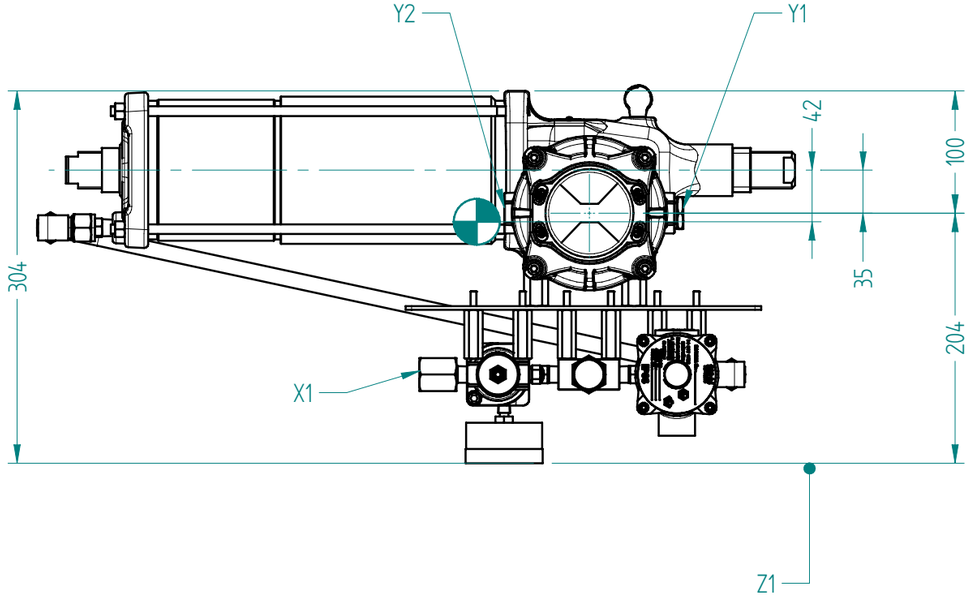
SPLIT BODY FLOATING BALL VALVE

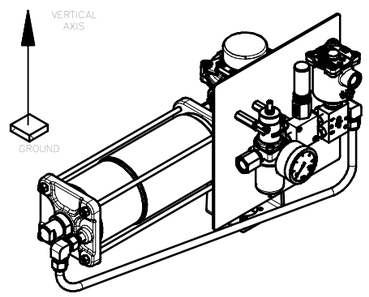
DRAWING NAME: **D240396-01**

Rev.: 0









ISOMETRIC VIEW
SCALE 1:10

RFS Item	Tag No.
1	50-XV-005

Connection	Description	Size
X1	PNEUMATIC CONNECTION TO CONTROL PANEL (INLET)	1/2" NPT (Female)
Y1 - Y2	LIMIT SWITCH BOX MICRO ELECTRIC CONNECTION	M20x1,5 (Female)
Z1	SOLENOID VALVE ELECTRIC CONNECTION	M20x1,5 (Female)

NOTES:
1. D = ACCORDING TO VALVE FLANGE.
2. DIMENSIONS MUST BE WITHIN +20% OF THE OVERALL DIMENSION DRAWING.
3. TUBING IS SHOWN FOR INFORMATION ONLY. ACTUAL TUBING ROUTING MAY BE DIFFERENT, BUT WITHIN THE OVERALL DIMENSIONS SHOWN IN THE DRAWING
4. LIFTING OF THE ACTUATOR SHALL BE DONE BY LIFTING POINTS OR BY SLINGS SUITABLY RATED FOR THE ACTUATOR DIMENSIONS AND WEIGHT. SLINGS OR LIFTING POINTS SHALL NOT BE USED TO LIFT THE VALVE/ACTUATOR ASSEMBLY.

Rev	ECN	Revised	Rev. Approved	Date	Change Description
0-0	ECO-0025937	S.Davini	L.Bernini	2024-10-25	First issue

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Document type: Assembly Drawing
Dimensions in mm
Scale 1:5

Created	S.Davini	2024-10-25
Checked	S.Davini	2024-10-25
Approved	L.Bernini	2024-10-25

Title
SINGLE ACTING PNEUMATIC ACTUATOR
CP/S-035-100A/BA - F.O.

Drawing Number
AF7888OCPA01

Rev 0-0

Nominal Mass 32 kg | Size A3 | Sheet 1 of 1

Template Issue :24/02/2020-SR

04: Project Procedures and Specification

Project Management
Engineering
Procurement/ Supply
Construction
Installation- Transportation
Hook-up
Start-Up

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05: Piping Classes

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06: Calculation Notes

Discipline Calculation Notes/Sheets
Weight and Centre of Gravity Reports

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06: Calculation Notes

Activities Calculation Notes/ Sheets

File: COPERTINA .xlsx
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Base Load Power Hub (BLPH)

SDV/BDV AND TIGHT SHUT-OFF XV VALVES

ACTUATOR SIZING CALCULATION AND PERFORMANCE DATA

Document Number: 1724000204-IN-CA-00003

Document Class: 2

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
V. Barratta	11-03-2025

Rev.	Date	Description	Prepared	Reviewed	Approved
05	21/02/2025	Accepted for Costruction (AFC)	ROTORK	ROTORK	ROTORK
04	19/12/2024	Accepted for Costruction (AFC)	ROTORK	ROTORK	ROTORK
03	29/07/2024	Accepted for Costruction (AFC)	ROTORK	ROTORK	ROTORK
02	19/07/2024	Accepted for Costruction (AFC)	ROTORK	ROTORK	ROTORK
01	06/05/2024	Issue for Review (IFR)	ROTORK	ROTORK	ROTORK
00	10/04/2024	Issue for Review (IFR)	ROTORK	ROTORK	ROTORK

Fluitek Valves

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Actuator Performance Table

Thrust N **Torque** Nm **Pressure** Bar **Volume** L

Item	Valve Tag	Valve Break to Open	Valve Running	Valve Fully Open	Valve Break to Close	Valve Running	Valve End to Close	Valve MAST	Pressure Pmin
Displacement	Actuator Model	Actuator Break to Open	Actuator Running	Actuator Fully Open	Actuator Break to Close	Actuator Running	Actuator End to Close	Actuator MAX	
Valve/Size/Class	Open/close time / Safety factor	Real Safety Factor	Real Safety Factor	Real Safety Factor	Real Safety Factor	Real Safety Factor	Real Safety Factor	Fail Position	Pressure Pmax
1	**25-BDV-022**	28.0	14.0	11.0	21.0	14.0	20.0	108.0	4.0
0.5	CP/S-035-080A/AA	46.5	22.3	30.4	68.7	35.2	51.9	86.3	
1"#300	1.0 / 3.0 / 1.5	1.66	1.59	2.76	2.75	2.52	2.59	OPEN	4.7
2	**25-BDV-005**	290.0	145.0	116.0	276.0	145.0	232.0	1818.0	4.0
4.4	CP/S-055-200A/BA	613.1	281.4	362.4	630.5	281.7	350.6	806.9	
4"#300	4.0 / 12.0 / 1.5	2.11	1.94	3.12	2.28	1.94	1.51	OPEN	4.7
3	**25-BDV-007**	290.0	145.0	116.0	276.0	145.0	232.0	1818.0	4.0
4.4	CP/S-055-200A/BA	613.1	281.4	362.4	630.5	281.7	350.6	806.9	
4"#300	4.0 / 12.0 / 1.5	2.11	1.94	3.12	2.28	1.94	1.51	OPEN	4.7
4	**25-BDV-010**	290.0	145.0	116.0	276.0	145.0	232.0	1818.0	4.0
4.4	CP/S-055-200A/BA	613.1	281.4	362.4	630.5	281.7	350.6	806.9	
4"#300	4.0 / 12.0 / 1.5	2.11	1.94	3.12	2.28	1.94	1.51	OPEN	4.7
5	**25-BDV-013**	290.0	145.0	116.0	276.0	145.0	232.0	1818.0	4.0
4.4	CP/S-055-200A/BA	613.1	281.4	362.4	630.5	281.7	350.6	806.9	
4"#300	4.0 / 12.0 / 1.5	2.11	1.94	3.12	2.28	1.94	1.51	OPEN	4.7
6	**25-BDV-016**	290.0	145.0	116.0	276.0	145.0	232.0	1818.0	4.0
4.4	CP/S-055-200A/BA	613.1	281.4	362.4	630.5	281.7	350.6	806.9	
4"#300	4.0 / 12.0 / 1.5	2.11	1.94	3.12	2.28	1.94	1.51	OPEN	4.7
7	**25-BDV-019**	290.0	145.0	116.0	276.0	145.0	232.0	1818.0	4.0
4.4	CP/S-055-200A/BA	613.1	281.4	362.4	630.5	281.7	350.6	806.9	
4"#300	4.0 / 12.0 / 1.5	2.11	1.94	3.12	2.28	1.94	1.51	OPEN	4.7
8	**25-SDV-001**	28.0	14.0	11.0	25.0	14.0	20.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#300	3.0 / 1.0 / 1.5	2.45	2.52	4.72	1.86	1.59	1.52	CLOSE	4.7
9	**25-SDV-023**	42.0	21.0	17.0	40.0	21.0	34.0	227.0	4.0
0.7	CP/S-035-100A/BA	96.6	45.5	60.5	90.2	42.9	57.7	124.0	
1.5"#300	4.5 / 1.5 / 1.5	2.30	2.17	3.56	2.25	2.04	1.70	CLOSE	4.7
10	**64-SDV-001**	19.0	10.0	8.0	18.0	10.0	15.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#300	3.0 / 1.0 / 1.5	3.62	3.52	6.49	2.58	2.23	2.02	CLOSE	4.7
11	**25-XV-004**	28.0	14.0	11.0	25.0	14.0	20.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#300	3.0 / 1.0 / 1.5	2.45	2.52	4.72	1.86	1.59	1.52	CLOSE	4.7
12	**25-XV-006**	28.0	14.0	11.0	25.0	14.0	20.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#300	3.0 / 1.0 / 1.5	2.45	2.52	4.72	1.86	1.59	1.52	CLOSE	4.7
13	**25-XV-008**	28.0	14.0	11.0	25.0	14.0	20.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#300	3.0 / 1.0 / 1.5	2.45	2.52	4.72	1.86	1.59	1.52	CLOSE	4.7
14	**25-XV-009**	28.0	14.0	11.0	25.0	14.0	20.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#300	3.0 / 1.0 / 1.5	2.45	2.52	4.72	1.86	1.59	1.52	CLOSE	4.7
15	**25-XV-011**	28.0	14.0	11.0	25.0	14.0	20.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#300	3.0 / 1.0 / 1.5	2.45	2.52	4.72	1.86	1.59	1.52	CLOSE	4.7
16	**25-XV-012**	28.0	14.0	11.0	25.0	14.0	20.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#300	3.0 / 1.0 / 1.5	2.45	2.52	4.72	1.86	1.59	1.52	CLOSE	4.7
17	**25-XV-014**	28.0	14.0	11.0	25.0	14.0	20.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#300	3.0 / 1.0 / 1.5	2.45	2.52	4.72	1.86	1.59	1.52	CLOSE	4.7
18	**25-XV-015**	28.0	14.0	11.0	25.0	14.0	20.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#300	3.0 / 1.0 / 1.5	2.45	2.52	4.72	1.86	1.59	1.52	CLOSE	4.7
19	**25-XV-017**	28.0	14.0	11.0	25.0	14.0	20.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#300	3.0 / 1.0 / 1.5	2.45	2.52	4.72	1.86	1.59	1.52	CLOSE	4.7
20	**25-XV-018**	28.0	14.0	11.0	25.0	14.0	20.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#300	3.0 / 1.0 / 1.5	2.45	2.52	4.72	1.86	1.59	1.52	CLOSE	4.7
21	**25-XV-020**	28.0	14.0	11.0	25.0	14.0	20.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#300	3.0 / 1.0 / 1.5	2.45	2.52	4.72	1.86	1.59	1.52	CLOSE	4.7
22	**25-XV-021**	28.0	14.0	11.0	25.0	14.0	20.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#300	3.0 / 1.0 / 1.5	2.45	2.52	4.72	1.86	1.59	1.52	CLOSE	4.7
23	**25-XV-024**	28.0	14.0	11.0	25.0	14.0	20.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#300	3.0 / 1.0 / 1.5	2.45	2.52	4.72	1.86	1.59	1.52	CLOSE	4.7
24	**50-XV-001**	30.0	15.0	12.0	29.0	15.0	24.0	142.0	4.0
0.7	CP/S-035-100A/BA	96.6	45.5	60.5	90.2	42.9	57.7	124.0	
1.5"#150	4.5 / 1.5 / 1.5	3.22	3.03	5.04	3.11	2.86	2.40	CLOSE	4.7
25	**50-XV-002**	19.0	10.0	8.0	18.0	10.0	15.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#150	3.0 / 1.0 / 1.5	3.62	3.52	6.49	2.58	2.23	2.02	CLOSE	4.7
26	**50-XV-003**	30.0	15.0	12.0	29.0	15.0	24.0	142.0	4.0
0.7	CP/S-035-100A/BA	96.6	45.5	60.5	90.2	42.9	57.7	124.0	
1.5"#150	4.5 / 1.5 / 1.5	3.22	3.03	5.04	3.11	2.86	2.40	CLOSE	4.7
27	**50-XV-004**	19.0	10.0	8.0	18.0	10.0	15.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1.0"#150	3.0 / 1.0 / 1.5	3.62	3.52	6.49	2.58	2.23	2.02	CLOSE	4.7
28	**80-XV-001**	19.0	10.0	8.0	18.0	10.0	15.0	108.0	4.0
0.5	CP/S-035-080A/AA	68.7	35.2	51.9	46.5	22.3	30.3	86.3	
1"#150	3.0 / 1.0 / 1.5	3.62	3.52	6.49	2.58	2.23	2.02	CLOSE	4.7

NOTE : Actuators have been sized considering a minimum supply pressure of 4,0 barg; the actuators are fitted with a safety relief valve which limits the pressure at 4,7 bar g in case of pressure regulator failure.

If Actuator MAX cell is coloured orange (or dark coloured) it means the actuator max torque/thrust exceeds 90% the Valve MAST. Please check data in this table carefully

Base Load Power Hub (BLPH)

SDV/BDV AND TIGHT SHUT-OFF XV VALVES

ACTUATOR SIZING CALCULATION AND TORQUE TABLE

Document Number: 1724000204-IN-CA-00017

Document Class: 2

ROSETTI MARINO	
1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
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4	APPROVAL NOT REQUIRED
NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.	
Sign	Date
V. Barratta	21-08-2025

Rev.	Date	Description	Prepared	Reviewed	Approved
03	15/07/2025	Accepted for Construction (AFC)	FOV/ROTORK	FOV/ROTORK	FOV/ROTORK
02	12/02/2025	Accepted for Construction (AFC)	FOV/ROTORK	FOV/ROTORK	FOV/ROTORK
01	22/11/2024	Accepted for Construction (AFC)	FOV/ROTORK	FOV/ROTORK	FOV/ROTORK
00	28/10/2024	Issue for Review (IFR)	FOV/ROTORK	FOV/ROTORK	FOV/ROTORK

Fluitek Valves

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Fluitek Valves

Valve NET Torques (No Safety factor is included)

ITEM No.	VALVE TAG / Data Sheet	Valve Type	QTY	SIZE [INCH]	CLASS	Actuator Sizing Dp [Mpa]	STEM MATERIAL	Design temp. [°C]	seat insert	Break To Open (Nm)	Run to open (Nm)	End To Open (Nm)	Break To Close (Nm)	Run to close (Nm)	End To Close (Nm)	M.A.S.T. (Nm)	Stem dia (mm)	ISO Flange	Remarks
1	50-XV-005	FLOATING	1	1-1/2"	150	2	A182 F53	-29/+200	RPTFE	30	15	12	29	15	24	164	M18	F05	

rotork®

Actuator Performance Table

Thrust N **Torque** Nm **Pressure** Bar **Volume** L

Item	Valve Tag	Valve Break to Open	Valve Running	Valve Fully Open	Valve Break to Close	Valve Running	Valve End to Close	Valve MAST	Pressure Pmin	Tank Volume
Displacement	Actuator Model	Actuator Break to Open	Actuator Running	Actuator Fully Open	Actuator Break to Close	Actuator Running	Actuator End to Close	Actuator MAX		Tank Sizing Pressure Pmin
Valve/Size/Class	Open/close time / Safety factor	Real Safety Factor	Real Safety Factor	Real Safety Factor	Real Safety Factor	Real Safety Factor	Real Safety Factor	Fail Position	Pressure Pmax	Tank Sizing Charging Pressure
1	50-XV-005	30.0	15.0	12.0	29.0	15.0	24.0	164.0	4.0	
0.7	CP/S-035-100A/BA	90.2	42.9	57.7	96.6	45.5	60.5	96.6		
1.5"#150	1.5 / 4.5 / 1.5	3,00	2.86	4.81	3.33	3.03	2.52	OPEN	4.7	

NOTE : Actuators have been sized considering a minimum supply pressure of 4.0 barg; the actuators are fitted with a safety relief valve which limits the pressure at 4.7 bar g in case of pressure regulator failure.

07: Equipment Requisition

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Base Load Power Hub (BLPH)

MATERIAL REQUISITION FOR
SDV/BDV and Tight Shut-Off XV Valves

Document Number: 123A90-DDL-IN-MR-40031

Document Class: 3

00	13/11/2023	Issue for Information (IFI)	VBA	LCA	DLO
Rev.	Date	Description	Prepared	Reviewed	Approved

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Rev.	Description
0	Issue for Information (IFI)

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No.	Description
1	
2	
3	
4	

Table of contents

1 INTRODUCTION 6

1.1 PROJECT OVERVIEW 6

1.1.1 Project Location 6

1.1.2 Project Concept 7

2 DOCUMENT SCOPE 9

2.1 REFERENCES 9

2.2 DEFINITIONS AND ABBREVIATIONS 10

2.2.1 Definitions 10

2.2.2 Abbreviations 10

3 STANDARD AND SPECIFICATIONS 11

3.1 GENERAL 11

3.2 INTERNATIONAL CODES AND STANDARDS 11

3.3 PROJECT TECHNICAL DOCUMENTS 12

3.4 ORDER OF PRECEDENCE 12

3.5 LANGUAGE AND UNITS OF MEASUREMENT 12

4 SCOPE OF WORK 13

4.1 GENERAL 13

4.2 SCOPE OF SUPPLY 13

5 QUALITY ASSURANCE, INSPECTION & TESTING 15

5.1 QUALITY ASSURANCE 15

5.2 INSPECTION & TESTING 15

6 ASSET REGISTER 18

7 3D CAD MODEL 19

7.1 3D CAD MODEL FROM SUBCONTRACTORS & VENDORS 19

8 INSTALLATION, START-UP & COMMISSIONING 20

8.1 OPERATIONS, MAINTENANCE & COMMISSIONING 20

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8.2 INSTALLATION, START-UP AND COMMISSIONING SUPPORT 20

9 PREPARATION OF EQUIPMENT FOR SHIPMENT 21

9.1 GENERAL 21

9.2 PAINTING & COATING 21

9.3 PACKING AND DELIVERY 22

10 NAMEPLATES 23

11 SPARE PARTS & SPECIAL TOOLS 24

11.1 SPARE PARTES 24

11.2 SPECIAL TOOLS 24

12 GUARANTEE AND PERFORMANCE 25

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List of Figures

Figure 1 - HOLLANDSE KUST NOORD WIND PARK Location Map 6
Figure 2 - Wind Park Details 7
Figure 3 – BLPH Concept 7

List of tables

Table 1 - Reference Documents 9
Table 2 - Definitions 10
Table 3 - Abbreviations 10
Table 4 - Table of Compliance 31
Table 5 - Deviation List 31

List of Attachments

ANNEX-1:	DOCUMENT DATA SHEET (DDS)
ANNEX-2:	INSPECTION AND TESTS (IDS)
ANNEX-3:	COMPLIANCE AND DEVIATION TABLES
ATTACHMENT-1:	SPARE PARTS LIST Form (Excel file)
ATTACHMENT-2:	SMIR Form (Example – Excel file)
ATTACHMENT-3:	TECHNICAL QUERY (TQ) REQUEST Form (Word file)

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1 INTRODUCTION

1.1 PROJECT OVERVIEW

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.

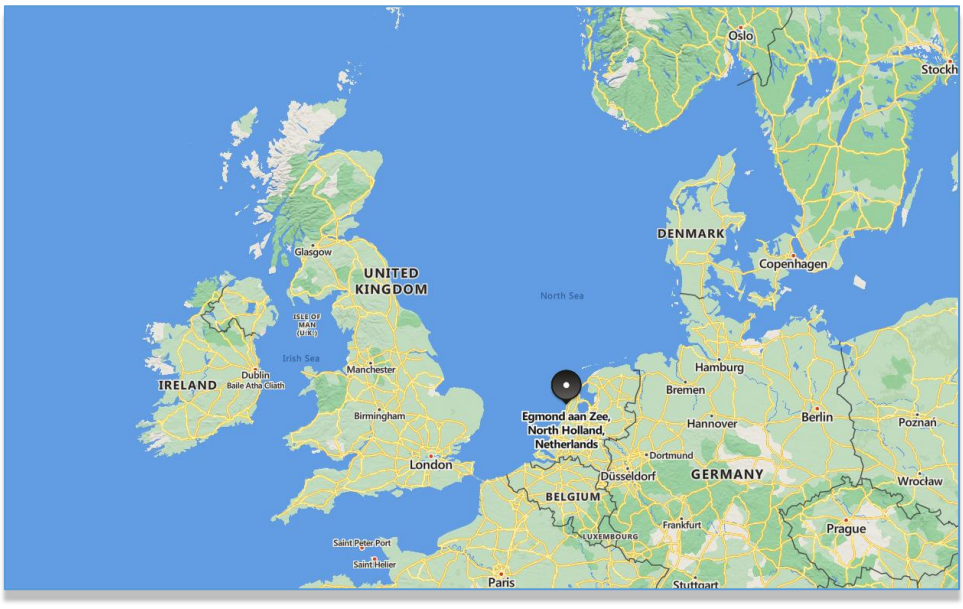


Figure 1 - HOLLANDSE KUST NOORD WIND PARK Location Map

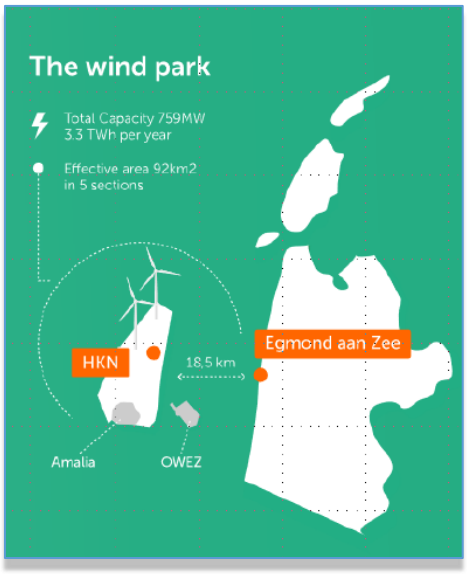


Figure 2 - Wind Park Details

The wind farm will consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 Project Concept

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

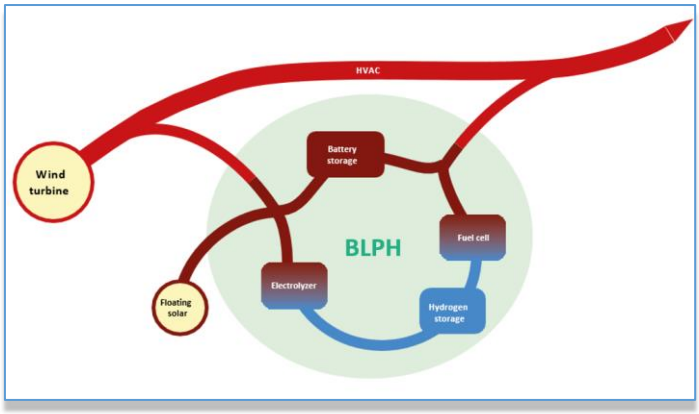


Figure 3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH s to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

2 DOCUMENT SCOPE

This document defines the minimum requirements for the engineering, fabrication, procurement, supply, inspection, testing, documentation requirements and delivery of the SDV/BDV and Tight Shut-Off XV Valves to be installed on the BLPH.

At Bid Inquiry stage, the Material Requisition, together with its attachments, defines all the technical information necessary for the BIDDER to prepare its bid in-line with the PROJECT requirements.

At Purchase Order stage, the Material Requisition, together with its attachments, are updated with the information relevant to the selected SUPPLIER and with all agreements reached during the clarification and negotiation phase.

2.1 REFERENCES

The SUPPLIER shall design, manufacture and test the equipment and auxiliary systems included in the scope of the supply strictly in accordance with the Data Sheet, Project Specifications, codes and standards listed as follow. The applicable codes and standards include also those referenced inside the following documents.

Doc. No.	Description
PROJECT SPECIFICATIONS	
123A90-DDL-IN-DS-40030	TDS - SDV/BDV and Tigh Shut-Off XV Valves
123A90-DDL-IN-SP-40094	Instrumentation for Package Unit Specification
123A90-DDL-PP-SP-70000	Piping Material Classes
123A90-DDL-PP-DS-70003	TDS - Manual Valves
123A90-DDL-PP-SP-70030	Technical Specification for Manual Valves & Strainers
123A90-DDL-MAT-SP-60006	Coating and Painting Specification
123A90-PML-QHSE-PRO-00107	Final Dossier Procedure
123A90-PML-COM-PRO-03039	Preservation Procedure
123A90-DDL-MAT-PRO-60005	Positive Material Identification (PMI) Procedure

Table 1 - Reference Documents

2.2 DEFINITIONS AND ABBREVIATIONS

2.2.1 Definitions

Within this document, unless otherwise specified, the following terms shall have the meaning as defined below:

BIDDER:	Entity invited to submit a technical and commercial offer for the provision of the GOODS
COMPANY or Client (CPY):	CROSSWIND
CONTRACTOR (CTR):	ROSETTI MARINO S.p.A.
PROJECT:	HOLLANDSE KUST NOORD WIND PARK Project
SUPPLIER:	Means the entity defined as such in the PURCHASE ORDER
GOODS:	The items listed in section 4.2 of the present requisition
Shall	Used to indicate requirements strictly to be followed in order to conform to the specification and accepted by all involved parties
Should	Used to indicate that among several possibilities one is recommended as particularly suitable without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required
May	Used to indicate a course of action permissible within the limits of the specification
Can	Used for statements of possibility and capability, whether material, physical or casual

Table 2 - Definitions

2.2.2 Abbreviations

ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
IEC	International Electrotecnical Commission
NDT	Non-Destructive Testing
N.A.	Not Applicable
PMI	Positive Material Identification
QA / QC	Quality Assurance / Quality Control

Table 3 - Abbreviations

3 STANDARD AND SPECIFICATIONS

3.1 GENERAL

All referenced international codes and standards and attached technical documents including specifications, data sheets and drawings etc. form a part of this MR and shall be followed for all the scope of supply specified in this MR.

SUPPLIER shall meet or exceed the requirements of the following codes, regulations and standards except as superseded herein. In case where more than one code, regulation or standard apply to the same condition, the most stringent shall be followed.

3.2 INTERNATIONAL CODES AND STANDARDS

CODES & STANDARDS	TITLE
ISO 5208	Industrial valves - Pressure testing of metallic valves
ISO 10497	Testing of valves – Fire type-testing requirements
ISO 15848-1/2	Industrial valves - Measurement, test and qualification procedures for fugitive emissions.
ISA 472	Electrical Surge Protection
API SPEC 6FA	Specification for fire test for valves
API STD 607	Fire Tests for Soft-seated Quarter Turn Valves
ISA 75.08.01	Face to face dimension – Flanged globe valves
ISA 75.19	Hydrostatic testing of valves
ANSI B16.5	Pipe Flanges and Flanged Fittings
ASME B31.3	Process Piping Guide
ASME B31.12	Hydrogen Piping and Pipelines
API RP 551	Process Measurement Instrumentation
API 598	Valve inspection & testing
IEC 60079	Electrical Apparatus for Explosive Gas Atmospheres.
IEC 61000-4-3	Electromagnetic compatibility (EMC) – Testing and measurement techniques – Radiated radio frequency, electromagnetic field immunity test
IEC 61000-4-4	Electromagnetic compatibility (EMC) – Testing and measurement techniques – Electrical fast transient/burst immunity test

CODES & STANDARDS	TITLE
IEC 61643	Surge protective devices connected to low-voltage power distribution systems - Part 1: Performance requirements and testing methods
IEC 60947-5-2/3/6	Low-voltage switchgear and controlgear
ISO 9001	Quality Management
ISO 9002	Quality System
EN 10204	Metallica Products-Types of Inspection Documents

3.3 PROJECT TECHNICAL DOCUMENTS

The technical documents listed in ANNEX-1, TECHNICAL DOCUMENTS / DRAWINGS LIST, including project specifications, data sheets, drawings and technical details shall be complied with.

3.4 ORDER OF PRECEDENCE

All conflicts between the requirements of this MR and related contractual documents, local laws, regulations, international codes, standards, engineering practices etc. shall be brought to CONTRACTOR for clarification. Should any conflict occur during application of these documents, the order of precedence shall be as below:

1) Dutch Standards and Regulatory Requirements;
2) Purchase Order;
3) Material Requisition and Datasheets;
4) Project Specifications and drawings;
5) International codes and standards.

In the event of any conflict of data or requirements in any of the above documents, it is SUPPLIER's responsibility to resolve these conflicts and obtain written approval from CONTRACTOR before proceeding with any related work. In any case, the most stringent requirement shall prevail. However, CONTRACTOR's interpretation shall be the final.

3.5 LANGUAGE AND UNITS OF MEASUREMENT

The governing language of the project is English. All technical documents and correspondences shall be in English. Units of measurement shall comply with Instrumentation for Package Unit Specification (123A90-DDL-IN-SP-40094).

4 SCOPE OF WORK

4.1 GENERAL

SUPPLIER's scope of supply includes procurement, supply of materials, manufacturing, erection, tests, inspection, preservation, preparation for shipment, documentation and site service of BLPH as outlined in the attached documents and further described in this MR.

The SUPPLIER shall be fully responsible for procurement and supply of material, fabrication, erection, testing and inspection, high quality of workmanship based on relevant specifications. Inspection by CONTRACTOR or his representatives shall not relieve the SUPPLIER of his responsibilities.

The requirements set out herein shall not be construed to eliminate consideration of the manufacturer's standard design, if found to be superior to the requirements of these specifications listed in section 2.1.

4.2 SCOPE OF SUPPLY

ITEM	QTY	DESCRIPTION/SCOPE OF SUPPLY	Remark
1.0	30	SDV/BDV and Tigh Shut-Off XV Valves	See data sheet 123A90-DDL-IN-MR-40031
1.1	Lots	Start-up and commissioning spare parts	To be included in 1.0 above
1.2	Lots	Two years operational spare parts	To be included in 1.0 above
1.3	Lots	Lifting tools which is suitable for lifting each module at shop, point of loading, unloading & erection at site along with all necessary slings, shackles & lifting accessories.	To be included in 1.0 above
1.4	Lots	Special tools for installation & maintenance (if any).	To be included in 1.0 above
2.0	Lots	Inspection and testing as per IDS and project specification requirements	To be included in 1.0 above
2.1	Lots	Documentation as per DDS requirements (ANNEX-1)	To be included in 1.0 above

OPTIONAL			
3.0	Lots	Recommended Capital/Insurance spares (with price list)	

The Scope of Work of the SUPPLIER includes as a minimum, the following activities:

- To develop all necessary procedures and planning for the supply of the GOODS.
- To purchase, to take delivery of and to store all other items of materials and equipment necessary to provide and manufacture the GOODS.
- To manufacture the GOODS.
- To perform the required qualification tests.
- To test, inspect and carry out quality checks throughout all phases of the WORK.
- To perform all activities and provide documentation required in addition to specifications provided by COMPANY which is necessary for the completion of the WORK as defined in ANNEX-1 (DDS).
- To provide all management, quality assurance, HSE, engineering, procurement and construction, personnel, facilities, materials, equipment and all other items, whether of a temporary or permanent nature, and performing all operations necessary and required for the supply of the GOODS.
- Preparation and packaging for shipment.
- To fulfill the associated administrative and reporting requirements.
- To deliver the GOODS according to the requirements of the PURCHASE ORDER.
- To fulfil the associated quality assurance and HSE requirements. SUPPLIER shall in particular comply and be able to demonstrate compliance with the requirements set forth in section 2.

In case of deviation, SUPPLIER shall submit a Technical Query (TQ) to COMPANY Approval using the project form in ATTACHMENT-3.

IMPORTANT NOTE to BIDDER:

With the Bid it is strongly required to Bidder to provide also the following:

- DDS filled by listing the documents which will be issued and indicating the date of first issue (ANNEX-1).
- Data sheet form filled with Bidder data (*) in the dedicated column.
- Compliance and Deviation Tables (ANNEX-3)

5 QUALITY ASSURANCE, INSPECTION & TESTING

5.1 QUALITY ASSURANCE

The SUPPLIER shall maintain and use a Quality System which is based on ISO 9001 or equivalent to control the work. If the SUPPLIER selects sub-contracts for part of the work, he shall ensure that only those subcontractors or suppliers who can demonstrate that they operate Quality Systems based on ISO 9001 or equivalent. The sub-contractors shall be selected from primary manufacturer. The SUPPLIER shall give assistance to his sub-contractors or suppliers in attaining the required standard, if necessary. This shall not relieve the SUPPLIER of his responsibility for the quality of the finished work. CONTRACTOR reserves the right to audit the SUPPLIER's Quality System.

SUPPLIER is fully responsible for his sub-supplier's compliance to CONTRACTOR's requirement ensuring that the design, procurement and fabrication of these items are compatible with each other and with his own equipment in all respects.

The SUPPLIER shall assign sufficient full time QA/QC personnel to the project to ensure the Quality Assurance / Quality Control System, documented in a Quality Assurance / Control Manual, is maintained and kept up-to-date throughout the duration of any purchase order. The SUPPLIER's Quality Assurance / Control System shall become an integral part of any purchase order. SUPPLIER shall organize a kick-off meeting after the issuance of PO and a pre-inspection/pre-fabrication meeting prior to start fabrication works with CONTRACTOR.

5.2 INSPECTION & TESTING

Inspection and testing shall meet the requirements of ANNEX-2, respective datasheet, and other relevant project specification.

SUPPLIER shall submit a project specific quality control program including all applicable quality control procedures and Inspection & Test plan for the control of process and their interaction.

The responsibility for quality control and inspection rests with the SUPPLIER; however, CONTRACTOR reserve the right to inspect the materials, fabrication, assembly, workmanship and testing of the equipment during all phases of the work and finished product ant any time.

Inspection and testing shall be done by SUPPLIER and CONTRACTOR will inspect/witness the test/inspections as stated in approved ITP.

SUPPLIER shall permit CONTRACTOR's Inspector to have unrestricted access to all areas of SUPPLIER's facilities, including subcontractor's facilities where any phase of the work covered by this scope of work is being performed.

SUPPLIER shall refer and respond to all questions relating to quality control, testing, and an acceptance of the work to CONTRACTOR's Inspector and/or authorized representatives

SUPPLIER shall be responsible for establishing a detailed inspection and testing schedule with CONTRACTOR. Inspection will be performed and witnessed by Third Party Inspection Agency appointed by CONTRACTOR. SUPPLIER shall provide an Inspection and Testing plan for CONTRACTOR's review/comment and approval.

CONTRACTOR, at its discretion, may additionally nominate authorized inspection agency. The responsibility for inspection, certification, etc. of all materials, parts etc. lies with the SUPPLIERs

The SUPPLIER shall specify all of the inspection and testing requirements in the Inspection & Test Plan which shall identify the activities requiring CONTRACTOR's approval, review, witnessing/ HOLD etc.

SUPPLIER shall submit a FAT Procedure with details of FAT activities and acceptance criteria for CONTRACTORs review and approval. FAT should be carried out for individual equipment and skid/module completely assembled with associated accessories, which are part of this package scope.

The SUPPLIER shall carry out Factory Acceptance Test and Function Test in presence of Third Party Inspection Agency and / or CONTRACTOR (where and when required).

All equipment shall be inspected for compliance with:

- Requirements of the CONTRACTOR's specification and correspondence thereafter.
- Applicable Codes, standards and specifications, which shall also include sub-referenced standards therein.
- Test and Inspection Plans produced by the SUPPLIER and approved by CONTRACTOR.

All equipment shall be presented for inspection in an unpainted state except for the final inspection before delivery. All instruments and equipment shall be performed inspection & testing as per requirements of this MR and post PO documents approved by CONTRACTOR. All testing results shall be certified by CONTRACTOR or its authorized Third-party Inspector.

All instruments shall be function tested. Pneumatic instruments shall be tested from the controller or sensor completely through to the end device. Electric and electronic circuits shall be tested from the controller or sensor completely through to the end device. Only the process side of a control loop need not actually be tested except that it must be mechanically or electrically actuated to simulate the process or alarm condition.

A third-party inspector (where and when required) appointed by the CONTRACTOR have the right to request additional inspections or tests to ensure that the equipment complies with this requisition and all relevant codes and standards.

Any defects found by the CONTRACTOR appointed inspectors shall be rectified in his presence. Where this is not possible or practical, a pending item list, shall be prepared and signed by both SUPPLIER and CONTRACTOR's Inspectors. Copies of these lists shall be sent to CONTRACTOR to enable their subsequent reviewing & checking. Mill and shop inspections shall not relieve the SUPPLIER from his contractual responsibility for replacing any defective material or for repairing any defective workmanship that may be discovered in the field.

Materials shall be full traceable by means of Heat Number identification markings applied to each piece in the final product. Heat Numbers shall be matched to Material Test Certificates and to other appropriate documentation.

Material marking shall be applied to maintain a physical connection between the material and the documentation that proves compliance with specified requirements. When materials are cut from the final product, markings must be transferred to all pieces, including those returned to stock.

Material certification shall be in accordance with EN 10204 type 3.1 for pressure retaining parts, directly welded to pressure parts, wet part carrying hydrocarbon load bearing components. MTCs shall be legible and original in wet signed or copies of original certificates. Copies of original certificates shall be endorsed by SUPPLIER QC as "Verified True Copy of the Original"

Sub-supplier's manufacturing schedule and I&TPs shall also be submitted to CONTRACTOR for review. The SUPPLIER shall be responsible for coordinating the inspection & testing supervised by CONTRACTOR's representatives of the equipment supplied by sub-suppliers. It is mandatory for SUPPLIER to inform the CONTRACTOR at least 30(hold) calendar days in advance to participate and supervising the testing & inspection process.

SUPPLIER shall also be obliged to supply all reasonable facilities, necessary accommodations, and access for the CONTRACTOR or the representatives to perform supervisions in SUPPLIER's workshop.

Without CONTRACTOR's written permission, the package/equipment shall not be packing and delivered from the SUPPLIER's workshop.

The package shall be assembled completely as an integral functional unit. It is not allowed to delivered loosen parts directly to CONTRACTOR.

Any acceptance or release of package/equipment following with inspections or test activity shall in no way relieve the SUPPLIER of his responsibility to provide guarantees as to the suitability of the materials, workmanship and performance of the package/equipment in accordance with this requisition.

SUPPLIER shall utilize their own non-conformance procedure for management of Non-Conformance Report (NCR) if any, a copy of the NCR shall be forwarded to CONTRACTOR for information and record. CONTRACTOR approval shall be obtained for the disposition of non-nonconformance as repair or to be "use-as-is".

6 ASSET REGISTER

SUPPLIER will develop and deliver a complete Asset Register consistent with the information in process flow diagrams, equipment drawings and maintenance manuals, for loading into COMPANY Asset and Maintenance Management Systems.

This Asset Register will contain a list of all Production Assets split over Process Assets (e.g. process, process support, utility, materials handling, etc.) and Non-Process Assets (e.g. buildings, special tools, personnel movement related, etc.), together with below information, ref to documentation and data, including:

a. Item Tag
b. Description
c. Location in the plant
d. Manufacturer
e. SUBCONTRACTOR
f. Model
g. Specifications project number
h. Maintenance item & plan project number
i. Criticality (HSSE, Production or other)

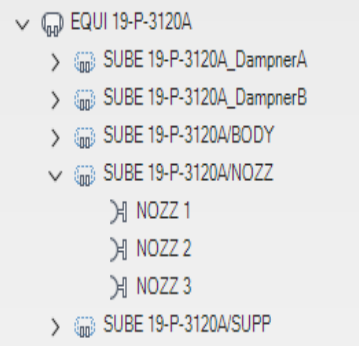
CONTRACTOR will submit to SUPPLIER during the PO execution phase an excel template with the list of concerned tags. It shall be SUPPLIER duty to validate the tag list and return to CONTRACTOR the filled list

7 3D CAD MODEL

7.1 3D CAD MODEL FROM SUBCONTRACTORS & VENDORS

As part of the scope of supply, the SUPPLIER shall develop and deliver a 3D model of the supplied equipment to be integrated by CONTRACTOR in the overall 3D model of the Plant.

Package equipment shall be modelled in sufficient detail to facilitate the review of access to all components and instrumentation for operation and maintenance, ergonomic design, piping, instrument and electrical connections. All interfaces including nozzles and tie-ins shall be detailed and identified, as per the following example, with the same level of detail of the CONTRACTOR's overall 3D model of the Plant:



As a general requirement, model information for all package equipment shall contain information and details to ensure overall design integrity of the plant and to support inspection and maintenance programs. VENDOR is requested to specify in the offer which items will be modelled and with which tool, considering the selected 3D model SW for the Project is AVEVA E3D 3.1.

It may be tolerated to receive 3D CAD Model of equipment or packages in an exchange format compatible with AVEVA E3D, provided that the equipment or package hasn't process functionality and is not represented on a P&ID (e.g., Crane, Pig Trap, Drum, Tanks & Vessels, Vent tip, CO2/Nitrogen skids, Pumps, Actuators, ELE I&C TCOM bulk items etc.).

The exchange format shall be one of the following:

- AutoCAD Files (.dwg dxf)
- Autodesk DWF Files (.dwf*.dwfx)
- Inventor Files (*.ipt, *.iam)
- Revit Files (*.rvt, *.rfa)
- Rhino Files (*.3dm)
- SolidEdge Files (*.par, *.asm, *.pwd,*.psm)
- SolidWorks Files (*.sldprt, *.sldasm, *.sldfpp, *asm)
- STEP Files (*.stp, *.step, *.stpz, *.stp.z) / STEP XML (*.stpx, *.stepxz, *.stpxml)

In the other cases, i.e. for packages/skids with tagged objects on P&ID, the AVEVA E3D is the preferred option. Any deviation must be specified and agreed with CONTRACTOR

8 INSTALLATION, START-UP & COMMISSIONING

8.1 OPERATIONS, MAINTENANCE & COMMISSIONING

SUPPLIER shall provide Operations, Maintenance, Commissioning Manuals separately.

SPARE PARTS LIST form is provided as ATTACHMENT-1 of present MR.

8.2 INSTALLATION, START-UP AND COMMISSIONING SUPPORT

SUPPLIER shall provide a list all solvents, chemicals, lube oil, lubricants and materials and respective quantities required for commissioning, start-up, run in and for two-year operation.

The SUPPLIER shall be responsible for providing Start-Up and Commissioning Support at site, which shall be commenced as per CONTRACTOR's notice. SUPPLIER shall specify free site-service period. Service beyond free site-service period due to CONTRACTOR's reasons shall be reimbursed at fixed rates agreed by CONTRACTOR and SUPPLIER. The SUPPLIER shall provide the site rates in its Bid in conformity in ANNEX-2 hereinafter, which shall include number and a list of personnel of services and a description of all work to be performed.

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9 PREPARATION OF EQUIPMENT FOR SHIPMENT

9.1 GENERAL

Preparation for shipment is a crucial step in the completion of this contract. The SUPPLIER must take into considerations that all equipment shall be prepared for ocean shipment and storage for extended periods outside in an ocean environment. Care must be taken to protect the package from external attack by the elements and from the impact of moisture and humidity on the equipment.

It is likely that a certain amount of disassembly will be required for shipment including some of the mechanical components and some instrumentation. The SUPPLIER shall provide very specific detailed instructions for reassembling the components and must assume that those doing the reassemble of the components will be unskilled. If in the SUPPLIER's opinion the reassembling cannot be completed by unskilled labor then the SUPPLIER must include in its proposal for the services of its own skilled personnel to go to the site and supervise or undertake the reassembling and verification that the equipment is suitable for operation.

SUPPLIER shall be responsible for preparing the equipment for shipment in accordance with the attached Specification for Protection of GOODs during Shipment: Preservation Procedure (123A90-PML-COM-PRO-03039).

Adoption of suitable packing methods and materials is at the sole discretion of the SUPPLIER, and should any loss, damage and/or deterioration be caused due to improper packing, the consequences shall be the responsibility of the SUPPLIER.

If any oversize or overweight happens irresistibly, the SUPPLIER is requested to apply for CONTRACTOR's approval with transportation plan.

9.2 PAINTING & COATING

Project specification Coating and Painting Specification (123A90-DDL-MAT-SP-60006) shall be applicable.

9.3 PACKING AND DELIVERY

Requirements for packing and lifting shall be followed as below:

1) SUPPLIER shall be responsible for export packing, marking, preservation, preparation for shipment (in Sea worthy packing & providing lashing for Sea worthy transportation), freight forwarding and transportation (with insurance), as required.
2) Components requiring storage under restricted temperatures and humidity shall be boxed separately and identified for controlled climate storage.
3) SUPPLIER shall provide adequate protection for the items against sea water / salt laden air, during sea transportation.
4) All the equipment shall be delivered only after liquids being completely drained. Parts that are hydro tested shall be dried out after the test. All the nozzles / connections shall be closed using temporary flanges, gaskets & bolting.
5) While packing all material shall be cleaned thoroughly of all grease, oil, loose scale, loose rust and rubble.
6) Any external components which may be subject to damage during transit and cannot be easily protected shall be removed and packed separately to the equipment for shipment with all the openings plugged. The loose supplied items shall be listed in packing list.
7) Appropriate anti-corrosion agent shall be applied internally if it is unpainted. Desiccant bag shall be placed at openings to protect the equipment internals from moisture
8) All spare parts, special tools shall be separately packed and supplied.
9) All components shall be adequately supported / protected to prevent damage during transportation and handling. Installation accessories of each instrument should be packaged together with the corresponding instrument.
10) Openings, threaded connections, wires, valve stems, and other component parts subject to mechanical damage or corrosion shall be adequately protected. Such protection shall consist of, but not be limited to, bolted metal flange covers, sealing with waterproof tape, enclosing with temporary metal housings, and coating all machined and threaded surfaces with a rust preventative. This protection shall be applied to all components, those removed and boxed and those remaining in place on the general assembly.
11) SUPPLIER provides recommended lifting/rigging plan, and supply lifting tools (for example rigging, suspension rod, closure tool, etc.) for all materials of this purchasing package. And SUPPLIER shall offer quote individually for these tools.

10 NAMEPLATES

SUPPLIER shall provide instrument nameplate. The nameplate shall be of stainless steel and approximately 75 mm wide by 125 mm long (TBC after P.O.). The plate shall be secured by with 4 stainless steel screws. Nameplate shall be completely seal welded if nameplate is secured by welded attachment. The information on the name plate shall be engraved in English.

The direction of flow shall be marked on the valve body for all valves which have been designed or selected for a specific flow direction. Marking shall normally be cast or steel stamped. Alternative marking may be accomplished by a stainless label permanently fixed to the body by rivets. The trim position of rotary valves shall be engraved on the shaft end.

A permanently fastened stainless steel name plate shall be provided on each valve (e.g., by stainless steel rivets) with the following information:

- Tag number specified on the Data sheet;
- Manufacturers name, model number and valve serial number
- Body material, valve size and flange rating
- Trim material
- Actuator model, size and bench set

11 SPARE PARTS & SPECIAL TOOLS

11.1 SPARE PARTES

Spare parts requirements for this project are outlined in the ATTACHMENT-1-.

SUPPLIER is to provide comprehensive listing of spare parts, recommendations covering Start-Up, Commissioning, Capital & Insurance and two (2) years of Continuous Plant Operation.

The Start-up / Commissioning Spares are to be supplied by SUPPLIER along with this package.

The spare parts are generally categorized as:

1) Startup/commissioning spares (startup spares).
2) Two years' continuous operation and maintenance spares (2 years spares)
3) Insurance/Capital spares (Optional).

Commissioning, Start-up and 2 years' Operational spares shall be supplied by SUPPLIER and shall be a part of SUPPLIER's lump sum price. Price list of spare parts shall be provided separately.

11.2 SPECIAL TOOLS

The SUPPLIER shall provide all necessary special tools and lifting bars/equipment for maintenance and erection.

12 GUARANTEE AND PERFORMANCE

SUPPLIER shall guarantee the process performance and mechanical design of all equipment supplied under this specification when operated at the conditions specified herein. SUPPLIER shall specifically state the limits in the process guarantee, in terms of variance from design composition, in his proposal. The guarantee will include the following essential elements:

- Package shall meet the product quality specifications stated in the data sheet.
- Package shall have a minimum capacity equal to the design throughput.
- Package shall meet the utility chemicals consumption and rates as specified by the SUPPLIER in their proposal.
- SUPPLIER shall make, at its expense, any required modifications or additions to correct any deficiencies. The modifications or additions will be completed in the field location.

SUPPLIER shall warrant the equipment to be free of defects in material and workmanship, and that it is of adequate size and capacity to fulfil the design and operating conditions specified herein. The SUPPLIER shall replace and install any materials, supplies or equipment which fails under design conditions due to defects in material or workmanship. If a defect is observed and/or such failure occurs within Warranty Period, the SUPPLIER shall replace and install without any additional cost to CONTRACTOR any materials, supplies or equipment involved. Acceptance of this order will signify acceptance of all conditions of this guarantee.

ANNEX-1: SUPPLIER DOCUMENT DATA SHEET (DDS)

The following list is not exhaustive in regard of necessary documentation which shall be produced by the SUPPLIER to comply with the SUPPLY CONTRACT applicable documentation. The SUPPLIER is requested to issue all the necessary documentation accordingly.

The SUPPLIER shall provide within the offer the SUPPLIER MASTER INDEX REGISTER (SMIR – ATTACHMENT-2) (by finalizing the draft attached to the MR) listing the documents which will be issued and indicating the date of first issue as per DDS here below.

DOCUMENTS DATA SHEET (DDS)

POS.	DESCRIPTION OF DOCUMENTATION	Delivery in Bid	Delivery after Order (revision issued for……)								KEY DOC	Documents subject to liquidated damages
			IFI (Information)		IFA (Approval)		IFC (construction)		ASB (as-built)			
			Required / Within weeks after order	Notes	Required / Within weeks after order	Notes	Required / Within weeks after order	Notes	Required / Within weeks after order	Notes	YES NO	
	CONTROL DOCUMENTS											
1	SUPPLIER MASTER INDEX REGISTER (SMIR)	Y					Y					
2	SUB-SUPPLIER LIST	Y			Y / 2							
3	FABRICATION / PRODUCTION SCHEDULE (Bar Chart [A3 max.]) / PROGRESS REPORT				Y / 2			*(4)*				
	MANAGEMENT DOCUMENTS											
5	TQ - TECHNICAL QUERY (A4 document)	Y			Y / 2							
6	DR - DEVIATION REQUEST (A4 document)	Y			Y / 2							
7	CR - CONCESSION REQUEST (A4 document)	Y			Y / 2							
	QUALITY DOCUMENTS											
8	QUALITY CONTROL PLAN or INSPECTION AND TEST PLAN (A4 sheets)	Y			Y / 3	*(2)*	*Y / 5*	*(2)*			Y	X
	ENGINEERING DOCUMENTS											
	CA - CALCULATIONS											
9	ACTUATOR SIZING CALCULATION				Y / 4		Y / 8					
	DA - GENERAL ARRANGEMENT											
10	GENERAL ARRANGEMENTS (Maximum size A1. drawing scale)	Y			Y / 4		Y / 8		Y		Y	X
	DD - DETAIL DRAWING											
11	DETAIL DRAWING (Scale Drawing)	Y			Y / 4		Y / 8		Y		Y	
12	NAMEPLATE DRAWING				Y / 10		Y / 14					
	DG - DIAGRAMS											
13	ELECTRIC / ELECTRONIC / HYDRAULIC SCHEMATIC DIAGRAMS				Y / 6		Y / 12		Y			
14	WIRING DIAGRAM & TERMINAL SCHEDULE				Y / 6		Y / 12		Y			
	DS – DATA SHEET											
15	WEIGHT DATA SHEET (Purchaser's A4 sheet completed by Supplier)	Y			Y / 6		Y / 10				Y	
16	INSTRUMENT DATA SHEETS (Purchaser's A4 sheets completed by Supplier)	Y			Y / 4		Y / 10				Y	
17	GENERAL PERFORMANCE DATA , Torque table (A4 Sheet)				Y / 4		Y / 10					
	EQD – EQUIPMENT DRAWING											
18	HD – HOOK-UP DRAWING				Y / 4		Y / 10					
19	INSTRUMENT TERMINATION, HOOK-UP DETAILS (one dwg sheet for each hook-up)				Y / 4		Y / 10				X	
20	ELECTRICAL TERMINATION, HOOK-UP DETAILS (one dwg sheet for each hook-up)				Y / 4		Y / 10					
	RE – REPORT											
21	OPERATING PHILOSOPHY (A4 report)		Y / 10									
	SP – SPECIFICATION											
22	SURFACE PREPARATION AND PAINTING SPECIFICATION (A4) * COATING PROCEDURE (if applicable)				Y / 6	(2)	Y / 10		Y		Y	
	PRO – PROCEDURES											
23	NON-DESTRUCTIVE EXAMINATIONS PROCEDURES (NDE) (Supplier's procedure)				Y / 6	*(2)*	Y / 10					
24	NDE OPERATORS LIST and QUALIFICATIONS				Y / 6	*(2)*	Y / 10					
25	FORMING AND HEAT TREATMENT PROCEDURES (inc. PWHT)				Y / 6	*(2)*	Y / 10					
26	PMI TEST PROCEDURE				Y / 6	*(2)*	Y / 10					
27	HYDROSTATIC AND/OR PNEUMATIC TEST PROCEDURES		Y / 12									
28	FACTORY / SITE / OPERATIONAL ACCEPTANCE TEST (FAT / SAT / OAT) PROCEDURE		Y / 30									
29	PRE-COMMISSIONING / COMMISSIONING PROCEDURES (A4 procedure)				Y	*(2)*	Y / 24					
30	EQUIPMENT MANUFACTURER RECORD BOOK (FINAL DOSSIER) - INDEX				Y / 12	*(2)*	Y / 16					
	WL – WELDING											
31	WELD LOCATION PLAN (Detail drawings to scale. Maximum drawing size A1)		Y / 10	*(2)*								
32	WELD PROCEDURE SPECIFICATION (WPS) AND QUALIFICATIONS (PQR) RECORDS				Y / 8	*(2)*	Y / 12					

33	WELD OPERATORS LIST				Y / 8	(2)	Y / 12					

REQUIRED DOCUMENTS DATA SHEET

POS.	DESCRIPTION OF DOCUMENTATION	Delivery in Bid	Delivery after Order (revision issued for……)								KEY DOC	Documents subject to liquidated damages
			IFI (Information)		IFA (Approval)		IFC (construction)		ASB (as-built)			
			Required / Within weeks after	Notes	Required / Within weeks after	Notes	Required / Within weeks after	Notes	Required / Within weeks after	Notes	YES NO	
	CERTIFICATES											
34	FACTORY ACCEPTANCE TEST (FAT) REPORT (A4 report)		Y	(5)								
35	EQUIPMENT HAZARDOUS AREA CERTIFICATE (A4 document)					(1)						
36	MATERIAL TEST CERTIFICATE according to EN 10204 (A4 certificate)					(1)						
37	WELDER PERFORMANCE QUALIFICATION (WPQ) CERTIFICATES					(1)						
38	NDE OPERATOR QUALIFICATIONS					(1)						
39	PRODUCTION TEST RESULTS (inc. WELDING)					(1)						
40	NDE RECORDS (A4 certificates)					(1)						
41	MATERIAL TRACEABILITY RECORDS (Supplier format. Maximum drawing size A1)					(1)						
42	PRESSURE TEST CERTIFICATE (A4 certificate)					(1)						
43	SUPPLIER CERTIFICATE OF COMPLIANCE (A4 document)					(1)						
44	PAINTING / INSULATION COMPLIANCE CERTIFICATE					(1)						
45	WELDING LOG (Welding register)					(1)						
46	CERTIFICATION MATRIX (ATEX, PED, ANY OTHER CERTIFICATION REQUIRED BY THE STATUTORY DIRECTIVES)				Y/4		Y/12	(3)				
47	SIL CERTIFICATES	Y									Y	
48	ATEX REGISTER				Y/4		Y/12	(3)				
49	EQUIPMENT MANUFACTURERS RECORD BOOK – COMPLETE (A4 bound volume(s) to Purchaser specifications)				Y	(6)					Y	
50	ELECTRONIC COPY OF EQUIPMENT MANUFACTURERS RECORD BOOK (FINAL DOSSIER)				Y	(6)						
51	PURCHASER's RELEASE NOTE (Issued by Purchaser)		Y	(3)								
52	CERTIFYING AUTHORITY RELEASE NOTES / WAIVERS		Y	(3)								
	SPARES & MAINTENANCE DATA											
53	SPARE PART INDEX REGISTER (COMMISSIONING, 2-YEAR's OPERATION, INSURANCE)		Y / 8									
54	TECHNICAL OPERATING AND MAINTENANCE MANUAL – COMPLETE (A4 bound volumes to Purchaser's specification)		Y								X	
55	TECHNICAL OPERATING AND MAINTENANCE MANUAL – INDEX		Y								X	
	HANDLING, SHIPPING & SITE INSTALLATION											
56	SHIPPING PROCEDURES (A4 procedure)		Y	(3)								
57	HANDLING AND STORAGE PROCEDURES (A4 procedure)		Y	(3)								
58	ERECTION AND INSTALLATION PROCEDURES (A4 Manuals and Drawings)				Y		Y					

Notes (ref. to brackets above):

(1) - The list of the certificates shall be comprehensive of all the certificates required according to contract and to applicable Codes / Standard / compliance (e.g: ASME STAMP, PED compliance and technical dossier). The certificates shall be collected and submitted as part of the Manufacturer Record Book. All the certificates shall be made available by the Supplier in due time during the manufacturing activities.

(2) - The delivery due date is within the indicated number of weeks after the PO or at least 4 weeks in advance prior the start of the first activity/test covered by the procedure.

(3) - To submit before the shipping of the supply.

(4) - To be updated every 2 weeks.

(5) - To be submitted as soon as the FAT is completed and signatures of the involved party taken.

(6) - MRB - complete - to be delivered in the due time as specified in the PO and, in any case, not later than 30 days of the delivery date of the manufactured item.

ANNEX-2: INSPECTION AND TESTS (IDS)

SUPPLIER shall perform inspection and test at his shop during construction and before shipment.
The inspections and tests shall be carried out in accordance with applicable documents (Project Specifications and Data Sheets, Codes, COMPANY Specifications, etc.).
The SUPPLIER shall submit for approval to CONTRACTOR a detailed Inspection and Testing Plan (ITP) basing on following table (IDS).

ITEM	DESCRIPTION	Testing Authority				REMARKS
		SUP	CTR	CPY	CA	
1	GENERAL					
1.1	Review of the Purchase Order		R	R		
1.2	Valve and actuator General Arrangement Drawing , Data Sheets, Procedures approval check		R	R		
1.3	Review of the design conditions / Check of the calculation notes		R	R		
2	CHECK OF INCOMING MATERIAL					
2.1	Review of unrefined material certificates (visual/dimensional, chemical analysis & mechanical properties) properties of body, closures, obturator, seats, stem, trunnion, bolting and seals	C	N	R		Origin certificate required
2.2	Check of proper material identification by tag/marking	C	N	R		
3	MACHINING AND ASSEMBLING					
3.1	Visual and dimensional inspection 100% Machined components (including flange facings)	C	R	R		
3.2	NDE as per spec. 123A90-DDL-PP-SP-70030 forgings/bars.	C	R	R		
3.3	Electroless Nickel Plating : Thickness measurement, Hardness checking, Adhesion checking.	C	R	R		
3.4	RGD tests certificate (O-rings)	C	R	R		
4	ACTUATOR					
4.1	Dimensional Check	C	N	R		
4.2	Functional verification Actuator	C	R	R		Test Report review
4.3	Functional verification Actuator/Valve assembly	C	W	R		
5	ASSEMBLED VALVE					
5.1	Dimensional check	C	R	R		
5.2	Hydraulic shell Test	H	W	R		
5.3	Hydrostatic, Pneumatic and seat leakage test	H	W	R		
6	INSTRUMENT					
6.1	Verification of mechanical protection certificate	C	R	R		
6.2	Verification of Certificate for hazardous area (as applicable)	C	R	R		
6.3	Functional test instrument	C	W	R		
7	FACTORY ACCEPTANCE TEST					
7.1	Check of purchaser approval of FAT procedure	C	R	R		
7.2	Tagging, Marking and Dimensional check	C	W	R		
7.3	Functional test Actuator/Valve assembly	C	W	R		
7.4	Documentation Check		R	R		

ITEM	DESCRIPTION	Testing Authority				REMARKS
		SUP	CTR	CPY	CA	
8	PAINTING					
8.1	Final inspections: - Appearance check - Control of colour code - Final thickness check - Adhesion test and pull-off test - Porosity test	C	W	R		
8.2	Check of documentation: - Verification for approval by Company of technical documentation required by specification - Paintings documentation (Type/s; Due Date, etc.) - Certificates of conformity to specified application cycle	C	W	R		
9	SPARE PARTS					
9.1	Spare parts for Commissioning and 2-year operation: Visual and dimensional check - Supply status - Identification marking/labelling and correspondence with relating documentation/certifications - Technical documents correspondence	C	W	R		
10	FINAL DOCUMENTATION – MRB & CERTIFICATIONS					
10.1	Manufacturer Data Book Preparation Review	C	R	R		
10.2	Instruction, Operating and Maintenance Manual Review	C	R	R		
10.3	Fire Safe Certification Check		R	R		
10.4	Nameplate check	C	W	R		
10.5	Marking check (ATEX, Dec. of Conformity and certification)	C	W	R		
10.6	Issue of Procedure for Installation, Inspection and Testing on Site, (before use)	C	R	R		
11	PACKING & SHIPPING					
11.1	Packing, transportation and preservation check according to Supply specification	C	W	R		
11.2	Special tools check (if applicable)	C	W	R		
11.3	Issuing of Release Note for Shipping	H	C	R		

Testing Authorities:

SUP SUPPLIER
CTR CONTRACTOR (ROSETTI MARINO)
CPY COMPANY
CA CERTIFYING AUTHORITY (THIRD PARTIES)

Type of action:

H HOLD POINT
W WITNESS POINT
R REVIEW OF THE CERTIFICATES / DOCUMENTS
SW SPOT WITNESS
M MONITORING
C CHECK PERFORMED AND CERTIFICATES / DOCUMENTS ISSUED
N CHECK PERFORMED BUT NO CERTIFICATES / DOCUMENTS HAS BEEN ISSUED

ANNEX-3: COMPLIANCE AND DEVIATION TABLES

Vendor shall submit the completed Table of Compliance and Deviation List as per the table attached below, as a part of the technical offer.
Vendor shall review the entire MR, referenced industry codes / standards and attached project specifications, drawings, data sheets, etc. and confirm compliance in "Table of Compliance". Especially, Vendor shall advise compliance with the above listed documents by indicating "Yes", "Yes with deviations" or "No".
Vendor shall summarize all deviations to MR, referenced industry codes / standards and attached project specifications, drawings, data sheets etc. in the "Deviation List" with required reference document No.s, descriptions, paragraph No.s and complete justifications.
Any requirement in MR, referenced industry codes / standards and attached project specifications, drawings, data sheets etc, but not listed in "Deviation List" will be deemed as fully complied by Vendor.

Table of Compliance					
Sr. No	Document No.	Description	Rev.	Compliance (Yes / Yes with Deviations / No)	Remarks
1	XXX	XXX	XXX	Yes	N/A
2				Yes with Deviations	Refer to Deviation List

Table 4 - Table of Compliance

Deviation List			
Sr. No.	Referenced Document No. and Description	Referenced Section	Proposed Deviation with Justifications by VENDOR
1			
2			
3			
4			
5			
6			
7			
8			

Table 5 - Deviation List

CROSSWIND	HOLLANDSE KUST NOORD WIND PARK Project Contract No. CW-I-WP4-2023-05	ROSETTI MARINO
Document Title:	PART 1 - DESIGN DOSSIER	

08: Data Sheet

Instrument and Valves Data Sheet

Fluitek Valves

This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Base Load Power Hub (BLPH)

TECHNICAL DATASHEET for SDV/BDV and Tight Shut-Off XV Valves

Document Number: 1724000204-IN-DS-00007

Document Class: 2

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
V. Barratta	21-08-2025

Rev.	Date	Description	Prepared	Reviewed	Approved
03	16/07/2025	Accepted for Construction (AFC)	J. Gardone	D. Barcella	L. Mora
02	10/06/2025	Accepted for Construction (AFC)	J. Gardone	D. Barcella	L. Mora
01	28/04/2025	Accepted for Construction (AFC)	J. Gardone	D. Barcella	L. Mora
00	27/12/2024	Issue for Review (IFR)	J. Gardone	D. Barcella	L. Mora

Table of Contents

SH.	DESCRIPTION	REVISIONS							
		00	01	02	03				
1	Cover	X	X	X	X				
2	Table of Contents	X	X	X	X				
3	Revision / Change Log	X	X	X	X				
4	General Requirements / Notes			X	X				
5	General Requirements / Notes			X	X				
6	25-BDV-005	X	X	X	X				
7	25-BDV-007	X	X	X	X				
8	25-BDV-010	X	X	X	X				
9	25-BDV-013	X	X	X	X				
10	25-BDV-016	X	X	X	X				
11	25-BDV-019	X	X	X	X				
12	25-BDV-022	X	X	X	X				
13	25-SDV-001	X	X	X	X				
14	25-SDV-023	X	X	X	X				
15	64-SDV-001		X	X	X				
16	25-XV-004	X	X	X	X				
17	25-XV-006	X	X	X	X				
18	25-XV-008	X	X	X	X				
19	25-XV-009	X	X	X	X				
20	25-XV-011	X	X	X	X				
21	25-XV-012	X	X	X	X				
22	25-XV-014	X	X	X	X				
23	25-XV-015	X	X	X	X				
24	25-XV-017	X	X	X	X				
25	25-XV-018	X	X	X	X				
26	25-XV-020	X	X	X	X				
27	25-XV-021	X	X	X	X				
28	25-XV-024	X	X	X	X				
29	50-XV-001	X	X	X	X				
30	50-XV-002	X	X	X	X				
31	50-XV-003	X	X	X	X				
32	50-XV-004	X	X	X	X				
33	80-XV-001	X	X	X	X				
34	50-XV-005		X	X	X				
35	LIST			X	X				
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									

Revision / Change Log

Rev.	Description
00	ISSUE FOR REVIEW (IFR)
01	ACCEPTED FOR CONSTRUCTION (AFC)
02	ACCEPTED FOR CONSTRUCTION (AFC) Note: updated operating close and opening time
03	ACCEPTED FOR CONSTRUCTION (AFC) Note: revised according the open points of your CRS

HOLDS LIST

No.	Description

GENERAL REQUIREMENTS / NOTES

1) Valve design code shall be API-6D/ ASME-16.34 as per Valve Data sheets (123A90-DDL-PP-DS-70003 DS -Manual Valves).

2) All valves shall have fire-safe or fire-tested design and capability of meeting the requirements of API 6 FA, BS 6755 part 2 and API 607 as applicable.

3) Where required, tight shutoff (TSO) shall be in accordance with ISO5208 Rate A.

4) For shut down (SDV) and blow down valves (BDV), the actuator sizing shall be calculated according to specified criteria. Actuators shall be sized such that it is able to close/open the valve with the maximum operating pressure acting upstream and atmospheric pressure acting downstream (max. differential pressure) within the specified time, taking into consideration minimum actuation medium supply pressure.

5) This datasheet is to be read in conjunction with following documents:
   a) Material Requisition (123A90-DDL-IN-MR-40037);
   b) Specification for Piping Material Classes (123A90-DDL-PP-SP-70000);
   c) Valve Data sheets (123A90-DDL-PP-DS-70003).

6) The Valves shall be a completely assembled unit including the actuators, limit switches etc.

7) All materials and electronic items shall be suitable for use in marine environment.

8) Ambient Temperature Min: -8.4 °C, Norm: 10.5 °C, Max: +25.0 °C.

9) All Electrical equipment shall be Atex certified Exd IIC (or IIB+H2) T1, with ingression protection IP66.

10) All flanges in ASME B31.3 and ASME B31.12 shall be Raised Face type.

11) Each actuator shall be pneumatic and single acting (with scotch-yoke design for protective application).

12) The valve maximum closing time shall be 1 sec/valve inch and max opening time shall be 3 sec/valve inch for fail close valves. For fail open valves, the maximum closing time shall be 3 sec/valve inch and maximum opening time shall be 1 sec/valve inch speed.

13) SDV and BDV valve actuators will be sized to produce twice of the required valve torque at each of valve unseating, run, and valve reseating torques (in both directions), calculated at the valve body design differential pressure with zero pressure downstream. XV valve actuators shall be as per above safety system actuators, except sizing safety factor can be 1.5 times.

14) Actuator and valve including accessories for SDV/BDV shall be SIL 2 minimum certified and shall Comply with SIL/LOPA Study requirement.

15) Solenoid valves shall be direct-operated (24Vdc, low power), have magnetically actuated plunger, spring return, auto-reset, NAMUR NE 19 mounting, whilst exhaust shall be protected from blockage by ice, insects etc.

16) The solenoid coil and spring shall be selected to provide sufficient operational power to position the valve stem correctly under all process conditions. Coils shall be rated for continuous operation and fitted with surge suppression diode.

17) Limit switches shall be Hermetically-sealed H CLASS insulated proximity switches as per IEC60947-5-2/3/6 and provided with terminal box (minimum two entry, dedicated for each signal). Mechanical indicator (Red for Close position & Green for open position) shall be provided

18) Wherever specified, valve open, valve close and partial stroke limit switches shall be mounted on the valve and operate at less than 5 % of the valve travel from their respective limits.

19) Pneumatic tubing and fittings shall be AISI 316L stainless steel with exception of seawater (intake) systems for which the proper material alloy 2507 (UNS S32750) shall be considered. Fittings (Twin-ferrule compression type) and tubing shall be provided by primary manufacture.

20) Material test certificates MTCs shall be provided by Manufacturer for all valves, tubing & fittings. MTCs shall include EN 10204 3.1 certification for all metallic materials.

21) PED 2014/68/EU Pressure Equipment Directive 2014/68/EU shall apply~~ for all piping materials where Category (HOLD 3) is applicable~~.

22) The instrument air supply is available at the following pressure:
   Normal: 9 barg; Minimum: 4 barg; Maximum: 10 barg, Design: 11 barg.
   Actuator and accessories shall be sizing considering above instrument air pressure.

23) Valve including accessories shall be provided with 316 SS identification tag, permanently attached.

24) Stainless steel material shall be dual certified type (i.e. SS 316 / 316L).

GENERAL REQUIREMENTS / NOTES

25) Complete valve inspection and testing requirements shall comply to Material Requisition (123A90-DDL-IN-MR-40037) document.

26) Vendor is responsible for selection of suitable wetted parts material applicable to the specific service condition.

27) The SS nameplate shall indicate the tag number, manufacture name, model number, serial number, size, rating, certification data, and other items as required.

28) The colour of the actuator shall be Standard Vendor.

29) Information with asterisk (*) shall be confirmed or provided by manufacturer according to the service condition.

30) Valve & Actuator orientation shall be finalized by Purchaser as per plant 3D model requirements, Vendor shall submit GA drawings for purchaser's approval before assembly.

31) The Valve accessories shall be mounted on a suitable plate and shall be provided with mounting accessories.

32) Vendor shall provide provision for applying lubrication to gland packing (as applicable).

33) All valves on HYDROGEN service shall be provided with certified packing for Fugitive Emissions in accordance with ISO 15848-1 Cl B and ISO 15848-2.

34) In accordance with TSS - Manual Valves and Strainers 123A90-DDL-PP-SP-70030.

35) Painting and coating in accordance with Coating and Painting Specification 123A90-DDL-MAT-SP-60006.

36) TBD= To Be Defined.

37) PST functionality to be quoted as option including partial stroke limit switch.

38) In-line (process connections) Gasket and Bolting shall be supplied by Contractor.

39) HART revision 7 protocol is required for all electronic device 4-20mA Smart type.

40) 25-BDV-003 valve shall be quoted as option.

GENERAL	1	Tag Number	Location			25-BDV-005		25
	2	Service				HYDROGEN STORAGE TANK V-25001A DEPRESS.		
	3	P&ID Number	Area Classification			123A90-DDL-PR-PID-80015		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number				4"-HY-142-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet		4" / 3.05 mm		4" / 3.05 mm
	6	Line Material	Line Insulation			ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid				HYDROGEN		
	8	Fluid State	Phase			GAS		GAS
	9	Operating Pressure Norm/Min/Max			[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum		[barg]	40		
	11	Operating Temperature Norm/Min/Max			[°C]	AMB	-	-
	12	Design Temperature	Minimum	Max	[°C]	-29		80
	13	Max. Diff. Pressure for Actuator Size			[bar]	40		
	14							
	15							
	16	Speed of	Design			Close :	12 sec	Open : 4 sec
	17	Operation (seconds)	Actual			Close :	1,00	Open : 2,00
	18							
	19							
VALVE BODY	20	Body Type				BALL VALVE (FLOATING BALL) - SPLIT BODY (BA03C01RFH)		
	21	Body Size	Body Form			4"		FULL BORE
	22	Body Material	Bonnet Type			ASTM A182 F316/316L		N.A.
	23	Connections	Rating			FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material			RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation			Graphite		N.A.
	26	Bolting				A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat	A182 F316/316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class				Table 5 API 598		
	29	Fire Safe				API 6FA		
ACTUATOR	30	Manufacturer	Type			Rotork		Spring Return
	31	Model No.	Size			CP/S		055-250A/CA
	32	Actuator Orientation	Actuator Form			Horizontal		Cylinder
	33	Ingress Protection	Certification			IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design	4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure			OPEN		OPEN
	36	Fireproofing				NOT APPLICABLE		
	37	Solenoid Valve				25-BDY-005 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open			25-ZSL-005 - Soldo SQN120E-20X23L7		25-ZSH-005 - Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)				NOT REQUIRED		
	40	Air Set	Handwheel			4 barg		NOT REQUIRED
	41	Mounting Position				HORIZONTAL		
	42	Partial Stroke Test Facility				NOT REQUIRED		
	43	Control Type				-		
	44	Electrical Connection	Electrical Class			M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code			-	-	-
	46	No of Strokes Per Capacity				-		
	47	Safety Valve	Model			-		-
	48	Check Valve	Mounting			-		-
PURCHASE	49	Manufacturer				FLUITEK		
	50	Model				FB2		
	51	Purchase Order Number				1724000204		

GENERAL	1	Tag Number	Location			25-BDV-007		25
	2	Service				HYDROGEN STORAGE TANK V-25001B DEPRESS.		
	3	P&ID Number	Area Classification			123A90-DDL-PR-PID-80016		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number				4"-HY-167-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet		4" / 3.05 mm		4" / 3.05 mm
	6	Line Material	Line Insulation			ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid				HYDROGEN		
	8	Fluid State	Phase			GAS		GAS
	9	Operating Pressure Norm/Min/Max			[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum		[barg]	40		
	11	Operating Temperature Norm/Min/Max			[°C]	AMB	-	-
	12	Design Temperature	Minimum	Maxi	[°C]	-29		80
	13	Max. Diff. Pressure for Actuator Size			[bar]	40		
	14							
	15							
	16	Speed of	Design			Close : 12 sec		Open : 4 sec
	17	Operation (seconds)	Actual			Close : 1,00		Open : 2,00
	18							
	19							
VALVE BODY	20	Body Type				BALL VALVE (FLOATING BALL) - SPLIT BODY (BA03C01RFH)		
	21	Body Size	Body Form			4"		FULL BORE
	22	Body Material	Bonnet Type			ASTM A182 F316/316L		N.A.
	23	Connections	Rating			FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material			RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation			Graphite		N.A.
	26	Bolting				A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat	A182 F316/316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class				Table 5 API 598		
	29	Fire Safe				API 6FA		
ACTUATOR	30	Manufacturer	Type			Rotork		Spring Return
	31	Model No.	Size			CP/S		055-250A/CA
	32	Actuator Orientation	Actuator Form			Horizontal		Cylinder
	33	Ingress Protection	Certification			IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design	4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure			OPEN		OPEN
	36	Fireproofing				NOT APPLICABLE		
	37	Solenoid Valve				25-BDY-007 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open			25-ZSL-007- Soldo SQN120E-20X23L7		25-ZSH-005- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)				NOT REQUIRED		
	40	Air Set	Handwheel			4 barg		NOT REQUIRED
	41	Mounting Position				HORIZONTAL		
	42	Partial Stroke Test Facility				NOT REQUIRED		
	43	Control Type				-		
	44	Electrical Connection	Electrical Class			M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code			-	-	-
	46	No of Strokes Per Capacity				-		
	47	Safety Valve	Model			-		-
	48	Check Valve	Mounting			-		-
PURCHASE	49	Manufacturer				FLUITEK		
	50	Model				FB2		
	51	Purchase Order Number				1724000204		

GENERAL	1	Tag Number	Location			25-BDV-010		25
	2	Service				HYDROGEN STORAGE TANK V-25001C DEPRESS.		
	3	P&ID Number	Area Classification			123A90-DDL-PR-PID-80017		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number				4"-HY-171-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet		4" / 3.05 mm		4" / 3.05 mm
	6	Line Material	Line Insulation			ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid				HYDROGEN		
	8	Fluid State	Phase			GAS		GAS
	9	Operating Pressure Norm/Min/Max			[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum		[barg]	40		
	11	Operating Temperature Norm/Min/Max			[°C]	AMB	-	-
	12	Design Temperature	Minimum	Maxi	[°C]	-29		80
	13	Max. Diff. Pressure for Actuator Size			[bar]	40		
	14							
	15							
	16	Speed of	Design			Close : 12 sec		Open : 4 sec
	17	Operation (seconds)	Actual			Close : 1,00		Open : 2,00
	18							
	19							
VALVE BODY	20	Body Type				BALL VALVE (FLOATING BALL) - SPLIT BODY (BA03C01RFH)		
	21	Body Size	Body Form			4"		FULL BORE
	22	Body Material	Bonnet Type			ASTM A182 F316/316L		N.A.
	23	Connections	Rating			FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material			RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation			Graphite		N.A.
	26	Bolting				A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat	A182 F316/316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class				Table 5 API 598		
	29	Fire Safe				API 6FA		
ACTUATOR	30	Manufacturer	Type			Rotork		Spring Return
	31	Model No.	Size			CP/S		055-250A/CA
	32	Actuator Orientation	Actuator Form			Horizontal		Cylinder
	33	Ingress Protection	Certification			IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design	4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure			OPEN		OPEN
	36	Fireproofing				NOT APPLICABLE		
	37	Solenoid Valve				25-BDY-010 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open			25-ZSL-010- Soldo SQN120E-20X23L7		25-ZSH-010- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)				NOT REQUIRED		
	40	Air Set	Handwheel			4 barg		NOT REQUIRED
	41	Mounting Position				HORIZONTAL		
	42	Partial Stroke Test Facility				NOT REQUIRED		
	43	Control Type				-		
	44	Electrical Connection	Electrical Class			M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code			-	-	-
	46	No of Strokes Per Capacity				-		
	47	Safety Valve	Model			-		-
	48	Check Valve	Mounting			-		-
PURCHASE	49	Manufacturer				FLUITEK		
	50	Model				FB2		
	51	Purchase Order Number				1724000204		

GENERAL	1	Tag Number	Location			25-BDV-013	25
	2	Service				HYDROGEN STORAGE TANK V-25001D DEPRESS.	
	3	P&ID Number	Area Classification			123A90-DDL-PR-PID-80018	Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number				4"-HY-175-03HSS-N	
	5	Line Size and Schedule	Inlet	Outlet		4" / 3.05 mm	4" / 3.05 mm
	6	Line Material	Line Insulation			ASTM A312/TP316/316L	NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid				HYDROGEN	
	8	Fluid State	Phase			GAS	GAS
	9	Operating Pressure Norm/Min/Max			[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum		[barg]	40	
	11	Operating Temperature Norm/Min/Max			[°C]	AMB	-	-
	12	Design Temperature	Minimum	Maxi	[°C]	-29	80
	13	Max. Diff. Pressure for Actuator Size			[bar]	40	
	14						
	15						
	16	Speed of	Design			Close : 12 sec	Open : 4 sec
	17	Operation (seconds)	Actual			Close : 1,00	Open : 2,00
	18						
	19						
VALVE BODY	20	Body Type				BALL VALVE (FLOATING BALL) - SPLIT BODY (BA03C01RFH)	
	21	Body Size	Body Form			4"	FULL BORE
	22	Body Material	Bonnet Type			ASTM A182 F316/316L	N.A.
	23	Connections	Rating			FLANGED ASME B16.5	#300
	24	Flange Finish	Gasket Material			RF	VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation			Graphite	N.A.
	26	Bolting				A193 B8M / A194 Gr. 8M	
	27	Trim Material	Ball	Stem	Seat	A182 F316/316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class				Table 5 API 598	
	29	Fire Safe				API 6FA	
ACTUATOR	30	Manufacturer	Type			Rotork	Spring Return
	31	Model No.	Size			CP/S	055-250A/CA
	32	Actuator Orientation	Actuator Form			Horizontal	Cylinder
	33	Ingress Protection	Certification			IP-66	II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design	4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure			OPEN	OPEN
	36	Fireproofing				NOT APPLICABLE	
	37	Solenoid Valve				25-BDY-013 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid	
	38	Limit Switch Closed	Limit Switch Open			25-ZSL-013- Soldo SQN120E-20X23L7	25-ZSH-013- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)				NOT REQUIRED	
	40	Air Set	Handwheel			4 barg	NOT REQUIRED
	41	Mounting Position				HORIZONTAL	
	42	Partial Stroke Test Facility				NOT REQUIRED	
	43	Control Type				-	
	44	Electrical Connection	Electrical Class			M20	H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code			-	-	-
	46	No of Strokes Per Capacity				-	
	47	Safety Valve	Model			-	-
	48	Check Valve	Mounting			-	-
PURCHASE	49	Manufacturer				FLUITEK	
	50	Model				FB2	
	51	Purchase Order Number				1724000204	

GENERAL	1	Tag Number	Location			25-BDV-016	25
	2	Service				HYDROGEN STORAGE TANK V-25001E DEPRESS.	
	3	P&ID Number	Area Classification			123A90-DDL-PR-PID-80019	Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number				4"-HY-180-03HSS-N	
	5	Line Size and Schedule	Inlet	Outlet		4" / 3.05 mm	4" / 3.05 mm
	6	Line Material	Line Insulation			ASTM A312/TP316/316L	NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid				HYDROGEN	
	8	Fluid State	Phase			GAS	GAS
	9	Operating Pressure Norm/Min/Max			[barg]	- / 7.5	30
	10	Design Pressure	Full Vacuum		[barg]	40	
	11	Operating Temperature Norm/Min/Max			[°C]	AMB / -	-
	12	Design Temperature	Minimum	Maxi	[°C]	-29	80
	13	Max. Diff. Pressure for Actuator Size			[bar]	40	
	14						
	15						
	16	Speed of	Design			Close : 12 sec	Open : 4 sec
	17	Operation (seconds)	Actual			Close : 1,00	Open : 2,00
	18						
	19						
VALVE BODY	20	Body Type				BALL VALVE (FLOATING BALL) - SPLIT BODY (BA03C01RFH)	
	21	Body Size	Body Form			4"	FULL BORE
	22	Body Material	Bonnet Type			ASTM A182 F316/316L	N.A.
	23	Connections	Rating			FLANGED ASME B16.5	#300
	24	Flange Finish	Gasket Material			RF	VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation			Graphite	N.A.
	26	Bolting				A193 B8M / A194 Gr. 8M	
	27	Trim Material	Ball	Stem	Seat	A182 F316/316L	API 6A CRA UNS N07718 / RPTFE
	28	Leakage Class				Table 5 API 598	
	29	Fire Safe				API 6FA	
ACTUATOR	30	Manufacturer	Type			Rotork	Spring Return
	31	Model No.	Size			CP/S	055-250A/CA
	32	Actuator Orientation	Actuator Form			Horizontal	Cylinder
	33	Ingress Protection	Certification			IP-66	II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design	4 barg / 10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure			OPEN	OPEN
	36	Fireproofing				NOT APPLICABLE	
	37	Solenoid Valve				25-BDY-016 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid	
	38	Limit Switch Closed	Limit Switch Open			25-ZSL-016- Soldo SQN120E-20X23L7	25-ZSH-016- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)				NOT REQUIRED	
	40	Air Set	Handwheel			4 barg	NOT REQUIRED
	41	Mounting Position				HORIZONTAL	
	42	Partial Stroke Test Facility				NOT REQUIRED	
	43	Control Type				-	
	44	Electrical Connection	Electrical Class			M20	H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code			-	- / -
	46	No of Strokes Per Capacity				-	
	47	Safety Valve	Model			-	-
	48	Check Valve	Mounting			-	-
PURCHASE	49	Manufacturer				FLUITEK	
	50	Model				FB2	
	51	Purchase Order Number				1724000204	

GENERAL	1	Tag Number	Location				25-BDV-019		25
	2	Service					HYDROGEN STORAGE TANK V-25001F DEPRESS.		
	3	P&ID Number	Area Classification				123A90-DDL-PR-PID-80020		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number					4"-HY-184-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet			4" / 3.05 mm		4" / 3.05 mm
	6	Line Material	Line Insulation				ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid					HYDROGEN		
	8	Fluid State	Phase				GAS		GAS
	9	Operating Pressure Norm/Min/Max				[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum			[barg]	40		
	11	Operating Temperature Norm/Min/Max				[°C]	AMB	-	-
	12	Design Temperature	Minimum	Maxi		[°C]	-29		80
	13	Max. Diff. Pressure for Actuator Size				[bar]	40		
	14								
	15								
	16	Speed of	Design				Close : 12 sec		Open : 4 sec
	17	Operation (seconds)	Actual				Close : 1,00		Open : 2,00
	18								
	19								
VALVE BODY	20	Body Type					BALL VALVE (FLOATING BALL) - SPLIT BODY (BA03C01RFH)		
	21	Body Size	Body Form				4"		FULL BORE
	22	Body Material	Bonnet Type				ASTM A182 F316/316L		N.A.
	23	Connections	Rating				FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material				RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation				Graphite		N.A.
	26	Bolting					A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat		A182 F316/316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class					Table 5 API 598		
	29	Fire Safe					API 6FA		
ACTUATOR	30	Manufacturer	Type				Rotork		Spring Return
	31	Model No.	Size				CP/S		055-250A/CA
	32	Actuator Orientation	Actuator Form				Horizontal		Cylinder
	33	Ingress Protection	Certification				IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design		4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure				OPEN		OPEN
	36	Fireproofing					NOT APPLICABLE		
	37	Solenoid Valve					25-BDY-019 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open				25-ZSL-019- Soldo SQN120E-20X23L7		25-ZSH-019- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)					NOT REQUIRED		
	40	Air Set	Handwheel				4 barg		NOT REQUIRED
	41	Mounting Position					HORIZONTAL		
	42	Partial Stroke Test Facility					NOT REQUIRED		
	43	Control Type					-		
	44	Electrical Connection	Electrical Class				M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code				-	-	-
	46	No of Strokes Per Capacity					-		
	47	Safety Valve	Model				-		-
	48	Check Valve	Mounting				-		-
PURCHASE	49	Manufacturer					FLUITEK		
	50	Model					FB2		
	51	Purchase Order Number					1724000204		

GENERAL	1	Tag Number	Location				25-BDV-022		25
	2	Service					HYDROGEN TO FUEL CELL PACKAGE DEPRESS.		
	3	P&ID Number	Area Classification				123A90-DDL-PR-PID-80014		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number					1"-HY-144-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet			1" / 3.38 mm		1" / 3.38 mm
	6	Line Material	Line Insulation				ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid					HYDROGEN		
	8	Fluid State	Phase				GAS		GAS
	9	Operating Pressure Norm/Min/Max			[barg]		-	7.5	30
	10	Design Pressure	Full Vacuum		[barg]		40		
	11	Operating Temperature Norm/Min/Max			[°C]		AMB	-	-
	12	Design Temperature	Minimum	Maxi	[°C]		-29		80
	13	Max. Diff. Pressure for Actuator Size			[bar]		40		
	14								
	15								
	16	Speed of	Design				Close : 3 sec		Open : 1 sec
	17	Operation (seconds)	Actual				Close : 0,47		Open : 0,40
	18								
	19								
VALVE BODY	20	Body Type					BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)		
	21	Body Size	Body Form				1"		FULL BORE
	22	Body Material	Bonnet Type				ASTM A182 F316/316L		N.A.
	23	Connections	Rating				FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material				RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation				Graphite		N.A.
	26	Bolting					A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat		A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class					Table 5 API 598		
	29	Fire Safe					API 6FA		
ACTUATOR	30	Manufacturer	Type				Rotork		Spring Return
	31	Model No.	Size				CP/S		035-100A/BA
	32	Actuator Orientation	Actuator Form				Horizontal		Cylinder
	33	Ingress Protection	Certification				IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design		4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure				OPEN		OPEN
	36	Fireproofing					NOT APPLICABLE		
	37	Solenoid Valve					25-BDY-022 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open				25-ZSL-022- Soldo SQN120E-20X23L7		25-ZSH-022- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)					NOT REQUIRED		
	40	Air Set	Handwheel				4 barg		NOT REQUIRED
	41	Mounting Position					HORIZONTAL		
	42	Partial Stroke Test Facility					NOT REQUIRED		
	43	Control Type					-		
	44	Electrical Connection	Electrical Class				M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code				-	-	-
	46	No of Strokes Per Capacity					-		
	47	Safety Valve	Model				-		-
	48	Check Valve	Mounting				-		-
PURCHASE	49	Manufacturer					FLUITEK		
	50	Model					FB2		
	51	Purchase Order Number					1724000204		

GENERAL	1	Tag Number	Location			25-SDV-001		25
	2	Service				HYDROGEN TO STORAGE TANKS		
	3	P&ID Number	Area Classification			123A90-DDL-PR-PID-80013		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number				1"-HY-007-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet		1" / 3.38 mm		1" / 3.38 mm
	6	Line Material	Line Insulation			ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid				HYDROGEN		
	8	Fluid State	Phase			GAS		GAS
	9	Operating Pressure Norm/Min/Max			[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum		[barg]	40		
	11	Operating Temperature Norm/Min/Max			[°C]	-	5	65
	12	Design Temperature	Minimum	Maxi	[°C]	-29		80
	13	Max. Diff. Pressure for Actuator Size			[bar]	40		
	14							
	15							
	16	Speed of	Design			Close :	1 sec	Open : 3 sec
	17	Operation (seconds)	Actual			Close :	0,48	Open : 0,41
	18							
	19							
VALVE BODY	20	Body Type				BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)		
	21	Body Size	Body Form			1"		FULL BORE
	22	Body Material	Bonnet Type			ASTM A182 F316/316L		N.A.
	23	Connections	Rating			FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material			RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation			Graphite		N.A.
	26	Bolting				A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat	A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class				Table 5 API 598		
	29	Fire Safe				API 6FA		
ACTUATOR	30	Manufacturer	Type			Rotork		Spring Return
	31	Model No.	Size			CP/S		035-100A/AA
	32	Actuator Orientation	Actuator Form			Horizontal		Cylinder
	33	Ingress Protection	Certification			IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design	4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure			CLOSE		CLOSE
	36	Fireproofing				NOT APPLICABLE		
	37	Solenoid Valve				25-SDY-001 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open			25-ZSL-001- Soldo SQN120E-20X23L7		25-ZSH-001- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)				NOT REQUIRED		
	40	Air Set	Handwheel			4 barg		NOT REQUIRED
	41	Mounting Position				HORIZONTAL		
	42	Partial Stroke Test Facility				NOT REQUIRED		
	43	Control Type				-		
	44	Electrical Connection	Electrical Class			M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code			-	-	-
	46	No of Strokes Per Capacity				-		
	47	Safety Valve	Model			-		-
	48	Check Valve	Mounting			-		-
PURCHASE	49	Manufacturer				FLUITEK		
	50	Model				FB2		
	51	Purchase Order Number				1724000204		

GENERAL	1	Tag Number	Location				25-SDV-023		25
	2	Service					HYDROGEN TO FUEL CELL PACKAGE		
	3	P&ID Number	Area Classification				123A90-DDL-PR-PID-80014		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number					1-1/2"-HY-148-03HSS-N		
	5	Line Size and Schedule		Inlet		Outlet	1-1/2" / 3.68 mm		1-1/2" / 3.68 mm
	6	Line Material	Line Insulation				ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid					HYDROGEN		
	8	Fluid State	Phase				GAS		GAS
	9	Operating Pressure Norm/Min/Max				[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum			[barg]	40		
	11	Operating Temperature Norm/Min/Max				[°C]	AMB	-	-
	12	Design Temperature	Minimum		Maxi	[°C]	-29		80
	13	Max. Diff. Pressure for Actuator Size				[bar]	40		
	14								
	15								
	16	Speed of	Design				Close : 1.5 sec		Open : 4.5 sec
	17	Operation (seconds)	Actual				Close : 1,00		Open : 2,00
	18								
	19								
VALVE BODY	20	Body Type					BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)		
	21	Body Size	Body Form				1-1/2"		FULL BORE
	22	Body Material	Bonnet Type				ASTM A182 F316/316L		N.A.
	23	Connections	Rating				FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material				RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation				Graphite		N.A.
	26	Bolting					A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem		Seat	A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class					Table 5 API 598		
	29	Fire Safe					API 6FA		
ACTUATOR	30	Manufacturer	Type				Rotork		Spring Return
	31	Model No.	Size				CP/S		035-130A/CA
	32	Actuator Orientation	Actuator Form				Horizontal		Cylinder
	33	Ingress Protection	Certification				IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max		Design	4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure				CLOSE		CLOSE
	36	Fireproofing					NOT APPLICABLE		
	37	Solenoid Valve					25-SDY-004 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open				25-ZSL-023- Soldo SQN120E-20X23L7		25-ZSH-023- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)					NOT REQUIRED		
	40	Air Set	Handwheel				4 barg		NOT REQUIRED
	41	Mounting Position					HORIZONTAL		
	42	Partial Stroke Test Facility					NOT REQUIRED		
	43	Control Type					-		
	44	Electrical Connection	Electrical Class				M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code				-	-	-
	46	No of Strokes Per Capacity					-		
	47	Safety Valve	Model				-		-
	48	Check Valve	Mounting				-		-
PURCHASE	49	Manufacturer					FLUITEK		
	50	Model					FB2		
	51	Purchase Order Number					1724000204		

GENERAL	1	Tag Number	Location			64-SDV-001		64
	2	Service				NITROGEN TO H2 STORAGE VESSELS INLET		
	3	P&ID Number	Area Classification			123A90-DDL-PR-PID-80027		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number				1"-N-128-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet		1" / 3.38 mm		1" / 3.38 mm
	6	Line Material	Line Insulation			ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid				NITROGEN GAS		
	8	Fluid State	Phase			GAS		GAS
	9	Operating Pressure Norm/Min/Max			[barg]	6	-	-
	10	Design Pressure	Full Vacuum		[barg]	10		
	11	Operating Temperature Norm/Min/Max			[°C]	AMB	-	-
	12	Design Temperature	Minimum	Maxi	[°C]	-46		80
	13	Max. Diff. Pressure for Actuator Size			[bar]	10		
	14							
	15							
	16	Speed of	Design			Close : 1 sec		Open : 3 sec
	17	Operation (seconds)	Actual			Close : 0,47		Open : 0,40
	18							
	19							
VALVE BODY	20	Body Type				BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFHS)		
	21	Body Size	Body Form			1"		FULL BORE
	22	Body Material	Bonnet Type			ASTM A182 F316/316L		N.A.
	23	Connections	Rating			FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material			RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation			Graphite		N.A.
	26	Bolting				A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat	A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class				Table 5 API 598		
	29	Fire Safe				API 6FA		
ACTUATOR	30	Manufacturer	Type			Rotork		Spring Return
	31	Model No.	Size			CP/S		035-080A/AA
	32	Actuator Orientation	Actuator Form			Horizontal		Cylinder
	33	Ingress Protection	Certification			IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design	4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure			CLOSE		CLOSE
	36	Fireproofing				NOT APPLICABLE		
	37	Solenoid Valve				64-SDY-001 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open			64-ZSL-001- Soldo SQN120E-20X23L7		64-ZSH-001- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)				NOT REQUIRED		
	40	Air Set	Handwheel			4 barg		NOT REQUIRED
	41	Mounting Position				HORIZONTAL		
	42	Partial Stroke Test Facility				NOT REQUIRED		
	43	Control Type				-		
	44	Electrical Connection	Electrical Class			M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code			-	-	-
	46	No of Strokes Per Capacity				-		
	47	Safety Valve	Model			-		-
	48	Check Valve	Mounting			-		-
PURCHASE	49	Manufacturer				FLUITEK		
	50	Model				FB2		
	51	Purchase Order Number				1724000204		

GENERAL	1	Tag Number	Location		25-XV-004		25
	2	Service			HYDROGEN STORAGE TANK V-25001A INLET		
	3	P&ID Number	Area Classification		123A90-DDL-PR-PID-80015		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number			1"-HY-015-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet	1" / 3.38 mm		1" / 3.38 mm
	6	Line Material	Line Insulation		ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid			HYDROGEN		
	8	Fluid State	Phase		GAS		GAS
	9	Operating Pressure Norm/Min/Max		[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum	[barg]	40		
	11	Operating Temperature Norm/Min/Max		[°C]	-	5	65
	12	Design Temperature	Minimum	Maxi [°C]	-29		80
	13	Max. Diff. Pressure for Actuator Size		[bar]	40		
	14						
	15						
	16	Speed of	Design		Close : 1 sec		Open : 3 sec
	17	Operation (seconds)	Actual		Close : 0,45		Open : 0,41
	18						
	19						
VALVE BODY	20	Body Type			BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)		
	21	Body Size	Body Form		1"		FULL BORE
	22	Body Material	Bonnet Type		ASTM A182 F316/316L		N.A.
	23	Connections	Rating		FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material		RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation		Graphite		N.A.
	26	Bolting			A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem / Seat	A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class			Table 5 API 598		
	29	Fire Safe			API 6FA		
ACTUATOR	30	Manufacturer	Type		Rotork		Spring Return
	31	Model No.	Size		CP/S		035-100A/BA
	32	Actuator Orientation	Actuator Form		Horizontal		Cylinder
	33	Ingress Protection	Certification		IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min / Max / Design		4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure		CLOSE		CLOSE
	36	Fireproofing			NOT APPLICABLE		
	37	Solenoid Valve			25-XY-004 -FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open		25-ZSL-004- Soldo SQN120E-20X23L7		25-ZSH-004- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)			NOT REQUIRED		
	40	Air Set	Handwheel		4 barg		NOT REQUIRED
	41	Mounting Position			HORIZONTAL		
	42	Partial Stroke Test Facility			NOT REQUIRED		
	43	Control Type			-		
	44	Electrical Connection	Electrical Class		M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code		-	-	-
	46	No of Strokes Per Capacity			-		
	47	Safety Valve	Model		-		-
	48	Check Valve	Mounting		-		-
PURCHASE	49	Manufacturer			FLUITEK		
	50	Model			FB2		
	51	Purchase Order Number			1724000204		

GENERAL	1	Tag Number	Location			25-XV-006	25
	2	Service				HYDROGEN STORAGE TANK V-25001A OUTLET	
	3	P&ID Number	Area Classification			123A90-DDL-PR-PID-80015	Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number				1"-HY-026-03HSS-N	
	5	Line Size and Schedule	Inlet	Outlet		1" / 3.38 mm	1" / 3.38 mm
	6	Line Material	Line Insulation			ASTM A312/TP316/316L	NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid				HYDROGEN	
	8	Fluid State	Phase			GAS	GAS
	9	Operating Pressure Norm/Min/Max			[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum		[barg]	40	
	11	Operating Temperature Norm/Min/Max			[°C]	AMB	-	-
	12	Design Temperature	Minimum	Maxi	[°C]	-29	80
	13	Max. Diff. Pressure for Actuator Size			[bar]	40	
	14						
	15						
	16	Speed of	Design			Close : 1 sec	Open : 3 sec
	17	Operation (seconds)	Actual			Close : 0,46	Open : 0,41
	18						
	19						
VALVE BODY	20	Body Type				BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)	
	21	Body Size	Body Form			1"	FULL BORE
	22	Body Material	Bonnet Type			ASTM A182 F316/316L	N.A.
	23	Connections	Rating			FLANGED ASME B16.5	#300
	24	Flange Finish	Gasket Material			RF	VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation			Graphite	N.A.
	26	Bolting				A193 B8M / A194 Gr. 8M	
	27	Trim Material	Ball	Stem	Seat	A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class				Table 5 API 598	
	29	Fire Safe				API 6FA	
ACTUATOR	30	Manufacturer	Type			Rotork	Spring Return
	31	Model No.	Size			CP/S	035-100A/BA
	32	Actuator Orientation	Actuator Form			Horizontal	Cylinder
	33	Ingress Protection	Certification			IP-66	II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design	4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure			CLOSE	CLOSE
	36	Fireproofing				NOT APPLICABLE	
	37	Solenoid Valve				25-XY-006- FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid	
	38	Limit Switch Closed	Limit Switch Open			25-ZSL-006- Soldo SQN120E-20X23L7	25-ZSH-006- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)				NOT REQUIRED	
	40	Air Set	Handwheel			4 barg	NOT REQUIRED
	41	Mounting Position				HORIZONTAL	
	42	Partial Stroke Test Facility				NOT REQUIRED	
	43	Control Type				-	
	44	Electrical Connection	Electrical Class			M20	H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code			-	-	-
	46	No of Strokes Per Capacity				-	
	47	Safety Valve	Model			-	-
	48	Check Valve	Mounting			-	-
PURCHASE	49	Manufacturer				FLUITEK	
	50	Model				FB2	
	51	Purchase Order Number				1724000204	

GENERAL	1	Tag Number	Location				25-XV-008		25
	2	Service					HYDROGEN STORAGE TANK V-25001B INLET		
	3	P&ID Number	Area Classification				123A90-DDL-PR-PID-80016		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number					1"-HY-016-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet			1" / 3.38 mm		1" / 3.38 mm
	6	Line Material	Line Insulation				ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid					HYDROGEN		
	8	Fluid State	Phase				GAS		GAS
	9	Operating Pressure Norm/Min/Max				[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum			[barg]	40		
	11	Operating Temperature Norm/Min/Max				[°C]	-	5	65
	12	Design Temperature	Minimum	Maxi		[°C]	-29		80
	13	Max. Diff. Pressure for Actuator Size				[bar]	40		
	14								
	15								
	16	Speed of	Design				Close :	1 sec	Open : 3 sec
	17	Operation (seconds)	Actual				Close :	0,41	Open : 0,40
	18								
	19								
VALVE BODY	20	Body Type					BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)		
	21	Body Size	Body Form				1"		FULL BORE
	22	Body Material	Bonnet Type				ASTM A182 F316/316L		N.A.
	23	Connections	Rating				FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material				RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation				Graphite		N.A.
	26	Bolting					A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat		A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class					(1, 3) TSO		
	29	Fire Safe					API 6FA		
ACTUATOR	30	Manufacturer	Type				Rotork		Spring Return
	31	Model No.	Size				CP/S		035-100A/BA
	32	Actuator Orientation	Actuator Form				Horizontal		Cylinder
	33	Ingress Protection	Certification				IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design		4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure				CLOSE		CLOSE
	36	Fireproofing					NOT APPLICABLE		
	37	Solenoid Valve					25-XY-008 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open				25-ZSL-008- Soldo SQN120E-20X23L7		25-ZSH-008- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)					NOT REQUIRED		
	40	Air Set	Handwheel				4 barg		NOT REQUIRED
	41	Mounting Position					HORIZONTAL		
	42	Partial Stroke Test Facility					NOT REQUIRED		
	43	Control Type					-		
	44	Electrical Connection	Electrical Class				M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code				-	-	-
	46	No of Strokes Per Capacity					-		
	47	Safety Valve	Model				-		-
	48	Check Valve	Mounting				-		-
PURCHASE	49	Manufacturer					FLUITEK		
	50	Model					FB2		
	51	Purchase Order Number					1724000204		

GENERAL	1	Tag Number	Location				25-XV-009		25
	2	Service					HYDROGEN STORAGE TANK V-25001B OUTLET		
	3	P&ID Number	Area Classification				123A90-DDL-PR-PID-80016		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number					1"-HY-132-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet			1" / 3.38 mm		1" / 3.38 mm
	6	Line Material	Line Insulation				ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid					HYDROGEN		
	8	Fluid State	Phase				GAS		GAS
	9	Operating Pressure Norm/Min/Max				[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum			[barg]	40		
	11	Operating Temperature Norm/Min/Max				[°C]	AMB	-	-
	12	Design Temperature	Minimum	Maxi		[°C]	-29		80
	13	Max. Diff. Pressure for Actuator Size				[bar]	40		
	14								
	15								
	16	Speed of	Design				Close : 1 sec		Open : 3 sec
	17	Operation (seconds)	Actual				Close : 0,49		Open : 0,41
	18								
	19								
VALVE BODY	20	Body Type					BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)		
	21	Body Size	Body Form				1"		FULL BORE
	22	Body Material	Bonnet Type				ASTM A182 F316/316L		N.A.
	23	Connections	Rating				FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material				RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation				Graphite		N.A.
	26	Bolting					A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat		A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class					Table 5 API 598		
	29	Fire Safe					API 6FA		
ACTUATOR	30	Manufacturer	Type				Rotork		Spring Return
	31	Model No.	Size				CP/S		035-100A/BA
	32	Actuator Orientation	Actuator Form				Horizontal		Cylinder
	33	Ingress Protection	Certification				IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design		4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure				CLOSE		CLOSE
	36	Fireproofing					NOT APPLICABLE		
	37	Solenoid Valve					25-XY-009- FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open				25-ZSL-009- Soldo SQN120E-20X23L7		25-ZSH-009- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)					NOT REQUIRED		
	40	Air Set	Handwheel				4 barg		NOT REQUIRED
	41	Mounting Position					HORIZONTAL		
	42	Partial Stroke Test Facility					NOT REQUIRED		
	43	Control Type					-		
	44	Electrical Connection	Electrical Class				M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code				-	-	-
	46	No of Strokes Per Capacity					-		
	47	Safety Valve	Model				-		-
	48	Check Valve	Mounting				-		-
PURCHASE	49	Manufacturer					FLUITEK		
	50	Model					FB2		
	51	Purchase Order Number					1724000204		

GENERAL	1	Tag Number	Location				25-XV-011		25
	2	Service					HYDROGEN STORAGE TANK V-25001C INLET		
	3	P&ID Number	Area Classification				123A90-DDL-PR-PID-80017		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number					1"-HY-017-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet			1" / 3.38 mm		1" / 3.38 mm
	6	Line Material	Line Insulation				ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid					HYDROGEN		
	8	Fluid State	Phase				GAS		GAS
	9	Operating Pressure Norm/Min/Max				[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum			[barg]	40		
	11	Operating Temperature Norm/Min/Max				[°C]	-	5	65
	12	Design Temperature	Minimum	Maxi		[°C]	-29		80
	13	Max. Diff. Pressure for Actuator Size				[bar]	40		
	14								
	15								
	16	Speed of	Design				Close :	1 sec	Open : 3 sec
	17	Operation (seconds)	Actual				Close :	0,46	Open : 0,49
	18								
	19								
VALVE BODY	20	Body Type					BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)		
	21	Body Size	Body Form				1"		FULL BORE
	22	Body Material	Bonnet Type				ASTM A182 F316/316L		N.A.
	23	Connections	Rating				FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material				RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation				Graphite		N.A.
	26	Bolting					A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat		A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class					Table 5 API 598		
	29	Fire Safe					API 6FA		
ACTUATOR	30	Manufacturer	Type				Rotork		Spring Return
	31	Model No.	Size				CP/S		035-100A/BA
	32	Actuator Orientation	Actuator Form				Horizontal		Cylinder
	33	Ingress Protection	Certification				IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design		4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure				CLOSE		CLOSE
	36	Fireproofing					NOT APPLICABLE		
	37	Solenoid Valve					25-XY-011 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open				25-ZSL-011- Soldo SQN120E-20X23L7		25-ZSH-011- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)					NOT REQUIRED		
	40	Air Set	Handwheel				4 barg		NOT REQUIRED
	41	Mounting Position					HORIZONTAL		
	42	Partial Stroke Test Facility					NOT REQUIRED		
	43	Control Type					-		
	44	Electrical Connection	Electrical Class				M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code				-	-	-
	46	No of Strokes Per Capacity					-		
	47	Safety Valve	Model				-		-
	48	Check Valve	Mounting				-		-
PURCHASE	49	Manufacturer					FLUITEK		
	50	Model					FB2		
	51	Purchase Order Number					1724000204		

GENERAL	1	Tag Number	Location				25-XV-012		25
	2	Service					HYDROGEN STORAGE TANK V-25001C OUTLET		
	3	P&ID Number	Area Classification				123A90-DDL-PR-PID-80017		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number					1"-HY-133-03HSS-N		
	5	Line Size and Schedule		Inlet		Outlet	1" / 3.38 mm		1" / 3.38 mm
	6	Line Material	Line Insulation				ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid					HYDROGEN		
	8	Fluid State	Phase				GAS		GAS
	9	Operating Pressure Norm/Min/Max				[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum			[barg]	40		
	11	Operating Temperature Norm/Min/Max				[°C]	AMB	-	-
	12	Design Temperature	Minimum		Maxi	[°C]	-29		80
	13	Max. Diff. Pressure for Actuator Size				[bar]	40		
	14								
	15								
	16	Speed of	Design				Close : 1 sec		Open : 3 sec
	17	Operation (seconds)	Actual				Close : 0,39 (2 SEC)		Open : 0,40 (2 SEC)
	18								
	19								
VALVE BODY	20	Body Type					BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)		
	21	Body Size	Body Form				1"		FULL BORE
	22	Body Material	Bonnet Type				ASTM A182 F316/316L		N.A.
	23	Connections	Rating				FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material				RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation				Graphite		N.A.
	26	Bolting					A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem		Seat	A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class					Table 5 API 598		
	29	Fire Safe					API 6FA		
ACTUATOR	30	Manufacturer	Type				Rotork		Spring Return
	31	Model No.	Size				CP/S		035-100A/BA
	32	Actuator Orientation	Actuator Form				Horizontal		Cylinder
	33	Ingress Protection	Certification				IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min		Max	Design	4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure				CLOSE		CLOSE
	36	Fireproofing					NOT APPLICABLE		
	37	Solenoid Valve					25-XY-012- FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open				25-ZSL-012- Soldo SQN120E-20X23L7		25-ZSH-012- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)					NOT REQUIRED		
	40	Air Set	Handwheel				4 barg		NOT REQUIRED
	41	Mounting Position					HORIZONTAL		
	42	Partial Stroke Test Facility					NOT REQUIRED		
	43	Control Type					-		
	44	Electrical Connection	Electrical Class				M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code				-	-	-
	46	No of Strokes Per Capacity					-		
	47	Safety Valve	Model				-		-
	48	Check Valve	Mounting				-		-
PURCHASE	49	Manufacturer					FLUITEK		
	50	Model					FB2		
	51	Purchase Order Number					1724000204		

GENERAL	1	Tag Number	Location			25-XV-014		25
	2	Service				HYDROGEN STORAGE TANK V-25001D INLET		
	3	P&ID Number	Area Classification			123A90-DDL-PR-PID-80018		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number				1"-HY-018-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet		1" / 3.38 mm		1" / 3.38 mm
	6	Line Material	Line Insulation			ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid				HYDROGEN		
	8	Fluid State	Phase			GAS		GAS
	9	Operating Pressure Norm/Min/Max			[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum		[barg]	40		
	11	Operating Temperature Norm/Min/Max			[°C]	-	5	65
	12	Design Temperature	Minimum	Maxi	[°C]	-29		80
	13	Max. Diff. Pressure for Actuator Size			[bar]	40		
	14							
	15							
	16	Speed of	Design			Close :	1 sec	Open : 3 sec
	17	Operation (seconds)	Actual			Close :	0,49	Open : 0,38
	18							
	19							
VALVE BODY	20	Body Type				BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)		
	21	Body Size	Body Form			1"		FULL BORE
	22	Body Material	Bonnet Type			ASTM A182 F316/316L		N.A.
	23	Connections	Rating			FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material			RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation			Graphite		N.A.
	26	Bolting				A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat	A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class				Table 5 API 598		
	29	Fire Safe				API 6FA		
ACTUATOR	30	Manufacturer	Type			Rotork		Spring Return
	31	Model No.	Size			CP/S		035-100A/BA
	32	Actuator Orientation	Actuator Form			Horizontal		Cylinder
	33	Ingress Protection	Certification			IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design	4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure			CLOSE		CLOSE
	36	Fireproofing				NOT APPLICABLE		
	37	Solenoid Valve				25-XY-014-FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open			25-ZSL-014- Soldo SQN120E-20X23L7		25-ZSH-014- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)				NOT REQUIRED		
	40	Air Set	Handwheel			4 barg		NOT REQUIRED
	41	Mounting Position				HORIZONTAL		
	42	Partial Stroke Test Facility				NOT REQUIRED		
	43	Control Type				-		
	44	Electrical Connection	Electrical Class			M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code			-	-	-
	46	No of Strokes Per Capacity				-		
	47	Safety Valve	Model			-		-
	48	Check Valve	Mounting			-		-
PURCHASE	49	Manufacturer				FLUITEK		
	50	Model				FB2		
	51	Purchase Order Number				1724000204		

GENERAL	1	Tag Number	Location			25-XV-015		25
	2	Service				HYDROGEN STORAGE TANK V-25001D OUTLET		
	3	P&ID Number	Area Classification			123A90-DDL-PR-PID-80018		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number				1"-HY-134-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet		1" / 3.38 mm		1" / 3.38 mm
	6	Line Material	Line Insulation			ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid				HYDROGEN		
	8	Fluid State	Phase			GAS		GAS
	9	Operating Pressure Norm/Min/Max			[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum		[barg]	40		
	11	Operating Temperature Norm/Min/Max			[°C]	AMB	-	-
	12	Design Temperature	Minimum	Maxi	[°C]	-29		80
	13	Max. Diff. Pressure for Actuator Size			[bar]	40		
	14							
	15							
	16	Speed of	Design			Close : 1 sec		Open : 3 sec
	17	Operation (seconds)	Actual			Close : 0,45		Open : 0,42
	18							
	19							
VALVE BODY	20	Body Type				BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)		
	21	Body Size	Body Form			1"		FULL BORE
	22	Body Material	Bonnet Type			ASTM A182 F316/316L		N.A.
	23	Connections	Rating			FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material			RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation			Graphite		N.A.
	26	Bolting				A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat	A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class				Table 5 API 598		
	29	Fire Safe				API 6FA		
ACTUATOR	30	Manufacturer	Type			Rotork		Spring Return
	31	Model No.	Size			CP/S		035-100A/BA
	32	Actuator Orientation	Actuator Form			Horizontal		Cylinder
	33	Ingress Protection	Certification			IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design	4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure			CLOSE		CLOSE
	36	Fireproofing				NOT APPLICABLE		
	37	Solenoid Valve				25-XY-015 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open			25-ZSL-015- Soldo SQN120E-20X23L7		25-ZSH-015- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)				NOT REQUIRED		
	40	Air Set	Handwheel			4 barg		NOT REQUIRED
	41	Mounting Position				HORIZONTAL		
	42	Partial Stroke Test Facility				NOT REQUIRED		
	43	Control Type				-		
	44	Electrical Connection	Electrical Class			M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code			-	-	-
	46	No of Strokes Per Capacity				-		
	47	Safety Valve	Model			-		-
	48	Check Valve	Mounting			-		-
PURCHASE	49	Manufacturer				FLUITEK		
	50	Model				FB2		
	51	Purchase Order Number				1724000204		

GENERAL	1	Tag Number	Location			25-XV-017		25
	2	Service				HYDROGEN STORAGE TANK V-25001E INLET		
	3	P&ID Number	Area Classification			123A90-DDL-PR-PID-80019		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number				1"-HY-019-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet		1" / 3.38 mm		1" / 3.38 mm
	6	Line Material	Line Insulation			ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid				HYDROGEN		
	8	Fluid State	Phase			GAS		GAS
	9	Operating Pressure Norm/Min/Max			[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum		[barg]	40		
	11	Operating Temperature Norm/Min/Max			[°C]	-	5	65
	12	Design Temperature	Minimum	Maxi	[°C]	-29		80
	13	Max. Diff. Pressure for Actuator Size			[bar]	40		
	14							
	15							
	16	Speed of	Design			Close :	1 sec	Open : 3 sec
	17	Operation (seconds)	Actual			Close :	0,51	Open : 0,38
	18							
	19							
VALVE BODY	20	Body Type				BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)		
	21	Body Size	Body Form			1"		FULL BORE
	22	Body Material	Bonnet Type			ASTM A182 F316/316L		N.A.
	23	Connections	Rating			FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material			RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation			Graphite		N.A.
	26	Bolting				A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat	A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class				Table 5 API 598		
	29	Fire Safe				API 6FA		
ACTUATOR	30	Manufacturer	Type			Rotork		Spring Return
	31	Model No.	Size			CP/S		035-100A/BA
	32	Actuator Orientation	Actuator Form			Horizontal		Cylinder
	33	Ingress Protection	Certification			IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design	4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure			CLOSE		CLOSE
	36	Fireproofing				NOT APPLICABLE		
	37	Solenoid Valve				25-XY-017 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open			25-ZSL-017- Soldo SQN120E-20X23L7		25-ZSH-017- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)				NOT REQUIRED		
	40	Air Set	Handwheel			4 barg		NOT REQUIRED
	41	Mounting Position				HORIZONTAL		
	42	Partial Stroke Test Facility				NOT REQUIRED		
	43	Control Type				-		
	44	Electrical Connection	Electrical Class			M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code			-	-	-
	46	No of Strokes Per Capacity				-		
	47	Safety Valve	Model			-		-
	48	Check Valve	Mounting			-		-
PURCHASE	49	Manufacturer				FLUITEK		
	50	Model				FB2		
	51	Purchase Order Number				1724000204		

GENERAL	1	Tag Number	Location				25-XV-018		25
	2	Service					HYDROGEN STORAGE TANK V-25001E OUTLET		
	3	P&ID Number	Area Classification				123A90-DDL-PR-PID-80019		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number					1"-HY-135-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet			1" / 3.38 mm		1" / 3.38 mm
	6	Line Material	Line Insulation				ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid					HYDROGEN		
	8	Fluid State	Phase				GAS		GAS
	9	Operating Pressure Norm/Min/Max			[barg]		-	7.5	30
	10	Design Pressure	Full Vacuum		[barg]		40		
	11	Operating Temperature Norm/Min/Max			[°C]		AMB	-	-
	12	Design Temperature	Minimum	Maxi	[°C]		-29		80
	13	Max. Diff. Pressure for Actuator Size			[bar]		40		
	14								
	15								
	16	Speed of	Design				Close :	1 sec	Open : 3 sec
	17	Operation (seconds)	Actual				Close :	0,45	Open : 0,40
	18								
	19								
VALVE BODY	20	Body Type					BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)		
	21	Body Size	Body Form				1"		FULL BORE
	22	Body Material	Bonnet Type				ASTM A182 F316/316L		N.A.
	23	Connections	Rating				FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material				RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation				Graphite		N.A.
	26	Bolting					A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat		A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class					Table 5 API 598		
	29	Fire Safe					API 6FA		
ACTUATOR	30	Manufacturer	Type				Rotork		Spring Return
	31	Model No.	Size				CP/S		035-100A/BA
	32	Actuator Orientation	Actuator Form				Horizontal		Cylinder
	33	Ingress Protection	Certification				IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design		4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure				CLOSE		CLOSE
	36	Fireproofing					NOT APPLICABLE		
	37	Solenoid Valve					25-XY-018 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open				25-ZSL-018- Soldo SQN120E-20X23L7		25-ZSH-018- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)					NOT REQUIRED		
	40	Air Set	Handwheel				4 barg		NOT REQUIRED
	41	Mounting Position					HORIZONTAL		
	42	Partial Stroke Test Facility					NOT REQUIRED		
	43	Control Type					-		
	44	Electrical Connection	Electrical Class				M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code				-	-	-
	46	No of Strokes Per Capacity					-		
	47	Safety Valve	Model				-		-
	48	Check Valve	Mounting				-		-
PURCHASE	49	Manufacturer					FLUITEK		
	50	Model					FB2		
	51	Purchase Order Number					1724000204		

GENERAL	1	Tag Number	Location				25-XV-020	25
	2	Service					HYDROGEN STORAGE TANK V-25001F INLET	
	3	P&ID Number	Area Classification				123A90-DDL-PR-PID-80020	Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number					1"-HY-020-03HSS-N	
	5	Line Size and Schedule		Inlet		Outlet	1" / 3.38 mm	1" / 3.38 mm
	6	Line Material	Line Insulation				ASTM A312/TP316/316L	NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid					HYDROGEN	
	8	Fluid State	Phase				GAS	GAS
	9	Operating Pressure Norm/Min/Max				[barg]	-	7.5	30
	10	Design Pressure	Full Vacuum			[barg]	40	
	11	Operating Temperature Norm/Min/Max				[°C]	-	5	65
	12	Design Temperature	Minimum		Maxi	[°C]	-29	80
	13	Max. Diff. Pressure for Actuator Size				[bar]	40	
	14							
	15							
	16	Speed of	Design				Close : 1 sec	Open : 3 sec
	17	Operation (seconds)	Actual				Close : 0,47	Open : 0,40
	18							
	19							
VALVE BODY	20	Body Type					BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)	
	21	Body Size	Body Form				1"	FULL BORE
	22	Body Material	Bonnet Type				ASTM A182 F316/316L	N.A.
	23	Connections	Rating				FLANGED ASME B16.5	#300
	24	Flange Finish	Gasket Material				RF	VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation				Graphite	N.A.
	26	Bolting					A193 B8M / A194 Gr. 8M	
	27	Trim Material	Ball	Stem		Seat	A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class					Table 5 API 598	
	29	Fire Safe					API 6FA	
ACTUATOR	30	Manufacturer	Type				Rotork	Spring Return
	31	Model No.	Size				CP/S	035-100A/BA
	32	Actuator Orientation	Actuator Form				Horizontal	Cylinder
	33	Ingress Protection	Certification				IP-66	II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min		Max	Design	4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure				CLOSE	CLOSE
	36	Fireproofing					NOT APPLICABLE	
	37	Solenoid Valve					25-XY-020- FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid	
	38	Limit Switch Closed	Limit Switch Open				25-ZSL-020- Soldo SQN120E-20X23L7	25-ZSH-020- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)					NOT REQUIRED	
	40	Air Set	Handwheel				4 barg	NOT REQUIRED
	41	Mounting Position					HORIZONTAL	
	42	Partial Stroke Test Facility					NOT REQUIRED	
	43	Control Type					-	
	44	Electrical Connection	Electrical Class				M20	H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code				-	-	-
	46	No of Strokes Per Capacity					-	
	47	Safety Valve	Model				-	-
	48	Check Valve	Mounting				-	-
PURCHASE	49	Manufacturer					FLUITEK	
	50	Model					FB2	
	51	Purchase Order Number					1724000204	

GENERAL	1	Tag Number	Location				25-XV-021		25
	2	Service					HYDROGEN STORAGE TANK V-25001F OUTLET		
	3	P&ID Number	Area Classification				123A90-DDL-PR-PID-80020		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number					1"-HY-136-03HSS-N		
	5	Line Size and Schedule	Inlet	Outlet			1" / 3.38 mm		1" / 3.38 mm
	6	Line Material	Line Insulation				ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid					HYDROGEN		
	8	Fluid State	Phase				GAS		GAS
	9	Operating Pressure Norm/Min/Max			[barg]		-	7.5	30
	10	Design Pressure	Full Vacuum		[barg]		40		
	11	Operating Temperature Norm/Min/Max			[°C]		AMB	-	-
	12	Design Temperature	Minimum	Maxi	[°C]		-29		80
	13	Max. Diff. Pressure for Actuator Size			[bar]		40		
	14								
	15								
	16	Speed of	Design				Close :	1 sec	Open : 3 sec
	17	Operation (seconds)	Actual				Close :	0,48	Open : 0,40
	18								
	19								
VALVE BODY	20	Body Type					BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)		
	21	Body Size	Body Form				1"		FULL BORE
	22	Body Material	Bonnet Type				ASTM A182 F316/316L		N.A.
	23	Connections	Rating				FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material				RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation				Graphite		N.A.
	26	Bolting					A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat		A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class					Table 5 API 598		
	29	Fire Safe					API 6FA		
ACTUATOR	30	Manufacturer	Type				Rotork		Spring Return
	31	Model No.	Size				CP/S		035-100A/BA
	32	Actuator Orientation	Actuator Form				Horizontal		Cylinder
	33	Ingress Protection	Certification				IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design		4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure				CLOSE		CLOSE
	36	Fireproofing					NOT APPLICABLE		
	37	Solenoid Valve					25-XY-021- FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open				25-ZSL-021- Soldo SQN120E-20X23L7		25-ZSH-021- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)					NOT REQUIRED		
	40	Air Set	Handwheel				4 barg		NOT REQUIRED
	41	Mounting Position					HORIZONTAL		
	42	Partial Stroke Test Facility					NOT REQUIRED		
	43	Control Type					-		
	44	Electrical Connection	Electrical Class				M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code				-	-	-
	46	No of Strokes Per Capacity					-		
	47	Safety Valve	Model				-		-
	48	Check Valve	Mounting				-		-
PURCHASE	49	Manufacturer					FLUITEK		
	50	Model					FB2		
	51	Purchase Order Number					1724000204		

GENERAL	1	Tag Number	Location			25-XV-024		25	
	2	Service				HYDROGEN TO STORAGE TANKS DEPRESS.			
	3	P&ID Number	Area Classification			123A90-DDL-PR-PID-80013		Zone 2, Gas Group IIC (or IIB+H2), Class T1	
PIPELINE	4	Line Number				1"-HY-143-03HSS-N			
	5	Line Size and Schedule	Inlet	Outlet		1" / 3.38 mm		1" / 3.38 mm	
	6	Line Material	Line Insulation			ASTM A312/TP316/316L		NOT INSUL. (PAINTED)	
PROCESS DATA	7	Fluid				HYDROGEN			
	8	Fluid State	Phase			GAS		GAS	
	9	Operating Pressure Norm/Min/Max			[barg]	-	7.5	30	
	10	Design Pressure	Full Vacuum		[barg]	40			
	11	Operating Temperature Norm/Min/Max			[°C]	-	5	65	
	12	Design Temperature	Minimum	Maxi	[°C]	-29		80	
	13	Max. Diff. Pressure for Actuator Size			[bar]	40			
	14								
	15								
	16	Speed of	Design			Close :	1 sec	Open :	3 sec
	17	Operation (seconds)	Actual			Close :	0,47	Open :	0,42
	18								
	19								
VALVE BODY	20	Body Type				BALL VALVE (FLOATING BALL) - SPLIT BODY (BS03C01RFH)			
	21	Body Size	Body Form			1"		FULL BORE	
	22	Body Material	Bonnet Type			ASTM A182 F316/316L		N.A.	
	23	Connections	Rating			FLANGED ASME B16.5		#300	
	24	Flange Finish	Gasket Material			RF		VITON GLT AED+GRAPHITE	
	25	Packing	Lubrication & Isolation			Graphite		N.A.	
	26	Bolting				A193 B8M / A194 Gr. 8M			
	27	Trim Material	Ball	Stem	Seat	A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE	
	28	Leakage Class				Table 5 API 598			
	29	Fire Safe				API 6FA			
ACTUATOR	30	Manufacturer	Type			Rotork		Spring Return	
	31	Model No.	Size			CP/S		035-100A/BA	
	32	Actuator Orientation	Actuator Form			Horizontal		Cylinder	
	33	Ingress Protection	Certification			IP-66		II 2 G Ex h IIC T5 Gb	
	34	Air Supply	Min	Max	Design	4 barg	10 barg	11 barg	
	35	Action on Air Failure	Action on Power Failure			CLOSE		CLOSE	
	36	Fireproofing				NOT APPLICABLE			
	37	Solenoid Valve				25-XY-024- FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid			
	38	Limit Switch Closed	Limit Switch Open			25-ZSL-024- Soldo SQN120E-20X23L7		25-ZSH-024- Soldo SQN120E-20X23L7	
	39	Elect. Reset Pushbutton (Actuator mounted)				NOT REQUIRED			
	40	Air Set	Handwheel			4 barg		NOT REQUIRED	
	41	Mounting Position				HORIZONTAL			
	42	Partial Stroke Test Facility				NOT REQUIRED			
	43	Control Type				-			
	44	Electrical Connection	Electrical Class			M20		H	
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code			-		-	-
	46	No of Strokes Per Capacity				-			
	47	Safety Valve	Model			-		-	
	48	Check Valve	Mounting			-		-	
PURCHASE	49	Manufacturer				FLUITEK			
	50	Model				FB2			
	51	Purchase Order Number				1724000204			

GENERAL	1	Tag Number	Location				50-XV-001		50
	2	Service					SEA WATER P-50001A DISCHARGE		
	3	P&ID Number	Area Classification				123A90-DDL-PR-PID-80021		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number					1-1/2"-SWS-031-01SD-E		
	5	Line Size and Schedule	Inlet	Outlet			1-1/2" / 3.68 mm		1-1/2" / 3.68 mm
	6	Line Material	Line Insulation				ASTM A790 UNS S32760		ELECTRICALLY HEAT TRACED
PROCESS DATA	7	Fluid					SEA WATER SUPPLY		
	8	Fluid State	Phase				LIQUID		LIQUID
	9	Operating Pressure Norm/Min/Max	[barg]				15	-	-
	10	Design Pressure	Full Vacuum	[barg]			17.7		
	11	Operating Temperature Norm/Min/Max	[°C]				22	-	-
	12	Design Temperature	Minimum	Maxi	[°C]		-29		100
	13	Max. Diff. Pressure for Actuator Size	[bar]				17.7		
	14								
	15								
	16	Speed of	Design				Close : 1.5 sec		Open : 4.5 sec
	17	Operation (seconds)	Actual				Close : 0,38		Open : 0,38
	18								
	19								
VALVE BODY (34)	20	Body Type					BALL VALVE (FLOATING BALL) - SPLIT BODY (BS01F01RF)		
	21	Body Size	Body Form				1-1/2"		FULL BORE
	22	Body Material	Bonnet Type				ASTM A182 F53		N.A.
	23	Connections	Rating				FLANGED ASME B16.5		#150
	24	Flange Finish	Gasket Material				RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation				Graphite		N.A.
	26	Bolting					A193 B7 +HDG / A194 Gr. 2H + HDG		
	27	Trim Material	Ball	Stem	Seat		ASTM A182 F53	ASTM A182 F53	RPTFE
	28	Leakage Class					Table 5 API 598		
	29	Fire Safe					API 6FA		
ACTUATOR	30	Manufacturer	Type				Rotork		Spring Return
	31	Model No.	Size				CP/S		035-100A/BA
	32	Actuator Orientation	Actuator Form				Horizontal		Cylinder
	33	Ingress Protection	Certification				IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design		4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure				CLOSE		CLOSE
	36	Fireproofing					NOT APPLICABLE		
	37	Solenoid Valve					50-XY-001- FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open				50-ZSL-001- Soldo SQN120E-20X23L7		50-ZSH-001- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)					NOT REQUIRED		
	40	Air Set	Handwheel				4 barg		NOT REQUIRED
	41	Mounting Position					HORIZONTAL / VERTICAL		
	42	Partial Stroke Test Facility					-		
	43	Control Type					-		
	44	Electrical Connection	Electrical Class				M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code				-	-	-
	46	No of Strokes Per Capacity					-		
	47	Safety Valve	Model				-		-
	48	Check Valve	Mounting				-		-
PURCHASE	49	Manufacturer					FLUITEK		
	50	Model					FB2		
	51	Purchase Order Number					1724000204		

GENERAL	1	Tag Number	Location			50-XV-002	50
	2	Service				SEA WATER P-50001A INLET	
	3	P&ID Number	Area Classification			123A90-DDL-PR-PID-80021	Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number				1"-SWS-146-01SD-E	
	5	Line Size and Schedule	Inlet	Outlet		1" / 3.38 mm	1" / 3.38 mm
	6	Line Material	Line Insulation			ASTM A790 UNS S32760	ELECTRICALLY HEAT TRACED
PROCESS DATA	7	Fluid				SEA WATER SUPPLY	
	8	Fluid State	Phase			LIQUID	LIQUID
	9	Operating Pressure Norm/Min/Max			[barg]	-	ATM / 15
	10	Design Pressure	Full Vacuum		[barg]	17.7	
	11	Operating Temperature Norm/Min/Max			[°C]	-	- / -
	12	Design Temperature	Minimum	Maxi	[°C]	-29	100
	13	Max. Diff. Pressure for Actuator Size			[bar]	17.7	
	14						
	15						
	16	Speed of	Design			Close : 1 sec	Open : 3 sec
	17	Operation (seconds)	Actual			Close : 1,00	Open : 2,00
	18						
	19						
VALVE BODY	20	Body Type				BALL VALVE (FLOATING BALL) - SPLIT BODY (BS01F01RF)	
	21	Body Size	Body Form			1"	FULL BORE
	22	Body Material	Bonnet Type			ASTM A182 F53	N.A.
	23	Connections	Rating			FLANGED ASME B16.5	#150
	24	Flange Finish	Gasket Material			RF	VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation			Graphite	N.A.
	26	Bolting				A193 B7 +HDG / A194 Gr. 2H + HDG	
	27	Trim Material	Ball	Stem	Seat	ASTM A182 F53	ASTM A182 F53 / RPTFE
	28	Leakage Class				Table 5 API 598	
	29	Fire Safe				API 6FA	
ACTUATOR	30	Manufacturer	Type			Rotork	Spring Return
	31	Model No.	Size			CP/S	035-100A/BA
	32	Actuator Orientation	Actuator Form			Horizontal	Cylinder
	33	Ingress Protection	Certification			IP-66	II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design	4 barg	10 barg / 11 barg
	35	Action on Air Failure	Action on Power Failure			CLOSE	CLOSE
	36	Fireproofing				NOT APPLICABLE	
	37	Solenoid Valve				50-XY-002 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid	
	38	Limit Switch Closed	Limit Switch Open			50-ZSL-002- Soldo SQN120E-20X23L7	50-ZSH-002- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)				NOT REQUIRED	
	40	Air Set	Handwheel			4 barg	NOT REQUIRED
	41	Mounting Position				HORIZONTAL / VERTICAL	
	42	Partial Stroke Test Facility				-	
	43	Control Type				-	
	44	Electrical Connection	Electrical Class			M20	H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code			-	- / -
	46	No of Strokes Per Capacity				-	
	47	Safety Valve	Model			-	-
	48	Check Valve	Mounting			-	-
PURCHASE	49	Manufacturer				FLUITEK	
	50	Model				FB2	
	51	Purchase Order Number				1724000204	

GENERAL	1	Tag Number	Location				50-XV-003		50
	2	Service					SEA WATER P-50001B DISCHARGE		
	3	P&ID Number	Area Classification				123A90-DDL-PR-PID-80021		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number					1-1/2"-SWS-033-01SD-E		
	5	Line Size and Schedule	Inlet	Outlet			1-1/2" / 3.68 mm		1-1/2" / 3.68 mm
	6	Line Material	Line Insulation				ASTM A790 UNS S32760		ELECTRICALLY HEAT TRACED
PROCESS DATA	7	Fluid					SEA WATER SUPPLY		
	8	Fluid State	Phase				LIQUID		LIQUID
	9	Operating Pressure Norm/Min/Max			[barg]		15	-	-
	10	Design Pressure	Full Vacuum		[barg]		17.7		
	11	Operating Temperature Norm/Min/Max			[°C]		22	-	-
	12	Design Temperature	Minimum	Maxi	[°C]		-29		100
	13	Max. Diff. Pressure for Actuator Size			[bar]		17.7		
	14								
	15								
	16	Speed of	Design				Close :	1.5 sec	Open : 4.5 sec
	17	Operation (seconds)	Actual				Close :	0,39	Open : 0,40
	18								
	19								
VALVE BODY	20	Body Type					BALL VALVE (FLOATING BALL) - SPLIT BODY (BS01F01RF)		
	21	Body Size	Body Form				1-1/2"		FULL BORE
	22	Body Material	Bonnet Type				ASTM A182 F53		N.A.
	23	Connections	Rating				FLANGED ASME B16.5		#150
	24	Flange Finish	Gasket Material				RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation				Graphite		N.A.
	26	Bolting					A193 B7 +HDG / A194 Gr. 2H + HDG		
	27	Trim Material	Ball	Stem	Seat		ASTM A182 F53	ASTM A182 F53	RPTFE
	28	Leakage Class					Table 5 API 598		
	29	Fire Safe					API 6FA		
ACTUATOR	30	Manufacturer	Type				Rotork		Spring Return
	31	Model No.	Size				CP/S		035-100A/BA
	32	Actuator Orientation	Actuator Form				Horizontal		Cylinder
	33	Ingress Protection	Certification				IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design		4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure				CLOSE		CLOSE
	36	Fireproofing					NOT APPLICABLE		
	37	Solenoid Valve					50-XY-003 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open				50-ZSL-003- Soldo SQN120E-20X23L7		50-ZSH-003- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)					NOT REQUIRED		
	40	Air Set	Handwheel				4 barg		NOT REQUIRED
	41	Mounting Position					HORIZONTAL / VERTICAL		
	42	Partial Stroke Test Facility					-		
	43	Control Type					-		
	44	Electrical Connection	Electrical Class				M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code				-	-	-
	46	No of Strokes Per Capacity					-		
	47	Safety Valve	Model				-		-
	48	Check Valve	Mounting				-		-
PURCHASE	49	Manufacturer					FLUITEK		
	50	Model					FB2		
	51	Purchase Order Number					1724000204		

GENERAL	1	Tag Number	Location				50-XV-004		50
	2	Service					SEA WATER P-50001B INLET		
	3	P&ID Number	Area Classification				123A90-DDL-PR-PID-80021		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number					1"-SWS-147-01SD-E		
	5	Line Size and Schedule	Inlet	Outlet			1" / 3.38 mm		1" / 3.38 mm
	6	Line Material	Line Insulation				ASTM A790 UNS S32760		ELECTRICALLY HEAT TRACED
PROCESS DATA	7	Fluid					SEA WATER SUPPLY		
	8	Fluid State	Phase				LIQUID		LIQUID
	9	Operating Pressure Norm/Min/Max			[barg]		-	ATM	15
	10	Design Pressure	Full Vacuum		[barg]		17.7		
	11	Operating Temperature Norm/Min/Max			[°C]		-	-	-
	12	Design Temperature	Minimum	Maxi	[°C]		-29		100
	13	Max. Diff. Pressure for Actuator Size			[bar]		17.7		
	14								
	15								
	16	Speed of	Design				Close :	1 sec	Open : 3 sec
	17	Operation (seconds)	Actual				Close :	1,00	Open : 2,00
	18								
	19								
VALVE BODY	20	Body Type					BALL VALVE (FLOATING BALL) - SPLIT BODY (BS01F01RF)		
	21	Body Size	Body Form				1"		FULL BORE
	22	Body Material	Bonnet Type				ASTM A182 F53		N.A.
	23	Connections	Rating				FLANGED ASME B16.5		#150
	24	Flange Finish	Gasket Material				RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation				Graphite		N.A.
	26	Bolting					A193 B7 +HDG / A194 Gr. 2H + HDG		
	27	Trim Material	Ball	Stem	Seat		ASTM A182 F53	ASTM A182 F53	RPTFE
	28	Leakage Class					Table 5 API 598		
	29	Fire Safe					API 6FA		
ACTUATOR	30	Manufacturer	Type				Rotork		Spring Return
	31	Model No.	Size				CP/S		035-100A/BA
	32	Actuator Orientation	Actuator Form				Horizontal		Cylinder
	33	Ingress Protection	Certification				IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design		4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure				CLOSE		CLOSE
	36	Fireproofing					NOT APPLICABLE		
	37	Solenoid Valve					50-XY-004 -FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open				50-ZSL-004- Soldo SQN120E-20X23L7		50-ZSH-004- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)					NOT REQUIRED		
	40	Air Set	Handwheel				4 barg		NOT REQUIRED
	41	Mounting Position					HORIZONTAL / VERTICAL		
	42	Partial Stroke Test Facility					-		
	43	Control Type					-		
	44	Electrical Connection	Electrical Class				M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code				-	-	-
	46	No of Strokes Per Capacity					-		
	47	Safety Valve	Model				-		-
	48	Check Valve	Mounting				-		-
PURCHASE	49	Manufacturer					FLUITEK		
	50	Model					FB2		
	51	Purchase Order Number					1724000204		

GENERAL	1	Tag Number	Location				80-XV-001		80
	2	Service					HYDROGEN TO FUEL CELL PACKAGE VENTED		
	3	P&ID Number	Area Classification				123A90-DDL-PR-PID-80012		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number					1"-HY-163-01HSS-N		
	5	Line Size and Schedule	Inlet	Outlet			1" / 3.38 mm		1" / 3.38 mm
	6	Line Material	Line Insulation				ASTM A312/TP316/316L		NOT INSUL. (PAINTED)
PROCESS DATA	7	Fluid					HYDROGEN		
	8	Fluid State	Phase				GAS		GAS
	9	Operating Pressure Norm/Min/Max			[barg]		-	3.5	6.5
	10	Design Pressure	Full Vacuum		[barg]		10		
	11	Operating Temperature Norm/Min/Max			[°C]		AMB	-	-
	12	Design Temperature	Minimum	Maxi	[°C]		-29		100
	13	Max. Diff. Pressure for Actuator Size			[bar]		10		
	14								
	15								
	16	Speed of	Design				Close :	1 sec	Open : 3 sec
	17	Operation (seconds)	Actual				Close :	1,00	Open : 2,00
	18								
	19								
VALVE BODY	20	Body Type					BALL VALVE (FLOATING BALL) - SPLIT BODY (BS01C01RFH)		
	21	Body Size	Body Form				1"		FULL BORE
	22	Body Material	Bonnet Type				ASTM A182 F316/316L		N.A.
	23	Connections	Rating				FLANGED ASME B16.5		#300
	24	Flange Finish	Gasket Material				RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation				Graphite		N.A.
	26	Bolting					A193 B8M / A194 Gr. 8M		
	27	Trim Material	Ball	Stem	Seat		A182 F316 / 316L	API 6A CRA UNS N07718	RPTFE
	28	Leakage Class					Table 5 API 598		
	29	Fire Safe					API 6FA		
ACTUATOR	30	Manufacturer	Type				Rotork		Spring Return
	31	Model No.	Size				CP/S		035-080A/AA
	32	Actuator Orientation	Actuator Form				Horizontal		Cylinder
	33	Ingress Protection	Certification				IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design		4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure				CLOSE		CLOSE
	36	Fireproofing					NOT APPLICABLE		
	37	Solenoid Valve					80-XY-021 - FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open				80-ZSL-021- Soldo SQN120E-20X23L7		80-ZSH-021- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)					NOT REQUIRED		
	40	Air Set	Handwheel				4 barg		NOT REQUIRED
	41	Mounting Position					HORIZONTAL		
	42	Partial Stroke Test Facility					NOT REQUIRED		
	43	Control Type					-		
	44	Electrical Connection	Electrical Class				M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code				-	-	-
	46	No of Strokes Per Capacity					-		
	47	Safety Valve	Model				-		-
	48	Check Valve	Mounting				-		-
PURCHASE	49	Manufacturer					FLUITEK		
	50	Model					FB2		
	51	Purchase Order Number					1724000204		

GENERAL	1	Tag Number	Location			50-XV-005		50
	2	Service				SEA WATER P-50001A DISCHARGE		
	3	P&ID Number	Area Classification			123A90-DDL-PR-PID-80021		Zone 2, Gas Group IIC (or IIB+H2), Class T1
PIPELINE	4	Line Number				1-1/2"-SWS-031-01SD-E		
	5	Line Size and Schedule	Inlet	Outlet		1-1/2" / 3.68 mm		1-1/2" / 3.68 mm
	6	Line Material	Line Insulation			ASTM A790 UNS S32760		ELECTRICALLY HEAT TRACED
PROCESS DATA	7	Fluid				SEA WATER SUPPLY		
	8	Fluid State	Phase			LIQUID		LIQUID
	9	Operating Pressure Norm/Min/Max			[barg]	15	-	-
	10	Design Pressure	Full Vacuum		[barg]	17.7		
	11	Operating Temperature Norm/Min/Max			[°C]	22	-	-
	12	Design Temperature	Minimum	Maxi	[°C]	-29		100
	13	Max. Diff. Pressure for Actuator Size			[bar]	17.7		
	14							
	15							
	16	Speed of	Design			Close :	1.5 sec	Open : 4.5 sec
	17	Operation (seconds)	Actual			Close :	0,26	Open : 0,46
	18							
	19							
VALVE BODY	20	Body Type				BALL VALVE (FLOATING BALL) - SPLIT BODY (BS01F01RF)		
	21	Body Size	Body Form			1-1/2"		FULL BORE
	22	Body Material	Bonnet Type			ASTM A182 F53		N.A.
	23	Connections	Rating			FLANGED ASME B16.5		#150
	24	Flange Finish	Gasket Material			RF		VITON GLT AED+GRAPHITE
	25	Packing	Lubrication & Isolation			Graphite		N.A.
	26	Bolting				A193 B7 +HDG / A194 Gr. 2H + HDG		
	27	Trim Material	Ball	Stem	Seat	ASTM A182 F53	ASTM A182 F53	RPTFE
	28	Leakage Class				Table 5 API 598		
	29	Fire Safe				API 6FA		
ACTUATOR	30	Manufacturer	Type			Rotork		Spring Return
	31	Model No.	Size			CP/S		035-100A/BA
	32	Actuator Orientation	Actuator Form			Horizontal		Cylinder
	33	Ingress Protection	Certification			IP-66		II 2 G Ex h IIC T5 Gb
	34	Air Supply	Min	Max	Design	4 barg	10 barg	11 barg
	35	Action on Air Failure	Action on Power Failure			CLOSE		CLOSE
	36	Fireproofing				NOT APPLICABLE		
	37	Solenoid Valve				50-XY-001- FP06P-S1-04-32-NU-V-77A-24D-57 Bifold solenoid		
	38	Limit Switch Closed	Limit Switch Open			50-ZSL-001- Soldo SQN120E-20X23L7		50-ZSH-001- Soldo SQN120E-20X23L7
	39	Elect. Reset Pushbutton (Actuator mounted)				NOT REQUIRED		
	40	Air Set	Handwheel			4 barg		NOT REQUIRED
	41	Mounting Position				HORIZONTAL / VERTICAL		
	42	Partial Stroke Test Facility				-		
	43	Control Type				-		
	44	Electrical Connection	Electrical Class			M20		H
EMERGENCY A/S VESSEL	45	Capacity	Fabrication Code			-	-	-
	46	No of Strokes Per Capacity				-		
	47	Safety Valve	Model			-		-
	48	Check Valve	Mounting			-		-
PURCHASE	49	Manufacturer				FLUITEK		
	50	Model				FB2		
	51	Purchase Order Number				1724000204		

TAGNAME	TYPOLOGY	P&ID	SIZE	CLASS	RATING	FLANGES	B. MATERIAL	TYPICAL	TSO	AIR FAIL	FULL BORE
25-BDV-022	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80014	1"	03HSS	#300	B31.12	SS	4	-	FO	YES
25-BDV-005	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80015	3"	03HSS	#300	B31.12	SS	4	-	FO	YES
25-BDV-007	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80016	3"	03HSS	#300	B31.12	SS	4	-	FO	YES
25-BDV-010	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80017	3"	03HSS	#300	B31.12	SS	4	-	FO	YES
25-BDV-013	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80018	3"	03HSS	#300	B31.12	SS	4	-	FO	YES
25-BDV-016	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80019	3"	03HSS	#300	B31.12	SS	4	-	FO	YES
25-BDV-019	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80020	3"	03HSS	#300	B31.12	SS	4	-	FO	YES
25-SDV-001	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80013	1"	03HSS	#300	B31.12	SS	2	-	FC	YES
25-SDV-023	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80014	1,5"	03HSS	#300	B31.12	SS	2	-	FC	YES
25-XV-004	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80015	1"	03HSS	#300	B31.12	SS	1	-	FC	YES
25-XV-006	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80016	1"	03HSS	#300	B31.12	SS	1	-	FC	YES
25-XV-008	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80016	1"	03HSS	#300	B31.12	SS	1	-	FC	YES
25-XV-009	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80016	1"	03HSS	#300	B31.12	SS	1	-	FC	YES
25-XV-011	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80017	1"	03HSS	#300	B31.12	SS	1	-	FC	YES
25-XV-012	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80017	1"	03HSS	#300	B31.12	SS	1	-	FC	YES
25-XV-014	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80018	1"	03HSS	#300	B31.12	SS	1	-	FC	YES
25-XV-015	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80018	1"	03HSS	#300	B31.12	SS	1	-	FC	YES
25-XV-017	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80019	1"	03HSS	#300	B31.12	SS	1	-	FC	YES
25-XV-018	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80019	1"	03HSS	#300	B31.12	SS	1	-	FC	YES
25-XV-020	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80020	1"	03HSS	#300	B31.12	SS	1	-	FC	YES
25-XV-021	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80020	1"	03HSS	#300	B31.12	SS	1	-	FC	YES
25-XV-024	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80014	1,5"	03HSS	#300	B31.12	SS	1	-	FC	YES
50-XV-001	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80021	1,5"	01SD	#150	B31.3	SD	1	-	FC	YES
50-XV-002	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80021	1"	01SD	#150	B31.3	SD	1	-	FC	YES
50-XV-003	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80021	1,5"	01SD	#150	B31.3	SD	1	-	FC	YES
50-XV-004	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80021	1"	01SD	#150	B31.3	SD	1	-	FC	YES
80-XV-001	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80012	1"	01HSS	#150	B31.12	SS	1	-	FC	YES
64-SDV-001	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80027	1"	01CS	#300	B31.3	CS	2	-	FC	YES
50-XV-005	ON-OFF BALL VALVE	123A90-DDL-PR-PID-80021	1,5"	01SD	#150	B31.3	SD	1	-	FC	YES

09: Spare Parts

Spare Part and Special Tools Index Register (Commissioning, 2 Years Operation)

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Base Load Power Hub (BLPH)

Commissioning and 2 years spare parts list
SDV-BDV AND TIGHT SHUT-OFF VALVES

Document Number: 1724000204-COM-LIS-00015

Document Class: 2

03	23/09/2025	Accepted for construction (AFC)	A.Ceresoli	A.Testi	M.Carrara
02	04/09/2025	Accepted for construction (AFC)	A.Ceresoli	A.Testi	M.Carrara
01	18/04/2025	Accepted for construction (AFC)	I.Rizzo	A.Alborghetti	M.Carrara
00	14/03/2025	Issue for Review (IFR)	I.Rizzo	A.Alborghetti	M.Carrara
Rev.	Date	Description	Prepared	Reviewed	Approved

Revision / Change Log

Rev.	Description
00	Issue for Review (IFR)
01	Accepted for Construction (AFC)
02	Accepted for Construction (AFC)
03	Accepted for Construction (AFC)

HOLDS LIST

No.	Description

ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	Commissioning and 2 years spare parts list					
The document relates to	HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)					Contract: CW-I-WP4-2023-05
Project ID	123A90	Doc. n° 1724000204-COM-LIS-00015	Rev.: Accepted for Construction	Rev. Date: 23-Sep-25	Status: AFC	Class: 2

The equipment consists of the following units/components

1	Tag no.					
2	Tag description	FLOATING B.V. DN 1" CL 300	FLOATING B.V. DN 4" CL 300	FLOATING B.V. DN 1"1/2 CL 300	FLOATING B.V. DN 1"1/2 CL 150	FLOATING B.V. DN 1" CL 150
3	Manufacturer model/type no.	FB2	FB2	FB2	FB2	FB2
4	Manufacturer serial no.	2400620010001 2400620080001 2400620100001 2400620110001 2400620120001 2400620130001 2400620140001 2400620150001 2400620160001 2400620170001 2400620180001 2400620190001 2400620200001 2400620210001 2400620220001 2400620230001	2400620020001 2400620030001 2400620040001 2400620050001 2400620060001 2400620070001	2400620090001	2400620240001 2400620260001	2400620250001 2400620270001 2400620280001
5	No. of units	16	6	1	2	3

Supplier: FLUITEK VALVES S.r.l.
Address: VIA DEI LIVELLI DI SOPRA 5/7, 24060 COSTA DI MEZZATE BG, ITALY

PO Number: 1721002632

PO description: SDV/BDV AND TIGHT SHUT-OFF XV VALVES
Supplier telephone no: +39 035 66 65 085
E-mail: i.rizzo@fluitekvalves.com

Contact name: Mrs Ivana Rizzo
Contact mobile no:
WEBSITE: www.fluitekvalves.com

General Information:

6 — Quantity of parts FITTED / INSTALLED per unit/component

Item Number	Total number of identical spares installed	Description of recommended spare parts	Parts/drawing ref.			Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturer name	Commissioning spares: Quantity ordered	2 Years spares: Quantity ordered	Remarks
			Project Datasheet no.	Project Detail dwg. no.	Item ref.																	
7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	16	KIT FOR FLOATING DN 1" CL 300 COMPOSED BY: SEAT IN RPTFE (PART 02) FLANGE O-RING IN VITON GLT AED (PART 72.1) STEM O-RING IN VITON GLT AED (PART 72.4) STEM GASKET IN GRAPHITE (PART 75.4) FLANGE GASKET IN GRAPHITE (PART 75.6)	N.A.	D240062-01 D240062-08	10 80 100 110 120 130 140 150 160 170 180 190 200 210 220 230	RPTFE VITON GLT AED VITON GLT AED GRAPHITE GRAPHITE	N.A.	N.A.	2	N.A.	N.A.	N.A.		N.A.	N.A.	ITALY	PART.02 PART.72.1 PART 72.4 PART 75.4 PART 75.6	PART.02 PART.72.1 PART 72.4 PART 75.4 PART 75.6	FLUITEK VALVES S.r.l.	N.A.	2	
2	6	KIT FOR FLOATING DN 4" CL 300 COMPOSED BY: SEAT IN RPTFE (PART 02) FLANGE O-RING IN VITON GLT AED (PART 72.1) STEM O-RING IN VITON GLT AED (PART 72.4) STEM GASKET IN GRAPHITE (PART 75.4) FLANGE GASKET IN GRAPHITE (PART 75.6)	N.A.	D240062-02-03-04-05-06-07	20 30 40 50 60 70	RPTFE VITON GLT AED VITON GLT AED GRAPHITE GRAPHITE	N.A.	N.A.	2	N.A.	N.A.	N.A.		N.A.	N.A.	ITALY	PART.02 PART.72.1 PART 72.4 PART 75.4 PART 75.6	PART.02 PART.72.1 PART 72.4 PART 75.4 PART 75.6	FLUITEK VALVES S.r.l.	N.A.	1	
3	1	KIT FOR FLOATING DN 1"1/2 CL 300 COMPOSED BY: SEAT IN RPTFE (PART 02) FLANGE O-RING IN VITON GLT AED (PART 72.1) STEM O-RING IN VITON GLT AED (PART 72.4) STEM GASKET IN GRAPHITE (PART 75.4) FLANGE GASKET IN GRAPHITE (PART 75.6)	N.A.	D240062-09	90	RPTFE VITON GLT AED VITON GLT AED GRAPHITE GRAPHITE	N.A.	N.A.	2	N.A.	N.A.	N.A.		N.A.	N.A.	ITALY	PART.02 PART.72.1 PART 72.4 PART 75.4 PART 75.6	PART.02 PART.72.1 PART 72.4 PART 75.4 PART 75.6	FLUITEK VALVES S.r.l.	N.A.	1	
4	2	KIT FOR FLOATING DN 1"1/2 CL 150 COMPOSED BY: SEAT IN RPTFE (PART 02) FLANGE O-RING IN VITON GLT AED (PART 72.1) STEM O-RING IN VITON GLT AED (PART 72.4) STEM GASKET IN GRAPHITE (PART 75.4) FLANGE GASKET IN GRAPHITE (PART 75.6)	N.A.	D240062-24-26	240 260	RPTFE VITON GLT AED VITON GLT AED GRAPHITE GRAPHITE	N.A.	N.A.	2	N.A.	N.A.	N.A.		N.A.	N.A.	ITALY	PART.02 PART.72.1 PART 72.4 PART 75.4 PART 75.6	PART.02 PART.72.1 PART 72.4 PART 75.4 PART 75.6	FLUITEK VALVES S.r.l.	N.A.	1	
5	3	KIT FOR FLOATING DN 1" CL 150 COMPOSED BY: SEAT IN RPTFE (PART 02) FLANGE O-RING IN VITON GLT AED (PART 72.1) STEM O-RING IN VITON GLT AED (PART 72.4) STEM GASKET IN GRAPHITE (PART 75.4) FLANGE GASKET IN GRAPHITE (PART 75.6)	N.A.	D240062-08 D240062-25-27	250 270 280	RPTFE VITON GLT AED VITON GLT AED GRAPHITE GRAPHITE	N.A.	N.A.	2	N.A.	N.A.	N.A.		N.A.	N.A.	ITALY	PART.02 PART.72.1 PART 72.4 PART 75.4 PART 75.6	PART.02 PART.72.1 PART 72.4 PART 75.4 PART 75.6	FLUITEK VALVES S.r.l.	N.A.	1	

ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	**Commissioning and 2 years spare parts list**
The document relates to	**HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)**
Project ID	**123A90**

Contract	Doc. n°	Rev.	Rev. Date	Status	Class
CW-I-WP4-2023-05	**1724000204-COM-LIS-00015**	**Accepted for Construction**	**23-Sep-25**	**AFC**	**2**

The equipment consists of the following units/components

1	Tag no.	25-BDV-022	25-BDV-005	25-BDV-007	25-BDV-010	25-BDV-013	25-BDV-016	25-BDV-019	25-SDV-001	25-SDV-023	64-SDV-001	25-XV-004	25-XV-006	25-XV-008	25-XV-009	25-XV-011	25-XV-012	25-XV-014	25-XV-015	25-XV-017	25-XV-018	25-XV-020	25-XV-021	25-XV-024	150-XV-001	50-XV-002	50-XV-003	50-XV-004	80-XV-001
2	Tag description																												
3	Manufacturer model/type no.	CF/5-035-080A/AA	CF/5-055-200A/BA	CF/5-055-200A/BA	CF/5-055-200A/BA	CF/5-055-200A/BA	CF/5-055-200A/BA	CF/5-055-200A/BA	CF/5-035-080A/AA	CF/5-035-100A/BA	CF/5-035-080A/AA	CF/5-035-080A/AA	CF/5-035-080A/AA	CF/5-035-080A/AA	CF/5-035-080A/AA	CF/5-035-080A/AA	CF/5-035-080A/AA	CF/5-035-080A/AA	CF/5-035-080A/AA	CF/5-035-080A/AA	CF/5-035-080A/AA	CF/5-035-080A/AA	CF/5-035-080A/AA	CF/5-035-080A/AA	CF/5-035-100A/BA	CF/5-035-080A/AA	CF/5-035-080A/AA	CF/5-035-080A/AA	CF/5-035-080A/AA
4	Manufacturer serial no.	AF7703001	AF7703002	AF7703003	AF7703004	AF7703005	AF7703006	AF7703007	AF7703008	AF7703009	AF7703010	AF7703011	AF7703012	AF7703013	AF7703014	AF7703015	AF7703016	AF7703017	AF7703018	AF7703019	AF7703020	AF7703021	AF7703022	AF7703023	AF7703024	AF7703025	AF7703026	AF7703027	AF7703028
5	No. of units	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	QTY / INSTALLED per unit/component																												
	Quantity of parts FITTED / INSTALLED per unit/component	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		1						1			1	1	1	1	1	1	1	1	1	1	1	1	1		1		1	1	
										1														1		1			
			1	1	1	1	1	1																					

Supplier:	FLUITEK VALVES S.r.l.	PO Number:	1721002632	PO description:	SDV/BDV AND TIGHT SHUT-OFF XV VALVES	Contact name:	Mrs Ivana Rizzo
Address:	VIA DEI LIVELLI DI SOPRA 5/7 24060 COSTA DI MEZZATE BG ITALY			Supplier telephone no:	+39 035 66 65 085	Contact mobile no:	
				E-mail:	i.rizzo@fluitekvalves.com	WEBSITE	www.fluitekvalves.com

General Information:

Item Number	Total number of identical spares installed	Description of recommended spare parts	Parts/drawing ref.			Material	Certificate Type (if applicable)	Certificate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturer name	Commissioning spares	2 Years spares	Remarks
		MATERIALS DATA																		Commissioning spares	2 Years spares	
			Project Datasheet no.	Project Detail dwg. no.	Item ref.															Quantity ordered	Quantity ordered	
7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	28	LIMIT SWITCH BOX, 2 ELECTRIC CONNECTION		AF7703PDA01 / AF7703PDC01	12B0	AISI 316	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	SQN120E-20X23L7	00K085QN120E20X23L7	SOLDO			
2	28	SOLENOID VALVE, DIRECT ACTING, 3/2 UNIVERSAL TYPE, SPRING RETURN		AF7703PDA01 / AF7703PDC01	1V10	AISI316L	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	FP06P-S1-04-32-NU-V-77A-24D-S7	00D135BE0052	BIFOLD	3		
3	28	PRESSURE RELIEF VALVE, FREE EXHAUST		AF7703PDA01 / AF7703PDC01	1V91	AISI 316	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	D10	00F16D10SSVNPXX047	N.G.I.			
4	28	FILTER REGULATOR, SELF RELIEVING, FILTER WITH MANUAL DRAIN		AF7703PDA01 / AF7703PDC01	1Z16	AISI 316L	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	SH06-FR-SR-MD-10-X1	00G09BEA0007	BIFOLD	3		
5	28	PRESSURE GAUGE, GAUGE TYPE		AF7703PDA01 / AF7703PDC01	1Z31	AISI316	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	233.50	00F32P6318010ALP	WIKA	3		
6	19	ACTUATOR SEAL KIT		GD01800-1	N.A.	BUNA	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	WCP8035080	WCP8035080	RFS	2		
7	3	ACTUATOR SEAL KIT		GD01800-1	N.A.	BUNA	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	WCP8035100	WCP8035100	RFS	1		
8	6	ACTUATOR SEAL KIT		GD01800-1	N.A.	BUNA	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	WCP8055200	WCP8055200	RFS	1		
9																						
10																						
11																						
12																						
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10: Technical Operating Maintenance Manual

Technical Operating and Maintenance Manual - Complete

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Base Load Power Hub (BLPH)

SDV/BDV AND TIGHT SHUT-OFF XV VALVES

SDV/BDV AND TIGHT SHUT-OFF XV VALVES - TECHNICAL OPERATING AND MAINTENANCE MANUAL – COMPLETE

Document Number:1724000204-IN-MAN-00014

Document Class: 2

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

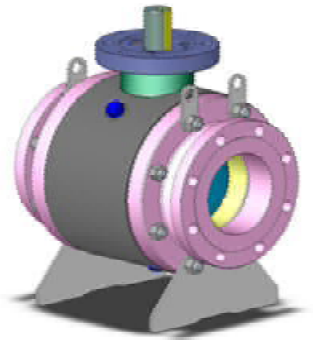
Sign	Date
V. Barratta	08-01-2025

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Fluitek Valves

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INSTALLATION, OPERATION AND MAINTENANCE MANUAL



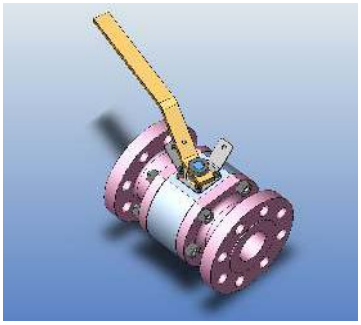
SPLIT BODY- TRUNNION BALL VALVE Type VL2-VL3

Category	Valve code	Description	Size	Class
Trunnion	VL2 / VL3	Trunnion ball valve 2 – 3 pieces	DN=>6”	150#-:-15000#



SPLIT BODY - TRUNNION BALL VALVE Type ST2-ST3

Category	Valve code	Description	Size	Class
Trunnion	ST2 / ST3	Trunnion ball valve 2 – 3 pieces	DN=<6”x4”	150#-:-15000#



FLOATING BALL VALVES Type FB2-FB3

Category	Valve code	Description	Size	Class
Floating	FB2 / FB3	Floating ball valve 2 – 3 pieces	DN=<6”x4”	150#-:-600#

1 INTRODUCTION 3
2 VALVE RECEIVING 3
2.1 Valve appearance during receiving operations 3
2.2 Packing and storage after receiving 3
2.3 Storage instructions 4
2.4 Scheduled maintenance during storage 4
2.5 Valve stored in pipeline during construction 4
3 HANDLING AND LIFTING 5
• DESTRUCTION AND LOSS OF DENSITY OF THE MATERIAL OF HOUSING PARTS, WORKING UNDER PRESSURE. 6
4 INSTALLATION AND START-UP 7
4.1 General cautions 7
4.2 Valve preparation and cleaning 7
4.3 Bare stem valves 7
4.4 Valve assembling to the piping 8
4.5 Maintenance prior to flushing the pipeline 9
4.6 Pipe cleaning (line flushing) 9
4.7 Hydrostatic testing of the line 9
5 MAINTENANCE 11
5.1 General 11
5.2 Trouble-shooting guide 11
5.3 Cautions 13
5.4 Removal of the valve from the line 13
5.5 Valve disassembling and reassembling 13
5.6 VALVE lubrication 13
6 OPERATION INSTRUCTIONS 14
6.1 Valve operating instructions 14
6.2 Cautions 14
6.3 Emergency Sealant Injection Procedure (ONLY FOR TRUNNION VALVES) 15
6.4 Flushing Procedure (ONLY FOR TRUNNION VALVES) 16
7 VALVE DRAWINGS WITH PART LIST (TYPE VL2-VL3) 17
8 VALVE DRAWINGS WITH PART LIST (TYPE ST2-ST3) 19
9 VALVE DRAWINGS WITH PART LIST (FLOATING BALL VALVES) 20
10 BOLT TORQUE VALUES 22

1 INTRODUCTION

This manual provides instructions for storage, inspection, maintenance, installation and operation of split body floating and trunnion mounted ball valves in two or three bolted pieces.

Fluitek Orsenigo Valves S.r.l is not liable for any damages to the purchaser, user, their employees or others, the plant and any items thereof caused due to the improper use, un-authorised operation/personnel and/or non-observance of safety regulations.

Valves service life : 25 years

2 VALVE RECEIVING

2.1 Valve appearance during receiving operations

FLUITEK ORSENIGO VALVES S.r.l.'s (FOV) valves are supplied with appropriate end-protections and/or individual weather-proof packages, which, at the same time, prevent any external agent from entering the valve.

Do not damage or alter them before installation in order not to compromise valve conformity or protection status during storage.

2.2 Packing and storage after receiving

After receiving, valves should be kept indoors.

If valves are stored outdoors they should be kept away from the ground and waterproof covers should be used if missing.

Fluitek recommends storing the valves indoors, in a dry, dust free atmosphere.

The packing material and end protectors should remain on the valve until ready for installation. If the protective coverings are removed for inspection, immediately reinstall them after the inspection.

In case of excessive periods prior to installation the valve should be kept under cover, above ground and protected by waterproof material. FOV recommend in this case to protect the outside of the valve with a light anti-rust oil.

Shel life of "package" max 3 years.

2.3 Storage instructions

a - If the valves have to be stored for a long period on site prior to their installation, they should be kept covered and dry. It is mandatory that the end plugs and original packaging are kept in good condition.

b - All the valves are supplied with end plugs, to protect the internal parts. These end plugs may not be removed during storage. If necessary for maintenance or inspection, care should be taken to replace them when the valves are returned to the store.

c- If the valve is supplied with an actuator, every electrical, pneumatic or hydraulic connection shall be kept plugged until just before the installation (refer to specific actuator instructions for further information

2.4 Scheduled maintenance during storage

In case of extended storage time, the valves should be inspected and checked as follows at least every 3 months:

- External surface inspection checking any alteration of the protective coating.
- (In case of presence of rust and/or damaged paint work, the area should be wire brushed and degreased using an appropriate chemical solvent).
- Inspection of the protective coating. (In case of damages it should be restored following the instructions given by Fluitek Orsenigo Valves according to the painting cycle used by the factory)
- Removal of the end protection plugs and without moving the ball, inspection of the internal surfaces of the valve for the complete absence of dust, rust, foreign matter and the integrity of lubricant coat.
- Cleaning and lubricating of the internal parts (best done using a nebulised lubricant).
- After cleaning and lubrication, rotate the ball by completely opening and closing the valve.
- The ball must be generally kept in the fully open position except that ball valves equipped with fail to close actuators are necessarily kept in the open position. In no case the ball should be kept in an intermediate position.
- Replace the protective end plugs.

2.5 Valve stored in pipeline during construction

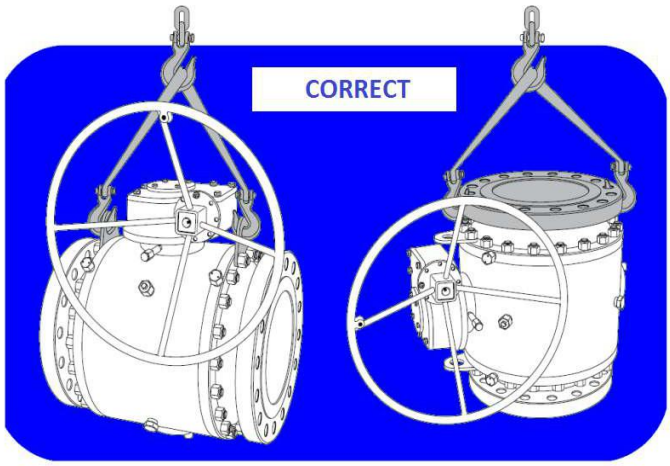
Valves mounted in pipeline during construction period and not used for indicated process will need to be protected against any type of foreign material and / or debris and / or corrosive environment inside the valve pipeline. Any open connection on valve or actuator (if mounted) during installation / construction should be carefully protected until the moment of final connection and start-up of process.

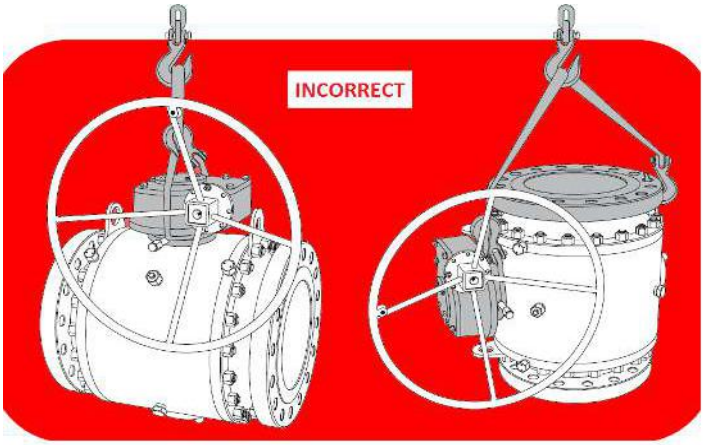
3 HANDLING AND LIFTING

When handling the valve or valve package, use appropriate equipments with regard to the valve and operator weight..

The valves may be lifted by slings or end flanges. If actuated, do not use the actuator lifting lugs or parts of the actuator. If handwheel operated, do not use the handwheel as a lifting point.

Place an approved lifting device securely around the valve body or use lifting hooks while handling the valve. Special care should be taken not to damage the lever/gearbox/actuator.





The list of possible erroneous actions during the installation of valves and accessories and methods for their elimination.

Possible erroneous personnel actions	Possible consequences	Elimination method
Insufficient tightening of the crimp pipe fitting nut	Seal failure of crimp connection	Pressure release from the system. Fitting nut tightening to recommended turning number
Over tightening of the crimp pipe fitting nut of the valves	Seal failure of crimp connection	Pressure release from the system. Fitting reassembly with using a new set of crimp rings. Fitting nut tightening to recommended turning number.
Incorrect installation sequence of crimp rings for pipe fitting of the valves	Seal failure of crimp connection	Pressure release from the system. Fitting reassembly with using a new set of crimp rings, their installation in the correct order.
Under tightening of threaded connection	Seal failure of threaded connection	Pressure release from the system. Threaded connection reassembly
Incorrect valve installation relative to fluid flow direction	The valve does not perform its functions of cutting off the medium or regulating the flow. Failure of valve elements.	Pressure relief, valve disassembly, replacement of damaged components, or sending for diagnostic testing and repair to the manufacturer. Valve reassembly in accordance with the operating manual
Installation of valves on improper medium, pressure or temperature	Failure of valves or its individual parts.	Valves disassembly, sending for diagnostic testing and repair to the manufacturer or disposal.

Criteria for the limit state.
The criteria for the limit state of valves are:

• destruction and loss of density of the material of housing parts, working under pressure.

4 INSTALLATION AND START-UP

4.1 General cautions

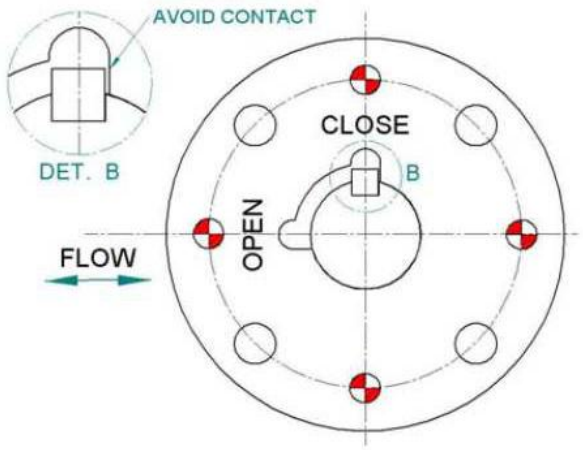
Installation must be carried out by qualified personnel aware of the standard field techniques and following the instructions contained in the Instruction manual of the valve.
The personnel involved have to be aware of the basic safety procedures, mandatory for the protection of their own safety.
All necessary information and instructions for the valve are described in this Manual.

4.2 Valve preparation and cleaning

Remove the protective end plugs and thoroughly inspect the interior of the valve and end connection for damage. Any foreign material should be removed.

4.3 Bare stem valves

If the valves are supplied with bare stem, the angular stroke of the valve must be adjusted in fully open and fully closed position acting on the mechanical stops of the operator.
Since it is necessary to have access to the valve bore, for a correct setting, this activity shall be performed when the valve is out of the line.
A groove is machined on the top flange (see figure below) where the stem key can travel for an angular stroke exceeding 90°.
NOTE: Ensure the stem key coupled with the handwheel/actuator does not travel beyond 90° in order to avoid damage to the groove.
DO NOT USE THE STEM KEY AS MECHANICAL STOP FOR THE EQUIPMENT
When the operator is supplied by Fluitek-Orsenigo Valves settings are already established in the factory and may not be modified.



4.4 Valve assembling to the piping

a- Move the valve by means of the body lugs, if fitted, or suitable eyebolts or flange holes. Never move the valve by yoke or using the lever, or the operator or some of its parts.

b- Remove the protective end caps only immediately before installation. If one end is not connected to the line for a period longer than half day, the open end should be securely sealed with a plastic or wooden cover.

c- Ball valves are generally bi-directional. However in some cases a preferential direction is indicated by an arrow or other markings in the valve body. This is a case of valves with two different seats (one seat unidirectional and one seat bidirectional) or valves with a relief hole in the ball.
BEFORE INSTALLING THE VALVE IN THE LINE, CHECK IF ONE OF THE TWO ENDS SHOULD BE IMPERATIVELY INSTALLED ON UPSTREAM SIDE

d- For flanged valves the installation will be provided by positioning the valve in the relevant space between the two flanges of the line. These must be of the same size and rating of the valve flanges.
Furthermore, the bolting (nuts and studs) shall be according to the relevant specification of the flanges. Bolting will be applied while the suitable gasket has been placed between the flanges of the valve and the ones of the line.

e- For welding ends valves take care of the following instructions:
Welding and subsequent procedures should be undertaken in respect of the maximum allowable temperature of the seals and seats
Welding should provide an adequate tolerance for the mounting of the valve to the pipeline.

f- The valve shall be installed in such a way as to avoid excessive loads transferred by the pipeline. By no means the valve should be used as pipe support or constraint.

g- At the end of installation it is advisable to lock the valve in order to avoid any movement of the ball before flushing the pipe line.

h- Special care should be taken to ensure that the ball is kept in the fully open position during its fitting to pipeline, as it was during storage.

4.5 Maintenance prior to flushing the pipeline

a- If the period between the installation of the valve and the flushing of the pipeline is longer than six months, preventive maintenance is suggested, as follows:

- Lubricate the stem with protective oil through the stem injector(if applicable).
- Lubricate internal parts (best if nebulised lubricant is used) through the lubricating plug
- Drain off the excess lubricant through the drainage plug
- Tightly close all the plugs that were unscrewed for the lubrication procedure..

b - Repeat the operation in 4.5a every six months.

c - DO NOT operate the valve during flushing of pipeline.

For more details see the attached assembly drawings.

4.6 Pipe cleaning (line flushing)

Soft seated valves are designed to handle clean fluid only (without presence of abrasive or hard particles).

Before using the valve, keep it in fully open position in order to reduce the chance of dirt and debris settling in the body cavity.

Pipe cleaning is anyway recommended even for metal seated ball valves.

Fluitek Orsenigo Valves select the material of construction and seals with regards to the service fluid indicated in the Valve Data Sheet.

If special additives are present in the flushing fluid, please ensure that those substances are mentioned in the data sheet.

In particular amines and methanol at certain concentrations can attack fluorocarbon (Viton) o-rings. However some grades of fluorocarbon have a limited compatibility with amines and methanol.

IT IS STRONGLY RECOMMENDED TO VERIFY THE COMPATIBILITY OF THE SPECIFIC FLUSHING FLUID WITH THE INSTALLED SEALS.

4.7 Hydrostatic testing of the line

If line hydro-testing is performed during start-up, some precautions shall be taken to avoid any damage of the valve internal components. The seats and the ball are designed to safely withstand 110% the maximum allowable working pressure at room temperature according to ASME B16.34 for the specified pressure class and body material.

Therefore in case the line hydro-test pressure exceeds this value,

THE VALVE SHALL BE KEPT HALF OPEN (Typically at 30° to 60° stroke)

Immediately after hydro-test, the valve should be opened again. Especially soft seats might be deformed by a long stay in partially open position.

The fluid used for hydro-testing and start-up operations shall be compatible with the metallic and non-metallic components of the valve.

In particular water without corrosion inhibitor may initiate corrosion of carbon steel valves and a chloride content exceeding 30 ppm may induce pitting corrosion of austenitic stainless steel parts.

- violation of the geometric shape of parts, that impedes normal functioning;
- impossibility of additional tightening of fittings after repeated disassembly/assembly of connections;
- a change in the condition of the surfaces of parts, that impedes normal functioning;
- permanent damage to parts, caused by aging of materials.

5 MAINTENANCE

5.1 General

Maintenance operations must be carried out by qualified personnel aware of the standard field techniques and following the instructions contained in this manual.
Furthermore the personnel involved in maintenance operations shall be made aware of the basic safety procedures, mandatory for the protection of their own health and safety. Always wear the correct safety equipment and clothing.
Always use original spare parts only.
The valve has been properly designed and manufactured to operate with satisfactory performances without substantial maintenance for at least two years and is guaranteed for the contractual requested time if all the recommended actions are properly taken.
The following table 1 shows the minimum inspection schedule to be followed in order to maintain the valve performances during the operating life time, that depends directly on the service conditions (media, temperature, pressure, etcP).
The respect of this plan is mandatory to keep the warranty active. In fact the schedule is essential for the good performances of the valve.

Table 1

.

No	***Description***	***When to be done***
M1	Adjustment of packing gland (only for adjustable glands)	When some leak are detected from stem
M2	Inspection of seals for leakage to the environment	12 months
M3	Valve stroke for smooth operation	12 months
M4	Check of bleed valve and plug tightness(where applicable)	12 months

5.2 Trouble-shooting guide

The following table 2. shows some possible trouble that might occur during the valve life and the possible actions to solve them. During the warranty period always report to Fluitek-Orsenigo Valves before taking any action.

Table 2

PROBLEM	POSSIBLE CAUSES	SOLUTION
The stem and driving device do not rotate	Gear or bearing defect	Top flange to be disassembled to access the bearing and check for any damage. Replacement of parts may be necessary. Remove gear cover and check for damage.
	Frozen gear or valve	Heat or inject anti-freeze solution into the gear.
	Over tight fire safe stem gasket (small size only)	Loosen the screws which compresses the top flange and try to operate the valve. If the stem can rotate, the gasket must be replaced with one of adequate size.
	Rough stem surface or dirt accumulation on the stem	Cover and stem to be removed to access the part for cleaning
	Bent or damaged stem.	Stem to be removed for repair or replacement. Report to FOV for analysis of root causes
Sealing surface leaking	Loose studs and nuts	Tighten studs and nuts according to recommended torque values.
	Damaged sealing surfaces	Valve to be disassembled to remove the part. Sealing surface may require refurbishment.
	Damaged o-rings or lip-seals	Replacement of seals (o-ring, lip seals graphite gaskets) in the concerned leak paths.
	Clogged sealing surface with dirt.	Valve to be dismantled to flush the sealing surface
Stem seals are leaking	Uncompressed packing (valves with graphite packing without o-rings or lip-seals),	Recompress the packing evenly
	Damaged or missing seals	Inject emergency sealant if this feature is available. (see Section 7) Seals to be installed or replaced as shown in the applicable General Assembly Drawing
	Deformed stem or presence of scores, scratches or galling	Stem to be replaced
Leakage through the valve/ball	The ball is not properly closed	Reset the operator
	Seat inserts or metal seating surfaces of ball and seat rings are damaged.	Inject emergency sealant if this feature is available. (see Section 7) Seat and ball to be removed. Report to FOV for refurbishment of contact surfaces.
	Seat to body seal is damaged	Replacement of seals
	Damaged seat pocket surface	Valve to be disassembled to remove the part. Sealing surface may require refurbishment.

5.3 Cautions

DURING MAINTENANCE OPERATIONS KEEP IN MIND THE FOLLOWING WARNINGS:

a - Graphite is very brittle: any twisting or bending should be avoided.

b - Some valves are equipped with spring energized lip-seals (part no. 71 in the drawings) in lieu of o-ring (72).
Spring energised lip Seals is very delicate, it can be subject to damage (i.e. spring squeezing or PTFE jacket pinching) during re-assembling if not done by trained engineer; assembly has to be done by slowly moving near the parts to couple.

c - The internal part of valves (ball, stem and seats) should be handled with care to avoid scratches or other damages to their surfaces.

d - All tools and equipment for handling and supporting the internal parts should be covered by a soft material.

5.4 Removal of the valve from the line

If the valve has to be removed from the line, the following actions should be taken by qualified operators:

- Carefully check for the complete absence of any pressure and medium into the line and downstream of the valve;
- Operate the valve in an intermediate position to relieve any body cavity pressure;
- Then operate the bleed valve to the fully open position.
- Care must be taken to support the valve if its size and weight are over the handling capacity. In this case suitable facilities must be used to support the valve by means of the proper lifting lugs.
- Unscrew the relevant bolting from both the side of the valve;
- Standard field techniques and procedures are satisfactory to disconnect the valve from the line.

5.5 Valve disassembling and reassembling

The instruction for disassembling and reassembling the valve are out of the scope of the present manual.
Table 2 in section 5.2 of this manual gives some indication of faults requiring disassembling or reassembling after trying any other remedial action.
However, it is always recommended to contact Fluitek-Orsenigo Valves before dismantling a valve in order to plan the specific actions required to overcome any fault.
In any case no action shall be taken during warranty period without written authorization by Fluitek Orsenigo Valves.

5.6 VALVE lubrication

For components that need to be lubricated, use grease **Chesterton 625 CXF** or similar.

6 OPERATION INSTRUCTIONS

6.1 Valve operating instructions

Valve are designed for On-Off service only and shall be kept always either in fully open or fully closed position – do not use as flow regulator (throttling service or similar).

The user shall be responsible for checking the fluid / material compatibility.

Valve is not provided with safety accessories against overpressure.
The user shall therefore protect the line where the valve is installed with suitable safety devices to ensure that the specified operational pressure/ temperature limits are not exceeded.
Pipeline pressure shock (water hammer) shall be avoided to prevent any serious damage to the valve.
Hand operated valves can be easily opened and closed by means of a force applied to the lever or gearbox handwheel. Turn 90° clockwise to close the valve and 90° counter-clockwise to open. Orientation of ball can be easily detected by the operator position: if the lever is parallel to the line the valve is fully open. If it is perpendicular to the line the valve is in fully closed position. The gearboxes are provided with a position indicator on top of the case, pointing the OPEN or SHUT position

It is advisable to turn the ball periodically in order to prevent jamming or any problem between ball and seat.
The partial operation (about 15% of the total stroke) every 3 months will ensure good seat and ball life.
This requires the valve to be operated (when it is open by lever), without any interruption to the plant's operation. Of course if the valve is normally in the closed position, it can be partially operated only if this action has been previously approved by responsible personnel.

6.2 Cautions

The end user is responsible for valve installation and use. He shall follow all instructions of this manual and operate in the range covered by the corresponding rating of the valve or specifications or data sheets.

Periodically check for any leak from all joined parts; verify the correct tightening of nuts, screw and plug where present.

Before starting any maintenance work, depressurize the line valve. Do these operations at ambient temperature and pressure, using all safety protections and appropriate tools.

6.3 Emergency Sealant Injection Procedure (ONLY FOR TRUNNION VALVES)

This procedure is applicable to all Fluitek Orsenigo Valves equipped with emergency stem and/or seat sealant injectors.
Ball valves are self-lubricated and do not need any grease or lubrication for normal operation; injection ports are provided only to stop or reduce leakage across the seats or through stem seals with valve in operation.
Sealant must be injected only when a leakage occurs.

HEALTH & SAFETY WARINING
All the operation must be performed under the responsibility of the end user or contractor and by qualified personnel due to danger intrinsically connected with pressure containing equipment.

One of the following products for oil and gas fluids can be used :
RS CLARE & CO. LTD – BTR555 – Sealant Grease
SEALWELD – TOTAL LUBE #911 – Sealant Grease
APEX INDUSTR. CHEM. LTD – ECO-SOLV – Flushing Fluids

Before using a sealant grease or any flushing please check the chemical compatibility of sealant and fluid handled from the valve.
To inject the fluid (flushing fluid & sealant) inside the valve a common pump (manual or pneumatic) can be used paying attention that the rating of the pump & related fittings must be higher than valve pressure rating.
The pressure necessary to inject the fluid must be between 5 and 8 bar higher than line pressure.

PROCEDURE FOR STEM LEAKAGE
To detect a leakage through the stem seal push safely the central button on the stem injector (needle of the check valve contained inside injector).
If a leakage is present, connect the pump to the fitting and insert a little quantity of sealant.
Stroke the valve from fully open to fully closed position 2 or 3 times to help sealant distribution around the stem surface.
If leakage does not stop it is necessary to replace stem seals. In such case refer to the proper maintenance instructions.

PROCEDURE FOR SEAT LEAKAGE
To detect a seat leakage across the seats, turn the valve from fully open to fully closed position and release the pressure trapped inside the body cavity through the vent or bleed port.
If after an initial release of pressure a continuous leakage appears, try to clean seating surface between ball and seats by injecting flushing fluid.
Before flushing close the bleeder.
During fluid injection stroke the valve a few times.
Re-test the valve to check a leak reduction.
If leak does not stop, close the valve and proceed with sealant injection (45gr each seat inch at the first time).
If leakage does not stop, repeat sealant injection reducing grease quantity of three times (all sealant conduits are full).

If leakage does not stop valve must be disassembled from line and serviced; in such case refer to the proper maintenance instructions.

6.4 Flushing Procedure (ONLY FOR TRUNNION VALVES)

This procedure is applicable to all Fluitek Orsenigo Valves equipped with proper flushing ports or emergency stem and/or seat sealant injector ports which can be used in that purpose as well.

The flushing fluid pumped through the stem and seat ports will fill the stem sealing and seat pocket areas first and then the body cavity.
In such way it help to keep the deposits off from packing in the voids of the seat rings.

a – Stroke the valve in complete closed position ;

b – Through the Vent make sure to completely release the pressure from valve body cavity ;

c - Make sure Drain port is closed

d – Connect to the flushing ports (see sketches of vent and Drain connection details at Annex A) a portable pump and inject fluid pressure (3-5 bar) to clean the body cavity from any existing resident debris, sand or solid compounds.
Once the body cavity is filled, the flushing fluid will raise though the Vent port.

e – Open the drain

f – During fluid injection, stroke the valve few times

g – Flushing operation has to be repeated till the flushing fluid is clean from any visible impurities

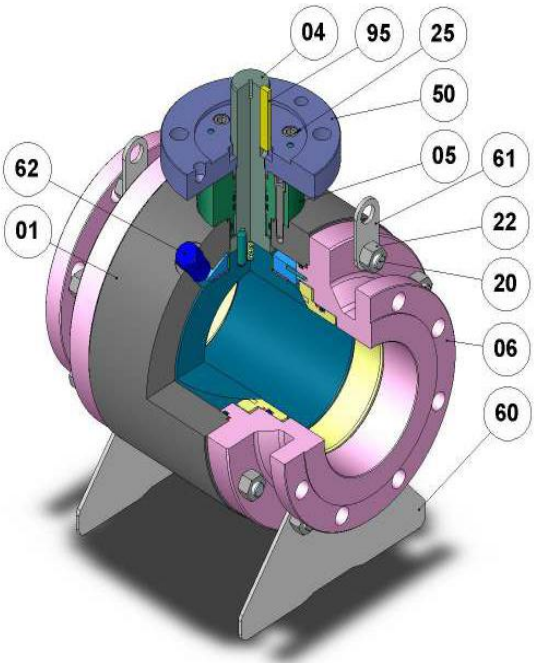
h – Make sure to drain completely the body cavity

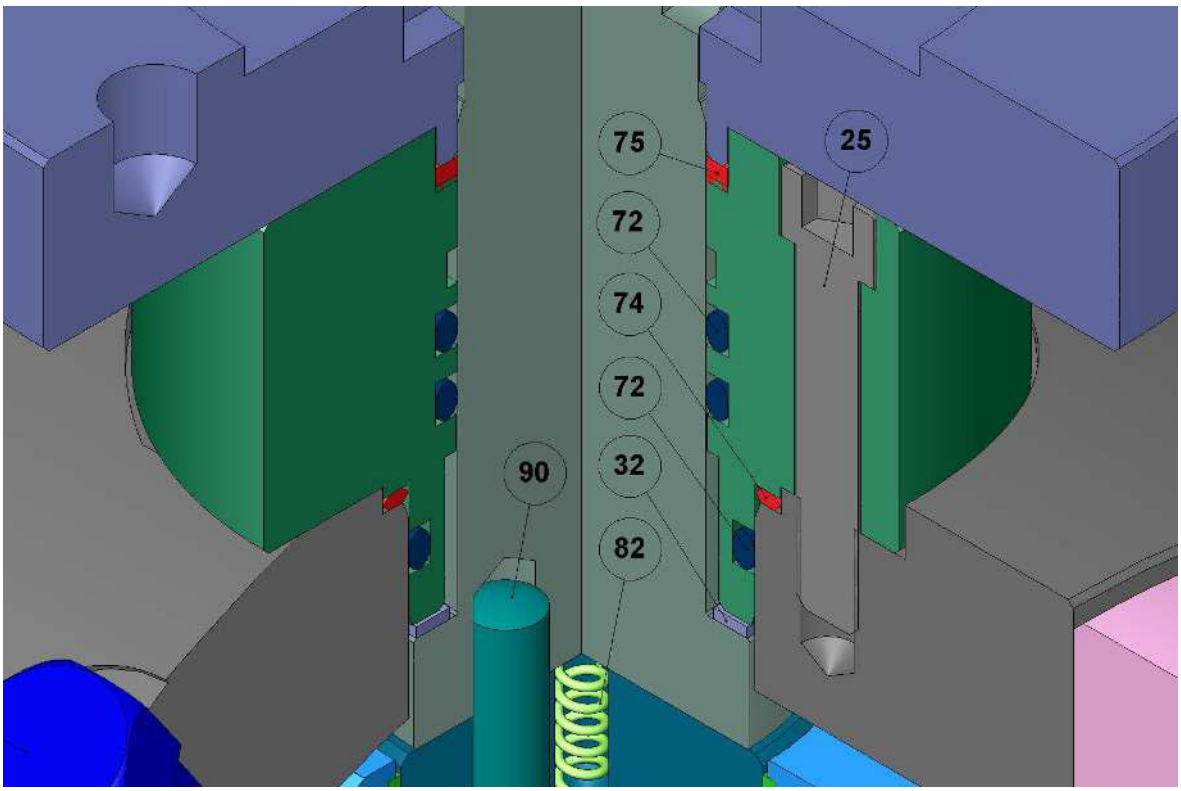
i – Dismantle the pump and close the flushing ports

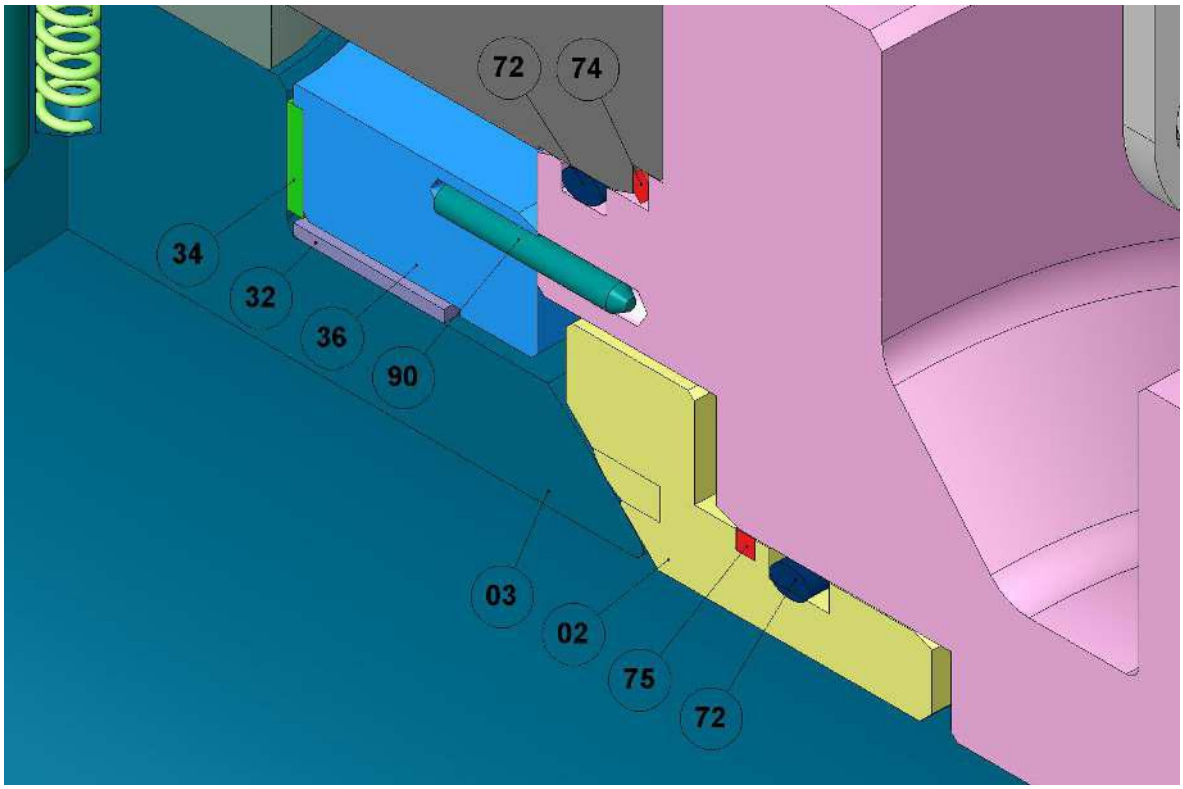
l – Close Vent and Drain flanges

Flushing fluid : Ecological solvent or equivalent (i.e. water + glycol).

7 VALVE DRAWINGS WITH PART LIST (TYPE VL2-VL3)







Part list. Parts are identified with the numbers indicated in the General Assembly Drawing.

01 – Body
02– Seat
03 – Ball
04– Stem
05– Bonnet
06 – Clousure
20– Studs
22– Nuts
25– Screws
32– Bearings
34 – Bush
36 - Spacers
50 –Cover plate
60 – Support
61– Lifting lug
62– Plug
72 – O-Ring
71– Lip-seal
74 – Gasket S.W.
75 – Gasket
82 - Spring
90 - Pin

Lip-seals are generally alternative to o-rings . Some valves may be equipped with lip-seals on some leak paths and o-ring on the others. Refer to applicable General Assembly Drawing for details

Spare parts:

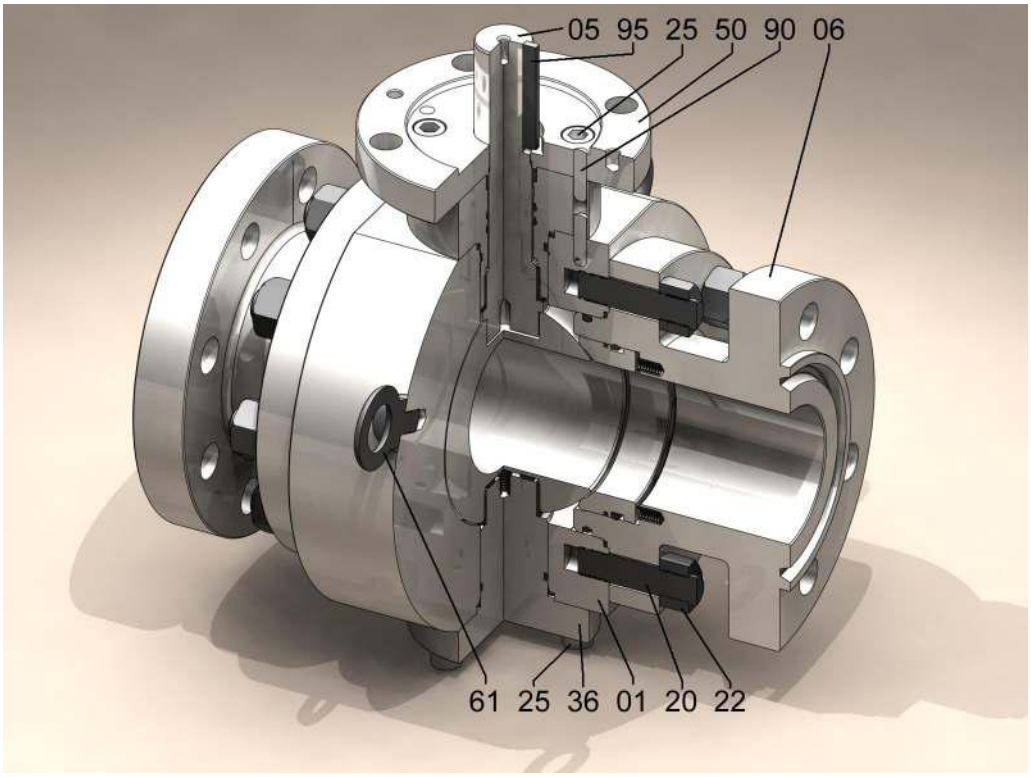
(commissioning and/or two year operations)

72– O-Ring and/or **71**– Lip-seals
74– Gasket S.W.
75– Gasket
32– Bearing
34– Bush

(to be replaced when damaged)

02– Seat
03 – Ball
04– Stem

8 VALVE DRAWINGS WITH PART LIST (TYPE ST2-ST3)



Part list. Parts are identified with the numbers indicted in the General Assembly Drawing.

01 – Body
02– Seat
03 – Ball
04– Stem
05– Bonnet
06 – Closure
20– Studs
22– Nuts
25– Screws
32– Bearings
34 – Bush
36 - Trunnion
50 –Cover plate
60 – Support
61– Lifting lug
62– Plug
72 – O-Ring
71– Lip-seal
74 – Gasket S.W.
75 – Gasket
82 - Spring
90 - Pin

Lip-seals are generally alternative to o-rings . Some valves may be equipped with lip-seals on some leak paths and o-ring on the others. Refer to applicable General Assembly Drawing for details

Spare parts:

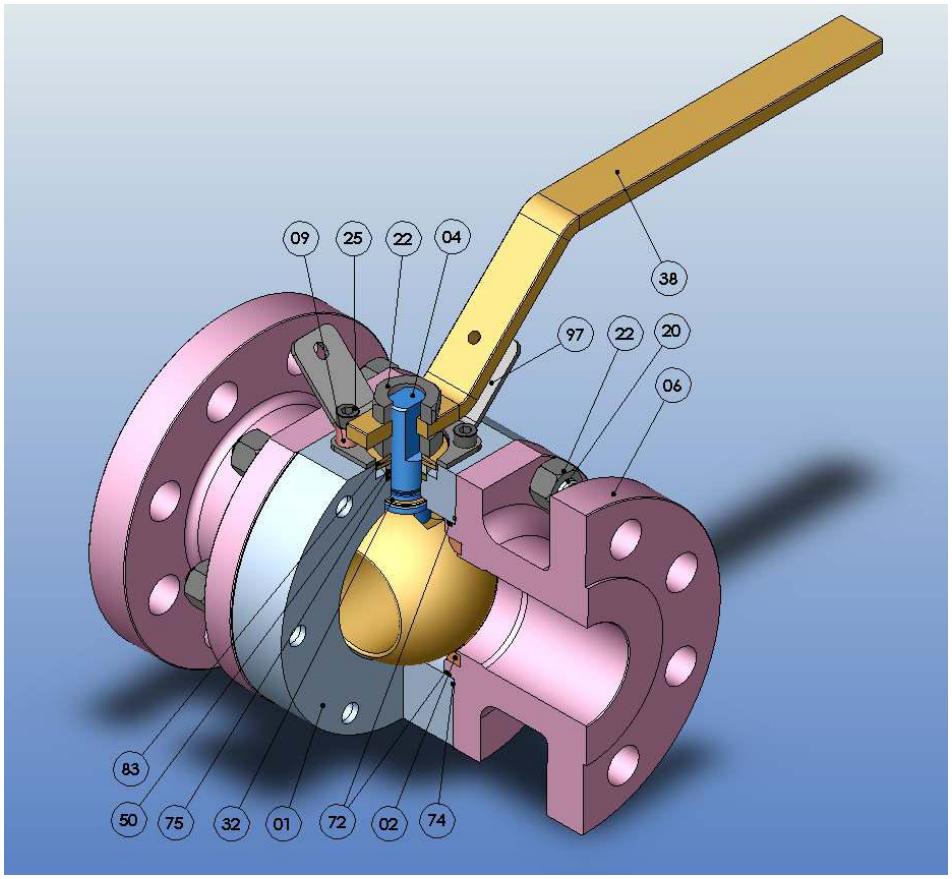
(commissioning and/or two year operations)

72– O-Ring and/or **71**– Lip-seals
74– Gasket S.W.
75– Gasket
32– Bearing
34– Bush

(to be replaced when damaged)

02– Seat
03 – Ball
04– Stem

9 VALVE DRAWINGS WITH PART LIST (FLOATING BALL VALVES)



Part list:

01 – Body
02 – Seats
03 – Ball
04 – Stem
20 – Stud
22 – Nut
32 – Bearing
38 – Lever
50 – Packing gland
71- Lip-seals and/or
72- O-rings
74 – Gasket S.W.T
75 – Packing
83 – Spring washer

Spare parts:

(commissioning and two year operation)

02 – Seats
32 – Bearing
71- Lip-seals and/or
72- O-rings
74 – Gasket S.W.T
75 – Packing

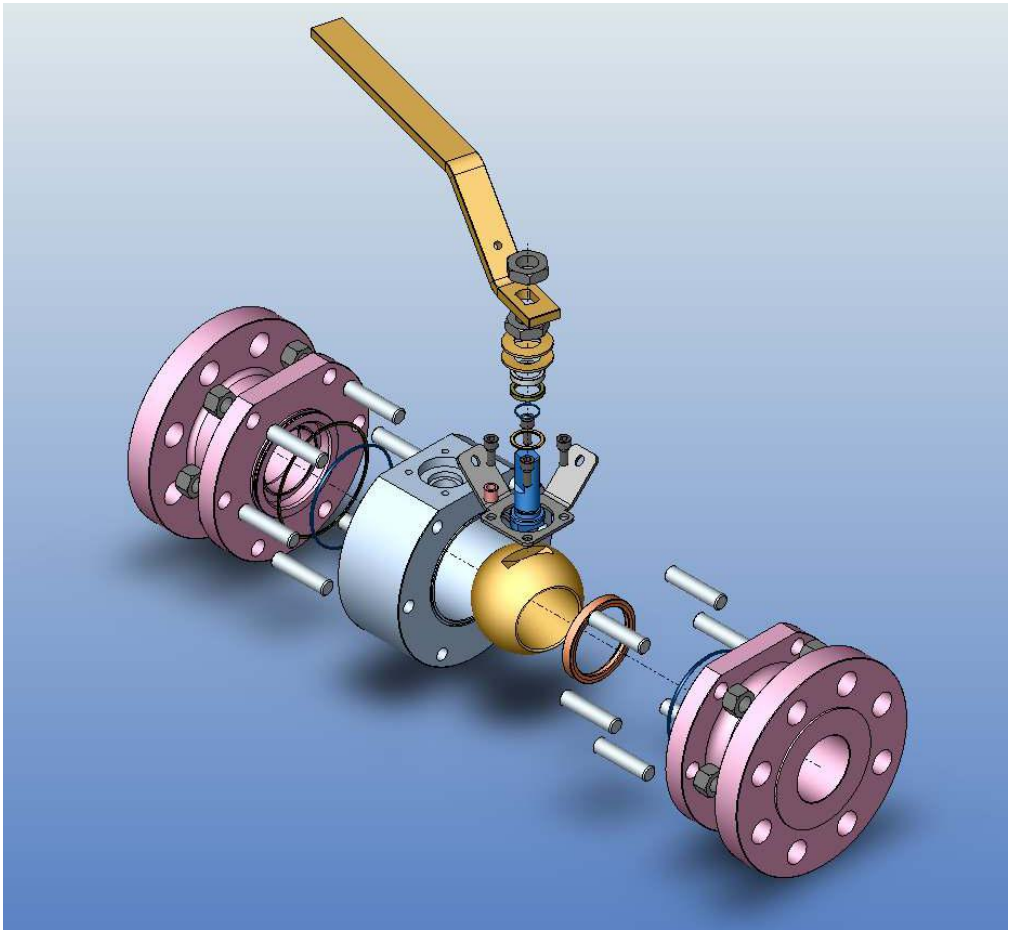
(to be replaced when damaged)

03 – Ball
04 – Stem

For small floating ball valves less than 2 in nominal diameter, it may be advisable to keep a complete valve as spare.

Lip-seals or o-rings are optional seals . Floating ball valves may be sealed by graphite gaskets only. Refer to applicable General Assembly Drawing for details

General components exploded view.



10 BOLT TORQUE VALUES

BOLT TORQUE VALUES					
BOLT		MATERIAL			
		A193-B7 A193-B16 A320-L7 A320-L7A A320-L43		A193-B7M A320-L7M A193-B5	
NOMINAL DIAM.	S	TORQUE	PRETENSIONING AXIAL FORCE	TORQUE	PRETENSIONING AXIAL FORCE
Inch.	mm^2	N*m	N	N*m	N
1/4"	21	8	6300	6	5050
3/8"	50	30	18000	24	14450
1/2"	92	75	27600	60	22150
5/8"	146	150	43800	120	35150
3/4"	215	280	64500	230	51750
7/8"	298	450	89400	360	71750
1"	391	660	117300	530	94150
1 1/8"	510	830	153000	670	122800
1 1/4"	645	1450	193500	1170	155300
1 3/8"	795	1660	238500	1340	191400
1 1/2"	963	1930	288900	1560	231850
1 5/8"	1148	2350	344400	1900	276400
1 3/4"	1342	2320	402600	2280	323100
1 7/8"	1555	4450	466500	3600	374400
2"	1787	5320	536100	4300	430250
2 1/4"	2297	7140	689100	5770	553100
2 1/2"	2865	9680	859500	7820	689800
2 3/4"	3503	12740	1050900	11280	843500
3"	4200	17000	1260000	15000	1011240
3 1/4"	4961	21400	1488300	18950	1194500
3 1/2"	5761	27000	1728300	23900	1387100
3 3/4"	6671	33640	2001300	29800	1606200
4"	7619	41800	2285700	37000	1834500

PART 2 - DESIGN DOSSIER

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01: Acceptance

Derogations and queries register with signed copies
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Acceptance qualification list
Document confirming takeover/hand over between parties

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01: Acceptance

Conformity with technical specification certificates DEC 240062

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Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240062/001_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	001
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	10

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. open.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fo.rf Rev0	A182 F316_316L	25-BDV-022	1

We hereby certify that above items are manufactured, inspected and tested in accordance with Fluitek Orsenigo Valves Quality Assurance System and they comply with Purchase Order requirements.

Items are released and can be dispatched to Customer.

Conformità *Conformance*	**Note** *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	**Assicurazione qualità** *Quality assurance*	**Ente ispettivo** *Inspection authority*	**Ispettore cliente** *Customer inspector*
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Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	002
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	20

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.4".300 lbs.att. pneumatico fail pos. open.rf	fb2.0404.2.f10-hyd.att_pneu_fo.rf Rev0	A182 F316_316L	25-BDV-005	1

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Items are released and can be dispatched to Customer.

Conformità *Conformance*	**Note** *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	**Assicurazione qualità** *Quality assurance*	**Ente ispettivo** *Inspection authority*	**Ispettore cliente** *Customer inspector*
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Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	003
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	30

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.4".300 lbs.att. pneumatico fail pos. open.rf	fb2.0404.2.f10-hyd.att_pneu_fo.rf Rev0	A182 F316_316L	25-BDV-007	1

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Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
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Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	004
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	40

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.4".300 lbs.att. pneumatico fail pos. open.rf	fb2.0404.2.f10-hyd.att_pneu_fo.rf Rev0	A182 F316_316L	25-BDV-010	1

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Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

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Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	005
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	50

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.4".300 lbs.att. pneumatico fail pos. open.rf	fb2.0404.2.f10-hyd.att_pneu_fo.rf Rev0	A182 F316_316L	25-BDV-013	1

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Items are released and can be dispatched to Customer.

Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
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Phone +39 035666501 | Fax +39 0356665047 |Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

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Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	006
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	60

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.4".300 lbs.att. pneumatico fail pos. open.rf	fb2.0404.2.f10-hyd.att_pneu_fo.rf Rev0	A182 F316_316L	25-BDV-016	1

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Items are released and can be dispatched to Customer.

Conformità *Conformance*	**Note** *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	**Assicurazione qualità** *Quality assurance*	**Ente ispettivo** *Inspection authority*	**Ispettore cliente** *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

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Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	007
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	70

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.4".300 lbs.att. pneumatico fail pos. open.rf	fb2.0404.2.f10-hyd.att_pneu_fo.rf Rev0	A182 F316_316L	25-BDV-019	1

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Items are released and can be dispatched to Customer.

Conformità *Conformance*	**Note** *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	**Assicurazione qualità** *Quality assurance*	**Ente ispettivo** *Inspection authority*	**Ispettore cliente** *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

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Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	008
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	80

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	25-SDV-001	1

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Items are released and can be dispatched to Customer.

Conformità *Conformance*	**Note** *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	**Assicurazione qualità** *Quality assurance*	**Ente ispettivo** *Inspection authority*	**Ispettore cliente** *Customer inspector*
Data*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

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DEC 240062/009_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	009
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	90

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1-1/2".300 lbs.att. pneumatico fail pos. open.rf.l-hydrogen service	fb2.1m1m.2.lvfd-hyd.att_pneu_fo.rf Rev0	A182 F316_316L	25-SDV-023	1

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Items are released and can be dispatched to Customer.

Conformità *Conformance*	**Note** *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	**Assicurazione qualità** *Quality assurance*	**Ente ispettivo** *Inspection authority*	**Ispettore cliente** *Customer inspector*
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DEC 240062/010_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	010
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	100

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	64-SDV-001	1

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Items are released and can be dispatched to Customer.

Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
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DEC 240062/011_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	011
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	110

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	25-XV-004	1

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Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

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Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	012
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	120

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	25-XV-006	1

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Items are released and can be dispatched to Customer.

Conformità *Conformance*	**Note** *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	**Assicurazione qualità** *Quality assurance*	**Ente ispettivo** *Inspection authority*	**Ispettore cliente** *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

Fluitek Valves

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters/Manufacturing Plant:
Via dei Livelli di Sopra, 7/5 – 24060 Costa di Mezzate (BG) Italia
C.F./P.IVA 10733930969 | REA BG- 458024 | Cap. Sociale €. 4.000.000,00
Phone +39 035666501 | Fax +39 0356665047 |Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240062/013_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	013
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	130

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	25-XV-008	1

We hereby certify that above items are manufactured, inspected and tested in accordance with Fluitek Orsenigo Valves Quality Assurance System and they comply with Purchase Order requirements.

Items are released and can be dispatched to Customer.

Conformità *Conformance*	**Note** *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	**Assicurazione qualità** *Quality assurance*	**Ente ispettivo** *Inspection authority*	**Ispettore cliente** *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

Fluitek Valves

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C.F./P.IVA 10733930969 | REA BG- 458024 | Cap. Sociale €. 4.000.000,00
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Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240062/014_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	014
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	140

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	25-XV-009	1

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Items are released and can be dispatched to Customer.

Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

Fluitek Valves

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Registered Offices/Headquarters/Manufacturing Plant:
Via dei Livelli di Sopra, 7/5 – 24060 Costa di Mezzate (BG) Italia
C.F./P.IVA 10733930969 | REA BG- 458024 | Cap. Sociale €. 4.000.000,00
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240062/015_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	015
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	150

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	25-XV-011	1

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Items are released and can be dispatched to Customer.

Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

Fluitek Valves

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Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240062/016_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	016
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	160

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	25-XV-012	1

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Items are released and can be dispatched to Customer.

Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

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Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240062/017_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	017
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	170

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	25-XV-014	1

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Items are released and can be dispatched to Customer.

Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

Fluitek Valves
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Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240062/018_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	018
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	180

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	25-XV-015	1

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Items are released and can be dispatched to Customer.

Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

Fluitek Valves

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Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'

DECLARATION OF CONFORMITY

DEC 240062/019_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	019
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	190

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	25-XV-017	1

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Conformità *Conformance*	**Note** *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	**Assicurazione qualità** *Quality assurance*	**Ente ispettivo** *Inspection authority*	**Ispettore cliente** *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

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C.F./P.IVA 10733930969 | REA BG- 458024 | Cap. Sociale €. 4.000.000,00
Phone +39 035666501 | Fax +39 0356665047 |Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240062/020_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	020
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	200

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	25-XV-018	1

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Items are released and can be dispatched to Customer.

Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

Fluitek Valves

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C.F./P.IVA 10733930969 | REA BG- 458024 | Cap. Sociale €. 4.000.000,00
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240062/021_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	021
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	210

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	25-XV-020	1

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Items are released and can be dispatched to Customer.

Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

Fluitek Valves

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C.F./P.IVA 10733930969 | REA BG- 458024 | Cap. Sociale €. 4.000.000,00
Phone +39 035666501 | Fax +39 0356665047 |Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240062/022_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	022
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	220

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	25-XV-021	1

We hereby certify that above items are manufactured, inspected and tested in accordance with Fluitek Orsenigo Valves Quality Assurance System and they comply with Purchase Order requirements.

Items are released and can be dispatched to Customer.

Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

Fluitek Valves

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Phone +39 035666501 | Fax +39 0356665047 |Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240062/023_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	023
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	230

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	25-XV-024	1

We hereby certify that above items are manufactured, inspected and tested in accordance with Fluitek Orsenigo Valves Quality Assurance System and they comply with Purchase Order requirements.

Items are released and can be dispatched to Customer.

Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

Fluitek Valves

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Via dei Livelli di Sopra, 7/5 – 24060 Costa di Mezzate (BG) Italia
C.F./P.IVA 10733930969 | REA BG- 458024 | Cap. Sociale €. 4.000.000,00
Phone +39 035666501 | Fax +39 0356665047 |Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240062/024_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	024
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	240

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1-1/2".150 lbs.att. pneumatico fail pos. close.rf.l	fb2.1m1m.1.lvfd.att_pneu_fc.rf Rev0	A182 F53	50-XV-001	1

We hereby certify that above items are manufactured, inspected and tested in accordance with Fluitek Orsenigo Valves Quality Assurance System and they comply with Purchase Order requirements.

Items are released and can be dispatched to Customer.

Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

Fluitek Valves

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Phone +39 035666501 | Fax +39 0356665047 |Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'
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DEC 240062/025_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	025
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	250

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".150 lbs.att. pneumatico fail pos. close.rf.l	fb2.0101.1.lvfd.att_pneu_fc.rf Rev0	A182 F53	50-XV-002	1

We hereby certify that above items are manufactured, inspected and tested in accordance with Fluitek Orsenigo Valves Quality Assurance System and they comply with Purchase Order requirements.

Items are released and can be dispatched to Customer.

Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

Fluitek Valves

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DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240062/026_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	026
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	260

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1-1/2".150 lbs.att. pneumatico fail pos. close.rf.l	fb2.1m1m.1.lvfd.att_pneu_fc.rf Rev0	A182 F53	50-XV-003	1

We hereby certify that above items are manufactured, inspected and tested in accordance with Fluitek Orsenigo Valves Quality Assurance System and they comply with Purchase Order requirements.

Items are released and can be dispatched to Customer.

Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

Fluitek Valves

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DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240062/027_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	027
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	270

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".150 lbs.att. pneumatico fail pos. close.rf.l	fb2.0101.1.lvfd.att_pneu_fc.rf Rev0	A182 F53	50-XV-004	1

We hereby certify that above items are manufactured, inspected and tested in accordance with Fluitek Orsenigo Valves Quality Assurance System and they comply with Purchase Order requirements.

Items are released and can be dispatched to Customer.

Conformità *Conformance*	**Note** *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	**Assicurazione qualità** *Quality assurance*	**Ente ispettivo** *Inspection authority*	**Ispettore cliente** *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters/Manufacturing Plant:
Via dei Livelli di Sopra, 7/5 – 24060 Costa di Mezzate (BG) Italia
C.F./P.IVA 10733930969 | REA BG- 458024 | Cap. Sociale €. 4.000.000,00
Phone +39 035666501 | Fax +39 0356665047 |Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240062/028_01 B

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D		
Commessa *Job nr.*	240062	**Posizione Commessa** *Job Position*	028
Ordine cliente *Purchasing order*	1724000204 123A90A	**Item/s** *Item/s*	280

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1".150 lbs.att. pneumatico fail pos. close.rf.l-hydrogen service	fb2.0101.1.lvfd-hyd.att_pneu_fc.rf Rev0	A182 F316_316L	80-XV-001	1

We hereby certify that above items are manufactured, inspected and tested in accordance with Fluitek Orsenigo Valves Quality Assurance System and they comply with Purchase Order requirements.

Items are released and can be dispatched to Customer.

Conformità *Conformance*	Note *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	Assicurazione qualità *Quality assurance*	Ente ispettivo *Inspection authority*	Ispettore cliente *Customer inspector*
Data/*Date*	14/01/2025	14/01/2025	14/01/2025	14/01/2025

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters/Manufacturing Plant:
Via dei Livelli di Sopra, 7/5 – 24060 Costa di Mezzate (BG) Italia
C.F./P.IVA 10733930969 | REA BG- 458024 | Cap. Sociale €. 4.000.000,00
Phone +39 035666501 | Fax +39 0356665047 |Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

DEC 240396/001_01 A

Cliente *Customer*	0424 - ROSETTI MARINO S.P.A.		
Commessa *Job nr.*	240396	**Posizione Commessa** *Job Position*	001
Ordine cliente *Purchasing order*	17240000204 23A90A	**Item/s** *Item/s*	340

Oggetto - Subject	Disegno numero - Dwg nr.	Materiale - Material	Tag - Tag	Qtà - Qty
ball valve fl 2 pz-fb2.1-1/2".150 lbs.att. pneumatico fail pos. open.rf.l	fb2.1m1m.1.lvfd.att_pneu_fo.rf Rev0	A182 F53	50-XV-005	1

We hereby certify that above items are manufactured, inspected and tested in accordance with Fluitek Orsenigo Valves Quality Assurance System and they comply with Purchase Order requirements.

Items are released and can be dispatched to Customer.

Conformità *Conformance*	**Note** *Remarks*
Conforme *Compliant*	

	Controllo qualità *Quality control*	**Assicurazione qualità** *Quality assurance*	**Ente ispettivo** *Inspection authority*	**Ispettore cliente** *Customer inspector*
Data*Date*	03/12/2025	03/12/2025	03/12/2025	03/12/2025

FLUITEK ORSENIGO VALVES SRL Q.C.

02: Certificates Manufacturing Reports and Procedures

Authorities and parties' acceptance and release certificates/ report
Weighing and Centre of Gravity certificates
Warranty Surveyor's certificates
Floating and Marine registrations
(Clarifications)

NOT APPLICABLE

File: COPERTINA .xlsx
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Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

02: Certificates Manufacturing Reports and Procedures

Materials Certificates (including consumables, such as electrodes and paint)

File: COPERTINA .xlsx
This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-001/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**001**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
10	**1**

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. open.rf.l-hydrogen a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718////vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fo.rf Rev0

TAG
25-BDV-022

SERIAL NUMBER
From 2400620010001 to 2400620010001

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,017	1,760	0,320	0,020	0,030	16,890	2,120	10,210		0,400		072003
			0,170										
	476521	565,00	256,00	59,40	78,90	219,00	218,00	202,00	-196°C (L)	151 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L	0,017	1,760	0,320	0,020	0,030	16,890	2,120	10,210		0,400		072003
			0,170										
	476521	565,00	256,00	59,40	78,90	219,00	218,00	202,00	-196°C (L)	151 HBW			
SCREW	A193 B8M CL2	0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
	174374	1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	DATE 21 AUG. 2024 FRANCO CORBELLINI QBQ CROSSWIND	DATE 06/08/2024 FLUITEK ORSENIGO VALVES SRL Q.C.

72003

COGNE ACCIAI SPECIALI S.p.a.
ITALY - 11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 405.563.167,00 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)

DOCUMENT NUMBER 2024017629

CUSTOMER:	FLUITEK ORSENIGO VALVES SRL		
CUSTOMER'S ORDER:	Ordine Mail		
MANUFACTURER'S WORKS:	AOSTA, VIA PARAVERA 16 - ITALY		
PRODUCER OF THE DOC:	QUALITY DEPARTMENT		
MANUFACTURER'S WORKS ORDER NO:	0001141078 / 000060		
MARK OF THE MANUFACTURER:	**COGNE**		
DISPATCH NOTE:	0081615122 / 000020 WEIGHT: 346 KG / 763 LB		
INTERNAL SPEC:	STOCKBARREW2	TECHNICAL RULE:	AD2000
PRODUCT:	SPE ROUGHPEELED ROUND BARS	TOLERANCE:	+ 1,500 - 0,0000 (+ 0,0591 - 0 in)
SURFACE FINISH:	1X Hot Finished		
PRODUCT DELIVERY CONDITION:	RS SOLUTION ANNEALED		
PRODUCT DIMENSIONS (mm):	135,000 (5,315 in)	LENGTH (mm)	04000 06000 (00157 00236 in)
GRADE:	316L-S31600/31603-1.4404/4401	INTERNAL GRADE:	F316L IMCO
IDENTIFICATION HEAT NO:	476521	IDENTIFICATION LOT NO:	174260
MARKING OF THE PRODUCT:	1.4404	TEST PIECE N:	426

STEELMAKING EAF + AOD + CONTINUOUS CASTING
AISI 316/316L - UNS S31600/S31603 - 1.4404/1.4401
ASTM A484 DOES NOT APPLY FOR SIZE AND LENGTH TOLERANCES.
REFERENCE NORMS: EN 10088-3 (14), EN 10272 (16), ASTM A276-r17/ASME SA276-21, ASTM A479/A479M-r21, ASTM A193-23 B8MCLASSE 1D, ASME SA276/SA276M-21,ASME SA479/SA479M-21, AMS 5653J, AMS 5648N, ISO15156-3/NACE MR0175 (15), NACE MR0103/ISO 17945 (15), NORSOK M630 MDSS01 REV5.
REFERENCE NORMS FOR CHEMICAL COMPOSITION AND MECHANICAL PROPERTIES: ASTM A182-23/ ASME SA182-21.
REFERENCE NORMS ONLY FOR CHEMICAL COMPOSITION: EN 10222-5 (17),ASTM A403-22b, ASTM A484-22, ASTM A314-23, AMS-QQ-S-763D.
ASME SECT.II PART A EDITION 2015-2017-2019-2021.
REFERENCE FOR APPLICABLE ASME STANDARD: SECTION II PART A ED. 2015-2017-2019-2021
HOT ROLLED
REDUCTION RATIO 5,5

CHEMICAL LADLE ANALYSIS ACCORDING TO ASTM A751 - EN ISO 14284
Control lot No. - Weight :21000012348 - 0 - 0 LB

ELEMENTS	C	Si	Mn	P	S	N	Cr	Mo	Ni	Cu
MEASUREMENT UNIT	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w
OBTAINED	0,017	0,32	1,76	0,030	0,027	0,074	16,89	2,12	10,21	0,44

ELEMENTS	Co
MEASUREMENT UNIT	% w/w
OBTAINED	0,17

HARDNESS TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :21000001999 - 10.135 KG - 22.343 LB
SPECIFICATION ENISO6506 HARDNESS TEST HB TESTING METHOD: 10/3000
OBTAINED 151

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL QMC.

DATE 02.05.2024

MORABITO ROSA CF(WORKS INSPECTOR) - ELECTRONICALLY GENERATED CERTIFICATE

-Cogne

1 - 072003.PDF C 240062-001/01

COGNE ACCIAI SPECIALI S.p.a.
ITALY - 11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 405.563.167,00 EUR INT. VERS.
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VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

IMPACT TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :21000001999 - 10.135 KG - 22.343 LB
SPECIFICATION EN ISO 148-1-KV2 DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 20
MEASUREMENT UNIT J
OBTAINED 437 431 431 436 437 438 440 439 440 427
428 426

TENSILE TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :21000001999 - 10.135 KG - 22.343 LB
SPECIFICATION EN-ISO6892-1 DIRECTION OF THE TEST PIECE: L

MEASUREMENT UNIT	RM MPA	RP02 MPA	A5 %	Z %	RP1 MPA
			5.0 D		
OBTAINED	565	265	52,6	75,2	310
	565	269	54,2	76,6	310
	564	273	55,9	73,7	300
	562	256	59,4	78,9	296

GRAIN SIZE
Control lot No. - Weight :21000001999 - 10.135 KG - 22.343 LB
SPECIFICATION ASTME112 --
OBTAINED 5

IMPACT TEST
Control lot No. - Weight :21000001999 - 10.135 KG - 22.343 LB
SPECIFICATION EN ISO 148-1 DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 196-
MEASUREMENT UNIT J
OBTAINED 219 218 202 216 218 199 213 201 216 198
194 200

TENSILE TEST
Control lot No. - Weight :21000001999 - 10.135 KG - 22.343 LB
SPECIFICATION ASTMA370-E8-0.5"SPEC DIRECTION OF THE TEST PIECE: L

MEASUREMENT UNIT	TS KSI	YS KSI	RA %	EL %
				4,0 D
OBTAINED	81	37	72,6	64,3
	81	37	76,0	65,5
	81	37	75,5	63,6
	82	37	78,3	58,7

21 MAG. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO VALVES SRL QMC

DATE 02.05.2024

MORABITO ROSA CF(WORKS INSPECTOR) - ELECTRONICALLY GENERATED CERTIFICATE

-Cogne

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C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

COUNTRY OF MELTING AND ORIGIN: ITALY, THE MATERIAL COMPLIES WITH FAR DFARS 252.225-7009 ALT 1.
DOCUMENT ISSUED IN AGREEMENT WITH TUEV BAYERN(11.1972) WAVING OF COUNTERSIGNING (SEE TUEV BAYERN LETTER DATED 17.01.80).
MARKING: SYMBOL OF THE MANUF. WORK, MATERIAL N. , CAST N., LOT N., RECEIVING AGENT STAMP
CORROSION TEST ACCORDING TO ASTM A262/02A Practice.E EN ISO 3651-2 A: SATISFACTORY.
VISUAL INSPECTION OF SURFACE AND DIMENSIONAL CONTROL ACCORDING TO EN 10221 CLASS C AND EN 10060: SATISFACTORY.
ULTRASONIC TEST ACCORDING TO EN 10308 Class 3, equivalent to ASTM A388 FBH 5 (DIAM. 100-250) and FBH 8 (DIAM. 250-400) or to EN10228-4 Class 3: SATISFACTORY.
ANTIMIX TEST WITH PORTABLE SPECTROMETER: SATISFACTORY.
NO WELDING REPAIR ON THE MATERIAL.
FREE FROM RADIOACTIVE CONTAMINATION.
ULTRASONIC TEST ACCORDING TO EN 10308 Class.3, EN 10228 Class.3, ASTM A388 FBH 5 (diam. 102-250), FBH 8 (diam. 250,01-400).
MATERIAL IN COMPLIANCE WITH THE NORSOK M-630 MDS S01
RADIOACTIVITY CONTROL PERFORMED WITH A GAMMA SPECTROMETER: ASTM E181.
GAMMA ACTIVITY ON THE PRODUCTS BELOW 0.1 BQ/G ACCORDING TO EU RESOLUTION 2013/59/EURATOM , IAEA RS-G-1.7 AND IAEA SSG-17.
QUALITY SYSTEM CERTIFIED BY KIWA CERMET ACCORDING TO UNI EN ISO 9001:2015 -IATF 16949:2016 (THE LAST ONE ONLY FOR WIRE ROD AND HOT ROLLED-PEELED-GROUND STAINLESS STEEL BARS).
THE PRODUCT IS CONFORMING TO THE CONTRACT AGREEMENT AND TO THE RULE AD2000-MERKBLATT W0/W2.
INSPECTOR'S STAMP LF
MATERIAL CONFORM TO: 2015/863/EU (RoHS3) - 2011/65/EU (RoHS2) - 2000/53/EU - 2002/95/EU (RoHS) - 2003/11/EU - 2005/618/EU - PED 2014/68/EU (ANNEX I, SECTION 4.3) e PE(S)R 2016/1105
THE MATERIAL IS FREE OF ANY MERCURY, MERCURY COMPOUNDS AND OR RADIUM CONTAMINATION AT TIME OF SHIPMENT AND WAS PRODUCED WITHOUT USING OZONE DEPLETING SUBSTANCES OF CLASS I AND II.
REFERENCE NORMS: EN 10088-3 (14), EN 10272 (16), ASTM A276-r17/ASME SA276-21, ASTM A479/A479M-r21, ASTM A193-23 B8MCLASSE 1D, ASME SA276/SA276M-21,ASME SA479/SA479M-21, AMS 5653J, AMS 5648N, ISO15156-3/NACE MR0175 (15), NACE MR0103/ISO 17945 (15), NORSOK M630 MDSS01 REV5.
REFERENCE NORMS FOR CHEMICAL COMPOSITION AND MECHANICAL PROPERTIES: ASTM A182-23/ ASME SA182-21.
REFERENCE NORMS ONLY FOR CHEMICAL COMPOSITION: EN 10222-5 (17),ASTM A403-22b, ASTM A484-22, ASTM A314-23, AMS-QQ-S-763D.
ASME SECT.II PART A EDITION 2015-2017-2019-2021.
WHERE NOT SPECIFIED ALL THE NORMS MENTIONED ARE INTENDED IN THEIR LAST REVISION AT THE DATE OF ISSUE OF THIS DOCUMENT.
ASTM A484 DOES NOT APPLY FOR SIZE AND LENGTH TOLERANCES.

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

1 - 072003.PDF C 240062-001/01

DATE 02.05.2024

MORABITO ROSA CF(WORKS INSPECTOR) - ELECTRONICALLY GENERATED CERTIFICATE

-Cogne

57606 | 2 - 057606.PDF | C 240062-001/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A MDS S01 5 316 A (0) AISI 316	(0)Norsok-standard M-630 Edition 6, October 2013
AISI 316L ASME SA182 2019 S31600 A (1) ASME SA182 2019 S31603 A (2)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479. (2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3) ASME SA276 2019 S31600 A (4) ASME SA276 2019 S31603 A (5)	(3)Section II Part A 2019 EDITION (4)Section II Part A 2019 EDITION (5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6) ASME SA479 2019 S31600 A (7) ASME SA479 2019 S31603 A (8)	(6)Section II Part A 2019 EDITION (7)Section II Part A 2019 EDITION (8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9) ASTM A182 2020 S31603 (A) ASTM A193 2019 B8M CLASS 1	(9)For products machined directly from bar refer also to ASTM A479. (A)For products machined directly from bar refer also to ASTM A479.
ASTM A262 2015 PRACTICE E ASTM A276 2017 S31600 A ASTM A276 2017 S31603 A	
ASTM A314 2019 S31600 ASTM A320 2018 B8M CLASS 1 CLASS1 ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A ASTM A479 2019 S31603 A ASTM E10 2018 .	
ASTM E8 2016A . DIN 17440 96 1.4401 A DIN 17440 96 1.4404 A	
EN 10088-3 2014 1.4401 A EN 10088-3 2014 1.4404 A EN 10272 2007 1.4401 A	
EN 10272 2007 1.4404 A ISO 148-1 2016 . ISO 6506-1 2014 .	
ISO 6892-1 2019 . NACE MR0103 2015 S31600 A (C) NACE MR0103 2015 S31603 A (D)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015 (D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E) NACE MR0175 2015 S31603 A (F)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015 (F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

FLUITEK ORSENIGO VALVES Q.C.

18 NOV. 2021
FRANCO CORBELLINI
QB3
CROSSWIND

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Marchi di Fabbrica:
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice
AV

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Punzone del Collaudatore:
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur
MR

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

Tolleranza: k12
Tolleranza/Allowance/Tolerance

Pos. nr. Pos. nr. / Item nr. / Nr. de poste	Oggetto Gegenstand / Product description / Descrip. du produit	Dimensioni - mm Abmessungen / Dimension / Dimension	Lunghezza - mm Länge / Length / Longueur	Colata Schmelze / Heat / Coulée	Pezzi Stückzahl / Pieces / Pieces	Peso - KG Gewicht / Weight / Poids	Lotto nr. Losnr / Lot nr. / Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage / Location / Emplacement 1)	Snervamento Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze / Yield Stress / Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2	Allungamento Bruchdehnung / Elongation / Allongement A5 %	Allungamento E 4d %	Strizione Einschnürung / Reduction of area / Striction Z %	Strizione RA %	Resilienza Kerbschlagarbeit / Impact Value / Resilience KV J			Durezza Haerte / Hardness / Durete HB		
Valori richiesti Anforderungen/Required values / Valeurs démandées		min		205	240	515	40	40	-	50	100			-		
		max				690								215		
A	10	20	L	295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %
	min -	-	-	16,50	2,00	10,00	-	-	-
	max 0,030	1,00	2,00	18,00	2,50	13,00	0,045	0,030	0,100
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055

FRANCO CORBELLINI 21 AGO. 2024
QBQ
CROSSWIND

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/4/316/L

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel ß été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

W3P4F28E3AD158E26AE37954046D159E28C

11 GEN. 2021

FRANCO CORBELLINI
QBQ
CROSSWIND R

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 14/01/2021 VCQ052 - MEST662721	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 3 di 3

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

General remarks

1: This test report cannot be partially reproduced without our written approval
2: Test results are relevant only to the specimens belonging to the indicated samples
3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy
4: Tests are performed on the material in as-received conditions, unless otherwise specified
5: Sampling has been performed by customer
6: If not otherwise agreed, tested specimens are kept for 30 days from the test date
7: The uncertainty value, when expressed, does not affect the conformity declaration
8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA
9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by
MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
LAB N° 1574 L

COMPLIANT WITH QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

Notched bar impact test

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration

Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2024

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	FRANCO CORBELLINI QBQ CROSSWIND

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

3 - 071474.PDF C 240062-001/01

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

VDM
Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668
Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

Specification
718 Rev. 13 03.02.2020 (Straigthness 2:1000)
Yield Strength: min 120 KSI
temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718
UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1834-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straigthness 2:1000); API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Meth	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Meth	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Meth	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5.5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

M. Üçüncü
Onal Üçüncü , authorized inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Chairman of the Supervisory Board: Bernardo Velazquez Herreros
Management Board: Dr. Niclas Müller (Chairman), Holger Arnold, Daniel Agliardi Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

printed: 14. AUG 2023

Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates
1 718 Rev. 13 03.02.2020 (Straighness 2:1000)

		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling(start 27°C - end 28°C - max. 29°C) + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection
No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.
For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.
MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.
No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.
All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.
SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.
The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.
Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany
Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Agatario Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 : 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herrero
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Holger Arnold, Daniel Apilarte Zemp, Frank Moers
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Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
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Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KV₈ 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1.11	0.93	1.14	70	70	70

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

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DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor

Hirzbruch, Level II

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor

Hirzbruch, Level II

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

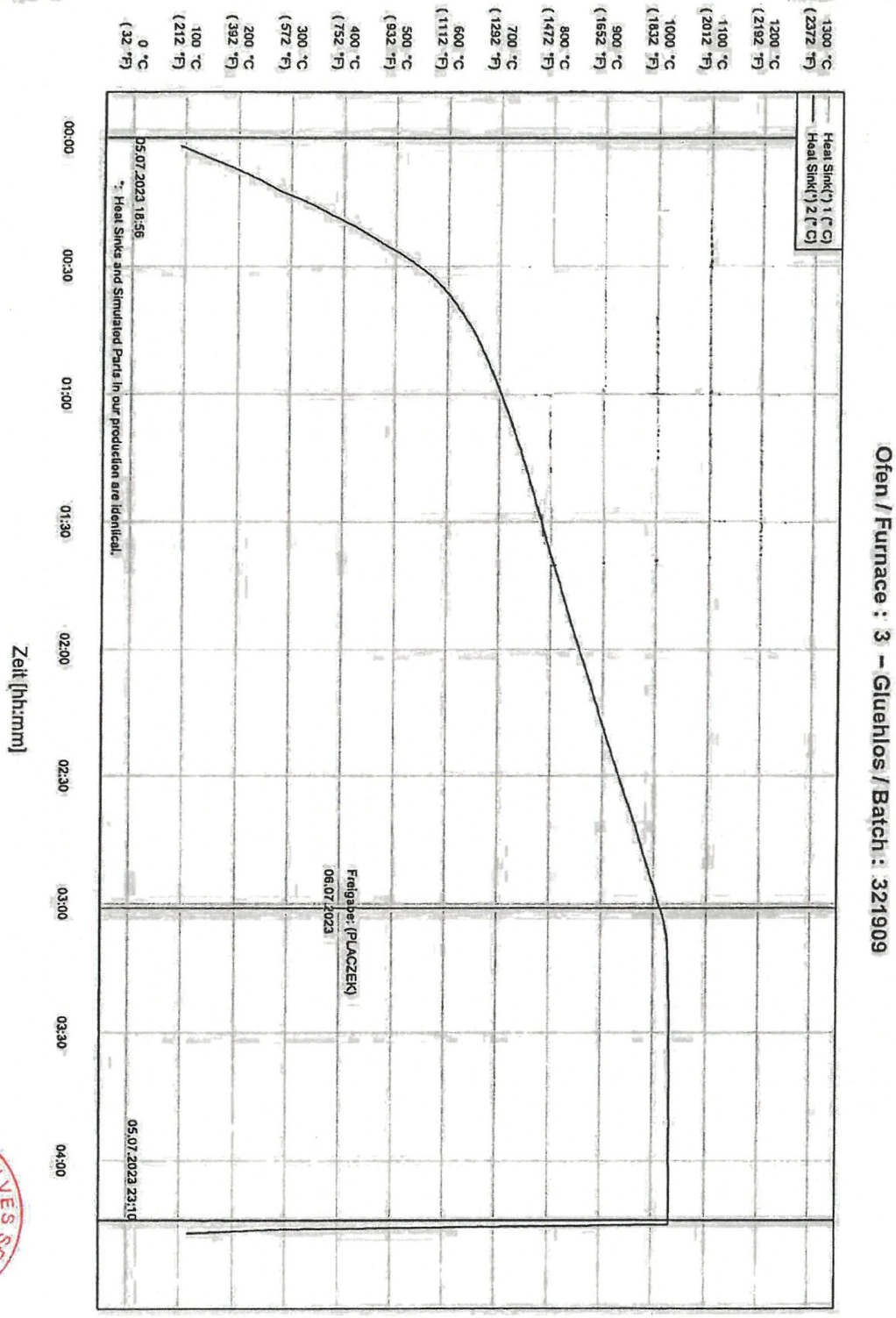
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman)
Holger Arnold, Daniel Apiñaniz Zamp, Frank Monis
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephone: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Apitzsch Zamp, Frank Morris
Commercial register: Iserlohn local court, 15327
Company domicile: Werdohl

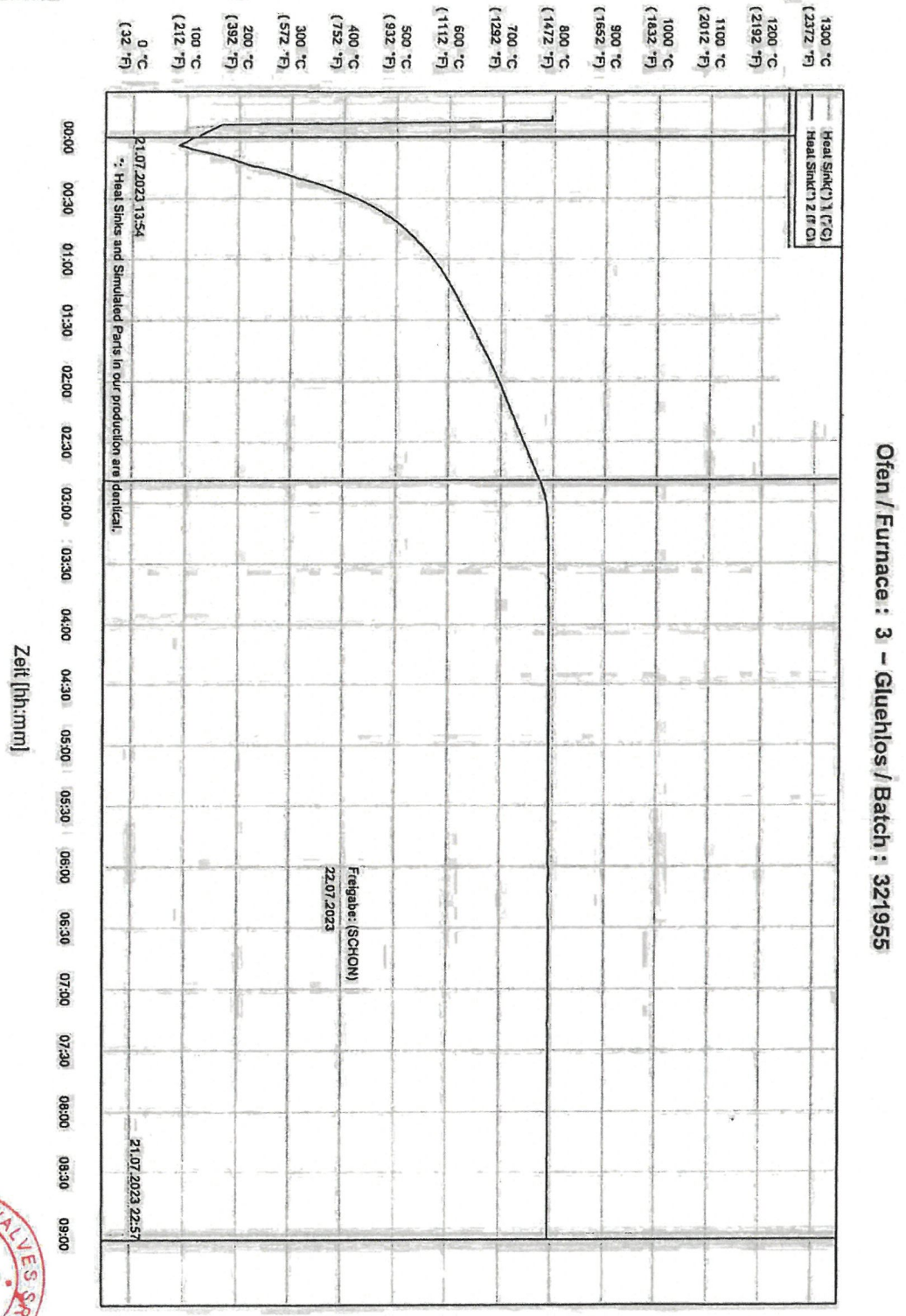
21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321955

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Midas Müller (Chairman)
Holger Arnold, Daniel Arpitania Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

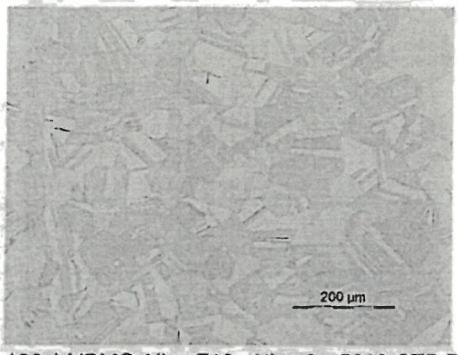
21 AGO. 2023
FRANCO CORBELLINI
OBQ
CROSSWIND

VDM Metals GmbH

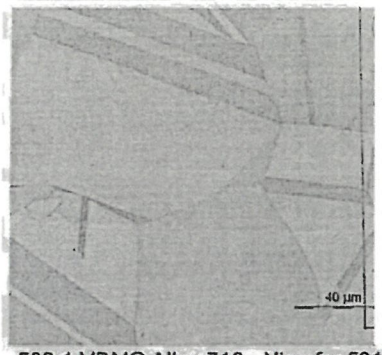
Microstructure Examination

Metallography Job No.:	194936
Lot No.:	105403101
Heat:	422416

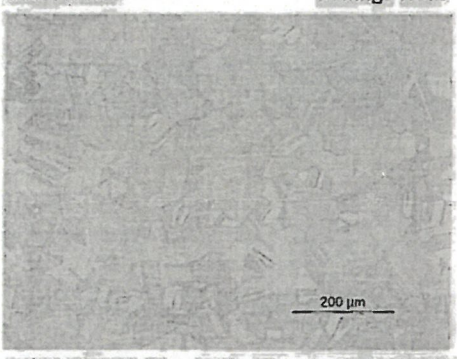
Inspection Certificate No.: 253749/1
Enclosure: 4
Page: ~~1 of 1~~



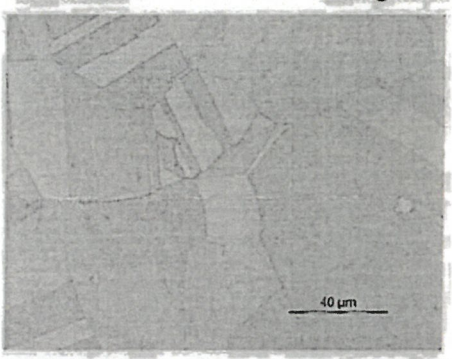
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102T001A02 surface
26.07.2023 Kallings No.2



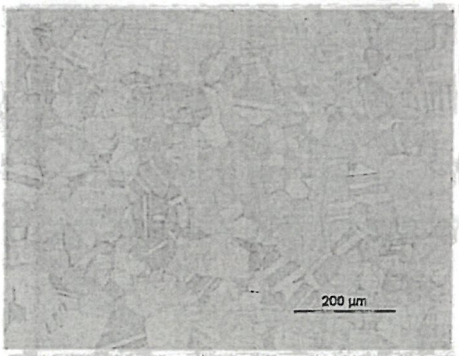
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



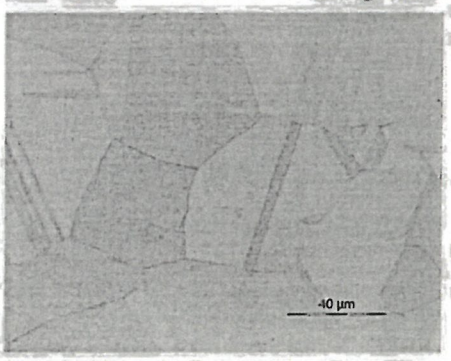
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

FLOWSERVE ARSENIO VALVES SRL Q.C.

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpitarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 AGO. 2024
FRANCO CORBELLINI
OBJ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE
ORDER NUMBER: 715430-1 **STEP:** 721719
PRODUCT CODE: 718 1.25 SAAH
HARDNESS RANGE (HBW): 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
☐ A0-30	☐ 6403-4 R92033	☐ R984063	☑ 0510014	☐	☐ F68332/139	☐ 814574
☑ UC-71	☐ 6403_16897	☐	☐ 0907068	☐	☐	☐
☐ UC-72	☐ E50152/15(6503-1)	☐	☐ 1112032	☐	☐	☐
☐	☐ HMV1(6403-3)	☐	☐ 1112037	☐	☐	☐
☐	☐ R335(HMM1)	☐	☐	☐	☐	☐

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

									T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
[signature]	316	316.5	37591/30AW	P	21/5/24

01 March 2024

21 MAG. 2024
FRANCO CARBELLINI
QB1
CROSSWING

3 - 071474.PDF
C 240062-001/01

4 - 061238.PDF C 240062-001/01

MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller*	FLUITEK ORSENIGO VALVES SRL	**Descrizione** *Description / Prüfgegenstand*	Vite TER - Bolt TER M10x25	**Certificato N°** *Certificate N° / Prüf Nr*	153954 R. 0
VIA DEI LIVELLI DI SOPRA	5/7				
COSTA DI MEZZATE	BG	**Disegno Cliente** *Customer drawing / Kunden-design*	144356	**Classe materiale** *Material Class /W.n*	B8M cl.2 (<=M20) S31600
		N° pezzi *Quantity / Stückzahl*	2000		ASTM A193/A193M-19; ASTM A320/A320M-18
N° DDT	222434 **data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr*	220638 POS. 003	**Colata** *Heat N° / Schmelze Nr*	174374

Analisi chimica

Chemical Analysis /Chemische Analyse

Valori richiesti %

		C	Mn	Si	Cr	Ni	Mo	S	P
Required values / Sollwerte	min.				16,000	10,000	2,000		
	max	0,080	2,000	1,000	18,000	14,000	3,000	0,030	0,045
Analisi colata **Heat analysis / Schmelzanalyse*		0,016	1,830	0,380	16,680	10,280	2,050	0,001	0,027

* As reported on steel work or supplier certificate

Balance Fe

Caratteristiche meccaniche

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* Rm [N/mm2]		Snervamento *Yield strength Streck-grenze* Rs [N/mm2]	Allungamento *Elongation Bruch-dehnung* A%		Strizione *Reduction of area Bruch-einschn.* Z%	Durezza *Hardness Härteprüfung* HB		Resilienza *Impact test Schlagarbeit* [J]		Temperat. resilienza *Temp* [°C]
Valori richiesti *Required values/ Anforderungen*	min 760	max	min 655	4D min 15,00%	5D min	min 45,00%	min	max 321	media	min	
Valori ottenuti *Actual values / Ergebnisse*	1033		889	24,00%		66,20%		315			

Note

Trattamento termico *Heat treatment*	**Esame decarburazione-carburazione** *Decarburization and carburization test*	**Esame macroscopico** *Macroetch examination result*
Carbide solution treated and strain hardened	Non applicabile - Not applicable	Non applicabile - Not applicable

Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*	Positive	**P.M.I.**	Positive	**Marcature** *Marking / Kennzeichnung*	B8MSH MM	**Rivestimento** *Coating Oberflächenbeschichtung*	

Informazioni aggiuntive

Further information / Zusätzliche angaben

21 AGO. 2024

FRANCO CORBELLINI

QB1

CROSSWIND

The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612 /

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta n. 27
21015 LONATE POZZOLO

Fluitek Valves

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE
N° **C 240062-002/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**002**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
20	**1**

DESCRIPTION
ball valve fl 2 pz-fb2.4".300 lbs.att. pneumatico fail pos. open.rf a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0404.2.f10-hyd.att_pneu_fo.rf Rev0

TAG
25-BDV-005

SERIAL NUMBER
From 2400620020001 to 2400620020001

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,017	1,720	0,510	0,021	0,031	17,010	2,020	10,010		0,520		064509
			0,151	0,080						24,956			
	290048	560,00	257,00	62,00	70,00	195,00	191,00	192,00	-196°C (L)	171 HBW			
BALL	A182 F316/316L	0,016	1,660	0,620	0,027	0,031	17,030	2,090	10,220		0,510		068196
			0,115	0,075						25,127			
	437516	559,00	250,00	55,00	67,00	230,00	228,00	221,00	-196°C (L)	158 HBW			
STEM	API 6ACRA UNS N07718	0,014	0,060	0,060	<0,001	0,005	17,980	3,030	54,100	0,950	0,040	17,960	071346
		0,530	0,180	0,006		5,020	0,001		5,040	28,075			
	CVJ847	173,61	130,24	32,00	48,00	50,00	51,00	47,00	-76°C (L)	38,3 HRC			
FLANGE	A182 F316/316L	0,017	1,720	0,510	0,021	0,031	17,010	2,020	10,010		0,520		064509
			0,151	0,080						24,956			
	290048	560,00	257,00	62,00	70,00	195,00	191,00	192,00	-196°C (L)	171 HBW			
STUD	A193 B8M	0,013	1,560	0,570	0,028	0,030	16,710	2,060	10,250				071826
	430187	593,00	284,00	55,80	73,00					176 HBW			
NUT	A194 G8M	0,016	1,440	0,530	0,026	0,030	16,650	2,020	10,100				071827
	281685					102,00	116,00	111,00	-196°C (L)	184 HBW			
NUT	A194 G8M	0,011	1,550	0,530	0,026	0,031	16,580	2,100	10,200				072246
	281518									181 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU and was subjected to the conformity assessment procedure H
The monitoring is performed by BV Notified Body 1370
PED Manager Mr. Belotti Pierpaolo

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORBELLINI QBQ CROSSWIND R DATE	FLUITEK ORSENIGO VALVES SRL QC DATE 06/08/2024

64509

1 - 064509.PDF C 240062-002/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell / Your order / Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Fucinato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werksachverständigen / Inspector's stamp/Poinçon de l'essayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung / Marking / Marquage

SPECIFICHE :
Anforderungen / Requirements / Exigences

VAL STOCK A 1.4404/316L A
MDS S01 5 316 A (0)
MDS S17 1 316 A (1)
AISI . 316/316L
AMS-QQ-S-763 D 316/316L A
ASME SA182 2021 S31600/03 A (2)
ASME SA193 2021 B8M CLASS 1 (3)
ASME SA276 2021 S31600/03 A (4)
ASME SA320 2021 B8M CLASS 1 (5)
ASME SA479 2021 S31600/03 A (6)
ASTM A182 2022 S31600/03 A (7)
ASTM A193 2021 B8M CLASS 1
ASTM A262 PR. E 2015 316/316L (8)
ASTM A276 2017 S31600/03 A
ASTM A320 2022 B8M CLASS 1 CLASS1
ASTM A370 2021 .
ASTM A479 2021 S31600/03 A
ASTM E10 2018 .
ASTM E8 2022 .
EN 10088 PART 3 2014 1.4401 A (9)
EN 10088 PART 3 2014 1.4404 A (A)
EN 10272 2016. 1.4401 A
EN 10272 2016. 1.4404 A
ISO 148-1 2016 .
ISO 3651-2 98 METHOD A T1
ISO 6506-1 2014 .
ISO 6892-1 2019 .
NACE MR0103 2015 S31600/03 A (B)
NACE MR0175 2015 S31600/03 A (C)
QQ-S-763 F 316/316L A
ACH CO . .
KV L -196C . ISO 148-1
KV T -196C . ISO 148-1

Note:
Aufzeichnungen / Notes / Notes

(0)Norsok-standard M-630 Edition 6, October 2013
(1)Norsok-standard M-630: 2020 (2020-09-30)

(2)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.

(3)Section II Part A 2021 EDITION
(4)Section II Part A 2021 EDITION
(5)Section II Part A 2021 EDITION

(6)Section II Part A 2021 EDITION
(7)For products machined directly from bar refer also to ASTM A479.

(8)Reapproved 2021

(9)Chemical and mechanical properties only.
(A)Chemical and mechanical properties only.

21 NOV. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
(C)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

		Tolleranza: k13 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0040	Tondo	260,000	2000/ 2000	290048		849,0	207409440

FLUITEK ORSENIGO VALVES SRL Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 11/05/2023 VCQ052 - MEST062477	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 1 di 5

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST062477 / 2023 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell / Your order / Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Fucinato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung / Marking / Marquage

TEST ALLO STATO DI FORNITURA

TEST		min	max	
A	Dimensioni grano x ASTM E112			2

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion - Lateral ex mm			Shear - Shear - % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
B	10X10	-196	L	195	191	192	1,264	1,515	1,135	65	60	66

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		210	-	520	-	40	-	50	-			-		
		max				790								223		
C	12,5	20	L	267		555		62		65				167		

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		205	-	515	-	40	-	50	-			-		
		max														
D	12,5	20	T	257		560		55		70						

FRANCO CORBELLINI
QBQ 21 AGO. 2024
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 11/05/2023	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto Produktmanagement/Product Management/Direction Produit	
VCQ052 - MEST062477	R.BERTELLI	P.MESSORI	Pagina 2 di 5

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell / Your order / Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Fucinato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'essayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404/316/316L

Prova di trazione per ISO 6892-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		200	235	500	30	-	-	-	-			-		
		max				700									215	
E	10	20	T	261	306	554	58		65					169		
F	10	20	T	261	305	553	59		66					171		

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion - Lateral ex mm			Shear - Shear - % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
G	10X10	-196	T	86	76	84	0,694	0,506	0,885	35	36	30

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion -			Shear - Shear -		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		60	60	60	-	-	-	-	-	-
		max										
J	10X10	20	T	120	124	130						
K	10X10	20	T	126	131	126						

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO VALVES SRL QC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 11/05/2023 VCQ052 - MEST062477	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 3 di 5

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

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In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST062477 / 2023 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell
Your order
Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Fucinato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung
Marking
Marquage

Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
min -	-	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-	
290048	0,017	0,51	1,72	17,01	2,02	0,52	10,01	0,151	0,031	0,021	0,080				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 4,9 : 1
Solution annealed 1080°C for 6 h /water cooled.
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel á eté trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange avt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigufig und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

21 AGO. 2023
FRANCO CORBELLINI
QBJ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL QC

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST062477 / 2023 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell
Your order
Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Fucinato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Siempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

21 MAG. 2024
FRANCO CORBELLINI
QBJ
CROSSWIND R

FLUITEK ORSENIGO VALVES SRL QC

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
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CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'essayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

SPECIFICHE :
Anforderungen / Requirements / Exigences

VAL STOCK W2 A/1 1.4404/316L A
MDS S01 5 316 A (0)
MDS S17 1 316 A (1)
AD 2000-M. W 2 2022 1.4401 A (2)
AD 2000-M. W 2 2022 1.4404 A (3)
AISI . 316/316L
AMS-QQ-S-763 D 316/316L A
ASME SA182 2021 S31600/03 A (4)
ASME SA193 2021 B8M CLASS 1 (5)
ASME SA276 2021 S31600/03 A (6)
ASME SA320 2021 B8M CLASS 1 (7)
ASME SA479 2021 S31600/03 A (8)
ASTM A182 2023 S31600/03 A (9)
ASTM A193 2023 B8M CLASS 1
ASTM A262 PR. E 2015 316/316L (A)
ASTM A276 2023 S31600/03 A
ASTM A320 2022 B8M CLASS 1 CLASS1
ASTM A370 2022 .
ASTM A479 2023A S31600/03 A
ASTM E10 2023 .
ASTM E8 2022 .
EN 10088 PART 3 2014 1.4401 A
EN 10088 PART 3 2014 1.4404 A
EN 10272 2016. 1.4401 A
EN 10272 2016. 1.4404 A
ISO 148-1 2016 .
ISO 3651-2 98 METHOD A T1
ISO 6506-1 2014 .
ISO 6892-1 2019 .
NACE MR0103 2015 S31600/03 A (B)
NACE MR0175 4 S31600/03 A (C)
QQ-S-763 F 316/316L A
ACH CO . .
KV L -196C . ISO 148-1
KV T -196C . ISO 148-1

Note:
Aufzeichnungen / Notes / Notes

(0)Norsok-standard M-630 Edition 6, October 2013
(1)Norsok-standard M-630: 2020 (2020-09-30)
(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
(5)Section II Part A 2021 EDITION
(6)Section II Part A 2021 EDITION
(7)Section II Part A 2021 EDITION
(8)Section II Part A 2021 EDITION
(9)For products machined directly from bar refer also to ASTM A479.
(A)Reapproved 2021

21 MAR. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.

Pos. nr. / Pos. nr. / Item nr. / Nr. de poste	Oggetto / Gegenstand / Product description / Descrip. du produit	Tolleranza: k12 / Toleranz/Allowance/Tolerance — Dimensioni - mm / Abmessungen / Dimension / Dimension	Lunghezza - mm / Länge / Length / Longueur	Colata / Schmelze / Heat / Coulée	Pezzi / Stückzahl / Pieces / Pieces	Peso - KG / Gewicht / Weight / Poids	Lotto nr. / Losnr. / Lot nr. / Lot nr.
0090	Tondo	165,000	5062/ 5100	437516		1722,0	306706970

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024
VCQ052 - MEST012690

Direzione Qualità / Qualitätsmanagement/Quality Management/Gestion Qualité
R.BERTELLI

Direzione Prodotto / Produktmanagement/Product Management/Direction Produit
P.MESSORI

Acciaierie Valbruna S.p.A.

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VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

TEST ALLO STATO DI FORNITURA

TEST		min	max	
A	Dimensioni grano x ASTM E112			4

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
B	10X10	-196	L	230	228	221	1,800	1,785	2,192	71	68	70

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		210	-	520 790	-	40	-	50	-			- 223		
C	12,5	20	L	261		559		60		71				158		

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	253		554		55		67						

21 MAR. 2024

FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL QC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

Prova di trazione per ISO 6892-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max			200	235	500 / 700	30	-	-	-	-			- / 215		
E	10	20	T		250	293	551	54		65					155		
J	10	20	T		255	299	556	53		64					158		

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max			-	-	-	-	-	-	-	-	-
F	10X10	-196	T		87	90	91	0,848	0,701	0,795	20	22	20

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max			60	60	60	-	-	-	-	-	-
I	10X10	20	T		91	88	87						
K	10X10	20	T		99	81	80						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

29. 01. 2024
FRANCO CORBELLINI
QBJ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.M.C.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
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Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012690 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
min -	-	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-	
437516	0,016	0,62	1,66	17,03	2,09	0,51	10,22	0,115	0,031	0,027	0,075				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 11,3 : 1
Solution annealed 1080°C for 3,5 h /water cooled.
SURFACE QUALITY GUARANTEE BY ET INSPECTION (max defect depth 1% DIAMETER)
UT ACC. TO ASTM A388; EN 10308 Cl.1
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 FEB. 2024

FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO VALVES SRL Q.C.

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

Acciaierie Valbruna S.p.A.

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Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012690 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
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Your order
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Conferma ordine nr: MI24000623
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Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

21 NOV. 2024
FRANCO CORBELLINI
QBJ
CROSSWIND R

FLUITEK ORSENIGO Q.C.

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Nr. / No.: 974791 / 2022.09.13

Besteller/Purchaser/Acheteur:

Empfänger/Consignee/Destinaire:

Bestell-Nr./Purchaser order No./No. de commande:

Empfängerref.-Nr./Receiver reference-No./Rèfèrence destinaire:

-

Werksauftrags-Nr./Works order-No./No. de la commande de l´usine:

Lieferschein-Nr./Delivery note-No./Avisd´expedition du client:

Prüfgegenstand/Object of test/Object d`examen:

BÖHLER L718API
Stäbe, gewalzt, lösungsgeglüht, ausgehärtet
Bars, rolled, solution annealed, age hardened
IBO ECOMAX ISO 286/2 ITk12

Anforderungen/Requirements/Exigence:

Werkstoffdatenblatt Rohmaterial
Raw Material Data Sheet
No.: 269X Rev.-No.: 3 und / and
Anhang Werkstoffdatenblatt Rohmaterial
Annex Raw Material Data Sheet
No.: 269X Rev.-No.: 3

2.4668HX

API Standard 6ACRA
First Edition, August 2015
Addendum/Errata, February 2019
Material designation 120K
API Specification 6A
Twenty-first Edition, November 2018 - PSL4
Addendum/Errata September 2021
ANSI/NACE MR0175/ISO15156-3:2015
ANSI/NACE MR0103/ISO17945:2015
MS-011559-(05,55)-(01) Base Number Rev.33
MS-011559-(06,56)-(01) Base Number Rev.33
100237403 Rev.BA
CSP-4 Rev.BN
FMC M40910 Rev.W
FMC M40902 Rev.R
VGS 5.141.1 Rev.24 except para.14.1.1
VGS 5.541.1-120K Rev. 31 except para 13.1.1
WN-301 Rev.Z except para.4.0
ES-MA-46-2 Rev.Q
BMS N201 Rev.AD
BMS N213 Rev.T
UNS N07718

TMP L718API 00011 Rev.004

Umfang der Lieferung/Volume of delivery/liste descriptive

Pos./Los	Abmessung Dimensions Dimensions	Länge Length Longueur	Stückzahl No. of Pieces No. de Pieces	Gewicht kg Weight kgs Poids kg	Mat.-ID	Prüf-Nr. Test No. Eprouvette	Schmelze-Nr. Heat No. No. de coulee
10/1	RD 82,55 MM	3.000 - 5.000 MM		2614,0	HGFC	2262472-1	CVJ847

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

FRANCO CORBELLINI
QBQ 21 NOV. 2024
CROSSWIND

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Blockgröße / Ingot size = **rd. 510 mm (20 inch)**
Umformgrad / Reduction ratio = 36 : 1

Qualitätswärmebehandlung / Quality heat treatment
Temperatur Überwachung / Temperature monitoring = Nickel-based alloy heat sink thermocouples

	Temperatur Temperature	Haltezeit Soak time	Abkühlung Cooling
Lösungsgeglüht / Solution Annealed	1886°F (1030°C)	1.5 h M	Wasser / Water
Ausgehärtet / Age hardened	1436°F (780°C)	6.3 h M	Luft / Air

M...Haltezeit auf Zieltemperatur nachdem das Materialzentrum die Toleranzgrenze erreicht hat.
M...Holding time at nominal temperature after center of material has reached the tolerance limit.

Die Temperaturmessung entspricht der AMS 2750F, wie in SAE-AMS-H-6875 B verlangt.
Pyrometry according to AMS 2750F, as required by SAE-AMS-H-6875 B.
AMS 2750F erfüllt alle Anforderungen entsprechend API Specification 6A Twenty-first Edition, Appendix M.
AMS 2750F fulfills all requirements listed in API Specification 6A Twenty-first Edition, Appendix M.

Chemische Zusammensetzung/Chemical Composition/Composition chimique (%)

Schmelzanalyse/Chemical Composition Erschmelzungsart/Steelmaking Process: VIM+VAR										Schmelze-Nr. Heat No. No. de coulee
C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Co	
0,014	0,06	0,06	<0,005	0,0005	17,98	3,03	54,1	0,04	0,18	CVJ847
Ti	Al	Nb	B	Fe	N	Pb	Ta	O	Bi	
0,95	0,53	5,02	0,0031	17,96	0,006	<0,0003	<0,020	<0,0003	<0,00003	CVJ847
Ca	Mg	Sn	Se	FL029*						
<0,0002	0,0006	<0,0010	<0,0003	5,04						CVJ847

FL029 = Nb+Ta

21 NOV. 2024
FRANCO CORBELLINI
QSJ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL
Q.C.

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Metallographische Prüfung / Metallographic examination

Makroätzprüfung / Macroetch examination

Prüfnorm / Testing standard = ASTM A 604/A 604M-07 (reapproved 2017)
Ätzmittel / Etchant = Hydrochloric-Peroxide
Lage / Location = Schopf und Boden des umgeschmolzenen Blockes / Top and bottom section of the remelted ingot
Orientierung / Orientation = Querschnitt / Transverse cross-section

Class 1	Freckles	Severity A
Class 2	White Spots	Severity A
Class 3	Radial Segregation	Severity A
Class 4	Ring Pattern	Severity A

Das Material entspricht den Anforderungen der Makroätzprüfung
nach API Standard 6ACRA - Para.4.2.1.
The material complies with the requirements of the macroetch examination
acc. to API Standard 6ACRA - Para.4.2.1.

Korngrößenbestimmung / Grain size evaluation

Prüfnorm / Testing standard = ASTM E112-13, ASTM E930-18
Ätzmittel / Etchant = Kalling's No. 2
Vergrößerung / Magnification = 50:1, 100:1, 500:1

Lage Location	Orientierung Orientation	Struktur Structure	Durchschnittliche Korngröße Average Grain Size	Duplex Verteilung Duplex Distribution
Rand Surface	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0
1/2 Radius (1/4T)	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0
Zentrum Center	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0

Das Material erfüllt die Anforderungen nach API Standard 6ACRA - Para. 4.2.2.2.2.
Es liegt keine topologische Duplexkorngrößenverteilung gemäß den Vorgaben der Norm ASTM E1181 vor.
The material complies with API Standard 6ACRA - Para. 4.2.2.2.2.
No presence of topological duplex grain size conditions as defined per ASTM E1181.

Gefügeuntersuchung nach schädlichen Phasen / Microstructural examination for deleterious phases

Ätzmittel / Etchant = Kalling's No. 2
Das Gefüge ist frei von kontinuierlichen Netzwerken, von Sekundärphasen entlang der Korngrenzen, oder anderen ungewöhnlichen mikrostrukturellen Eigenschaften. Die Gefügestruktur ist frei von nadelförmigen Deltaphasen, außer in einzelnene, isolierten Körnern, die nicht den Großteil der Gefügestruktur repräsentieren. Es gibt keine Laves Phasen.
The microstructure is free from continuous networks of secondary phases along grain boundaries or other unusual microstructural features. The microstructure is free from acicular delta phase except in individual, isolated grains that are not representing of the bulk of the microstructure. There is no laves phase.

FRANCO CORBELLINI
QBQ 21 NOV. 2022
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

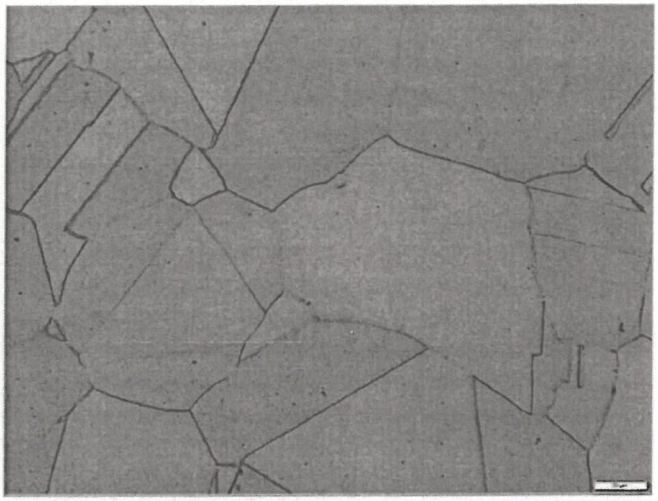
voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Gefügefotos / Photomicrographs

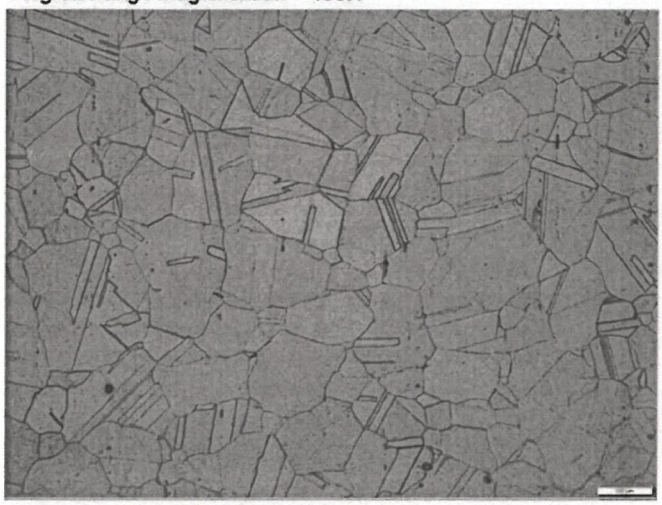
Prüfgerät / Test equipment = Lichtmikroskop / Light microscope



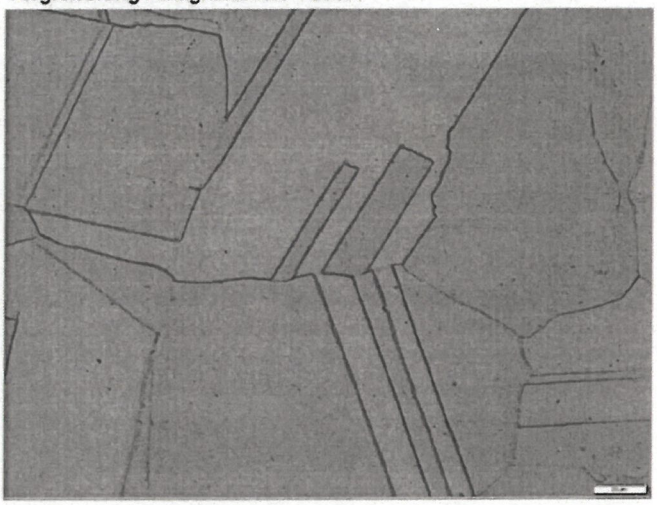
Lage / Location = **Rand / Rim (near Surface)**
Vergrößerung / Magnification = **100:1**



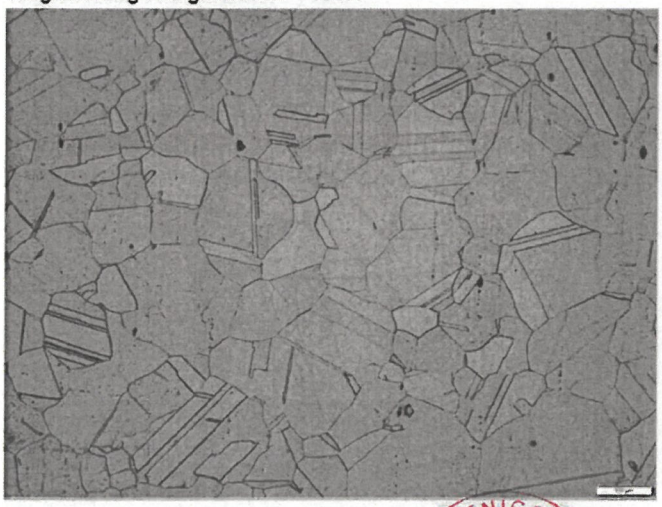
Lage / Location = **Rand / Rim (near Surface)**
Vergrößerung / Magnification = **500:1**



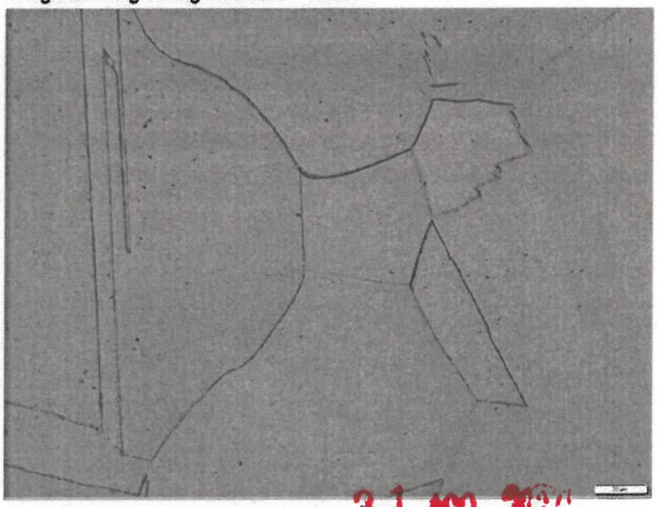
Lage / Location = **1/2 Radius (1/4T)**
Vergrößerung / Magnification = **100:1**



Lage / Location = **1/2 Radius (1/4T)**
Vergrößerung / Magnification = **500:1**



Lage / Location = **Zentrum / Center**
Vergrößerung / Magnification = **100:1**



Lage / Location = **Zentrum / Center**
Vergrößerung / Magnification = **500:1**

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QBJ
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Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Mechanische Eigenschaften / Mechanical properties

Der Probenabschnitt ist eine Verlängerung des endwärmebehandelten Stabes.
The QTC is a prolongation of the final heat treated bar.
Die Proben und die Prüfmethoden entsprechen der ASTM A370 - 21.
The test specimen and the test method are in accordance with ASTM A370 - 21.

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Zugversuchproben / Tensile test properties

Probenorientierung / Specimen orientation = längs / longitudinal
Probenlage / Specimen location = 1/2 Radius (1/4T)
Probe / Specimen = standard size 12.5 mm [0.500 inch] diameter

Zugversuch im Lieferzustand/Tensile test in delivery condition

*Legende / *Key
H = Härtester / hardest
W = Weichster / softest
S = Schopf / Top
M = Mitte / Middle
B = Boden / Bottom

Prüf-Nr. Test no.	*Stk.-Nr. *Piece no.	Prüfnorm Testing standard	Lage Location	Temp. °F	Dehngrenze Yield Strength Rp0,2 KSI	Zugfestigkeit Ultimate Tensile Strength Rm KSI	Dehnung Elongation A4 %	Einschnürung Reduction of Area Z %
					125 - 145	>=150	>=20	>=35
2262472-1	B1X	ASTM A 370-21 01.11.2021	L2	73	130.244	173.610	32	48

Kerbschlagversuchproben / Impact test properties

Probenorientierung / Specimen orientation = quer / transverse
Probenlage / Specimen location = 1/2 Radius (1/4T) oder tiefer / or deeper
Kerborientierung / Notch orientation = C-L
Probe / Specimen = standard size (Charpy-V) 10 x 10 mm [0.394 x 0.394 inch]

Kerbschlagversuch im Lieferzustand/Impact test in delivery condition

*Legende / *Key
H = Härtester / hardest
W = Weichster / softest
S = Schopf / Top
M = Mitte / Middle
B = Boden / Bottom

Prüf-Nr. Test no.	*Stk.-Nr. *Piece no.	Prüfnorm Testing standard	Lage Location	Temp. °F	Kerbschlagarbeit Impact energy Charpy-V ft-lbf	Laterale Breitung Lateral expansion LB mils	Zähbruch Shear area %
					>=35	>=15	info
2262472-1	B1X	ASTM E 23-18 01.11.2018	Q2	-76	50 51 47	26 25 24	20 20 20

Härteprüfung im Lieferzustand / Hardness test in delivery condition (QTC)

Der Probenabschnitt ist eine Verlängerung des endwärmebehandelten Stabes.
3 x 3 Messwerte 120° versetzt, 1/2 Radius (1/4T)
3 x 3 Messwerte 120° versetzt, oberflächennahe
1 x 3 Messwerte, Zentrum
Die angegebenen Werte, des Probenabschnittes, sind Mittelwerte und, in Klammern, Einzelwerte.

The QTC is a prolongation of the final heat treated bar.
3 x 3 readings 120° apart are taken at 1/2 Radius (1/4T).
3 x 3 readings 120° apart are taken near Surface.
1 x 3 readings are taken in the center
The values stated are the mean values and, in parentheses, the single values.

Härteprüfung im Lieferzustand/Hardness test in delivery condition

Prüf-Nr. Test no.	Stk. Nr. Piece no.	Prüfnorm Testing standard	Prüfort Location	Methode HRC
				34 - 39
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	37.3 (37 37 38)
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	38.3 (38 38 39)
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	36 (36 36 36)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	Zentrum / Center	36 (36 36 36)

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Härteprüfung im Lieferzustand / Hardness test in delivery condition (Bars)
Lage / Location = oberflächennahe / near Surface
Die Härteprüfungen an den Stäben wurde an Querschnittsschnitten je Stab durchgeführt.
Hardness tests on bars are performed on cross-sections slices, taken from each bar.

Härteprüfung im Lieferzustand/Hardness test in delivery condition

			Methode
Prüf-Nr. Test no.	Stk. Nr. Piece no.	Prüfnorm Testing standard	HRC
			34 - 39
2262472-1	1	ASTM E 18-20 01.03.2020	37 (36 37 38)
2262472-1	2	ASTM E 18-20 01.03.2020	37.7 (37 38 38)
2262472-1	3	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	4	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	5	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	6	ASTM E 18-20 01.03.2020	37 (37 37 37)
2262472-1	7	ASTM E 18-20 01.03.2020	36.7 (36 37 37)
2262472-1	8	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	9	ASTM E 18-20 01.03.2020	38 (38 38 38)
2262472-1	10	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	11	ASTM E 18-20 01.03.2020	37.7 (37 38 38)
2262472-1	12	ASTM E 18-20 01.03.2020	36.7 (36 37 37)
2262472-1	13	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	14	ASTM E 18-20 01.03.2020	36.7 (36 37 37)

Korrosionsprüfung / Corrosion examination
Prüfnorm / Testing standard = ASTM G48 method A
Prüfdauer / Test period = 24h
Prüftemperatur / Test temperature = 20°C
Beizlösung / Pickling solution = 20 % HNO3 + 5 % HF
Beizdauer / Pickling period = 5 min.
Beiztemperatur / Pickling temperature = 60°C
Massenverlust = 0,06 g/m², kein Lochfraß bei 20facher Vergrößerung.
Weight loss = 0,06 g/m², no pitting at 20x magnification.

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Zerstörungsfreie Prüfung / Non-Destructive examination

Ultraschallprüfung / Ultrasonic examination

Prüfmenge / Inspection quantity = 100% der Stäbe / 100% of the bars
Prüfvorschrift / Inspection specification = ASTM A 388/A388M-19
Beurteilungsstandard / Evaluation standard = API Specification 6A Twenty-first Edition - PSL 4
Prüftechnik / Inspection technique = Phased Array (Senkrechteinschallung am Aussendurchmesser / straight-beam technique from the outside diameter)
Das Material entspricht den Anforderungen / The material fulfils the requirements

Oberflächenprüfung / Surface examination

Prüfmenge / Inspection quantity = 100% der Stäbe / 100% of the bars
Prüftechnik / Inspection technique = Wirbelstromprüfung / Eddy - Current test (ET)
Das Material ist frei von unzulässigen Oberflächenfehlern / The material is without unacceptable surface defects

Statements

Das Material ist frei von Quecksilber Kontamination.
The material is free of mercury contamination.

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Es wurden keine Schweißungen am Material durchgeführt.
No weld repair has been performed on this material.

Herkunfts- und Erschmelzungsland: OESTERREICH
Country of origin: AUSTRIA
Country of melting and pouring: AUSTRIA
Name der Schmelzquelle: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name of melt source: voestalpine BÖHLER Edelstahl GmbH & Co KG

Name des Umformbetriebs /
Company performing the hot work operations: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name des Wärmebehandlungsbetriebs /
Company performing the heat treatment: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name der Prüfbetriebe /
Company performing the testing: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name des Prüflabors /
Name of test laboratory: In-house test laboratory of voestalpine BÖHLER Edelstahl GmbH & Co KG

Anlagen / Attachment

Wärmebehandlungsprotokolle / Furnace charts
UT Befund / Report
Prüferqualifikation / Operator qualification

Radioaktivitätskontrolle/Radioactivity inspection: Co-60<0,1Bq/g
Hiermit kleiner als Grenzwert in der anzuwendenden Spezifikation IAEA RS-G-1.7 für unbedenkliche Stoffe.
Therefore smaller than upper limit required according to specification IAEA RS-G-1.7 for inoffensive material.

Wir bestätigen hiermit, dass die obengenannten Erzeugnisse den Bestellvorschriften entsprechen.
We hereby certify that the above mentioned products are consistent with the order prescriptions

Zeichen des Lieferwerks:
Brand of Manufacturer: K

Besichtigung und Nachmessung: Keine Beanstandung
Inspection and Checking of Dimensions: Satisfactory

Zeichen des Prüfers:
Symbol of Inspector: K A

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25
8605 Kapfenberg, AUSTRIA
www.bohler-edelstahl.com

Wolfgang.Mlatschnig@bohler-edelstahl.at
AUSSTELLER/
ORIGINATOR

Abnahmebeauftragter
Inspection Representative

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Abteilung/Department
EWV/O

Wärmebehandlungsprotokoll
heat treating report

Fa./Los Nr./Splitt Nr.: / AG Nr.:works order:
Gewicht/weight: **2915 kg**
WBH-Schl.: **L46**
Marke/material: **L343**
Charge/heat no.: **CVJ847**
Abmessung/dimension: **0x85 mm**
PP/EKK Nr.: _

Ofen Nr.: furnace no.: **60**
Ofenklasse: furnace class: **3 (+/-8°C)**
Ofenqualifizierung lt. AMS2750 letztgültige Rev. furnace qualification per AMS2750 latest rev.:

Solldaten / nominal values
lt. EV2 3600/0021/30/letztgültige Rev. / per working procedure latest rev.

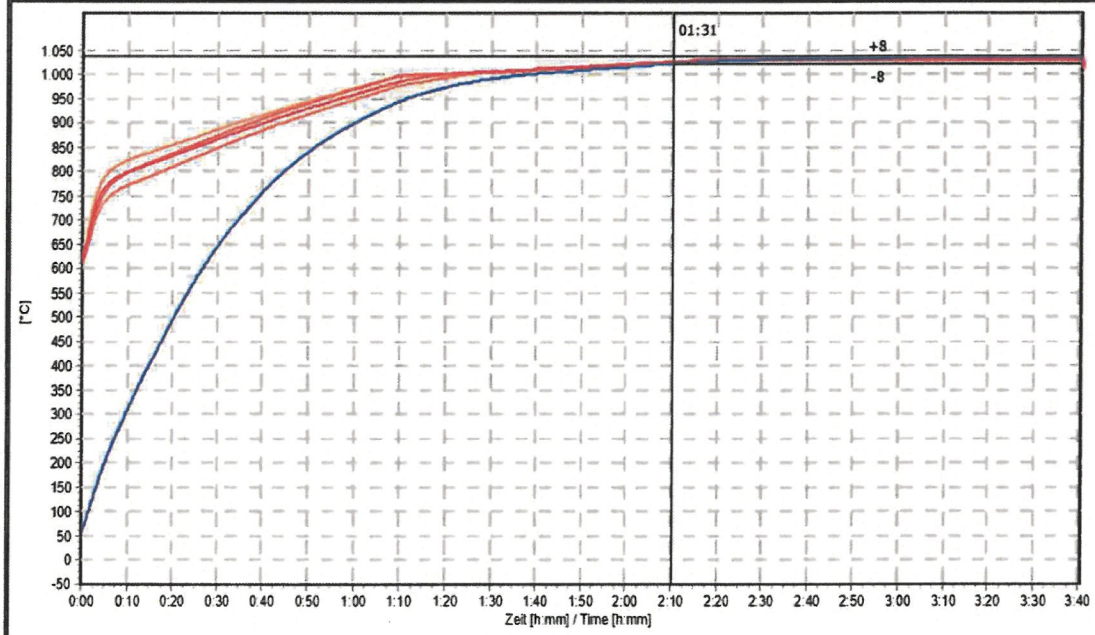
Wärmebehandlungsvorschrift: / heat treatment procedure

WBH-Zyklus HT cycle: 1030°C/1.5M/W
daraus erstellte Programm Nr. lt. EV: Program no. per working procedure: 52/00

Wassertemperatur: water temperature: max. 30°C (Toleranz lt. AV2-36-0015-07 letztgültige Revision)
Materialhaltezeit Toleranz: soak time tolerance: (Toleranz lt. AV2-36-0015-07 letztgültige Revision)

Isttemperaturverlauf / process data

Auflage Nr.: / lot no.: 8028



Materialeintritt: / material entrance time: 08.08.2022 10:55:48
Materialaustritt: / exit time: 08.08.2022 14:36:28

Abkühlbecken/Quench tank: KO - WB
Wassertemperatur water temperature: Eintritt: entrance: **08.08.2022 14:37:28** 14 °C
Austritt: exit: **08.08.2022 15:02:35** 18 °C
Zeit Wasserumwälzung agitation time: 1507 Sek

Die Richtigkeit der durchgeführten Wärmebehandlung wird bestätigt:
The correctness of the conducted heat treatment is confirmed:
Datum / date: 09.08.2022
Unterschrift: signature: Krammer Andreas

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Abteilung/Department
EWV/O

Wärmebehandlungsprotokoll
heat treating report

BÖHLER

Fa./Los Nr./Splitt Nr.: / AG Nr.:works order:
Gewicht/weight: **2915 kg**
WBH-Schl.: **A46**
Marke/material: **L343**
Charge/heat no.: **CVJ847**
Abmessung/dimension: **0x85 mm**
PP/EKK Nr.: _

Ofen Nr.: furnace no.: **59**
Ofenklasse: furnace class: **2 (+/-5°C)**
Ofenqualifizierung lt. AMS2750 letztgültige Rev. furnace qualification per AMS2750 latest rev.:

Solldaten / nominal values
lt. EV2 3600/0021/30/letztgültige Rev. / per working procedure latest rev.

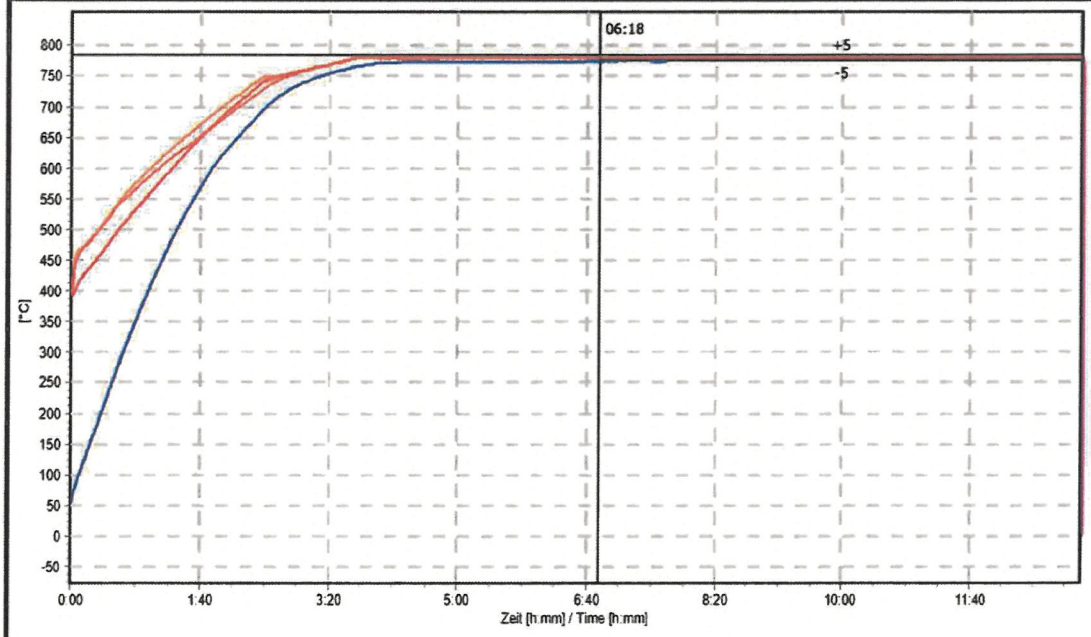
Wärmebehandlungsvorschrift: / heat treatment procedure

WBH-Zyklus HT cycle: 780°C/6,3M/L
daraus erstellte Programm Nr. lt. EV: Program no. per working procedure: 80/00

Wassertemperatur: water temperature: max. 30°C (Toleranz lt. AV2-36-0015-07 letztgültige Revision)
Materialhaltezeit Toleranz: soak time tolerance: (Toleranz lt. AV2-36-0015-07 letztgültige Revision)

Isttemperaturverlauf / process data

Auflage Nr.: / lot no.: 3706



Materialeintritt: / material entrance time: 09.08.2022 12:07:40
Materialaustritt: / exit time: 10.08.2022 01:16:12

Abkühlbecken/Quench tank: _
Wassertemperatur water temperature: Eintritt: entrance: - __ °C
Austritt: exit: - __ °C
Zeit Wasserumwälzung: agitation time: __ Sek

Die Richtigkeit der durchgeführten Wärmebehandlung wird bestätigt:
The correctness of the conducted heat treatment is confirmed:

Datum / date: 11.08.2022

Unterschrift: signature: Krammer Andreas

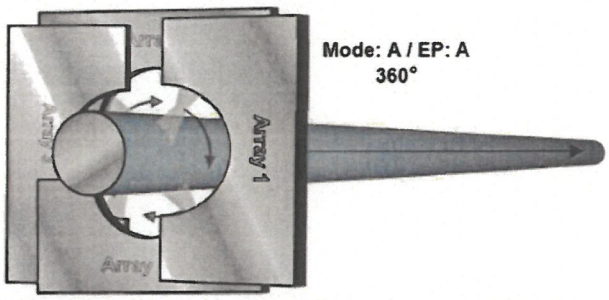
Digital Signature of Krammer Andreas voestalpine Böhler Edelstahl GmbH & Co KG EWV
User: Krammer A.
Date: 11.08.2022 08:16

Q.C.

voestalpine BÖHLER Edelstahl GmbH & Co KG

BÖHLER UT PRÜFBERICHT C / REPORT C / PROCES-VERBAL TYPE C		Besteller / Purchaser / Client		Werks Auftrag / Working Order / Commande interne	Pos / Item / Repère 1
Nr./No/No	97-0409-2022	Bestell-Nr. / Order No. / No. de commande		Prüfobjekt / Test object / Pièce contrôlée	Stabstahl / steel bars
Seite / Page / Page	01 von / of / sur 01	Stückzahl / Quantity / Quantité	1 Bd.	Kennzeichnung / Identification / Identification	Schmelze, Werkstoff, Werks Auftrag Heat, Material, Working Order
Abmessung / Dimension / Dimensions	RD 82,55 mm	Werkstoff / Material / Matériau	L343	Schmelze-Nr. / Heat-No. / No. de coulée	CVJ847
Oberflächenzust / Surface cond. / Etat de surface	geschält / peeled	Gewicht / Weight / Poids	2611 kg	Fertigungsstufe / Stage of production / Etat d'avancement de fabrication	Lieferzustand / delivery condition
Prüfbereich / Inspection area / Plage d'essai	Gesamte Stablänge / whole length			Wärmebehandlung / Heat treatment / Traitement thermique	lösungsgeglüht + ausgehärtet / solution annealed + age hardened
Prüfvorschrift / Inspection Specification / Spécification de contrôle	API 6A PSL4 - 21st Edition ASTM A 388-19			Prüfumfang / Inspection coverage / Etendue du contrôle	siehe Skizze / see sketch
Beurteilungsstandard / Evaluation standard / Critères d'acceptation	lt. acc. to API 6A PSL4 + ASTM A 388-19			ZfP-Arbeitsvorschrift / NDT-procedure / Procédure END	AV2/36/5125/74 Rev. 02 + Scan PlanAPI 6A PSL4 -PAT-Rund-WP Rev. 02
EKK (FP / WP) Nr. / Traveller (FP / WP) No / No. de fiche suiveuse	--			Zeichnungs-Nr., Schmiede-Nr. oder Einsatz-Nr. / Drawing No., forging No. or rolling No. / No. de plan, No. de forgeage ou No. de laminage	1454
Registriergrenze / Recording level / Seuil d'enregistrement	lt. acc. to API 6A PSL4 + ASTM A 388-19			Schritt / Prüf-Nr. / Step / Test no. / No. d'operation	--

Skizze / Sketch / Esquisse



Prüfgerät-Nr. / Equipment No / Appareil No.	ROWA B65/120 PAT 719260	Koppelmittel / Couplant / Produit de couplage	Wasser / water	Justierung / Adjustment / Ajustage	DAC
Justierkörper / Testblock / Bloc d'étalonnage	Nr. 132E	Referenzreflektor / Reference reflector / Réflecteur de référence	ø 1.19 mm FBH (-4 dB = 1,5 mm FBH)	S/N-Abstand / Signal-to-noise distance / Rapport signal sur bruit	> 6 dB
Transferkorrektur (weitere Korr.) / Transfer correction (further corr.) / Correction de transfert (correction additionnelle)					< 2 dB

Einschall-Pos. / Position of incidence / Direction d'incidence	Prüfkopf / Probe / Palpeur	Frequenz / Frequency / Fréquence MHz/Mc	Einschallwinkel / Angle of incidence / Angle d'incidence	Schallaufweg / Sound path / Parcours du son mm	Schallschw., Sound att. / Atténuation du son dB/m	Anzeigentiefe / Indication depth / Profondeur de l'indication mm	Anzeigenlänge / Indication length / Longueur de l'indication mm	KSR-Wert / DSR value / Réflecteur disque de différente	dB zu Referenz / dB to reference / dB à la référence	Echoform / Type of echo / Type d'écho	RWE-Abfall dB / Loss of BWE dB / Appareil de l'écho de fond dB
A	5MHz/224EL/R120mmCCV/90DEG	5	0°	82,55	< 2	keine registrierpflichtigen Anzeigen / no indications above recording level					---

Prüfergebnis / Test result / Résultat: ☒ Entspricht / Within / Conforme ☐ Entspricht nicht der Vorschrift / Not within specification / Pas conforme de la specification		Prüfort / Place of inspection / Lieu de contrôle	Kapfenberg, Abt. / Dep. EWV/F
		Datum / Date / Date	23.08.2022
Kunde / Customer / Client		Prüfer / Stufe / Operator / Level / Opérateur / Niveau de qualification	Schuller A. LII ISO 9712
Gutachter / Sachverständiger / Authorized inspector / Agent de l'organisme de contrôle		Prüfverantwortlicher / Stufe / Supervisor / Level / Responsable de contrôle / Niveau de qualification	Koch W. LII ISO 9712

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voestalpine
ONE STEP AHEAD.

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Akkreditierung Austria A 0909 ISO/IEC 17024

Akkreditierte Konformitätsbewertungsstelle
nach EN ISO/IEC 17024 (ID: 0909)
Accredited conformity assessment body according to EN ISO/IEC 17024 (ID: 0909)
Organisme d'évaluation de la conformité accrédité selon l'EN ISO/IEC 17024 (ID: 0909)
Anerkannte unabhängige Prüfstelle
gemäß Artikel 24 und Anhang I Z 3.1.3 der Richtlinie 2014/68/EU
Recognised third-party organisation according to article 24 of Directive 2014/68/EU
Entité tierce partie reconnue selon l'article 24 de la Directive 2014/68/UE

ÖGfZP NDT

CERTIFICATE ZERTIFIKAT CERTIFICAT

Hiermit zertifizieren wir die Kompetenz
We hereby certify the competence / Nous certifions la competence

Herr Alexander Schuller

Titel, Vorname, Name / Title, first name, surname / Titre, prénom, nom

geboren am
date of birth/date de naissance
10.10.1989

Zertifikat-Nr.: **02/37595/2/22469**
No. of certificate/ N° de certificat

Prüfverfahren[1] und Stufe
NDT method[1] and level
Méthode d'essai[1] et niveau
Ultraschallprüfung UT Stufe 2 (zwei)

Industrie-[2]/Produktsektoren[1]
Industrial-[2]/Product sectors[1]
Secteurs industriels-[2]/produits[1]
Herstellung

nach den Normen
based on the Standards
en selon des normes
ÖNORMEN: EN ISO 9712

Gültigkeit der Zertifizierung
Validity of the certification
Validité de la certification
14.03.2022 bis 13.03.2027

21 NOV. 2021
FRANCO CORBELLINI
QB1
CROSSWIND

Österreichische Gesellschaft für Zerstörungsfreie Prüfung
Austrian Society for Non-Destructive Testing / Association d'Autriche des Essais Non Destructifs

1230 Wien, 15.11.2021

für die ÖGfZP
for the ÖGfZP / pour l'ÖGfZP

der Präsident
the president / le président
Dipl.-Ing. Dr. Wolfgang Schützenhofer

für die Zertifizierungsstelle
for the Certifying Body / pour l'organisme de certification

Ing. Andreas Schieder, MSc (0163)

Unterschrift der zertifizierten Person
signature of certified person / signature de la personne certifiée

ÖGfZP NDT

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

1) gemäß EN ISO 9712 / according to EN ISO 9712 / selon EN ISO 9712
2) Herstellung (enthält w, f, c, wp, t) - Dienstleistungsprüfung bei Fertigung und Instandhaltung, eingeschlossen Herstellung (enthält w, f, c, wp, t, u.a) - Eisenbahn-Instandhaltung (enthält w, f, c, wp , t, u.a) - Luft- und Raumfahrt (enthält w, f, c, wp, t, p, u.a)

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4 - 071826.PDF C 240062-002/01

71826

TMV MOLINARI
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024000486192
DATE 23/05/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **2385**
Ordine N°/Order N° **240436**
Row Ref. **1**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Fully Threaded Stud-bolt Chamfers Included ANSI B16.5
ASTM A193 / ASTM A320 B8Mc1
3/4"-10UNC L:65 mm

Q.ty[pcs]: 38 pcs.

Batch Code: CC37DBC6

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
UTS Mpa	515		593	YS0,2% Mpa	205		284
A 50mm %	30		55,8	Z %	50		73
HBW		223	176				

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 430187

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C		0,08	0,013	Mn		2	1,56
P		0,045	0,030	S		0,03	0,028
Cr	16	18	16,71	Mo	2	3	2,06
Si		1	0,57	Ni	10	14	10,25

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

21 MAG. 2024
FRANCO CORBELLINI
QC1
CROSSWIND

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

FLUITEK ORSENIGO VALVES SRL Q.C.

MFR AUTHORIZED INSPECTOR AND STAMP

Matteo Bernardi
Quality Dept.

T.M.V. MOLINARI
Q.A. MANAGER
APPROVATO

5 - 071827.PDF C 240062-002/01

71827

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
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REA di PC n. 127630
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CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024000486193
DATE 23/05/2024

Cliente/Purchaser FLUITEK ORSENIGO VALVES srl
Commessa N°/Job N° 2385
Ordine N°/Order N° 240436
Row Ref. 3

Page: 1

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL — **Heat Treatment details: CST**

Heavy Hex Nut ANSI B18.2.2 Tab.1.1.1-11
ASTM A194 Gr.8M
3/4"-10UNC

Q.ty[pcs]: 45 pcs.

Batch Code: B8B16352

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value
HBW	126	300	184

Test	Req. min	Req. MAX	Value
PROOF LOAD			POSIT

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS — **HEAT N°: 281685**

Test	Req. min	Req. MAX	Value
C		0,08	0,016
P		0,045	0,030
Cr	16	18	16,65
Si		1	0,53

Test	Req. min	Req. MAX	Value
Mn		2	1,44
S		0,03	0,026
Mo	2	3	2,02
Ni	10	14	10,1

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

TEST	RICHIESTO/REQUEST	OTTENUTO/RESULT
KV -196°C	40/40 J	102-116-111

21 MAG. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Matteo Bernardi
Quality Dept.

T.M.V. MOLINARI
QUALITY MANAGER
APPROVATO

6 - 072246.PDF C 240062-002/01

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
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Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

72246

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024000947732
DATE 10/07/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **134**
Ordine N°/Order N° **240436**
Row Ref. **4**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Hex Thin Nut UNI 5589/DIN 936
ASTM A194 Gr.8M
M36x4

Q.ty[pcs]: 12 pcs.

Batch 132

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
HBW	126	300	181	PROOF LOAD			POSIT

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 281518

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C		0,08	0,011	Mn		2	1,55
P		0,045	0,031	S		0,03	0,026
Cr	16	18	16,58	Mo	2	3	2,1
Si		1	0,53	Ni	10	14	10,2

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

21 NOV. 2024
FRANCO CORBELLINI
061
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Marco Piseroni
Quality Dept.

T.M.V. MOLINARI
Q.A. MANAGER
APPROVATO

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-003/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**003**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
30	**1**

DESCRIPTION
ball valve fl 2 pz-fb2.4".300 lbs.att. pneumatico fail pos. open.rf a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0404.2.f10-hyd.att_pneu_fo.rf Rev0

TAG
25-BDV-007

NOTES

SERIAL NUMBER
From 2400620030001 to 2400620030001

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,017	1,720	0,510	0,021	0,031	17,010	2,020	10,010		0,520		064509
			0,151	0,080						24,956			
	290048	560,00	257,00	62,00	70,00	195,00	191,00	192,00	-196°C (L)	171 HBW			
BALL	A182 F316/316L	0,016	1,660	0,620	0,027	0,031	17,030	2,090	10,220		0,510		068196
			0,115	0,075						25,127			
	437516	559,00	250,00	55,00	67,00	230,00	228,00	221,00	-196°C (L)	158 HBW			
STEM	API 6ACRA UNS N07718	0,014	0,060	0,060	<0,001	0,005	17,980	3,030	54,100	0,950	0,040	17,960	071346
		0,530	0,180	0,006		5,020	0,001		5,040	28,075			
	CVJ847	173,61	130,24	32,00	48,00	50,00	51,00	47,00	-76°C (L)	38,3 HRC			
FLANGE	A182 F316/316L	0,017	1,720	0,510	0,021	0,031	17,010	2,020	10,010		0,520		064509
			0,151	0,080						24,956			
	290048	560,00	257,00	62,00	70,00	195,00	191,00	192,00	-196°C (L)	171 HBW			
STUD	A193 B8M	0,013	1,560	0,570	0,028	0,030	16,710	2,060	10,250				071826
	430187	593,00	284,00	55,80	73,00					176 HBW			
NUT	A194 G8M	0,016	1,440	0,530	0,026	0,030	16,650	2,020	10,100				071827
	281685					102,00	116,00	111,00	-196°C (L)	184 HBW			
NUT	A194 G8M	0,011	1,550	0,530	0,026	0,031	16,580	2,100	10,200				072246
	281518									181 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU and was subjected to the conformity assessment procedure H
The monitoring is performed by BV Notified Body 1370
PED Manager Mr. Belotti Pierpaolo

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORBELLINI QBQ CROSSWIND DATE	FLUITEK ORSENIGO VALVES SRL DATE 06/08/2024

64509

1 - 064509.PDF C 240062-003/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST062477 / 2023 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell
Your order
Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Fucinato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung
Marking
Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK A 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
MDS S17 1 316 A (1)	(1)Norsok-standard M-630: 2020 (2020-09-30)
AISI . 316/316L	
AMS-QQ-S-763 D 316/316L A	
ASME SA182 2021 S31600/03 A (2)	(2)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2021 B8M CLASS 1 (3)	(3)Section II Part A 2021 EDITION
ASME SA276 2021 S31600/03 A (4)	(4)Section II Part A 2021 EDITION
ASME SA320 2021 B8M CLASS 1 (5)	(5)Section II Part A 2021 EDITION
ASME SA479 2021 S31600/03 A (6)	(6)Section II Part A 2021 EDITION
ASTM A182 2022 S31600/03 A (7)	(7)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2021 B8M CLASS 1	
ASTM A262 PR. E 2015 316/316L (8)	(8)Reapproved 2021
ASTM A276 2017 S31600/03 A	
ASTM A320 2022 B8M CLASS 1 CLASS1	
ASTM A370 2021 .	
ASTM A479 2021 S31600/03 A	
ASTM E10 2018 .	
ASTM E8 2022 .	
EN 10088 PART 3 2014 1.4401 A (9)	(9)Chemical and mechanical properties only.
EN 10088 PART 3 2014 1.4404 A (A)	(A)Chemical and mechanical properties only.
EN 10272 2016. 1.4401 A	
EN 10272 2016. 1.4404 A	
ISO 148-1 2016 .	
ISO 3651-2 98 METHOD A T1	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600/03 A (B)	(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600/03 A (C)	(C)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015
QQ-S-763 F 316/316L A	
ACH CO . .	
KV L -196C . ISO 148-1	
KV T -196C . ISO 148-1	

21 NOV. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

Pos. nr. (Pos. nr. / Item nr. / Nr. de poste)	Oggetto (Gegenstand / Product description / Descrip. du produit)	Tolleranza: k13 (Toleranz/Allowance/Tolerance) Dimensioni - mm (Abmessungen / Dimension / Dimension)	Lunghezza - mm (Lange / Length / Longueur)	Colata (Schmelze / Heat / Coulée)	Pezzi (Stückzahl / Pieces / Pieces)	Peso - KG (Gewicht / Weight / Poids)	Lotto nr. (Losnr. / Lot nr. / Lot nr.)
0040	Tondo	260,000	2000/ 2000	290048		849,0	207409440

FLUITEK ORSENIGO VALVES SRL Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 11/05/2023	Direzione Qualità (Qualitätsmanagement/Quality Management/Gestion Qualité)	Direzione Prodotto (Produktmanagement/Product Management/Direction Produit)	Pagina
VCQ052 - MEST062477	R.BERTELLI	P.MESSORI	1 di 5

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
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Telefono 0471.924111 - Fax 0471.924497

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In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST062477 / 2023 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
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VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell
Your order
Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Fucinato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung
Marking
Marquage

TEST ALLO STATO DI FORNITURA

TEST		min	max	
A	Dimensioni grano x ASTM E112			2

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
B	10X10	-196	L	195	191	192	1,264	1,515	1,135	65	60	66

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		210	-	520 790	-	40	-	50	-			-		223
C	12,5	20	L	267		555		62		65				167		

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	257		560		55		70						

FRANCO CORBELLINI
QBQ
CROSSWIND 21 AGO. 2024

FLUITEK ORSENIGO VALVES SRL Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 11/05/2023 VCQ052 - MEST062477	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell / Your order / Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Fucinato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung / Marking / Marquage

Prova di trazione per ISO 6892-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anfonderungen/Required values Valeurs démandées		min		200	235	500	30	-	-	-	-			-		
		max				700									215	
E	10	20	T	261	306	554	58		65					169		
F	10	20	T	261	305	553	59		66					171		

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion - Lateral ex mm			Shear - Shear - % Shear %		
Valori richiesti Anfonderungen/Required values Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
G	10X10	-196	T	86	76	84	0,694	0,506	0,885	35	36	30

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion -			Shear - Shear -		
Valori richiesti Anfonderungen/Required values Valeurs démandées		min		60	60	60	-	-	-	-	-	-
		max										
J	10X10	20	T	120	124	130						
K	10X10	20	T	126	131	126						

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

21 NOV. 2023
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL QC

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
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CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST062477 / 2023 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell
Your order
Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Fucinato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung
Marking
Marquage

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %
min -	-	-	-	16,50	2,00	-	10,00	-	-	-	-
max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-
290048	0,017	0,51	1,72	17,01	2,02	0,52	10,01	0,151	0,031	0,021	0,080

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 4,9 : 1
Solution annealed 1080°C for 6 h /water cooled.
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

21 SET. 2023

FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
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Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client:
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VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell / Your order / Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Fucinato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung / Marking / Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSP337BC012345678ABDEF13467PABDE673E

21 AGO. 2023
FRANCO CORBELLINI
QB3
CROSSWIND R

FLUITEK ORSENIGO VALVES SRL

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

SPECIFICHE : / Anforderungen / Requirements / Exigences

VAL STOCK W2 A/1 1.4404/316L A
MDS S01 5 316 A (0)
MDS S17 1 316 A (1)
AD 2000-M. W 2 2022 1.4401 A (2)
AD 2000-M. W 2 2022 1.4404 A (3)
AISI . 316/316L
AMS-QQ-S-763 D 316/316L A
ASME SA182 2021 S31600/03 A (4)
ASME SA193 2021 B8M CLASS 1 (5)
ASME SA276 2021 S31600/03 A (6)
ASME SA320 2021 B8M CLASS 1 (7)
ASME SA479 2021 S31600/03 A (8)
ASTM A182 2023 S31600/03 A (9)
ASTM A193 2023 B8M CLASS 1
ASTM A262 PR. E 2015 316/316L (A)
ASTM A276 2023 S31600/03 A
ASTM A320 2022 B8M CLASS 1 CLASS1
ASTM A370 2022 .
ASTM A479 2023A S31600/03 A
ASTM E10 2023 .
ASTM E8 2022 .
EN 10088 PART 3 2014 1.4401 A
EN 10088 PART 3 2014 1.4404 A
EN 10272 2016. 1.4401 A
EN 10272 2016. 1.4404 A
ISO 148-1 2016 .
ISO 3651-2 98 METHOD A T1
ISO 6506-1 2014 .
ISO 6892-1 2019 .
NACE MR0103 2015 S31600/03 A (B)
NACE MR0175 4 S31600/03 A (C)
QQ-S-763 F 316/316L A
ACH CO . .
KV L -196C . ISO 148-1
KV T -196C . ISO 148-1

Note: / Aufzeichnungen / Notes / Notes

(0)Norsok-standard M-630 Edition 6, October 2013
(1)Norsok-standard M-630: 2020 (2020-09-30)
(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
(5)Section II Part A 2021 EDITION
(6)Section II Part A 2021 EDITION
(7)Section II Part A 2021 EDITION
(8)Section II Part A 2021 EDITION
(9)For products machined directly from bar refer also to ASTM A479.
(A)Reapproved 2021

21 AGO 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.

		Tolleranza: k12 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0090	Tondo	165,000	5062/ 5100	437516		1722,0	306706970

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

TEST ALLO STATO DI FORNITURA

TEST		min	max	
A	Dimensioni grano x ASTM E112			4

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max			-	-	-	-	-	-	-	-	-
B	10X10	-196	L		230	228	221	1,800	1,785	2,192	71	68	70

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience		Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max			210	-	520 / 790	-	40	-	50	-		-		223
C	12,5	20	L		261		559		60		71			158		

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience		Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max			205	-	515	-	40	-	50	-		-		
D	12,5	20	T		253		554		55		67					

FRANCO CORBELLINI
OBO 21 AGO. 2024
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

Acciaierie Valbruna S.p.A.

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Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Prova di trazione per ISO 6892-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probestage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		200	235	500	30	-	-	-	-			-		
		max				700									215	
E	10	20	T	250	293	551	54		65					155		
J	10	20	T	255	299	556	53		64					158		

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probestage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion - Lateral ex mm			Shear - Shear - % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
F	10X10	-196	T	87	90	91	0,848	0,701	0,795	20	22	20

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probestage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion -			Shear - Shear -		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		60	60	60	-	-	-	-	-	-
		max										
I	10X10	20	T	91	88	87						
K	10X10	20	T	99	81	80						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 NOV. 2024
FRANCO CORBELLINI
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FLUITEK ORSENIGO VALVES SRL Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024	Direzione Qualità / Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto / Produktmanagement/Product Management/Direction Produit	Pagina
VCQ052 - MEST012690	R.BERTELLI	P.MESSORI	3 di 5

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %
min -	-	-	-	16,50	2,00	-	10,00	-	-	-	-
max	0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100
437516	0,016	0,62	1,66	17,03	2,09	0,51	10,22	0,115	0,031	0,027	0,075

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 11,3 : 1
Solution annealed 1080°C for 3,5 h /water cooled.
SURFACE QUALITY GUARANTEE BY ET INSPECTION (max defect depth 1% DIAMETER)
UT ACC. TO ASTM A388; EN 10308 Cl.1
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

FRANCO CORBELLINI
QBQ 21 NOV. 2024
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FLUITEK ORSENIGO VALVES SRL Q.C.

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel á eté trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

Acciaierie Valbruna S.p.A.

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Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012690 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSP3997631FCM31EB63FC9742FC97E2FC

21 AGO. 2024
FRANCO CORBELLINI
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CROSSWIND

FLUITEK ORSENIGO Q.C.

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Nr. / No.: 974791 / 2022.09.13

Besteller/Purchaser/Acheteur:

Empfänger/Consignee/Destinaire:

Bestell-Nr./Purchaser order No./No. de commande:

Empfängerref.-Nr./Receiver reference-No./Rèfèrence destinaire:

-

Werksauftrags-Nr./Works order-No./No. de la commande de l´usine:

Lieferschein-Nr./Delivery note-No./Avisd´expedition du client:

Prüfgegenstand/Object of test/Object d`examen:

BÖHLER L718API
Stäbe, gewalzt, lösungsgeglüht, ausgehärtet
Bars, rolled, solution annealed, age hardened
IBO ECOMAX ISO 286/2 ITk12

21 AGO. 2021
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Anforderungen/Requirements/Exigence:

Werkstoffdatenblatt Rohmaterial
Raw Material Data Sheet
No.: 269X Rev.-No.: 3 und / and
Anhang Werkstoffdatenblatt Rohmaterial
Annex Raw Material Data Sheet
No.: 269X Rev.-No.: 3
2.4668HX
API Standard 6ACRA
First Edition, August 2015
Addendum/Errata, February 2019
Material designation 120K
API Specification 6A
Twenty-first Edition, November 2018 - PSL4
Addendum/Errata September 2021
ANSI/NACE MR0175/ISO15156-3:2015
ANSI/NACE MR0103/ISO17945:2015
MS-011559-(05,55)-(01) Base Number Rev.33
MS-011559-(06,56)-(01) Base Number Rev.33
100237403 Rev.BA
CSP-4 Rev.BN
FMC M40910 Rev.W
FMC M40902 Rev.R
VGS 5.141.1 Rev.24 except para.14.1.1
VGS 5.541.1-120K Rev. 31 except para 13.1.1
WN-301 Rev.Z except para.4.0
ES-MA-46-2 Rev.Q
BMS N201 Rev.AD
BMS N213 Rev.T
UNS N07718

TMP L718API 00011 Rev.004

Umfang der Lieferung/Volume of delivery/liste descriptive

Pos./Los	Abmessung Dimensions Dimensions	Länge Length Longueur	Stückzahl No. of Pieces No. de Pieces	Gewicht kg Weight kgs Poids kg	Mat.-ID	Prüf-Nr. Test No. Eprouvette	Schmelze-Nr. Heat No. No. de coulee
10/1	RD 82,55 MM	3.000 - 5.000 MM	-	2614,0	HGFC	2262472-1	CVJ847

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

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Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Blockgröße / Ingot size = **rd. 510 mm (20 inch)**
Umformgrad / Reduction ratio = 36 : 1

Qualitätswärmebehandlung / Quality heat treatment
Temperatur Überwachung / Temperature monitoring = Nickel-based alloy heat sink thermocouples

	Temperatur Temperature	Haltezeit Soak time	Abkühlung Cooling
Lösungsgeglüht / Solution Annealed	1886°F (1030°C)	1.5 h M	Wasser / Water
Ausgehärtet / Age hardened	1436°F (780°C)	6.3 h M	Luft / Air

M...Haltezeit auf Zieltemperatur nachdem das Materialzentrum die Toleranzgrenze erreicht hat.
M...Holding time at nominal temperature after center of material has reached the tolerance limit.

Die Temperaturmessung entspricht der AMS 2750F, wie in SAE-AMS-H-6875 B verlangt.
Pyrometry according to AMS 2750F, as required by SAE-AMS-H-6875 B.
AMS 2750F erfüllt alle Anforderungen entsprechend API Specification 6A Twenty-first Edition, Appendix M.
AMS 2750F fulfills all requirements listed in API Specification 6A Twenty-first Edition, Appendix M.

Chemische Zusammensetzung/Chemical Composition/Composition chimique (%)

Schmelzanalyse/Chemical Composition Erschmelzungsart/Steelmaking Process: VIM+VAR										Schmelze-Nr. Heat No. No. de coulee
C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Co	
0,014	0,06	0,06	<0,005	0,0005	17,98	3,03	54,1	0,04	0,18	CVJ847
Ti	Al	Nb	B	Fe	N	Pb	Ta	O	Bi	
0,95	0,53	5,02	0,0031	17,96	0,006	<0,0003	<0,020	<0,0003	<0,00003	CVJ847
Ca	Mg	Sn	Se	FL029*						
<0,0002	0,0006	<0,0010	<0,0003	5,04						CVJ847

FL029 = Nb+Ta

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Metallographische Prüfung / Metallographic examination

Makroätzprüfung / Macroetch examination

Prüfnorm / Testing standard = ASTM A 604/A 604M-07 (reapproved 2017)
Ätzmittel / Etchant = Hydrochloric-Peroxide
Lage / Location = Schopf und Boden des umgeschmolzenen Blockes / Top and bottom section of the remelted ingot
Orientierung / Orientation = Querschnitt / Transverse cross-section

Class 1	Freckles	Severity A
Class 2	White Spots	Severity A
Class 3	Radial Segregation	Severity A
Class 4	Ring Pattern	Severity A

Das Material entspricht den Anforderungen der Makroätzprüfung
nach API Standard 6ACRA - Para.4.2.1.
The material complies with the requirements of the macroetch examination
acc. to API Standard 6ACRA - Para.4.2.1.

Korngrößenbestimmung / Grain size evaluation

Prüfnorm / Testing standard = ASTM E112-13, ASTM E930-18
Ätzmittel / Etchant = Kalling's No. 2
Vergrößerung / Magnification = 50:1, 100:1, 500:1

Lage Location	Orientierung Orientation	Struktur Structure	Durchschnittliche Korngröße Average Grain Size	Duplex Verteilung Duplex Distribution
Rand Surface	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0
1/2 Radius (1/4T)	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0
Zentrum Center	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0

Das Material erfüllt die Anforderungen nach API Standard 6ACRA - Para. 4.2.2.2.2.
Es liegt keine topologische Duplexkorngrößenverteilung gemäß den Vorgaben der Norm ASTM E1181 vor.
The material complies with API Standard 6ACRA - Para. 4.2.2.2.2.
No presence of topological duplex grain size conditions as defined per ASTM E1181.

Gefügeuntersuchung nach schädlichen Phasen / Microstructural examination for deleterious phases

Ätzmittel / Etchant = Kalling's No. 2
Das Gefüge ist frei von kontinuierlichen Netzwerken, von Sekundärphasen entlang der Korngrenzen, oder anderen ungewöhnlichen mikrostrukturellen Eigenschaften. Die Gefügestruktur ist frei von nadelförmigen Deltaphasen, außer in einzelnene, isolierten Körnern, die nicht den Großteil der Gefügestruktur repräsentieren. Es gibt keine Laves Phasen.
The microstructure is free from continuous networks of secondary phases along grain boundaries or other unusual microstructural features. The microstructure is free from acicular delta phase except in individual, isolated grains that are not representing of the bulk of the microstructure. There is no laves phase.

21 AGO. 2024
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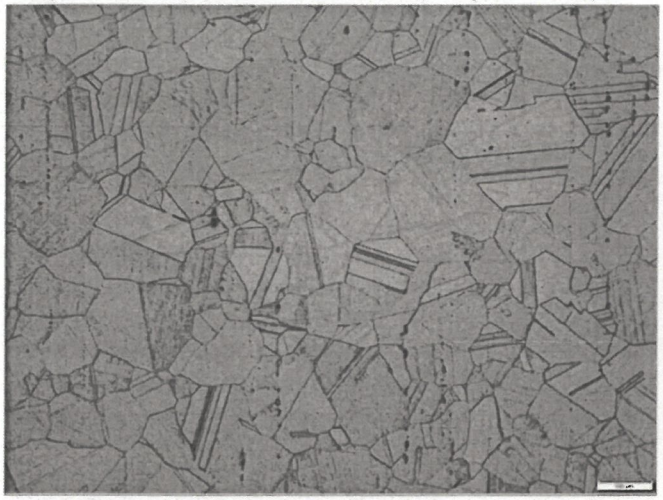
FLUITEK ORSENIGO VALVES S.R.L. Q.C.

21 NOV. 2014
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QB.1
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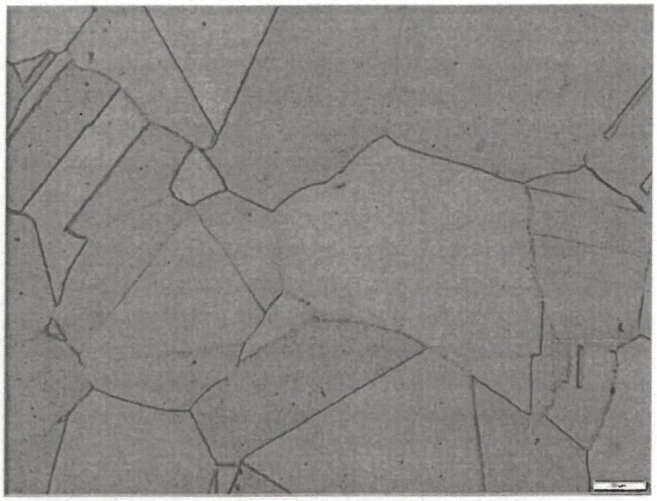
voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Gefügefotos / Photomicrographs

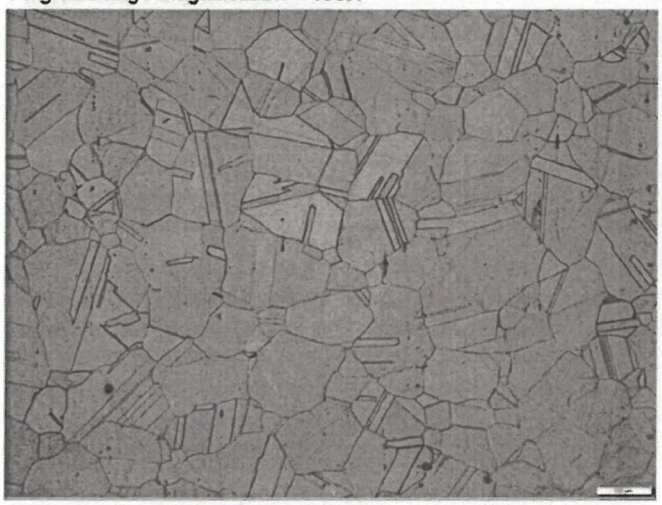
Prüfgerät / Test equipment = Lichtmikroskop / Light microscope



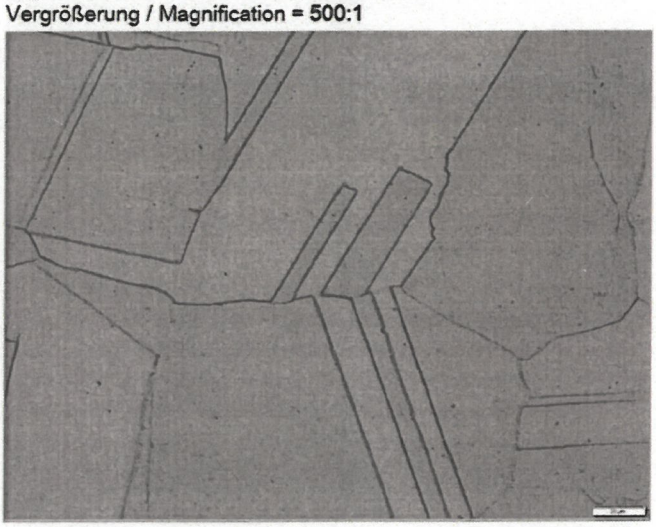
Lage / Location = **Rand / Rim (near Surface)**
Vergrößerung / Magnification = **100:1**



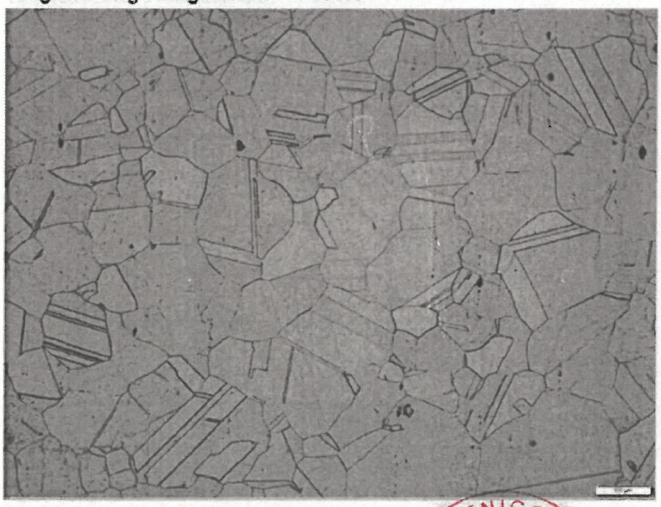
Lage / Location = **Rand / Rim (near Surface)**
Vergrößerung / Magnification = **500:1**



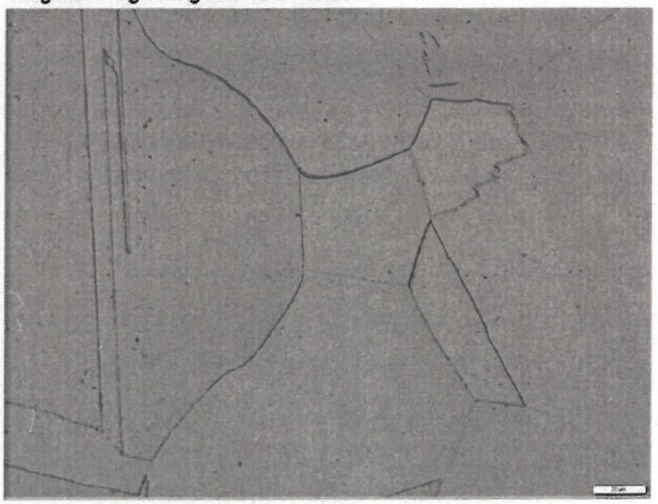
Lage / Location = **1/2 Radius (1/4T)**
Vergrößerung / Magnification = **100:1**



Lage / Location = **1/2 Radius (1/4T)**
Vergrößerung / Magnification = **500:1**



Lage / Location = **Zentrum / Center**
Vergrößerung / Magnification = **100:1**



Lage / Location = **Zentrum / Center**
Vergrößerung / Magnification = **500:1**

KUITEK ORSENIGO VALVES S.R.L. Q.C.

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

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Mechanische Eigenschaften / Mechanical properties

Der Probenabschnitt ist eine Verlängerung des endwärmebehandelten Stabes.
The QTC is a prolongation of the final heat treated bar.
Die Proben und die Prüfmethoden entsprechen der ASTM A370 - 21.
The test specimen and the test method are in accordance with ASTM A370 - 21.

Zugversuchproben / Tensile test properties

Probenorientierung / Specimen orientation = längs / longitudinal
Probenlage / Specimen location = 1/2 Radius (1/4T)
Probe / Specimen = standard size 12.5 mm [0.500 inch] diameter

Zugversuch im Lieferzustand/Tensile test in delivery condition

*Legende / *Key
H = Härtester / hardest
W = Weichster / softest
S = Schopf / Top
M = Mitte / Middle
B = Boden / Bottom

Prüf-Nr. Test no.	*Stk.-Nr. *Piece no.	Prüfnorm Testing standard	Lage Location	Temp. °F	Dehngrenze Yield Strength Rp0,2 KSI	Zugfestigkeit Ultimate Tensile Strength Rm KSI	Dehnung Elongation A4 %	Einschnürung Reduction of Area Z %
					125 - 145	>=150	>=20	>=35
2262472-1	B1X	ASTM A 370-21 01.11.2021	L2	73	130.244	173.610	32	48

Kerbschlagversuchproben / Impact test properties

Probenorientierung / Specimen orientation = quer / transverse
Probenlage / Specimen location = 1/2 Radius (1/4T) oder tiefer / or deeper
Kerborientierung / Notch orientation = C-L
Probe / Specimen = standard size (Charpy-V) 10 x 10 mm [0.394 x 0.394 inch]

Kerbschlagversuch im Lieferzustand/Impact test in delivery condition

*Legende / *Key
H = Härtester / hardest
W = Weichster / softest
S = Schopf / Top
M = Mitte / Middle
B = Boden / Bottom

Prüf-Nr. Test no.	*Stk.-Nr. *Piece no.	Prüfnorm Testing standard	Lage Location	Temp. °F	Kerbschlagarbeit Impact energy Charpy-V ft-lbf	Laterale Breitung Lateral expansion LB mils	Zähbruch Shear area %
					>=35	>=15	info
2262472-1	B1X	ASTM E 23-18 01.11.2018	Q2	-76	50 51 47	26 25 24	20 20 20

Härteprüfung im Lieferzustand / Hardness test in delivery condition (QTC)

Der Probenabschnitt ist eine Verlängerung des endwärmebehandelten Stabes.
3 x 3 Messwerte 120° versetzt, 1/2 Radius (1/4T)
3 x 3 Messwerte 120° versetzt, oberflächennahe
1 x 3 Messwerte, Zentrum
Die angegebenen Werte, des Probenabschnittes, sind Mittelwerte und, in Klammern, Einzelwerte.

The QTC is a prolongation of the final heat treated bar.
3 x 3 readings 120° apart are taken at 1/2 Radius (1/4T).
3 x 3 readings 120° apart are taken near Surface.
1 x 3 readings are taken in the center
The values stated are the mean values and, in parentheses, the single values.

Härteprüfung im Lieferzustand/Hardness test in delivery condition

Prüf-Nr. Test no.	Stk. Nr. Piece no.	Prüfnorm Testing standard	Prüfort Location	Methode HRC
				34 - 39
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	37.3 (37 37 38)
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	38.3 (38 38 39)
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	36 (36 36 36)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	Zentrum / Center	36 (36 36 36)

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voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Härteprüfung im Lieferzustand / Hardness test in delivery condition (Bars)
Lage / Location = oberflächennahe / near Surface
Die Härteprüfungen an den Stäben wurde an Querschnittsschnitten je Stab durchgeführt.
Hardness tests on bars are performed on cross-sections slices, taken from each bar.

Härteprüfung im Lieferzustand/Hardness test in delivery condition

			Methode
Prüf-Nr. Test no.	Stk. Nr. Piece no.	Prüfnorm Testing standard	HRC
			34 - 39
2262472-1	1	ASTM E 18-20 01.03.2020	37 (36 37 38)
2262472-1	2	ASTM E 18-20 01.03.2020	37.7 (37 38 38)
2262472-1	3	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	4	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	5	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	6	ASTM E 18-20 01.03.2020	37 (37 37 37)
2262472-1	7	ASTM E 18-20 01.03.2020	36.7 (36 37 37)
2262472-1	8	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	9	ASTM E 18-20 01.03.2020	38 (38 38 38)
2262472-1	10	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	11	ASTM E 18-20 01.03.2020	37.7 (37 38 38)
2262472-1	12	ASTM E 18-20 01.03.2020	36.7 (36 37 37)
2262472-1	13	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	14	ASTM E 18-20 01.03.2020	36.7 (36 37 37)

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Korrosionsprüfung / Corrosion examination
Prüfnorm / Testing standard = ASTM G48 method A
Prüfdauer / Test period = 24h
Prüftemperatur / Test temperature = 20°C
Beizlösung / Pickling solution = 20 % HNO3 + 5 % HF
Beizdauer / Pickling period = 5 min.
Beiztemperatur / Pickling temperature = 60°C
Massenverlust = 0,06 g/m², kein Lochfraß bei 20facher Vergrößerung.
Weight loss = 0,06 g/m², no pitting at 20x magnification.

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Zerstörungsfreie Prüfung / Non-Destructive examination

Ultraschallprüfung / Ultrasonic examination

Prüfmenge / Inspection quantity = 100% der Stäbe / 100% of the bars
Prüfvorschrift / Inspection specification = ASTM A 388/A388M-19
Beurteilungsstandard / Evaluation standard = API Specification 6A Twenty-first Edition - PSL 4
Prüftechnik / Inspection technique = Phased Array (Senkrechteinschallung am Aussendurchmesser / straight-beam technique from the outside diameter)
Das Material entspricht den Anforderungen / The material fulfils the requirements

Oberflächenprüfung / Surface examination

Prüfmenge / Inspection quantity = 100% der Stäbe / 100% of the bars
Prüftechnik / Inspection technique = Wirbelstromprüfung / Eddy - Current test (ET)
Das Material ist frei von unzulässigen Oberflächenfehlern / The material is without unacceptable surface defects

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Statements

Das Material ist frei von Quecksilber Kontamination.
The material is free of mercury contamination.

Es wurden keine Schweißungen am Material durchgeführt.
No weld repair has been performed on this material.

Herkunfts- und Erschmelzungsland: OESTERREICH
Country of origin: AUSTRIA
Country of melting and pouring: AUSTRIA
Name der Schmelzquelle: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name of melt source: voestalpine BÖHLER Edelstahl GmbH & Co KG

Name des Umformbetriebs /
Company performing the hot work operations: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name des Wärmebehandlungsbetriebs /
Company performing the heat treatment: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name der Prüfbetriebe /
Company performing the testing: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name des Prüflabors /
Name of test laboratory: In-house test laboratory of voestalpine BÖHLER Edelstahl GmbH & Co KG

Anlagen / Attachment

Wärmebehandlungsprotokolle / Furnace charts
UT Befund / Report
Prüferqualifikation / Operator qualification

Radioaktivitätskontrolle/Radioactivity inspection: Co-60<0,1Bq/g
Hiermit kleiner als Grenzwert in der anzuwendenden Spezifikation IAEA RS-G-1.7 für unbedenkliche Stoffe.
Therefore smaller than upper limit required according to specification IAEA RS-G-1.7 for inoffensive material.

Wir bestätigen hiermit, dass die obengenannten Erzeugnisse den Bestellvorschriften entsprechen.
We hereby certify that the above mentioned products are consistent with the order prescriptions.

Zeichen des Lieferwerks:
Brand of Manufacturer:

Besichtigung und Nachmessung: Keine Beanstandung
Inspection and Checking of Dimensions: Satisfactory

Zeichen des Prüfers:
Symbol of Inspector:

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25
8605 Kapfenberg, AUSTRIA
www.bohler-edelstahl.com

Wolfgang.Mlatschnig@bohler-edelstahl.at
AUSSTELLER/
ORIGINATOR

Abnahmebeauftragter
Inspection Representative

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Abteilung/Department
EWV/O

Wärmebehandlungsprotokoll
heat treating report

Fa./Los Nr./Splitt Nr.: / AG Nr.:works order:
Gewicht/weight: **2915 kg**
WBH-Schl.: **L46**
Marke/material: **L343**
Charge/heat no.: **CVJ847**
Abmessung/dimension: **0x85 mm**
PP/EKK Nr.: _

Ofen Nr.: furnace no.: **60**
Ofenklasse: furnace class: **3 (+/-8°C)**
Ofenqualifizierung lt. AMS2750 letztgültige Rev. furnace qualification per AMS2750 latest rev.:

Solldaten / nominal values
lt. EV2 3600/0021/30/letztgültige Rev. / per working procedure latest rev.

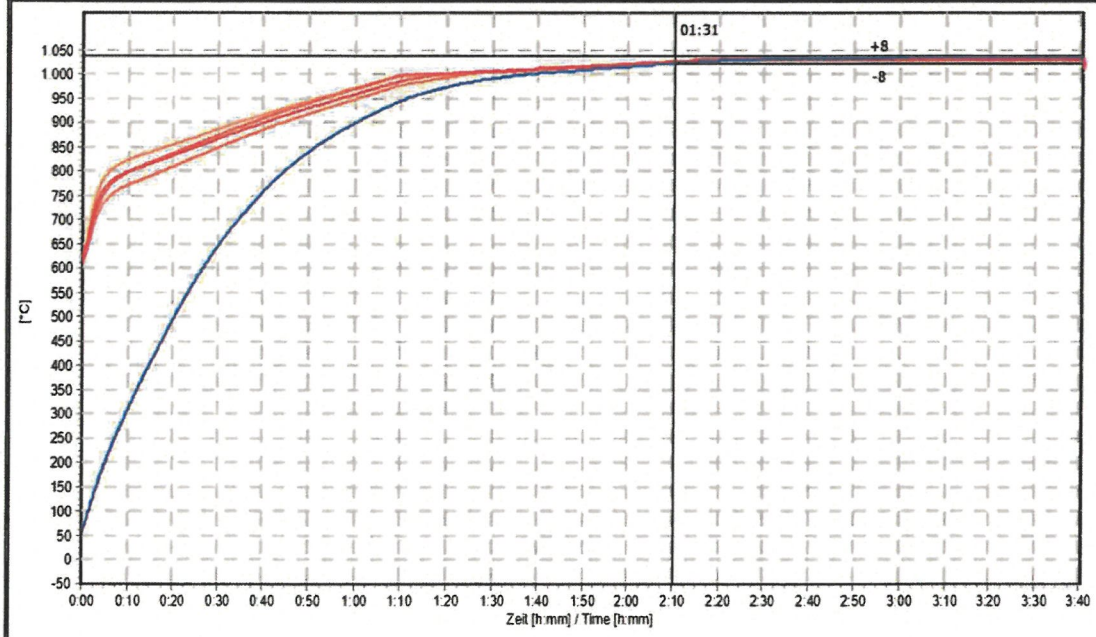
Wärmebehandlungsvorschrift: / heat treatment procedure

WBH-Zyklus HT cycle: 1030°C/1.5M/W
daraus erstellte Programm Nr. lt. EV: Program no. per working procedure: 52/00

Wassertemperatur: water temperature: max. 30°C (Toleranz lt. AV2-36-0015-07 letztgültige Revision)
Materialhaltezeit Toleranz: soak time tolerance: (Toleranz lt. AV2-36-0015-07 letztgültige Revision)

Isttemperaturverlauf / process data

Auflage Nr.: / lot no.: 8028



Materialeintritt: / material entrance time: 08.08.2022 10:55:48
Materialaustritt: / exit time: 08.08.2022 14:36:28

Abkühlbecken/Quench tank: KO - WB
Wassertemperatur water temperature: Eintritt: entrance: **08.08.2022 14:37:28** 14 °C
Austritt: exit: **08.08.2022 15:02:35** 18 °C
Zeit Wasserumwälzung: agitation time: 1507 Sek.

Die Richtigkeit der durchgeführten Wärmebehandlung wird bestätigt:
The correctness of the conducted heat treatment is confirmed:
Datum / date: 09.08.2022
Unterschrift: signature: **Krammer Andreas**

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voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Abteilung/Department
EWV/O

Wärmebehandlungsprotokoll
heat treating report

BÖHLER

Fa./Los Nr./Splitt Nr.: / AG Nr.:works order:
Gewicht/weight: **2915 kg**
WBH-Schl.: **A46**
Marke/material: **L343**
Charge/heat no.: **CVJ847**
Abmessung/dimension: **0x85 mm**
PP/EKK Nr.: _

Ofen Nr.: furnace no.: **59**
Ofenklasse: furnace class: **2 (+/-5°C)**
Ofenqualifizierung lt. AMS2750 letztgültige Rev. furnace qualification per AMS2750 latest rev.:

Solldaten / nominal values
lt. EV2 3600/0021/30/letztgültige Rev. / per working procedure latest rev.

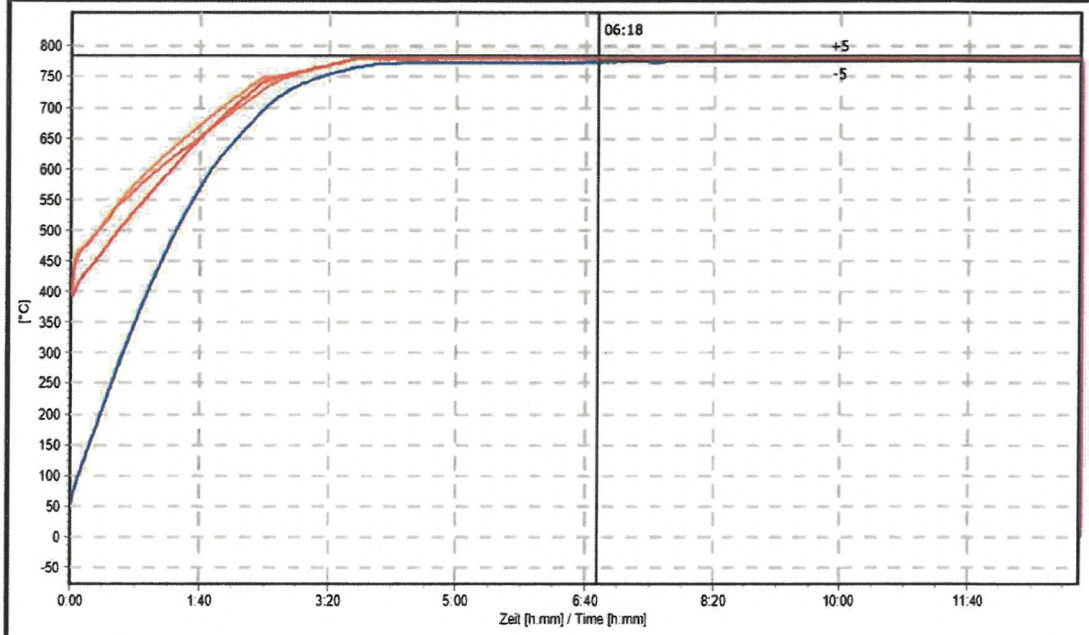
Wärmebehandlungsvorschrift: / heat treatment procedure

WBH-Zyklus HT cycle: 780°C/6,3M/L
daraus erstellte Programm Nr. lt. EV: Program no. per working procedure: 80/00

Wassertemperatur: water temperature: max. 30°C (Toleranz lt. AV2-36-0015-07 letztgültige Revision)
Materialhaltezeit Toleranz: soak time tolerance: (Toleranz lt. AV2-36-0015-07 letztgültige Revision)

Isttemperaturverlauf / process data

Auflage Nr.: / lot no.: 3706



Materialeintritt: / material entrance time: 09.08.2022 12:07:40
Materialaustritt: / exit time: 10.08.2022 01:16:12

Abkühlbecken/Quench tank: _
Wassertemperatur water temperature: Eintritt: entrance: - __ °C
Austritt: exit: - __ °C
Zeit Wasserumwälzung: agitation time: __ Sek.

Die Richtigkeit der durchgeführten Wärmebehandlung wird bestätigt:
The correctness of the conducted heat treatment is confirmed:

Datum / date: 11.08.2022

Unterschrift: signature: Krammer Andreas

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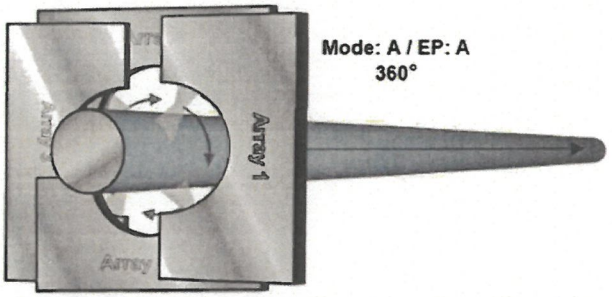
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voestalpine BÖHLER Edelstahl GmbH & Co KG

BÖHLER UT PRÜFBERICHT C / REPORT C / PROCES-VERBAL TYPE C		Besteller / Purchaser / Client		Werks Auftrag / Working Order / Commande interne	Pos. / Item / Repère 1
Nr./No/No	97-0409-2022	Bestell-Nr. / Order No. / No. de commande		Prüfobjekt / Test object / Pièce contrôlée	Stabstahl / steel bars
Seite / Page / Page	01 von / of / sur 01	Stückzahl / Quantity / Quantité	1 Bd.	Kennzeichnung / Identification / Identification	Schmelze, Werkstoff, Werks Auftrag / Heat, Material, Working Order
Abmessung / Dimension / Dimensions	RD 82,55 mm	Werkstoff / Material / Matériau	L343	Schmelze-Nr. / Heat-No. / No. de coulée	CVJ847
Oberflächenzust / Surface cond. / Etat de surface	geschält / peeled	Gewicht / Weight / Poids	2611 kg	Fertigungsstufe / Stage of production / Etat d'avancement de fabrication	Lieferzustand / delivery condition
Prüfbereich / Inspection area / Plage d'essai	Gesamte Stablänge / whole length			Wärmebehandlung / Heat treatment / Traitement thermique	lösungsgeglüht + ausgehärtet / solution annealed + age hardened
Prüfvorschrift / Inspection Specification / Spécification de contrôle	API 6A PSL4 - 21st Edition ASTM A 388-19			Prüfumfang / Inspection coverage / Etendue du contrôle	siehe Skizze / see sketch
Beurteilungsstandard / Evaluation standard / Critères d'acceptation	lt. acc. to API 6A PSL4 + ASTM A 388-19			ZfP-Arbeitsvorschrift / NDT-procedure / Procédure END	AV2/36/5125/74 Rev. 02 + Scan PlanAPI 6A PSL4 -PAT-Rund-WP Rev. 02
EKK (FP / WP) Nr. / Traveller (FP / WP) No. / No. de fiche suiveuse	--			Zeichnungs-Nr., Schmiede-Nr. oder Einsatz-Nr. / Drawing No., forging No. or rolling No. / No. de plan, No. de forgeage ou No. de laminage	1454
Registriergrenze / Recording level / Seuil d'enregistrement	lt. acc. to API 6A PSL4 + ASTM A 388-19			Schritt / Prüf-Nr. / Step / Test no. / No. d'operation	--

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Skizze / Sketch / Esquisse



Prüfgerät-Nr. / Equipment No. / Appareil No.	ROWA B65/120 PAT 719260	Koppelmittel / Couplant / Produit de couplage	Wasser / water	Justierung / Adjustment / Ajustage	DAC
Justierkörper / Testblock / Bloc d'étalonnage	Nr. 132E	Referenzreflektor / Reference reflector / Réflecteur de référence	ø 1.19 mm FBH (-4 dB = 1,5 mm FBH)	S/N-Abstand / Signal-to-noise distance / Rapport signal sur bruit	> 6 dB
Transferkorrektur (weitere Korr.) / Transfer correction (further corr.) / Correction de transfert (correction additionnelle)					< 2 dB

Einschall-Pos. / Position of incidence / Direction d'incidence	Prüfkopf / Probe / Palpeur	Frequenz / Frequency / Fréquence MHz/Mc	Einschallwinkel / Angle of incidence / Angle d'incidence	Schallaufweg / Sound path / Parcours du son mm	Schallschw. / Sound att. / Atténuation du son dB/m	Anzeigentiefe / Indication depth / Profondeur de l'indication mm	Anzeigenlänge / Indication length / Longueur de l'indication mm	KSR-Wert / DSR value / Réflecteur disque de différente	dB zu Referenz / dB to reference / dB à la référence	Echoform / Type of echo / Type d'écho	RWE-Abfall dB / Loss of BWE dB / Apparat de l'écho de fond dB
A	5MHz/224EL/R120mmCCV/90DEG	5	0°	82,55	< 2	keine registrierpflichtigen Anzeigen / no indications above recording level					---

Prüfergebnis / Test result / Résultat: ☒ Entspricht / Within / Conforme ☐ Entspricht nicht der Vorschrift / Not within specification / Pas conforme de la specification		Prüfort / Place of inspection / Lieu de contrôle	Kapfenberg, Abt. / Dep. EWV/F
		Datum / Date / Date	23.08.2022
Kunde / Customer / Client		Prüfer / Stufe / Operator / Level / Opérateur / Niveau de qualification	Schuller A. LII ISO 9712
Gutachter / Sachverständiger / Authorized inspector / Agent de l'organisme de contrôle		Prüfverantwortlicher / Stufe / Supervisor / Level / Responsable de contrôle / Niveau de qualification	Koch W. LII ISO 9712

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ONE STEP AHEAD.

Akkreditierung Austria 0909 ISO/IEC 17024

Akkreditierte Konformitätsbewertungsstelle
nach EN ISO/IEC 17024 (ID: 0909)
Accredited conformity assessment body according to EN ISO/IEC 17024 (ID: 0909)
Organisme d'évaluation de la conformité accrédité selon l'EN ISO/IEC 17024 (ID: 0909)
Anerkannte unabhängige Prüfstelle
gemäß Artikel 24 und Anhang I Z 3.1.3 der Richtlinie 2014/68/EU
Recognised third-party organisation according to article 24 of Directive 2014/68/EU
Entité tierce partie reconnue selon l'article 24 de la Directive 2014/68/UE

ÖGfZP Österreichische Gesellschaft für zerstörungsfreie Prüfung NDT

CERTIFICATE ZERTIFIKAT CERTIFICAT

Hiermit zertifizieren wir die Kompetenz
We hereby certify the competence / Nous certifions la competence

Herr Alexander Schuller

Titel, Vorname, Name / Title, first name, surname / Titre, prénom, nom

geboren am
date of birth/date de naissance
10.10.1989

Zertifikat-Nr.: **02/37595/2/22469**
No. of certificate/ N° de certificat

Prüfverfahren[1] und Stufe
NDT method[1] and level
Méthode d'essai[1] et niveau
Ultraschallprüfung UT Stufe 2 (zwei)

Industrie-[2]/Produktsektoren[1]
Industrial-[2]/Product sectors[1]
Secteurs industriels-[2]/produits[1]
Herstellung

nach den Normen
based on the Standards
en selon des normes
ÖNORMEN: EN ISO 9712

Gültigkeit der Zertifizierung
Validity of the certification
Validité de la certification
14.03.2022 bis 13.03.2027

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CROSSWIND

Österreichische Gesellschaft für Zerstörungsfreie Prüfung
Austrian Society for Non-Destructive Testing / Association d'Autriche des Essais Non Destructifs

1230 Wien, 15.11.2021

für die ÖGfZP
for the ÖGfZP / pour l'ÖGfZP

der Präsident
the president / le président
Dipl.-Ing. Dr. Wolfgang Schützenhofer

für die Zertifizierungsstelle
for the Certifying Body / pour l'organisme de certification

Ing. Andreas Schieder, MSc (0163)

Unterschrift der zertifizierten Person
signature of certified person / signature de la personne certifiée

1) gemäß EN ISO 9712 / according to EN ISO 9712 / selon EN ISO 9712
2) Herstellung (enthält w, f, c, wp, t) - Dienstleistungsprüfung bei Fertigung und Instandhaltung, eingeschlossen Herstellung (enthält w, f, c, wp, t, u.a) - Eisenbahn-Instandhaltung (enthält w, f, c, wp , t, u.a) - Luft- und Raumfahrt (enthält w, f, c, wp, t, p, u.a)

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TMV MOLINARI
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1

N°2024000486192

DATE 23/05/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **2385**
Ordine N°/Order N° **240436**
Row Ref. **1**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Fully Threaded Stud-bolt Chamfers Included ANSI B16.5
ASTM A193 / ASTM A320 B8Mc1
3/4"-10UNC L:65 mm

Q.ty[pcs]: 38 pcs.

Batch Code: CC37DBC6

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
UTS Mpa	515		593	YS0,2% Mpa	205		284
A 50mm %	30		55,8	Z %	50		73
HBW		223	176				

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 430187

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C		0,08	0,013	Mn		2	1,56
P		0,045	0,030	S		0,03	0,028
Cr	16	18	16,71	Mo	2	3	2,06
Si		1	0,57	Ni	10	14	10,25

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

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CRI
CROSSWIND

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

FLUITEK ORSENIGO VALVES SRL Q.C.

MFR AUTHORIZED INSPECTOR AND STAMP

Massimo Bernardi
Quality Dept.

T.M.V. MOLINARI
Q.A. MANAGER
APPROVATO

5 - 071827.PDF C 240062-003/01

71827

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC). ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024000486193
DATE 23/05/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **2385**
Ordine N°/Order N° **240436**
Row Ref. **3**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Heavy Hex Nut ANSI B18.2.2 Tab.1.1.1-11
ASTM A194 Gr.8M
3/4"-10UNC

Q.ty[pcs]: 45 pcs.

Batch Code: B8816352

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value
HBW	126	300	184

Test	Req. min	Req. MAX	Value
PROOF LOAD			POSIT

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 281685

Test	Req. min	Req. MAX	Value
C		0,08	0,016
P		0,045	0,030
Cr	16	18	16,65
Si		1	0,53

Test	Req. min	Req. MAX	Value
Mn		2	1,44
S		0,03	0,026
Mo	2	3	2,02
Ni	10	14	10,1

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

TEST	RICHIESTO/REQUEST	OTTENUTO/RESULT
KV -196°C	40/40 J	102-116-111

21 MAG. 2024
FRANCO CORBELLINI
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CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Matteo Bernardi
Quality Dept.

T.M.V. MOLINARI
Q. MANAGER
APPROVATO

6 - 072246.PDF C 240062-003/01

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

72246

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024000947732
DATE 10/07/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **134**
Ordine N°/Order N° **240436**
Row Ref. **4**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Hex Thin Nut UNI 5589/DIN 936
ASTM A194 Gr.8M
M36x4

Q.ty[pcs]: 12 pcs.

Batch 132

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
HBW	126	300	181	PROOF LOAD			POSIT

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 281518

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C		0,08	0,011	Mn		2	1,55
P		0,045	0,031	S		0,03	0,026
Cr	16	18	16,58	Mo	2	3	2,1
Si		1	0,53	Ni	10	14	10,2

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

21 AGO. 2024
FRANCO CORBELLINI
QA1
COSSWING

FLUITEK ORSENIGO VALVES SRL Q.C.

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Marco Piseroni
Quality Dept.

T.M.V. MOLINARI
Q.A. MANAGER
APPROVATO

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-004/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**004**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
40	**1**

DESCRIPTION
ball valve fl 2 pz-fb2.4".300 lbs.att. pneumatico fail pos. open.rf a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0404.2.f10-hyd.att_pneu_fo.rf Rev0

TAG
25-BDV-010

SERIAL NUMBER
From 2400620040001 to 2400620040001

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,017	1,720	0,510	0,021	0,031	17,010	2,020	10,010		0,520		064509
			0,151	0,080						24,956			
	290048	560,00	257,00	62,00	70,00	195,00	191,00	192,00	-196°C (L)	171 HBW			
BALL	A182 F316/316L	0,016	1,660	0,620	0,027	0,031	17,030	2,090	10,220		0,510		068196
			0,115	0,075						25,127			
	437516	559,00	250,00	55,00	67,00	230,00	228,00	221,00	-196°C (L)	158 HBW			
STEM	API 6ACRA UNS N07718	0,014	0,060	0,060	<0,001	0,005	17,980	3,030	54,100	0,950	0,040	17,960	071346
		0,530	0,180	0,006		5,020	0,001		5,040	28,075			
	CVJ847	173,61	130,24	32,00	48,00	50,00	51,00	47,00	-76°C (L)	38,3 HRC			
FLANGE	A182 F316/316L	0,017	1,720	0,510	0,021	0,031	17,010	2,020	10,010		0,520		064509
			0,151	0,080						24,956			
	290048	560,00	257,00	62,00	70,00	195,00	191,00	192,00	-196°C (L)	171 HBW			
STUD	A193 B8M	0,013	1,560	0,570	0,028	0,030	16,710	2,060	10,250				071826
	430187	593,00	284,00	55,80	73,00					176 HBW			
NUT	A194 G8M	0,016	1,440	0,530	0,026	0,030	16,650	2,020	10,100				071827
	281685					102,00	116,00	111,00	-196°C (L)	184 HBW			
NUT	A194 G8M	0,011	1,550	0,530	0,026	0,031	16,580	2,100	10,200				072246
	281518									181 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU and was subjected to the conformity assessment procedure H
The monitoring is performed by BV Notified Body 1370
PED Manager Mr. Belotti Pierpaolo

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	FRANCO CORBELLINI 21 AGO. 2024 QB1 CROSSWIND DATE	FLUITEK ORSENIGO VALVES SRL Q.C. DATE 06/08/2024

64509

1 - 064509.PDF C 240062-004/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST062477 / 2023 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell
Your order
Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Fucinato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung
Marking
Marquage

SPECIFICHE :	Note:
Anforderungen / Requirements / Exigences	Aufzeichnungen / Notes / Notes
VAL STOCK A 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
MDS S17 1 316 A (1)	(1)Norsok-standard M-630: 2020 (2020-09-30)
AISI . 316/316L	
AMS-QQ-S-763 D 316/316L A	
ASME SA182 2021 S31600/03 A (2)	(2)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2021 B8M CLASS 1 (3)	(3)Section II Part A 2021 EDITION
ASME SA276 2021 S31600/03 A (4)	(4)Section II Part A 2021 EDITION
ASME SA320 2021 B8M CLASS 1 (5)	(5)Section II Part A 2021 EDITION
ASME SA479 2021 S31600/03 A (6)	(6)Section II Part A 2021 EDITION
ASTM A182 2022 S31600/03 A (7)	(7)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2021 B8M CLASS 1	
ASTM A262 PR. E 2015 316/316L (8)	(8)Reapproved 2021
ASTM A276 2017 S31600/03 A	
ASTM A320 2022 B8M CLASS 1 CLASS1	
ASTM A370 2021 .	
ASTM A479 2021 S31600/03 A	
ASTM E10 2018 .	
ASTM E8 2022 .	
EN 10088 PART 3 2014 1.4401 A (9)	(9)Chemical and mechanical properties only.
EN 10088 PART 3 2014 1.4404 A (A)	(A)Chemical and mechanical properties only.
EN 10272 2016. 1.4401 A	
EN 10272 2016. 1.4404 A	
ISO 148-1 2016 .	
ISO 3651-2 98 METHOD A T1	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600/03 A (B)	(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600/03 A (C)	(C)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015
QQ-S-763 F 316/316L A	
ACH CO . .	
KV L -196C . ISO 148-1	
KV T -196C . ISO 148-1	

21 NOV. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

		Tolleranza: k13 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0040	Tondo	260,000	2000/ 2000	290048		849,0	207409440

FLUITEK ORSENIGO VALVES SRL Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 11/05/2023	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto Produktmanagement/Product Management/Direction Produit	Pagina
VCQ052 - MEST062477	R.BERTELLI	P.MESSORI	1 di 5

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST062477 / 2023 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell
Your order
Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Fucinato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung
Marking
Marquage

21 AGO. 2023
FRANCO CORBELLINI
QBQ
CROSSWIND

TEST ALLO STATO DI FORNITURA

TEST		min	max	
A	Dimensioni grano x ASTM E112			2

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
B	10X10	-196	L	195	191	192	1,264	1,515	1,135	65	60	66

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		210	-	520 790	-	40	-	50	-			- 223		
C	12,5	20	L	267		555		62		65				167		

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	257		560		55		70						

FLUITEK ORSENIGO VALVES SRL Q.C.

Acciaierie Valbruna S.p.A.

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Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell / Your order / Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Fucinato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404/316/316L

Prova di trazione per ISO 6892-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		200	235	500	30	-	-	-	-			-		
		max				700									215	
E	10	20	T	261	306	554	58		65					169		
F	10	20	T	261	305	553	59		66					171		

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion - Lateral ex mm			Shear - Shear - % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
G	10X10	-196	T	86	76	84	0,694	0,506	0,885	35	36	30

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion -			Shear - Shear -		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		60	60	60	-	-	-	-	-	-
		max										
J	10X10	20	T	120	124	130						
K	10X10	20	T	126	131	126						

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

21 NOV. 2023
FRANCO CORBELLINI
QB9
CROSSWIND R

FLUITEK ORSENIGO VALVES SRL QC

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
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Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST062477 / 2023 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell
Your order
Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Fucinato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung
Marking
Marquage

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
min -	-	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-	
290048	0,017	0,51	1,72	17,01	2,02	0,52	10,01	0,151	0,031	0,021	0,080				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 4,9 : 1
Solution annealed 1080°C for 6 h /water cooled.
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à eté trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimbding testing performed with XRF/OES portable : OK
Contrôle antimélange svi technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

21 AGO. 2023

FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell / Your order / Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Fucinato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung / Marking / Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSP237BC01234#68ABDEF13567#ABDE573E

21 AGO. 2023
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

SPECIFICHE : / Anforderungen / Requirements / Exigences	Note: / Aufzeichnungen / Notes / Notes
VAL STOCK W2 A/1 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
MDS S17 1 316 A (1)	(1)Norsok-standard M-630: 2020 (2020-09-30)
AD 2000-M. W 2 2022 1.4401 A (2)	(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AD 2000-M. W 2 2022 1.4404 A (3)	(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AISI . 316/316L	
AMS-QQ-S-763 D 316/316L A	
ASME SA182 2021 S31600/03 A (4)	(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2021 B8M CLASS 1 (5)	(5)Section II Part A 2021 EDITION
ASME SA276 2021 S31600/03 A (6)	(6)Section II Part A 2021 EDITION
ASME SA320 2021 B8M CLASS 1 (7)	(7)Section II Part A 2021 EDITION
ASME SA479 2021 S31600/03 A (8)	(8)Section II Part A 2021 EDITION
ASTM A182 2023 S31600/03 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2023 B8M CLASS 1	
ASTM A262 PR. E 2015 316/316L (A)	(A)Reapproved 2021
ASTM A276 2023 S31600/03 A	
ASTM A320 2022 B8M CLASS 1 CLASS1	
ASTM A370 2022 .	
ASTM A479 2023A S31600/03 A	
ASTM E10 2023 .	
ASTM E8 2022 .	
EN 10088 PART 3 2014 1.4401 A	
EN 10088 PART 3 2014 1.4404 A	
EN 10272 2016. 1.4401 A	
EN 10272 2016. 1.4404 A	
ISO 148-1 2016 .	
ISO 3651-2 98 METHOD A T1	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600/03 A (B)	(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 4 S31600/03 A (C)	(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.
QQ-S-763 F 316/316L A	
ACH CO . .	
KV L -196C . ISO 148-1	
KV T -196C . ISO 148-1	

21 NOV. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

		Tolleranza: k12 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0090	Tondo	165,000	5062/ 5100	437516		1722,0	306706970

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ052 - MEST012690	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 1 di 5

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012690 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

21 AGO. 2024
FRANCO CORBELLINI
QB7
CROSSWIND

TEST ALLO STATO DI FORNITURA

TEST		min	max	
A	Dimensioni grano x ASTM E112			4

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
B	10X10	-196	L	230	228	221	1,800	1,785	2,192	71	68	70

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		210	-	520	-	40	-	50	-			-		
		max				790									223	
C	12,5	20	L	261		559		60		71				158		

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		205	-	515	-	40	-	50	-			-		
		max														
D	12,5	20	T	253		554		55		67						

FLUITEK ORSENIGO VALVES SRL QC

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Prova di trazione per ISO 6892-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			200	235	500 700	30	-	-	-	-			- 215		
E	10	20	T		250	293	551	54		65					155		
J	10	20	T		255	299	556	53		64					158		

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			-	-	-	-	-	-	-	-	-
F	10X10	-196	T		87	90	91	0,848	0,701	0,795	20	22	20

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			60	60	60	-	-	-	-	-	-
I	10X10	20	T		91	88	87						
K	10X10	20	T		99	81	80						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
QBJ
CROSSWIND R

FLUITEK ORSENIGO VALVES S.R.L. Q.M.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024
VCQ052 - MEST012690

Direzione Qualità
Qualitätsmanagement/Quality Management/Gestion Qualité
R.BERTELLI

Direzione Prodotto
Produktmanagement/Product Management/Direction Produit
P.MESSORI

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012690 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
min -	-	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-	
437516	0,016	0,62	1,66	17,03	2,09	0,51	10,22	0,115	0,031	0,027	0,075				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 11,3 : 1
Solution annealed 1080°C for 3,5 h /water cooled.
SURFACE QUALITY GUARANTEE BY ET INSPECTION (max defect depth 1% DIAMETER)
UT ACC. TO ASTM A388; EN 10308 Cl.1
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

FRANCO CORBELLINI
QB1 21 AGO. 2024
CROSSWIND R

FLUITEK ORSENIGO VALVES SRL Q.C.

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012690 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

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QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ052 - MEST012690	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 5 di 5

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Nr. / No.: 974791 / 2022.09.13

Besteller/Purchaser/Acheteur:

Empfänger/Consignee/Destinaire:

Bestell-Nr./Purchaser order No./No. de commande:

Empfängerref.-Nr./Receiver reference-No./Rèfèrence destinaire:

-

Werksauftrags-Nr./Works order-No./No. de la commande de l´usine:

Lieferschein-Nr./Delivery note-No./Avisd´expedition du client:

Prüfgegenstand/Object of test/Object d`examen:

BÖHLER L718API
Stäbe, gewalzt, lösungsgeglüht, ausgehärtet
Bars, rolled, solution annealed, age hardened
IBO ECOMAX ISO 286/2 ITk12

Anforderungen/Requirements/Exigence:

Werkstoffdatenblatt Rohmaterial
Raw Material Data Sheet
No.: 269X Rev.-No.: 3 und / and
Anhang Werkstoffdatenblatt Rohmaterial
Annex Raw Material Data Sheet
No.: 269X Rev.-No.: 3

2.4668HX
API Standard 6ACRA
First Edition, August 2015
Addendum/Errata, February 2019
Material designation 120K
API Specification 6A
Twenty-first Edition, November 2018 - PSL4
Addendum/Errata September 2021
ANSI/NACE MR0175/ISO15156-3:2015
ANSI/NACE MR0103/ISO17945:2015
MS-011559-(05,55)-(01) Base Number Rev.33
MS-011559-(06,56)-(01) Base Number Rev.33
100237403 Rev.BA
CSP-4 Rev.BN
FMC M40910 Rev.W
FMC M40902 Rev.R
VGS 5.141.1 Rev.24 except para.14.1.1
VGS 5.541.1-120K Rev. 31 except para 13.1.1
WN-301 Rev.Z except para.4.0
ES-MA-46-2 Rev.Q
BMS N201 Rev.AD
BMS N213 Rev.T
UNS N07718

TMP L718API 00011 Rev.004

Umfang der Lieferung/Volume of delivery/liste descriptive

Pos./Los	Abmessung Dimensions Dimensions	Länge Length Longueur	Stückzahl No. of Pieces No. de Pieces	Gewicht kg Weight kgs Poids kg	Mat.-ID	Prüf-Nr. Test No. Eprouvette	Schmelze-Nr. Heat No. No. de coulee
10/1	RD 82,55 MM	3.000 - 5.000 MM	-	2614,0	HGFC	2262472-1	CVJ847

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Blockgröße / Ingot size = **rd. 510 mm (20 inch)**
Umformgrad / Reduction ratio = 36 : 1

Qualitätswärmebehandlung / Quality heat treatment
Temperatur Überwachung / Temperature monitoring = Nickel-based alloy heat sink thermocouples

	Temperatur Temperature	Haltezeit Soak time	Abkühlung Cooling
Lösungsgeglüht / Solution Annealed	1886°F (1030°C)	1.5 h M	Wasser / Water
Ausgehärtet / Age hardened	1436°F (780°C)	6.3 h M	Luft / Air

M...Haltezeit auf Zieltemperatur nachdem das Materialzentrum die Toleranzgrenze erreicht hat.
M...Holding time at nominal temperature after center of material has reached the tolerance limit.

Die Temperaturmessung entspricht der AMS 2750F, wie in SAE-AMS-H-6875 B verlangt.
Pyrometry according to AMS 2750F, as required by SAE-AMS-H-6875 B.
AMS 2750F erfüllt alle Anforderungen entsprechend API Specification 6A Twenty-first Edition, Appendix M.
AMS 2750F fulfills all requirements listed in API Specification 6A Twenty-first Edition, Appendix M.

Chemische Zusammensetzung/Chemical Composition/Composition chimique (%)

Schmelzanalyse/Chemical Composition Erschmelzungsart/Steelmaking Process: VIM+VAR										Schmelze-Nr. Heat No. No. de coulee
C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Co	
0,014	0,06	0,06	<0,005	0,0005	17,98	3,03	54,1	0,04	0,18	CVJ847
Ti	Al	Nb	B	Fe	N	Pb	Ta	O	Bi	
0,95	0,53	5,02	0,0031	17,96	0,006	<0,0003	<0,020	<0,0003	<0,00003	CVJ847
Ca	Mg	Sn	Se	FL029*						
<0,0002	0,0006	<0,0010	<0,0003	5,04						CVJ847

FL029 = Nb+Ta

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Metallographische Prüfung / Metallographic examination

Makroätzprüfung / Macroetch examination

Prüfnorm / Testing standard = ASTM A 604/A 604M-07 (reapproved 2017)
Ätzmittel / Etchant = Hydrochloric-Peroxide
Lage / Location = Schopf und Boden des umgeschmolzenen Blockes / Top and bottom section of the remelted ingot
Orientierung / Orientation = Querschnitt / Transverse cross-section

Class 1	Freckles	Severity A
Class 2	White Spots	Severity A
Class 3	Radial Segregation	Severity A
Class 4	Ring Pattern	Severity A

Das Material entspricht den Anforderungen der Makroätzprüfung
nach API Standard 6ACRA - Para.4.2.1.
The material complies with the requirements of the macroetch examination
acc. to API Standard 6ACRA - Para.4.2.1.

Korngrößenbestimmung / Grain size evaluation

Prüfnorm / Testing standard = ASTM E112-13, ASTM E930-18
Ätzmittel / Etchant = Kalling's No. 2
Vergrößerung / Magnification = 50:1, 100:1, 500:1

Lage Location	Orientierung Orientation	Struktur Structure	Durchschnittliche Korngröße Average Grain Size	Duplex Verteilung Duplex Distribution
Rand Surface	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0
1/2 Radius (1/4T)	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0
Zentrum Center	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0

Das Material erfüllt die Anforderungen nach API Standard 6ACRA - Para. 4.2.2.2.2.
Es liegt keine topologische Duplexkorngrößenverteilung gemäß den Vorgaben der Norm ASTM E1181 vor.
The material complies with API Standard 6ACRA - Para. 4.2.2.2.2.
No presence of topological duplex grain size conditions as defined per ASTM E1181.

Gefügeuntersuchung nach schädlichen Phasen / Microstructural examination for deleterious phases

Ätzmittel / Etchant = Kalling's No. 2
Das Gefüge ist frei von kontinuierlichen Netzwerken, von Sekundärphasen entlang der Korngrenzen, oder anderen ungewöhnlichen mikrostrukturellen Eigenschaften. Die Gefügestruktur ist frei von nadelförmigen Deltaphasen, außer in einzelnene, isolierten Körnern, die nicht den Großteil der Gefügestruktur repräsentieren. Es gibt keine Laves Phasen.
The microstructure is free from continuous networks of secondary phases along grain boundaries or other unusual microstructural features. The microstructure is free from acicular delta phase except in individual, isolated grains that are not representing of the bulk of the microstructure. There is no laves phase.

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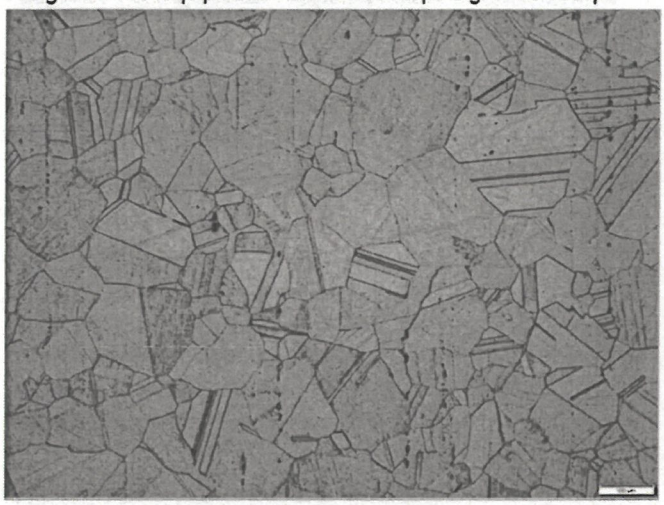
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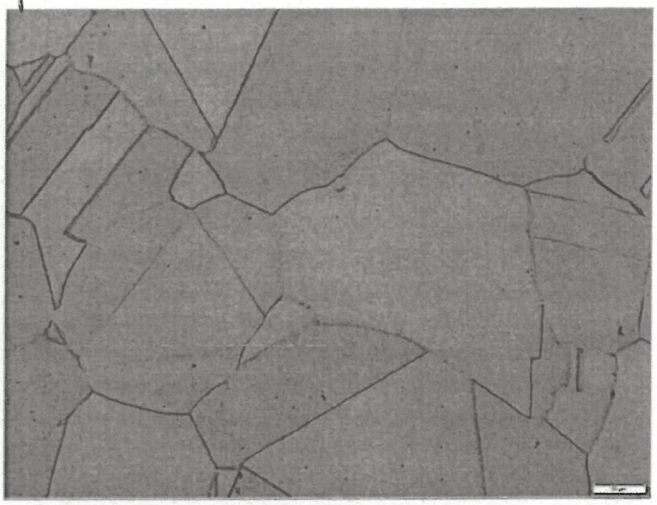
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Gefügefotos / Photomicrographs

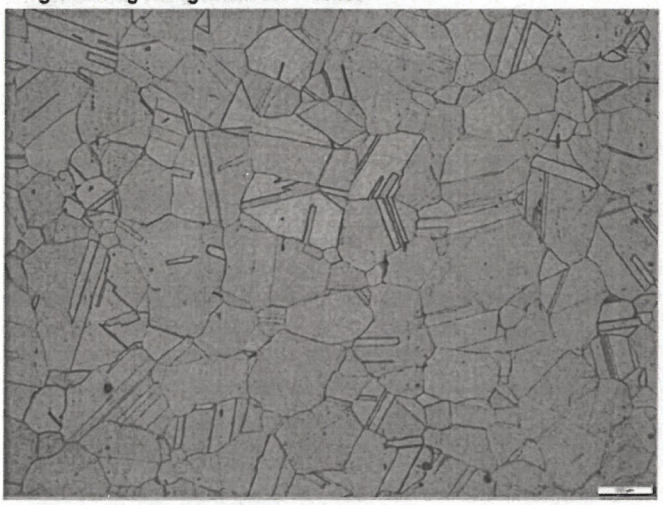
Prüfgerät / Test equipment = Lichtmikroskop / Light microscope



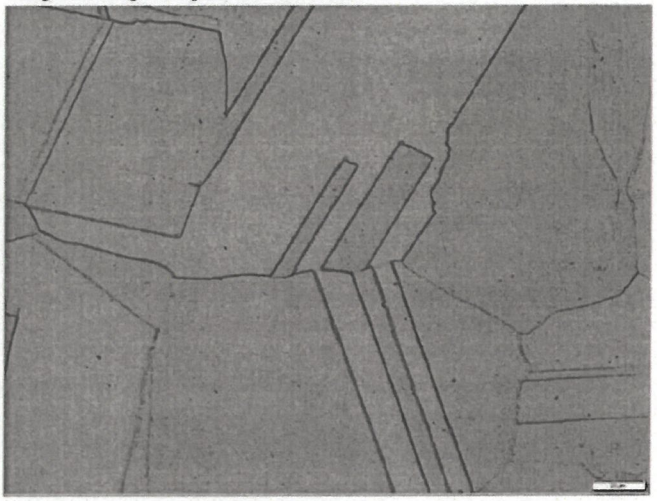
Lage / Location = **Rand / Rim (near Surface)**
Vergrößerung / Magnification = **100:1**



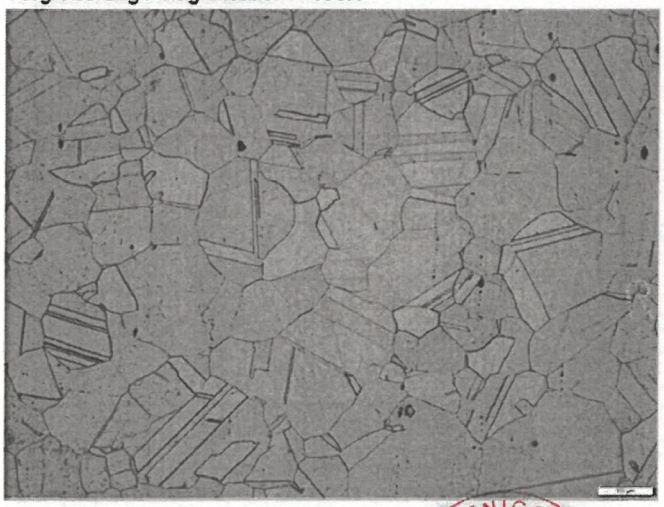
Lage / Location = **Rand / Rim (near Surface)**
Vergrößerung / Magnification = **500:1**



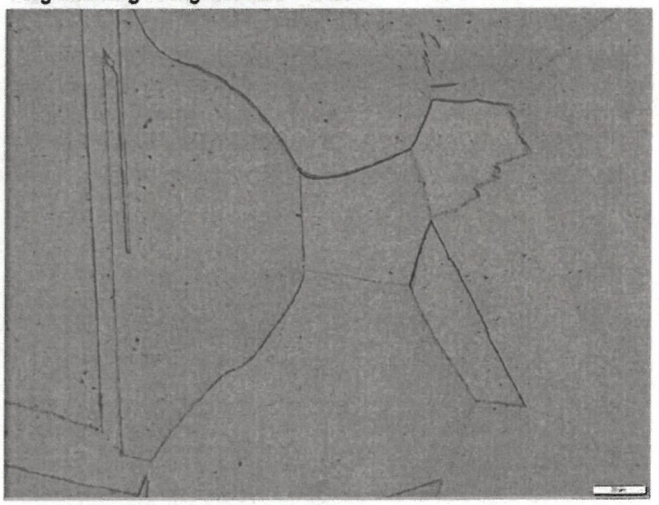
Lage / Location = **1/2 Radius (1/4T)**
Vergrößerung / Magnification = **100:1**



Lage / Location = **1/2 Radius (1/4T)**
Vergrößerung / Magnification = **500:1**



Lage / Location = **Zentrum / Center**
Vergrößerung / Magnification = **100:1**



Lage / Location = **Zentrum / Center**
Vergrößerung / Magnification = **500:1**

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Mechanische Eigenschaften / Mechanical properties

Der Probenabschnitt ist eine Verlängerung des endwärmebehandelten Stabes.
The QTC is a prolongation of the final heat treated bar.
Die Proben und die Prüfmethoden entsprechen der ASTM A370 - 21.
The test specimen and the test method are in accordance with ASTM A370 - 21.

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Zugversuchproben / Tensile test properties

Probenorientierung / Specimen orientation = längs / longitudinal
Probenlage / Specimen location = 1/2 Radius (1/4T)
Probe / Specimen = standard size 12.5 mm [0.500 inch] diameter

Zugversuch im Lieferzustand/Tensile test in delivery condition

*Legende / *Key: H = Härtester / hardest; W = Weichster / softest; S = Schopf / Top; M = Mitte / Middle; B = Boden / Bottom

Prüf-Nr. Test no.	*Stk.-Nr. *Piece no.	Prüfnorm Testing standard	Lage Location	Temp. °F	Dehngrenze Yield Strength Rp0,2 KSI	Zugfestigkeit Ultimate Tensile Strength Rm KSI	Dehnung Elongation A4 %	Einschnürung Reduction of Area Z %
					125 - 145	>=150	>=20	>=35
2262472-1	B1X	ASTM A 370-21 01.11.2021	L2	73	130.244	173.610	32	48

Kerbschlagversuchproben / Impact test properties

Probenorientierung / Specimen orientation = quer / transverse
Probenlage / Specimen location = 1/2 Radius (1/4T) oder tiefer / or deeper
Kerborientierung / Notch orientation = C-L
Probe / Specimen = standard size (Charpy-V) 10 x 10 mm [0.394 x 0.394 inch]

Kerbschlagversuch im Lieferzustand/Impact test in delivery condition

*Legende / *Key: H = Härtester / hardest; W = Weichster / softest; S = Schopf / Top; M = Mitte / Middle; B = Boden / Bottom

Prüf-Nr. Test no.	*Stk.-Nr. *Piece no.	Prüfnorm Testing standard	Lage Location	Temp. °F	Kerbschlagarbeit Impact energy Charpy-V ft-lbf	Laterale Breitung Lateral expansion LB mils	Zähbruch Shear area %
					>=35	>=15	info
2262472-1	B1X	ASTM E 23-18 01.11.2018	Q2	-76	50 51 47	26 25 24	20 20 20

Härteprüfung im Lieferzustand / Hardness test in delivery condition (QTC)

Der Probenabschnitt ist eine Verlängerung des endwärmebehandelten Stabes.
3 x 3 Messwerte 120° versetzt, 1/2 Radius (1/4T)
3 x 3 Messwerte 120° versetzt, oberflächennahe
1 x 3 Messwerte, Zentrum
Die angegebenen Werte, des Probenabschnittes, sind Mittelwerte und, in Klammern, Einzelwerte.

The QTC is a prolongation of the final heat treated bar.
3 x 3 readings 120° apart are taken at 1/2 Radius (1/4T).
3 x 3 readings 120° apart are taken near Surface.
1 x 3 readings are taken in the center
The values stated are the mean values and, in parentheses, the single values.

Härteprüfung im Lieferzustand/Hardness test in delivery condition

Prüf-Nr. Test no.	Stk. Nr. Piece no.	Prüfnorm Testing standard	Prüfort Location	Methode HRC
				34 - 39
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	37.3 (37 37 38)
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	38.3 (38 38 39)
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	36 (36 36 36)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	Zentrum / Center	36 (36 36 36)

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Härteprüfung im Lieferzustand / Hardness test in delivery condition (Bars)
Lage / Location = oberflächennahe / near Surface
Die Härteprüfungen an den Stäben wurde an Querschnittsschnitten je Stab durchgeführt.
Hardness tests on bars are performed on cross-sections slices, taken from each bar.

Härteprüfung im Lieferzustand/Hardness test in delivery condition

			Methode
Prüf-Nr. Test no.	Stk. Nr. Piece no.	Prüfnorm Testing standard	HRC
			34 - 39
2262472-1	1	ASTM E 18-20 01.03.2020	37 (36 37 38)
2262472-1	2	ASTM E 18-20 01.03.2020	37.7 (37 38 38)
2262472-1	3	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	4	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	5	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	6	ASTM E 18-20 01.03.2020	37 (37 37 37)
2262472-1	7	ASTM E 18-20 01.03.2020	36.7 (36 37 37)
2262472-1	8	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	9	ASTM E 18-20 01.03.2020	38 (38 38 38)
2262472-1	10	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	11	ASTM E 18-20 01.03.2020	37.7 (37 38 38)
2262472-1	12	ASTM E 18-20 01.03.2020	36.7 (36 37 37)
2262472-1	13	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	14	ASTM E 18-20 01.03.2020	36.7 (36 37 37)

Korrosionsprüfung / Corrosion examination
Prüfnorm / Testing standard = ASTM G48 method A
Prüfdauer / Test period = 24h
Prüftemperatur / Test temperature = 20°C
Beizlösung / Pickling solution = 20 % HNO3 + 5 % HF
Beizdauer / Pickling period = 5 min.
Beiztemperatur / Pickling temperature = 60°C
Massenverlust = 0,06 g/m², kein Lochfraß bei 20facher Vergrößerung.
Weight loss = 0,06 g/m², no pitting at 20x magnification.

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Zerstörungsfreie Prüfung / Non-Destructive examination

Ultraschallprüfung / Ultrasonic examination

Prüfmenge / Inspection quantity = 100% der Stäbe / 100% of the bars
Prüfvorschrift / Inspection specification = ASTM A 388/A388M-19
Beurteilungsstandard / Evaluation standard = API Specification 6A Twenty-first Edition - PSL 4
Prüftechnik / Inspection technique = Phased Array (Senkrechteinschallung am Aussendurchmesser / straight-beam technique from the outside diameter)
Das Material entspricht den Anforderungen / The material fulfils the requirements

Oberflächenprüfung / Surface examination

Prüfmenge / Inspection quantity = 100% der Stäbe / 100% of the bars
Prüftechnik / Inspection technique = Wirbelstromprüfung / Eddy - Current test (ET)
Das Material ist frei von unzulässigen Oberflächenfehlern / The material is without unacceptable surface defects

Statements

Das Material ist frei von Quecksilber Kontamination.
The material is free of mercury contamination.

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Es wurden keine Schweißungen am Material durchgeführt.
No weld repair has been performed on this material.

Herkunfts- und Erschmelzungsland: OESTERREICH
Country of origin: AUSTRIA
Country of melting and pouring: AUSTRIA
Name der Schmelzquelle: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name of melt source: voestalpine BÖHLER Edelstahl GmbH & Co KG

Name des Umformbetriebs /
Company performing the hot work operations: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name des Wärmebehandlungsbetriebs /
Company performing the heat treatment: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name der Prüfbetriebe /
Company performing the testing: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name des Prüflabors /
Name of test laboratory: In-house test laboratory of voestalpine BÖHLER Edelstahl GmbH & Co KG

Anlagen / Attachment

Wärmebehandlungsprotokolle / Furnace charts
UT Befund / Report
Prüferqualifikation / Operator qualification

Radioaktivitätskontrolle/Radioactivity inspection: Co-60<0,1Bq/g
Hiermit kleiner als Grenzwert in der anzuwendenden Spezifikation IAEA RS-G-1.7 für unbedenkliche Stoffe.
Therefore smaller than upper limit required according to specification IAEA RS-G-1.7 for inoffensive material.

Wir bestätigen hiermit, dass die obengenannten Erzeugnisse den Bestellvorschriften entsprechen.
We hereby certify that the above mentioned products are consistent with the order prescriptions

Zeichen des Lieferwerks:
Brand of Manufacturer:

Besichtigung und Nachmessung: Keine Beanstandung
Inspection and Checking of Dimensions: Satisfactory

Zeichen des Prüfers:
Symbol of Inspector:

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25
8605 Kapfenberg, AUSTRIA
www.bohler-edelstahl.com

Wolfgang.Mlatschnig@bohler-edelstahl.at
AUSSTELLER/
ORIGINATOR

Abnahmebeauftragter
Inspection Representative

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Abteilung/Department
EWV/O

Wärmebehandlungsprotokoll
heat treating report

Fa./Los Nr./Splitt Nr.: / AG Nr.:works order:
Gewicht/weight: **2915 kg**
WBH-Schl.: **L46**
Marke/material: **L343**
Charge/heat no.: **CVJ847**
Abmessung/dimension: **0x85 mm**
PP/EKK Nr.: _

Ofen Nr.: furnace no.: **60**
Ofenklasse: furnace class: **3 (+/-8°C)**
Ofenqualifizierung lt. AMS2750 letztgültige Rev. furnace qualification per AMS2750 latest rev.:

Solldaten / nominal values
lt. EV2 3600/0021/30/letztgültige Rev. / per working procedure latest rev.

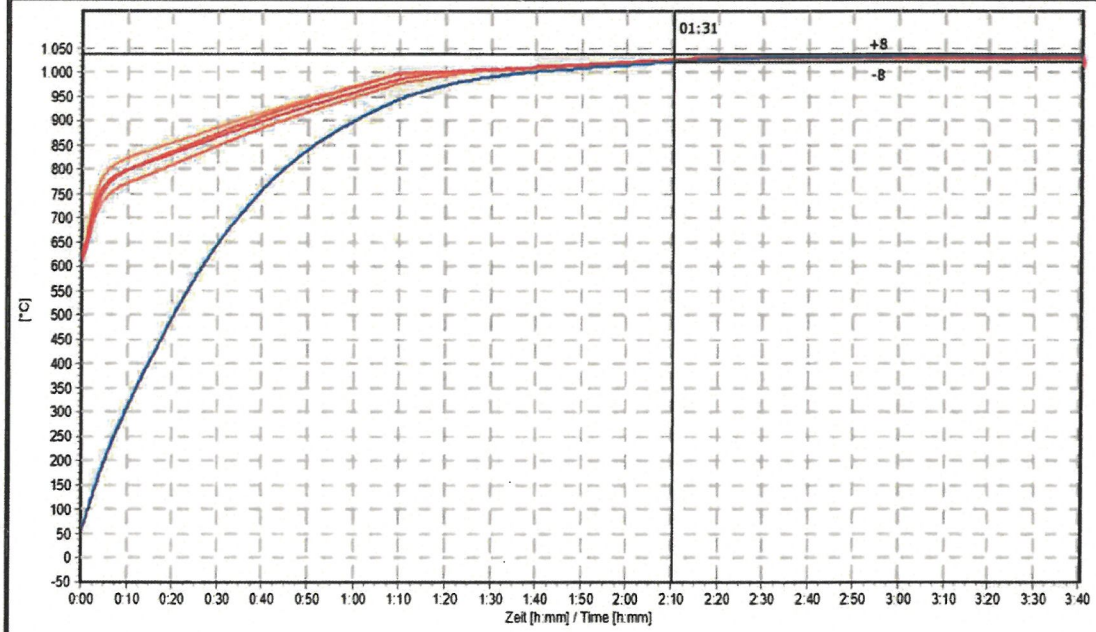
Wärmebehandlungsvorschrift: / heat treatment procedure

WBH-Zyklus HT cycle: 1030°C/1.5M/W
daraus erstellte Programm Nr. lt. EV: Program no. per working procedure: 52/00

Wassertemperatur: water temperature: max. 30°C (Toleranz lt. AV2-36-0015-07 letztgültige Revision)
Materialhaltezeit Toleranz: soak time tolerance: (Toleranz lt. AV2-36-0015-07 letztgültige Revision)

Isttemperaturverlauf / process data

Auflage Nr.: / lot no.: 8028



Materialeintritt: / material entrance time: 08.08.2022 10:55:48
Materialaustritt: / exit time: 08.08.2022 14:36:28

Abkühlbecken/Quench tank: KO - WB
Wassertemperatur water temperature
Eintritt: entrance: **08.08.2022 14:37:28** **14** °C
Austritt: exit: **08.08.2022 15:02:35** **18** °C
Zeit Wasserumwälzung: agitation time: 1507 Sek

Die Richtigkeit der durchgeführten Wärmebehandlung wird bestätigt:
The correctness of the conducted heat treatment is confirmed:
Datum / date: 09.08.2022
Unterschrift: signature: **Krammer Andreas**

21 AGO. 2022
FRANCO CORBELLINI
CROSSWIND

ULITEK ORSENIGO VALVES SRL Q.C.

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Abteilung/Department
EWV/O

Wärmebehandlungsprotokoll
heat treating report

Fa./Los Nr./Splitt Nr.: / AG Nr.:works order:
Gewicht/weight: **2915 kg**
WBH-Schl.: **A46**
Marke/material: **L343**
Charge/heat no.: **CVJ847**
Abmessung/dimension: **0x85 mm**
PP/EKK Nr.: _

Ofen Nr.: furnace no.: **59**
Ofenklasse: furnace class: **2 (+/-5°C)**
Ofenqualifizierung lt. AMS2750 letztgültige Rev. furnace qualification per AMS2750 latest rev.:

Solldaten / nominal values
lt. EV2 3600/0021/30/letztgültige Rev. / per working procedure latest rev.

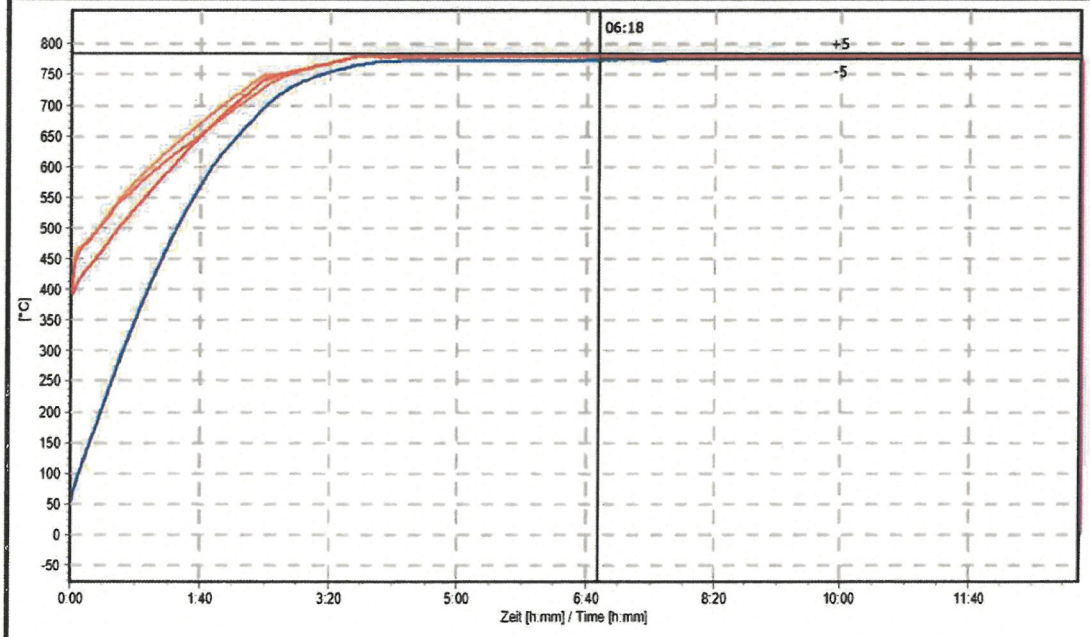
Wärmebehandlungsvorschrift: / heat treatment procedure

WBH-Zyklus HT cycle: 780°C/6,3M/L
daraus erstellte Programm Nr. lt. EV: Program no. per working procedure: 80/00

Wassertemperatur: water temperature: max. 30°C (Toleranz lt. AV2-36-0015-07 letztgültige Revision)
Materialhaltezeit Toleranz: soak time tolerance: (Toleranz lt. AV2-36-0015-07 letztgültige Revision)

Isttemperaturverlauf / process data

Auflage Nr.: / lot no.: 3706



Materialeintritt: / material entrance time: 09.08.2022 12:07:40
Materialaustritt: / exit time: 10.08.2022 01:16:12

Abkühlbecken/Quench tank: __
Wassertemperatur water temperature: Eintritt: entrance: __ °C
Austritt: exit: __ °C
Zeit Wasserumwälzung: agitation time: __ Sek.

Die Richtigkeit der durchgeführten Wärmebehandlung wird bestätigt:
The correctness of the conducted heat treatment is confirmed:
Datum / date: 11.08.2022
Unterschrift: signature: Krammer Andreas

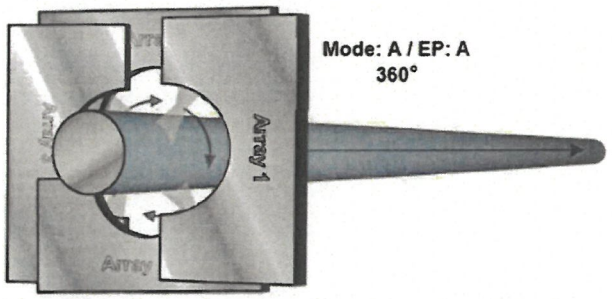
21 AGO. 2024 FRANCO CORBELLINI QB1 CROSSWIND

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

voestalpine BÖHLER Edelstahl GmbH & Co KG

BÖHLER UT PRÜFBERICHT C / REPORT C / PROCES-VERBAL TYPE C		Besteller / Purchaser / Client		Werks Auftrag / Working Order / Commande interne	Pos / Item / Repère 1
Nr./No/No	97-0409-2022	Bestell-Nr. / Order No. / No. de commande		Prüfobjekt / Test object / Pièce contrôlée	Stabstahl / steel bars
Seite / Page / Page	01 von / of / sur 01	Stückzahl / Quantity / Quantité	1 Bd.	Kennzeichnung / Identification / Identification	Schmelze, Werkstoff, Werks Auftrag / Heat, Material, Working Order
Abmessung / Dimension / Dimensions	RD 82,55 mm	Werkstoff / Material / Matériau	L343	Schmelze-Nr. / Heat-No. / No. de coulée	CVJ847
Oberflächenzust. / Surface cond. / Etat de surface	geschält / peeled	Gewicht / Weight / Poids	2611 kg	Fertigungsstufe / Stage of production / Etat d'avancement de fabrication	Lieferzustand / delivery condition
Prüfbereich / Inspection area / Plage d'essai	Gesamte Stablänge / whole length			Wärmebehandlung / Heat treatment / Traitement thermique	lösungsgeglüht + ausgehärtet / solution annealed + age hardened
Prüfvorschrift / Inspection Specification / Spécification de contrôle	API 6A PSL4 - 21st Edition ASTM A 388-19			Prüfumfang / Inspection coverage / Etendue du contrôle	siehe Skizze / see sketch
Beurteilungsstandard / Evaluation standard / Critères d'acceptation	lt. acc. to API 6A PSL4 + ASTM A 388-19			ZfP-Arbeitsvorschrift / NDT-procedure / Procédure END	AV2/36/5125/74 Rev. 02 + Scan PlanAPI 6A PSL4 -PAT-Rund-WP Rev. 02
EKK (FP / WP) Nr. / Traveller (FP / WP) No. / No. de fiche suiveuse	--			Zeichnungs-Nr., Schmiede-Nr. oder Einsatz-Nr. / Drawing No., forging No. or rolling No. / No. de plan, No. de forgeage ou No. de laminage	1454
Registriergrenze / Recording level / Seuil d'enregistrement	lt. acc. to API 6A PSL4 + ASTM A 388-19			Schritt / Prüf-Nr. / Step / Test no. / No. d'operation	--

Skizze / Sketch / Esquisse



Prüfgerät-Nr. / Equipment No. / Appareil No.	ROWA B65/120 PAT 719260	Koppelmittel / Couplant / Produit de couplage	Wasser / water	Justierung / Adjustment / Ajustage	DAC
Justierkörper / Testblock / Bloc d'étalonnage	Nr. 132E	Referenzreflektor / Reference reflector / Réflecteur de référence	ø 1.19 mm FBH (-4 dB = 1,5 mm FBH)	S/N-Abstand / Signal-to-noise distance / Rapport signal sur bruit	> 6 dB
Transferkorrektur (weitere Korr.) / Transfer correction (further corr.) / Correction de transfert (correction additionnelle)					< 2 dB

Einschall-Pos. / Position of incidence / Direction d'incidence	Prüfkopf / Probe / Palpeur	Frequenz / Frequency / Fréquence MHz/Mc	Einschallwinkel / Angle of incidence / Angle d'incidence	Schallweg / Sound path / Parcours du son mm	Schallschw. / Sound att. / Atténuation du son dB/m	Anzeigentiefe / Indication depth / Profondeur de l'indication mm	Anzeigenlänge / Indication length / Longueur de l'indication mm	KSR-Wert / DSR value / Réflecteur disque de différente	dB zu Referenz / dB to reference / dB à la référence	Echoform / Type of echo / Type d'écho	RWE-Abfall dB / Loss of BWE dB / Appareil de l'écho de fond dB
A	5MHz/224EL/R120mmCCV/90DEG	5	0°	82,55	< 2	keine registrierpflichtigen Anzeigen / no indications above recording level					---

Prüfergebnis / Test result / Résultat: ☒ Entspricht / Within / Conforme ☐ Entspricht nicht der Vorschrift / Not within specification / Pas conforme de la specification		Prüfort / Place of inspection / Lieu de contrôle	Kapfenberg, Abt. / Dep. EWV/F
		Datum / Date / Date	23.08.2022
Kunde / Customer / Client		Prüfer / Stufe / Operator / Level / Opérateur / Niveau de qualification	Schuller A. LII ISO 9712
Gutachter / Sachverständiger / Authorized inspector / Agent de l'organisme de contrôle		Prüfverantwortlicher / Stufe / Supervisor / Level / Responsable de contrôle / Niveau de qualification	Koch W. LII ISO 9712

21 AGO. 2024 FRANCO CORBELLINI CROSSWIND R

FLUTEKORSENIGO Q.C.

voestalpine
ONE STEP AHEAD.

Akkreditierung Austria 0909 ISO/IEC 17024

Akkreditierte Konformitätsbewertungsstelle
nach EN ISO/IEC 17024 (ID: 0909)
Accredited conformity assessment body according to EN ISO/IEC 17024 (ID: 0909)
Organisme d'évaluation de la conformité accrédité selon l'EN ISO/IEC 17024 (ID: 0909)
Anerkannte unabhängige Prüfstelle
gemäß Artikel 24 und Anhang I Z 3.1.3 der Richtlinie 2014/68/EU
Recognised third-party organisation according to article 24 of Directive 2014/68/EU
Entité tierce partie reconnue selon l'article 24 de la Directive 2014/68/UE

ÖSTERREICHISCHE GESELLSCHAFT FÜR ZERSTÖRUNGSFREIE PRÜFUNG ÖGfZP NDT

CERTIFICATE ZERTIFIKAT CERTIFICAT

Hiermit zertifizieren wir die Kompetenz
We hereby certify the competence / Nous certifions la competence

Herr Alexander Schuller

Titel, Vorname, Name / Title, first name, surname / Titre, prénom, nom

geboren am
date of birth/date de naissance
10.10.1989

Zertifikat-Nr.: **02/37595/2/22469**
No. of certificate/ N° de certificat

Prüfverfahren[1] und Stufe
NDT method[1] and level
Méthode d'essai[1] et niveau
Ultraschallprüfung UT Stufe 2 (zwei)

Industrie-[2]/Produktsektoren[1] **Herstellung**
Industrial-[2]/Product sectors[1]
Secteurs industriels-[2]/produits[1]

nach den Normen
based on the Standards
en selon des normes
ÖNORMEN: EN ISO 9712

Gültigkeit der Zertifizierung
Validity of the certification
Validité de la certification
14.03.2022 bis 13.03.2027

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

Österreichische Gesellschaft für Zerstörungsfreie Prüfung
Austrian Society for Non-Destructive Testing / Association d'Autriche des Essais Non Destructifs

1230 Wien, 15.11.2021

für die ÖGfZP
for the ÖGfZP / pour l'ÖGfZP

der Präsident
the president / le président
Dipl.-Ing. Dr. Wolfgang Schützenhöfer

für die Zertifizierungsstelle
for the Certifying Body / pour l'organisme de certification

Ing. Andreas Schieder, MSc (0163)

Unterschrift der zertifizierten Person
signature of certified person / signature de la personne certifiée

ÖSTERREICHISCHE GESELLSCHAFT FÜR ZERSTÖRUNGSFREIE PRÜFUNG ÖGfZP NDT

TECHNITEK ORSENIGO VALVES SRL Q.C.

1) gemäß EN ISO 9712 / according to EN ISO 9712 / selon EN ISO 9712
2) Herstellung (enthält w, f, c, wp, t) - Dienstleistungsprüfung bei Fertigung und Instandhaltung, eingeschlossen Herstellung (enthält w, f, c, wp, t, u.a) - Eisenbahn-Instandhaltung (enthält w, f, c, wp , t, u.a) - Luft- und Raumfahrt (enthält w, f, c, wp, t, p, u.a)

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71826

TMV MOLINARI
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024000486192
DATE 23/05/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **2385**
Ordine N°/Order N° **240436**
Row Ref. **1**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Fully Threaded Stud-bolt Chamfers Included ANSI B16.5
ASTM A193 / ASTM A320 B8Mc1
3/4"-10UNC L:65 mm

Q.ty[pcs]: 38 pcs.

Batch Code: CC37DBC6

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
UTS Mpa	515		593	YS0,2% Mpa	205		284
A 50mm %	30		55,8	Z %	50		73
HBW		223	176				

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 430187

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C		0,08	0,013	Mn		2	1,56
P		0,045	0,030	S		0,03	0,028
Cr	16	18	16,71	Mo	2	3	2,06
Si		1	0,57	Ni	10	14	10,25

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

21 AGO. 2024
FRANCO CORSELLINI
QC1
CROSSWIND

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194; SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

FLUITEK ORSENIGO VALVES SRL Q.C.

MFR AUTHORIZED INSPECTOR AND STAMP

Mattia Bernardi
Quality Dept.

T.M.V. MOLINARI
Q.A. MANAGER
APPROVATO

5 - 071827.PDF C 240062-004/01

71827

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC). ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
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Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024000486193
DATE 23/05/2024

Cliente/Purchaser FLUITEK ORSENIGO VALVES srl
Commessa N°/Job N° 2385
Ordine N°/Order N° 240436
Row Ref. 3

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Heavy Hex Nut ANSI B18.2.2 Tab.1.1.1-11
ASTM A194 Gr.8M
3/4"-10UNC

Q.ty[pcs]: 45 pcs.

Batch Code: B8B16352

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value
HBW	126	300	184

Test	Req. min	Req. MAX	Value
PROOF LOAD			POSIT

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 281685

Test	Req. min	Req. MAX	Value
C		0,08	0,016
P		0,045	0,030
Cr	16	18	16,65
Si		1	0,53

Test	Req. min	Req. MAX	Value
Mn		2	1,44
S		0,03	0,026
Mo	2	3	2,02
Ni	10	14	10,1

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

TEST	RICHIESTO/REQUEST	OTTENUTO/RESULT
KV -196°C	40/40 J	102-116-111

21 AGO. 2024
FRANCO CORBELLINI
OB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Matteo Bernardi
Quality Dept.

T.M.V. MOLINARI
Q.MANAGER
APPROVATO

6 - 072246.PDF C 240062-004/01

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

72246

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024000947732
DATE 10/07/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **134**
Ordine N°/Order N° **240436**
Row Ref. **4**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Hex Thin Nut UNI 5589/DIN 936
ASTM A194 Gr.8M
M36x4

Q.ty[pcs]: 12 pcs.

Batch 132

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
HBW	126	300	181	PROOF LOAD			POSIT

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 281518

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C		0,08	0,011	Mn		2	1,55
P		0,045	0,031	S		0,03	0,026
Cr	16	18	16,58	Mo	2	3	2,1
Si		1	0,53	Ni	10	14	10,2

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Marco Piseroni
Quality Dept

T.M.V. MOLINARI
Q.A.MANAGER
APPROVATO

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-005/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**005**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
50	**1**

TAG
25-BDV-013

SERIAL NUMBER
From 2400620050001 to 2400620050001

DESCRIPTION
ball valve fl 2 pz-fb2.4".300 lbs.att. pneumatico fail pos. open.rf a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0404.2.f10-hyd.att_pneu_fo.rf Rev0

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,017	1,720	0,510	0,021	0,031	17,010	2,020	10,010		0,520		064509
			0,151	0,080						24,956			
	290048	560,00	257,00	62,00	70,00	195,00	191,00	192,00	-196°C (L)	171 HBW			
BALL	A182 F316/316L	0,016	1,660	0,620	0,027	0,031	17,030	2,090	10,220		0,510		068196
			0,115	0,075						25,127			
	437516	559,00	250,00	55,00	67,00	230,00	228,00	221,00	-196°C (L)	158 HBW			
STEM	API 6ACRA UNS N07718	0,014	0,060	0,060	<0,001	0,005	17,980	3,030	54,100	0,950	0,040	17,960	071346
		0,530	0,180	0,006		5,020	0,001		5,040	28,075			
	CVJ847	173,61	130,24	32,00	48,00	50,00	51,00	47,00	-76°C (L)	38,3 HRC			
FLANGE	A182 F316/316L	0,017	1,720	0,510	0,021	0,031	17,010	2,020	10,010		0,520		064509
			0,151	0,080						24,956			
	290048	560,00	257,00	62,00	70,00	195,00	191,00	192,00	-196°C (L)	171 HBW			
STUD	A193 B8M	0,013	1,560	0,570	0,028	0,030	16,710	2,060	10,250				071826
	430187	593,00	284,00	55,80	73,00					176 HBW			
NUT	A194 G8M	0,016	1,440	0,530	0,026	0,030	16,650	2,020	10,100				071827
	281685					102,00	116,00	111,00	-196°C (L)	184 HBW			
NUT	A194 G8M	0,011	1,550	0,530	0,026	0,031	16,580	2,100	10,200				072246
	281518									181 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU and was subjected to the conformity assessment procedure H
The monitoring is performed by BV Notified Body 1370
PED Manager Mr. Belotti Pierpaolo

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
	21 AGO. 2024 FRANCO CORBELLINI QBQ CROSSWIND R	FLUITEK ORSENIGO VALVES SRL QC
DATE	DATE	DATE 06/08/2024

64509

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Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST062477 / 2023 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell
Your order
Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Fucinato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung
Marking
Marquage

SPECIFICHE :	Note:
Anforderungen / Requirements / Exigences	Aufzeichnungen / Notes / Notes
VAL STOCK A 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
MDS S17 1 316 A (1)	(1)Norsok-standard M-630: 2020 (2020-09-30)
AISI . 316/316L	
AMS-QQ-S-763 D 316/316L A	
ASME SA182 2021 S31600/03 A (2)	(2)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2021 B8M CLASS 1 (3)	(3)Section II Part A 2021 EDITION
ASME SA276 2021 S31600/03 A (4)	(4)Section II Part A 2021 EDITION
ASME SA320 2021 B8M CLASS 1 (5)	(5)Section II Part A 2021 EDITION
ASME SA479 2021 S31600/03 A (6)	(6)Section II Part A 2021 EDITION
ASTM A182 2022 S31600/03 A (7)	(7)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2021 B8M CLASS 1	
ASTM A262 PR. E 2015 316/316L (8)	(8)Reapproved 2021
ASTM A276 2017 S31600/03 A	
ASTM A320 2022 B8M CLASS 1 CLASS1	
ASTM A370 2021 .	
ASTM A479 2021 S31600/03 A	
ASTM E10 2018 .	
ASTM E8 2022 .	
EN 10088 PART 3 2014 1.4401 A (9)	(9)Chemical and mechanical properties only.
EN 10088 PART 3 2014 1.4404 A (A)	(A)Chemical and mechanical properties only.
EN 10272 2016. 1.4401 A	
EN 10272 2016. 1.4404 A	
ISO 148-1 2016 .	
ISO 3651-2 98 METHOD A T1	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600/03 A (B)	(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600/03 A (C)	(C)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015
QQ-S-763 F 316/316L A	
ACH CO . .	
KV L -196C . ISO 148-1	
KV T -196C . ISO 148-1	

21 AGO. 2023
FRANCO CORBELLINI
QBQ
CROSSWIND

		Tolleranza: k13 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0040	Tondo	260,000	2000/ 2000	290048		849,0	207409440

FLUITEK ORSENIGO VALVES SRL Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 11/05/2023 VCQ052 - MEST062477	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 1 di 5

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST062477 / 2023 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell
Your order
Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Fucinato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung
Marking
Marquage

TEST ALLO STATO DI FORNITURA

TEST		min	max	
A	Dimensioni grano x ASTM E112			2

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			-	-	-	-	-	-	-	-	-
B	10X10	-196	L		195	191	192	1,264	1,515	1,135	65	60	66

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience		Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			210	-	520 790	-	40	-	50	-		-	223	
C	12,5	20	L		267		555		62		65			167		

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience		Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			205	-	515	-	40	-	50	-		-		
D	12,5	20	T		257		560		55		70					

FRANCO CORBELLINI
QBQ 21 AGO. 2023
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell / Your order / Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Fucinato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung / Marking / Marquage

Prova di trazione per ISO 6892-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			200	235	500 700	30	-	-	-	-			-	215	
E	10	20	T		261	306	554	58		65					169		
F	10	20	T		261	305	553	59		66					171		

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			-	-	-	-	-	-	-	-	-
G	10X10	-196	T		86	76	84	0,694	0,506	0,885	35	36	30

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			60	60	60	-	-	-	-	-	-
J	10X10	20	T		120	124	130						
K	10X10	20	T		126	131	126						

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

21 AGO. 2023
FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO VALVES SRL

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST062477 / 2023 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell
Your order
Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Fucinato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung
Marking
Marquage

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %
	min -	-	-	16,50	2,00	-	10,00	-	-	-	-
	max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100
290048	0,017	0,51	1,72	17,01	2,02	0,52	10,01	0,151	0,031	0,021	0,080

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 4,9 : 1
Solution annealed 1080°C for 6 h /water cooled.
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à eté trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/OES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FRANCO CORBELLINI
QBQ 21 AGO. 2024
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. QC

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
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Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell / Your order / Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Fucinato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Siempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung / Marking / Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSP3578E012345678ABDEF1346789ABDE573E

21 AGO. 2023
FRANCO CORBELLINI
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CROSSWIND

FLUITEK ORSENIGO VALVES SRL QC

2 - 068196.PDF C 240062-005/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
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In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.240068

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI24000623

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI24000573

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'essayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK W2 A/1 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
MDS S17 1 316 A (1)	(1)Norsok-standard M-630: 2020 (2020-09-30)
AD 2000-M. W 2 2022 1.4401 A (2)	(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AD 2000-M. W 2 2022 1.4404 A (3)	(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AISI . 316/316L	
AMS-QQ-S-763 D 316/316L A	
ASME SA182 2021 S31600/03 A (4)	(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2021 B8M CLASS 1 (5)	(5)Section II Part A 2021 EDITION
ASME SA276 2021 S31600/03 A (6)	(6)Section II Part A 2021 EDITION
ASME SA320 2021 B8M CLASS 1 (7)	(7)Section II Part A 2021 EDITION
ASME SA479 2021 S31600/03 A (8)	(8)Section II Part A 2021 EDITION
ASTM A182 2023 S31600/03 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2023 B8M CLASS 1	
ASTM A262 PR. E 2015 316/316L (A)	(A)Reapproved 2021
ASTM A276 2023 S31600/03 A	
ASTM A320 2022 B8M CLASS 1 CLASS1	
ASTM A370 2022 .	
ASTM A479 2023A S31600/03 A	
ASTM E10 2023 .	
ASTM E8 2022 .	
EN 10088 PART 3 2014 1.4401 A	
EN 10088 PART 3 2014 1.4404 A	
EN 10272 2016. 1.4401 A	
EN 10272 2016. 1.4404 A	
ISO 148-1 2016 .	
ISO 3651-2 98 METHOD A T1	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600/03 A (B)	(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 4 S31600/03 A (C)	(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.
QQ-S-763 F 316/316L A	
ACH CO . .	
KV L -196C . ISO 148-1	
KV T -196C . ISO 148-1	

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.A.C.

Pos. nr. / Pos. nr. / Item nr. / Nr. de poste	Oggetto / Gegenstand / Product description / Descrip. du produit	Tolleranza: k12 (Toleranz/Allowance/Tolerance) Dimensioni - mm / Abmessungen / Dimension / Dimension	Lunghezza - mm / Länge / Length / Longueur	Colata / Schmelze / Heat / Coulée	Pezzi / Stückzahl / Pieces / Pieces	Peso - KG / Gewicht / Weight / Poids	Lotto nr. / Losnr. / Lot nr. / Lot nr.
0090	Tondo	165,000	5062/ 5100	437516		1722,0	306706970

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012690 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

TEST ALLO STATO DI FORNITURA

TEST		min	max	
A	Dimensioni grano x ASTM E112			4

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max			-	-	-	-	-	-	-	-	-
B	10X10	-196	L		230	228	221	1,800	1,785	2,192	71	68	70

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience		Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max			210	-	520 / 790	-	40	-	50	-		- / 223		
C	12,5	20	L		261		559		60		71			158		

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience		Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max			205	-	515	-	40	-	50	-		-		
D	12,5	20	T		253		554		55		67					

FRANCO CORBELLINI
QBQ 21 AGO. 2024
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

Prova di trazione per ISO 6892-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		200	235	500	30	-	-	-	-			-		
		max				700									215	
E	10	20	T	250	293	551	54		65					155		
J	10	20	T	255	299	556	53		64					158		

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion - Lateral ex mm			Shear - Shear - % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
F	10X10	-196	T	87	90	91	0,848	0,701	0,795	20	22	20

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion -			Shear - Shear -		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		60	60	60	-	-	-	-	-	-
		max										
I	10X10	20	T	91	88	87						
K	10X10	20	T	99	81	80						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

Acciaierie Valbruna S.p.A.

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Telefono 0444.968211 - Fax 0444.963836
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CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012690 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur
MR

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %
min -	-	-	-	16,50	2,00	-	10,00	-	-	-	-
max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-
437516	0,016	0,62	1,66	17,03	2,09	0,51	10,22	0,115	0,031	0,027	0,075

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 11,3 : 1
Solution annealed 1080°C for 3,5 h /water cooled.
SURFACE QUALITY GUARANTEE BY ET INSPECTION (max defect depth 1% DIAMETER)
UT ACC. TO ASTM A388; EN 10308 Cl.1
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

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CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange avt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

Acciaierie Valbruna S.p.A.

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Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012690 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssechverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD'S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSP39f7531FCH31EBM3FCf74SFCf7E2FC

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO Q.C.

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Nr. / No.: 974791 / 2022.09.13
Seite / Page: 1 / 11

Besteller/Purchaser/Acheteur:

Empfänger/Consignee/Destinaire:

Bestell-Nr./Purchaser order No./No. de commande:

Empfängerref.-Nr./Receiver reference-No./Rèfèrence destinaire:

-

Werksauftrags-Nr./Works order-No./No. de la commande de l´usine:

Lieferschein-Nr./Delivery note-No./Avisd´expedition du client:

Prüfgegenstand/Object of test/Object d`examen:

BÖHLER L718API
Stäbe, gewalzt, lösungsgeglüht, ausgehärtet
Bars, rolled, solution annealed, age hardened
IBO ECOMAX ISO 286/2 ITk12

Anforderungen/Requirements/Exigence:

Werkstoffdatenblatt Rohmaterial
Raw Material Data Sheet
No.: 269X Rev.-No.: 3 und / and
Anhang Werkstoffdatenblatt Rohmaterial
Annex Raw Material Data Sheet
No.: 269X Rev.-No.: 3

2.4668HX

API Standard 6ACRA
First Edition, August 2015
Addendum/Errata, February 2019
Material designation 120K
API Specification 6A
Twenty-first Edition, November 2018 - PSL4
Addendum/Errata September 2021
ANSI/NACE MR0175/ISO15156-3:2015
ANSI/NACE MR0103/ISO17945:2015
MS-011559-(05,55)-(01) Base Number Rev.33
MS-011559-(06,56)-(01) Base Number Rev.33
100237403 Rev.BA
CSP-4 Rev.BN
FMC M40910 Rev.W
FMC M40902 Rev.R
VGS 5.141.1 Rev.24 except para.14.1.1
VGS 5.541.1-120K Rev. 31 except para 13.1.1
WN-301 Rev.Z except para.4.0
ES-MA-46-2 Rev.Q
BMS N201 Rev.AD
BMS N213 Rev.T
UNS N07718

TMP L718API 00011 Rev.004

Umfang der Lieferung/Volume of delivery/liste descriptive

Pos./Los	Abmessung Dimensions Dimensions	Länge Length Longueur	Stückzahl No. of Pieces No. de Pieces	Gewicht kg Weight kgs Poids kg	Mat.-ID	Prüf-Nr. Test No. Eprouvette	Schmelze-Nr. Heat No. No. de coulee
10/1	RD 82,55 MM	3.000 - 5.000 MM	-	2614,0	HGFC	2262472-1	CVJ847

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Blockgröße / Ingot size = **rd. 510 mm (20 inch)**
Umformgrad / Reduction ratio = 36 : 1

Qualitätswärmebehandlung / Quality heat treatment
Temperatur Überwachung / Temperature monitoring = Nickel-based alloy heat sink thermocouples

	Temperatur Temperature	Haltezeit Soak time	Abkühlung Cooling
Lösungsgeglüht / Solution Annealed	1886°F (1030°C)	1.5 h M	Wasser / Water
Ausgehärtet / Age hardened	1436°F (780°C)	6.3 h M	Luft / Air

M...Haltezeit auf Zieltemperatur nachdem das Materialzentrum die Toleranzgrenze erreicht hat.
M...Holding time at nominal temperature after center of material has reached the tolerance limit.

Die Temperaturmessung entspricht der AMS 2750F, wie in SAE-AMS-H-6875 B verlangt.
Pyrometry according to AMS 2750F, as required by SAE-AMS-H-6875 B.
AMS 2750F erfüllt alle Anforderungen entsprechend API Specification 6A Twenty-first Edition, Appendix M.
AMS 2750F fulfills all requirements listed in API Specification 6A Twenty-first Edition, Appendix M.

Chemische Zusammensetzung/Chemical Composition/Composition chimique (%)

Schmelzanalyse/Chemical Composition Erschmelzungsart/Steelmaking Process: VIM+VAR										Schmelze-Nr. Heat No. No. de coulee
C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Co	
0,014	0,06	0,06	<0,005	0,0005	17,98	3,03	54,1	0,04	0,18	CVJ847
Ti	Al	Nb	B	Fe	N	Pb	Ta	O	Bi	
0,95	0,53	5,02	0,0031	17,96	0,006	<0,0003	<0,020	<0,0003	<0,00003	CVJ847
Ca	Mg	Sn	Se	FL029*						
<0,0002	0,0006	<0,0010	<0,0003	5,04						CVJ847

**FL029 = Nb+Ta*

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FLUITEK ORSENIGO VALVES SRL
Q.C.

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Metallographische Prüfung / Metallographic examination

Makroätzprüfung / Macroetch examination

Prüfnorm / Testing standard = ASTM A 604/A 604M-07 (reapproved 2017)
Ätzmittel / Etchant = Hydrochloric-Peroxide
Lage / Location = Schopf und Boden des umgeschmolzenen Blockes / Top and bottom section of the remelted ingot
Orientierung / Orientation = Querschnitt / Transverse cross-section

Class 1	Freckles	Severity A
Class 2	White Spots	Severity A
Class 3	Radial Segregation	Severity A
Class 4	Ring Pattern	Severity A

Das Material entspricht den Anforderungen der Makroätzprüfung
nach API Standard 6ACRA - Para.4.2.1.
The material complies with the requirements of the macroetch examination
acc. to API Standard 6ACRA - Para.4.2.1.

Korngrößenbestimmung / Grain size evaluation

Prüfnorm / Testing standard = ASTM E112-13, ASTM E930-18
Ätzmittel / Etchant = Kalling's No. 2
Vergrößerung / Magnification = 50:1, 100:1, 500:1

Lage Location	Orientierung Orientation	Struktur Structure	Durchschnittliche Korngröße Average Grain Size	Duplex Verteilung Duplex Distribution
Rand Surface	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0
1/2 Radius (1/4T)	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0
Zentrum Center	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0

Das Material erfüllt die Anforderungen nach API Standard 6ACRA - Para. 4.2.2.2.2.
Es liegt keine topologische Duplexkorngrößenverteilung gemäß den Vorgaben der Norm ASTM E1181 vor.
The material complies with API Standard 6ACRA - Para. 4.2.2.2.2.
No presence of topological duplex grain size conditions as defined per ASTM E1181.

Gefügeuntersuchung nach schädlichen Phasen / Microstructural examination for deleterious phases

Ätzmittel / Etchant = Kalling's No. 2
Das Gefüge ist frei von kontinuierlichen Netzwerken, von Sekundärphasen entlang der Korngrenzen, oder anderen ungewöhnlichen mikrostrukturellen Eigenschaften. Die Gefügestruktur ist frei von nadelförmigen Deltaphasen, außer in einzelnene, isolierten Körnern, die nicht den Großteil der Gefügestruktur repräsentieren. Es gibt keine Laves Phasen.
The microstructure is free from continuous networks of secondary phases along grain boundaries or other unusual microstructural features. The microstructure is free from acicular delta phase except in individual, isolated grains that are not representing of the bulk of the microstructure. There is no laves phase.

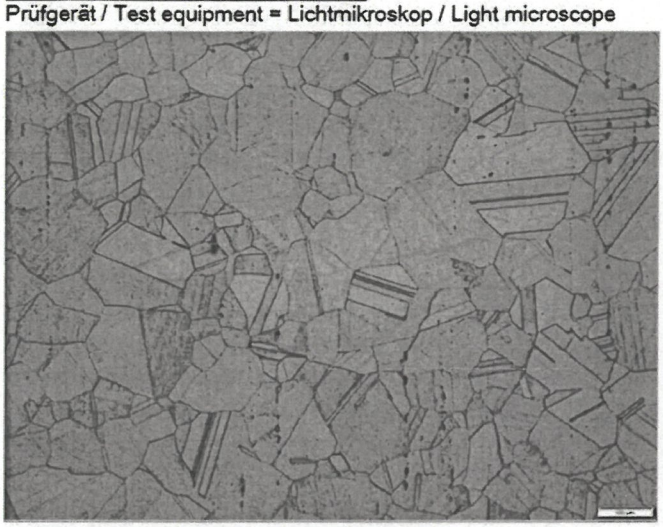
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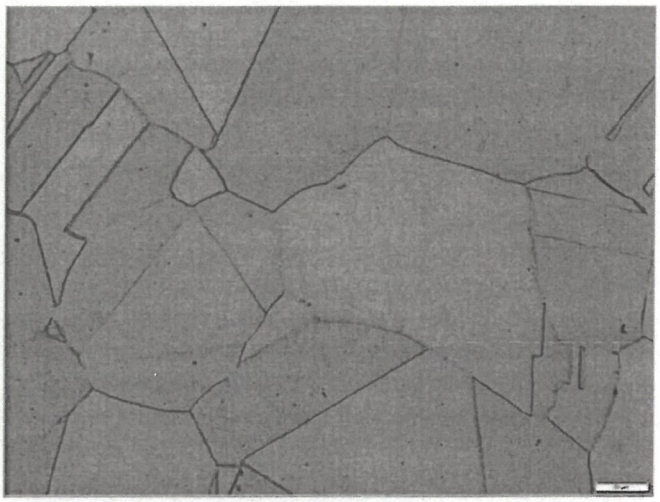
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Gefügefotos / Photomicrographs

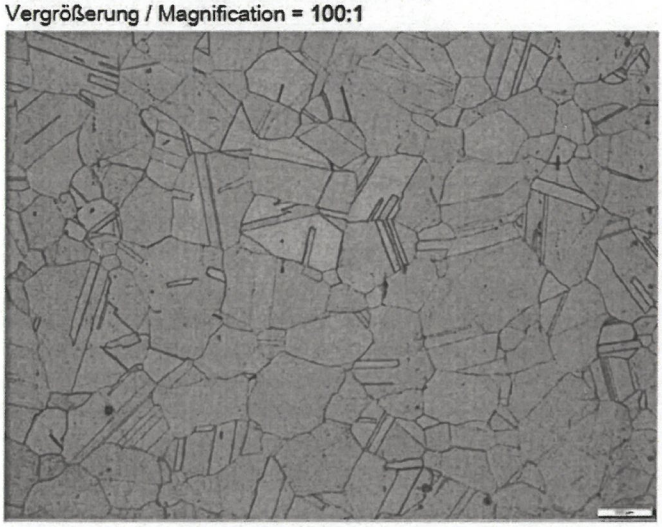
Prüfgerät / Test equipment = Lichtmikroskop / Light microscope



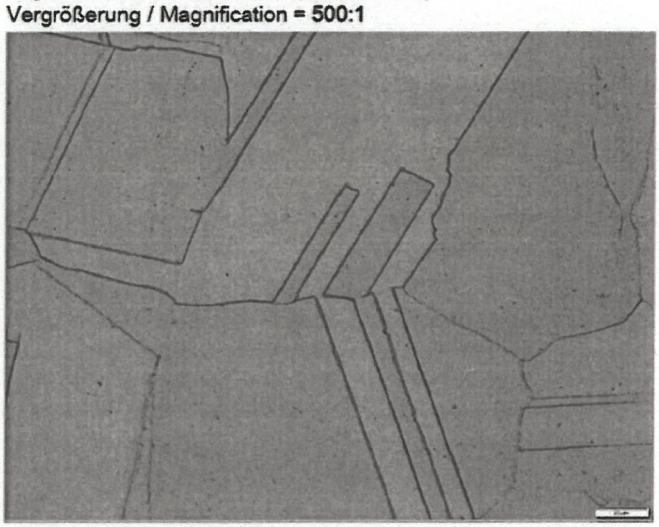
Lage / Location = **Rand / Rim (near Surface)**
Vergrößerung / Magnification = **100:1**



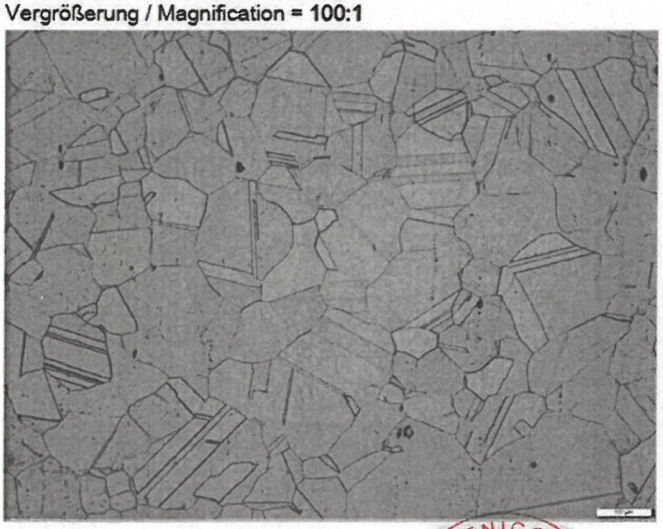
Lage / Location = **Rand / Rim (near Surface)**
Vergrößerung / Magnification = **500:1**



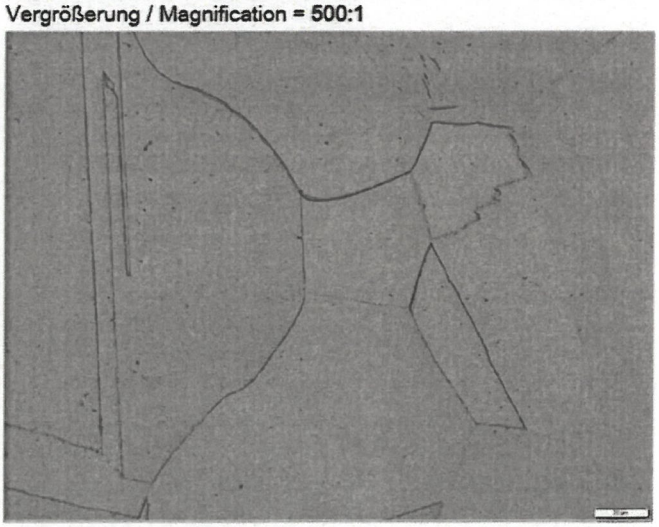
Lage / Location = **1/2 Radius (1/4T)**
Vergrößerung / Magnification = **100:1**



Lage / Location = **1/2 Radius (1/4T)**
Vergrößerung / Magnification = **500:1**



Lage / Location = **Zentrum / Center**
Vergrößerung / Magnification = **100:1**



Lage / Location = **Zentrum / Center**
Vergrößerung / Magnification = **500:1**

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Mechanische Eigenschaften / Mechanical properties

Der Probenabschnitt ist eine Verlängerung des endwärmebehandelten Stabes.
The QTC is a prolongation of the final heat treated bar.
Die Proben und die Prüfmethoden entsprechen der ASTM A370 - 21.
The test specimen and the test method are in accordance with ASTM A370 - 21.

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Zugversuchproben / Tensile test properties

Probenorientierung / Specimen orientation = längs / longitudinal
Probenlage / Specimen location = 1/2 Radius (1/4T)
Probe / Specimen = standard size 12.5 mm [0.500 inch] diameter

Zugversuch im Lieferzustand/Tensile test in delivery condition

*Legende / *Key
H = Härtester / hardest
W = Weichster / softest
S = Schopf / Top
M = Mitte / Middle
B = Boden / Bottom

Prüf-Nr. Test no.	*Stk.-Nr. *Piece no.	Prüfnorm Testing standard	Lage Location	Temp. °F	Dehngrenze Yield Strength Rp0,2 KSI	Zugfestigkeit Ultimate Tensile Strength Rm KSI	Dehnung Elongation A4 %	Einschnürung Reduction of Area Z %
					125 - 145	>=150	>=20	>=35
2262472-1	B1X	ASTM A 370-21 01.11.2021	L2	73	130.244	173.610	32	48

Kerbschlagversuchproben / Impact test properties

Probenorientierung / Specimen orientation = quer / transverse
Probenlage / Specimen location = 1/2 Radius (1/4T) oder tiefer / or deeper
Kerborientierung / Notch orientation = C-L
Probe / Specimen = standard size (Charpy-V) 10 x 10 mm [0.394 x 0.394 inch]

Kerbschlagversuch im Lieferzustand/Impact test in delivery condition

*Legende / *Key
H = Härtester / hardest
W = Weichster / softest
S = Schopf / Top
M = Mitte / Middle
B = Boden / Bottom

Prüf-Nr. Test no.	*Stk.-Nr. *Piece no.	Prüfnorm Testing standard	Lage Location	Temp. °F	Kerbschlagarbeit Impact energy Charpy-V ft-lbf	Laterale Breitung Lateral expansion LB mils	Zähbruch Shear area %
					>=35	>=15	info
2262472-1	B1X	ASTM E 23-18 01.11.2018	Q2	-76	50 51 47	26 25 24	20 20 20

Härteprüfung im Lieferzustand / Hardness test in delivery condition (QTC)

Der Probenabschnitt ist eine Verlängerung des endwärmebehandelten Stabes.
3 x 3 Messwerte 120° versetzt, 1/2 Radius (1/4T)
3 x 3 Messwerte 120° versetzt, oberflächennahe
1 x 3 Messwerte, Zentrum
Die angegebenen Werte, des Probenabschnittes, sind Mittelwerte und, in Klammern, Einzelwerte.

The QTC is a prolongation of the final heat treated bar.
3 x 3 readings 120° apart are taken at 1/2 Radius (1/4T).
3 x 3 readings 120° apart are taken near Surface.
1 x 3 readings are taken in the center
The values stated are the mean values and, in parentheses, the single values.

Härteprüfung im Lieferzustand/Hardness test in delivery condition

Prüf-Nr. Test no.	Stk. Nr. Piece no.	Prüfnorm Testing standard	Prüfort Location	Methode HRC
				34 - 39
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	37.3 (37 37 38)
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	38.3 (38 38 39)
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	36 (36 36 36)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	Zentrum / Center	36 (36 36 36)

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Härteprüfung im Lieferzustand / Hardness test in delivery condition (Bars)
Lage / Location = oberflächennahe / near Surface
Die Härteprüfungen an den Stäben wurde an Querschnittsschnitten je Stab durchgeführt.
Hardness tests on bars are performed on cross-sections slices, taken from each bar.

Härteprüfung im Lieferzustand/Hardness test in delivery condition

			Methode
Prüf-Nr. Test no.	Stk. Nr. Piece no.	Prüfnorm Testing standard	HRC
			34 - 39
2262472-1	1	ASTM E 18-20 01.03.2020	37 (36 37 38)
2262472-1	2	ASTM E 18-20 01.03.2020	37.7 (37 38 38)
2262472-1	3	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	4	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	5	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	6	ASTM E 18-20 01.03.2020	37 (37 37 37)
2262472-1	7	ASTM E 18-20 01.03.2020	36.7 (36 37 37)
2262472-1	8	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	9	ASTM E 18-20 01.03.2020	38 (38 38 38)
2262472-1	10	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	11	ASTM E 18-20 01.03.2020	37.7 (37 38 38)
2262472-1	12	ASTM E 18-20 01.03.2020	36.7 (36 37 37)
2262472-1	13	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	14	ASTM E 18-20 01.03.2020	36.7 (36 37 37)

Korrosionsprüfung / Corrosion examination
Prüfnorm / Testing standard = ASTM G48 method A
Prüfdauer / Test period = 24h
Prüftemperatur / Test temperature = 20°C
Beizlösung / Pickling solution = 20 % HNO3 + 5 % HF
Beizdauer / Pickling period = 5 min.
Beiztemperatur / Pickling temperature = 60°C
Massenverlust = 0,06 g/m², kein Lochfraß bei 20facher Vergrößerung.
Weight loss = 0,06 g/m², no pitting at 20x magnification.

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Zerstörungsfreie Prüfung / Non-Destructive examination

Ultraschallprüfung / Ultrasonic examination

Prüfmenge / Inspection quantity = 100% der Stäbe / 100% of the bars
Prüfvorschrift / Inspection specification = ASTM A 388/A388M-19
Beurteilungsstandard / Evaluation standard = API Specification 6A Twenty-first Edition - PSL 4
Prüftechnik / Inspection technique = Phased Array (Senkrechteinschallung am Aussendurchmesser / straight-beam technique from the outside diameter)
Das Material entspricht den Anforderungen / The material fulfils the requirements

Oberflächenprüfung / Surface examination

Prüfmenge / Inspection quantity = 100% der Stäbe / 100% of the bars
Prüftechnik / Inspection technique = Wirbelstromprüfung / Eddy - Current test (ET)
Das Material ist frei von unzulässigen Oberflächenfehlern / The material is without unacceptable surface defects

Statements

Das Material ist frei von Quecksilber Kontamination.
The material is free of mercury contamination.

Es wurden keine Schweißungen am Material durchgeführt.
No weld repair has been performed on this material.

Herkunfts- und Erschmelzungsland: OESTERREICH
Country of origin: AUSTRIA
Country of melting and pouring: AUSTRIA
Name der Schmelzquelle: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name of melt source: voestalpine BÖHLER Edelstahl GmbH & Co KG

Name des Umformbetriebs /
Company performing the hot work operations: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name des Wärmebehandlungsbetriebs /
Company performing the heat treatment: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name der Prüfbetriebe /
Company performing the testing: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name des Prüflabors /
Name of test laboratory: In-house test laboratory of voestalpine BÖHLER Edelstahl GmbH & Co KG

Anlagen / Attachment

Wärmebehandlungsprotokolle / Furnace charts
UT Befund / Report
Prüferqualifikation / Operator qualification

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Radioaktivitätskontrolle/Radioactivity inspection: Co-60<0,1Bq/g
Hiermit kleiner als Grenzwert in der anzuwendenden Spezifikation IAEA RS-G-1.7 für unbedenkliche Stoffe.
Therefore smaller than upper limit required according to specification IAEA RS-G-1.7 for inoffensive material.

Wir bestätigen hiermit, dass die obengenannten Erzeugnisse den Bestellvorschriften entsprechen.
We hereby certify that the above mentioned products are consistent with the order prescriptions

Zeichen des Lieferwerks:
Brand of Manufacturer:

Besichtigung und Nachmessung: Keine Beanstandung
Inspection and Checking of Dimensions: Satisfactory

Zeichen des Prüfers:
Symbol of Inspector:

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25
8605 Kapfenberg, AUSTRIA
www.bohler-edelstahl.com

Wolfgang.Mlatschnig@bohler-edelstahl.at
AUSSTELLER/
ORIGINATOR

Abnahmebeauftragter
Inspection Representative

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Abteilung/Department
EWV/O

Wärmebehandlungsprotokoll
heat treating report

Fa./Los Nr./Splitt Nr.: / AG Nr.:works order:
Gewicht/weight: **2915 kg**
WBH-Schl.: **L46**
Marke/material: **L343**
Charge/heat no.: **CVJ847**
Abmessung/dimension: **0x85 mm**
PP/EKK Nr.: _

Ofen Nr.: furnace no.: **60**
Ofenklasse: furnace class: **3 (+/-8°C)**
Ofenqualifizierung lt. AMS2750 letztgültige Rev. furnace qualification per AMS2750 latest rev.:

Solldaten / nominal values
lt. EV2 3600/0021/30/letztgültige Rev. / per working procedure latest rev.

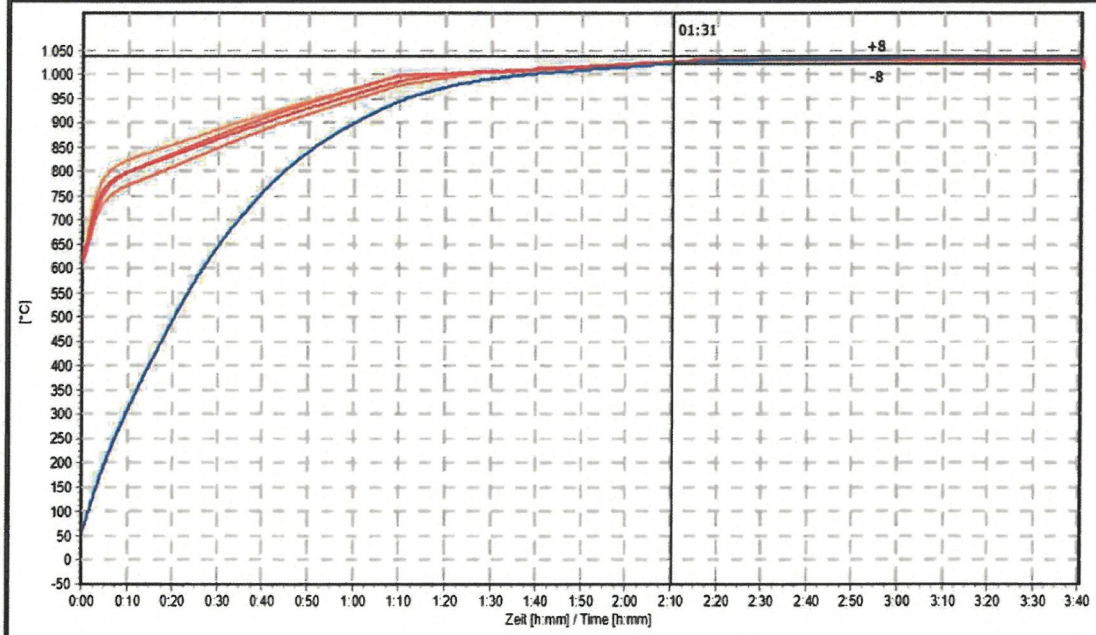
Wärmebehandlungsvorschrift: / heat treatment procedure

WBH-Zyklus HT cycle: 1030°C/1.5M/W
daraus erstellte Programm Nr. lt. EV: Program no. per working procedure: 52/00

Wassertemperatur: water temperature: max. 30°C (Toleranz lt. AV2-36-0015-07 letztgültige Revision)
Materialhaltezeit Toleranz: soak time tolerance: (Toleranz lt. AV2-36-0015-07 letztgültige Revision)

Isttemperaturverlauf / process data

Auflage Nr.: / lot no.: 8028



Materialeintritt: / material entrance time: 08.08.2022 10:55:48
Materialaustritt: / exit time: 08.08.2022 14:36:28

Abkühlbecken/Quench tank: KO - WB
Wassertemperatur water temperature
Eintritt: entrance: **08.08.2022 14:37:28** 14 °C
Austritt: exit: **08.08.2022 15:02:35** 18 °C
Zeit Wasserumwälzung: agitation time: 1507 Sek

Die Richtigkeit der durchgeführten Wärmebehandlung wird bestätigt:
The correctness of the conducted heat treatment is confirmed:
Datum / date: 09.08.2022
Unterschrift: signature: **Krammer Andreas**

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Wärmebehandlungsprotokoll
heat treating report

Fa./Los Nr./Splitt Nr.: / AG Nr.:works order:
Gewicht/weight: **2915 kg**
WBH-Schl.: **A46**
Marke/material: **L343**
Charge/heat no.: **CVJ847**
Abmessung/dimension: **0x85 mm**
PP/EKK Nr.: _

Ofen Nr.: furnace no.: **59**
Ofenklasse: furnace class: **2 (+/-5°C)**
Ofenqualifizierung lt. AMS2750 letztgültige Rev. furnace qualification per AMS2750 latest rev.:

Solldaten / nominal values
lt. EV2 3600/0021/30/letztgültige Rev. / per working procedure latest rev.

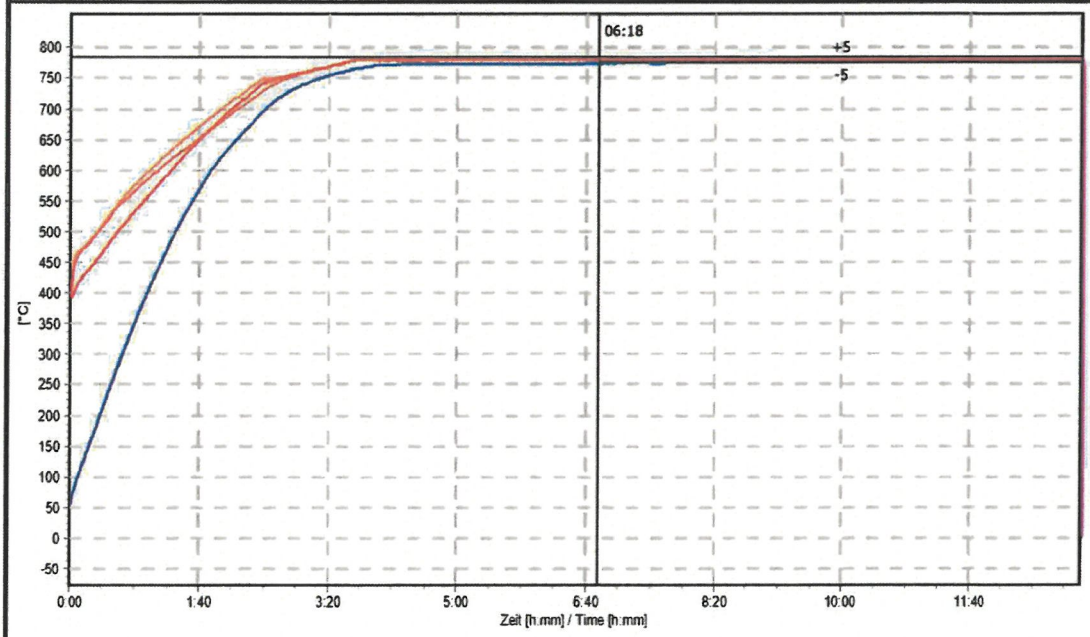
Wärmebehandlungsvorschrift: / heat treatment procedure

WBH-Zyklus HT cycle: 780°C/6,3M/L
daraus erstellte Programm Nr. lt. EV: Program no. per working procedure: 80/00

Wassertemperatur: water temperature: max. 30°C (Toleranz lt. AV2-36-0015-07 letztgültige Revision)
Materialhaltezeit Toleranz: soak time tolerance: (Toleranz lt. AV2-36-0015-07 letztgültige Revision)

Isttemperaturverlauf / process data

Auflage Nr.: / lot no.: 3706



Materialeintritt: / material entrance time: 09.08.2022 12:07:40
Materialaustritt: / exit time: 10.08.2022 01:16:12

Abkühlbecken/Quench tank: __
Wassertemperatur water temperature: Eintritt: entrance: __ °C
Austritt: exit: __ °C
Zeit Wasserumwälzung: agitation time: __ Sek.

Die Richtigkeit der durchgeführten Wärmebehandlung wird bestätigt:
The correctness of the conducted heat treatment is confirmed:
Datum / date: 11.08.2022
Unterschrift: signature: Krammer Andreas

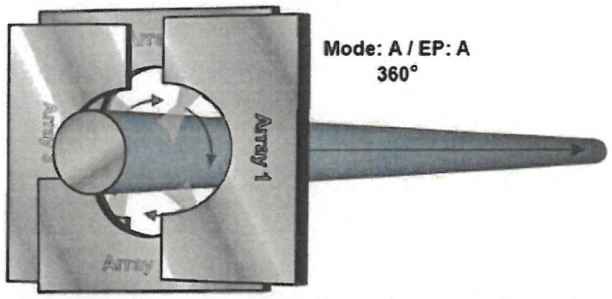
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BÖHLER UT PRÜFBERICHT C / REPORT C / PROCES-VERBAL TYPE C		Besteller / Purchaser / Client		Werks Auftrag / Working Order / Commande interne	Pos / Item / Repère 1
Nr./No/No	97-0409-2022	Bestell-Nr. / Order No. / No. de commande		Prüfobjekt / Test object / Pièce contrôlée	Stabstahl / steel bars
Seite / Page / Page	01 von / of / sur 01	Stückzahl / Quantity / Quantité	1 Bd.	Kennzeichnung / Identification / Identification	Schmelze, Werkstoff, Werks Auftrag / Heat, Material, Working Order
Abmessung / Dimension / Dimensions	RD 82,55 mm	Werkstoff / Material / Matériau	L343	Schmelze-Nr. / Heat-No. / No. de coulée	CVJ847
Oberflächenzust. / Surface cond. / Etat de surface	geschält / peeled	Gewicht / Weight / Poids	2611 kg	Fertigungsstufe / Stage of production / Etat d'avancement de fabrication	Lieferzustand / delivery condition
Prüfbereich / Inspection area / Plage d'essai	Gesamte Stablänge / whole length			Wärmebehandlung / Heat treatment / Traitement thermique	lösungsgeglüht + ausgehärtet / solution annealed + age hardened
Prüfvorschrift / Inspection Specification / Spécification de contrôle	API 6A PSL4 - 21st Edition ASTM A 388-19			Prüfumfang / Inspection coverage / Etendue du contrôle	siehe Skizze / see sketch
Beurteilungsstandard / Evaluation standard / Critères d'acceptation	lt. acc. to API 6A PSL4 + ASTM A 388-19			ZfP-Arbeitsvorschrift / NDT-procedure / Procédure END	AV2/36/5125/74 Rev. 02 + Scan PlanAPI 6A PSL4 -PAT-Rund-WP Rev. 02
EKK (FP / WP) Nr. / Traveller (FP / WP) No. / No. de fiche suiveuse	--			Zeichnungs-Nr., Schmiede-Nr. oder Einsatz-Nr. / Drawing No., forging No. or rolling No. / No. de plan, No. de forgeage ou No. de laminage	1454
Registriergrenze / Recording level / Seuil d'enregistrement	lt. acc. to API 6A PSL4 + ASTM A 388-19			Schritt / Prüf-Nr. / Step / Test no. / No. d'operation	--

Skizze / Sketch / Esquisse



Prüfgerät-Nr. / Equipment No. / Appareil No.	ROWA B65/120 PAT 719260	Koppelmittel / Couplant / Produit de couplage	Wasser / water	Justierung / Adjustment / Ajustage	DAC
Justierkörper / Testblock / Bloc d'étalonnage	Nr. 132E	Referenzreflektor / Reference reflector / Réflecteur de référence	ø 1.19 mm FBH (-4 dB = 1,5 mm FBH)	S/N-Abstand / Signal-to-noise distance / Rapport signal sur bruit	> 6 dB
Transferkorrektur (weitere Korr.) / Transfer correction (further corr.) / Correction de transfert (correction additionnelle)					< 2 dB

Einschall-Pos. / Position of incidence / Direction d'incidence	Prüfkopf / Probe / Palpeur	Frequenz / Frequency / Fréquence MHz/Mc	Einschallwinkel / Angle of incidence / Angle d'incidence	Schallaufweg / Sound path / Parcours du son mm	Schallschw. / Sound att. / Atténuation du son dB/m	Anzeigentiefe / Indication depth / Profondeur de l'indication mm	Anzeigenlänge / Indication length / Longueur de l'indication mm	KSR-Wert / DSR value / Réflecteur disque de différente	dB zu Referenz / dB to reference / dB à la référence	Echoform / Type of echo / Type d'écho	RWE-Abfall dB / Loss of BWE dB / Appareil de l'écho de fond dB
A	5MHz/224EL/R120mmCCV/90DEG	5	0°	82,55	< 2	keine registrierpflichtigen Anzeigen / no indications above recording level					---

Prüfergebnis / Test result / Résultat: ☒ Entspricht / Within / Conforme ☐ Entspricht nicht der Vorschrift / Not within specification / Pas conforme de la specification		Prüfort / Place of inspection / Lieu de contrôle	Kapfenberg, Abt. / Dep. EWV/F
		Datum / Date / Date	23.08.2022
Kunde / Customer / Client		Prüfer / Stufe / Operator / Level / Opérateur / Niveau de qualification	Schuller A. LII ISO 9712
Gutachter / Sachverständiger / Authorized inspector / Agent de l'organisme de contrôle		Prüfverantwortlicher / Stufe / Supervisor / Level / Responsable de contrôle / Niveau de qualification	Koch W. LII ISO 9712

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ONE STEP AHEAD.

Akkreditierung Austria 0909 ISO/IEC 17024

Akkreditierte Konformitätsbewertungsstelle
nach EN ISO/IEC 17024 (ID: 0909)
Accredited conformity assessment body according to EN ISO/IEC 17024 (ID: 0909)
Organisme d'évaluation de la conformité accrédité selon l'EN ISO/IEC 17024 (ID: 0909)
Anerkannte unabhängige Prüfstelle
gemäß Artikel 24 und Anhang I Z 3.1.3 der Richtlinie 2014/68/EU
Recognised third-party organisation according to article 24 of Directive 2014/68/EU
Entité tierce partie reconnue selon l'article 24 de la Directive 2014/68/UE

ÖSTERREICHISCHE GESELLSCHAFT FÜR ZERSTÖRUNGSFREIE PRÜFUNG · ÖGfZP · NDT

CERTIFICATE ZERTIFIKAT CERTIFICAT

Hiermit zertifizieren wir die Kompetenz
We hereby certify the competence / Nous certifions la competence

Herr Alexander Schuller

Titel, Vorname, Name / Title, first name, surname / Titre, prénom, nom

geboren am
date of birth/date de naissance
10.10.1989

Zertifikat-Nr.: **02/37595/2/22469**
No. of certificate/ N° de certificat

Prüfverfahren[1] und Stufe
NDT method[1] and level
Méthode d'essai[1] et niveau
Ultraschallprüfung UT Stufe 2 (zwei)

Industrie-[2]/Produktsektoren[1]
Industrial-[2]/Product sectors[1]
Secteurs industriels-[2]/produits[2]
Herstellung

nach den Normen
based on the Standards
en selon des normes
ÖNORMEN: EN ISO 9712

Gültigkeit der Zertifizierung
Validity of the certification
Validité de la certification
14.03.2022 bis 13.03.2027

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

Österreichische Gesellschaft für Zerstörungsfreie Prüfung
Austrian Society for Non-Destructive Testing / Association d'Autriche des Essais Non Destructifs

1230 Wien, 15.11.2021

für die ÖGfZP
for the ÖGfZP / pour l'ÖGfZP

der Präsident
the president / le président
Dipl.-Ing. Dr. Wolfgang Schützenhöfer

für die Zertifizierungsstelle
for the Certifying Body / pour l'organisme de certification

Ing. Andreas Schieder, MSc (0163)

Unterschrift der zertifizierten Person
signature of certified person / signature de la personne certifiée

FLUITEK OPSENIGO VALVES SRL Q.C.

1) gemäß EN ISO 9712 / according to EN ISO 9712 / selon EN ISO 9712
2) Herstellung (enthält w, f, c, wp, t) - Dienstleistungsprüfung bei Fertigung und Instandhaltung, eingeschlossen Herstellung (enthält w, f, c, wp, t, u.a) - Eisenbahn-Instandhaltung (enthält w, f, c, wp , t, u.a) - Luft- und Raumfahrt (enthält w, f, c, wp, t, p, u.a)

Das Zertifikat bleibt Eigentum der ÖGfZP und ist nur gültig bei Akzeptanz und Einhaltung der Ethischen Regeln. Es kann entzogen werden, wenn ein Missbrauch vorliegt. The certificateremains the property of ÖGfZP and is valid only through the acceptance and observance of ethical rules. It canbe withdrawn if a misuse exists. Le certificat reste la propriété de ÖGfZP et est valide seulement par l'acceptation et le respect des règles éthiques. Elle peut être retirée si un abus existe.
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4 - 071826.PDF C 240062-005/01

71826

TMV MOLINARI
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1

N°2024000486192

DATE 23/05/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **2385**
Ordine N°/Order N° **240436**
Row Ref. **1**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Fully Threaded Stud-bolt Chamfers Included ANSI B16.5
ASTM A193 / ASTM A320 B8Mc1
3/4"-10UNC L:65 mm

Q.ty[pcs]: 38 pcs.

Batch Code: CC37DBC6

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
UTS Mpa	515		593	YS0,2% Mpa	205		284
A 50mm %	30		55,8	Z %	50		73
HBW		223	176				

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 430187

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C		0,08	0,013	Mn		2	1,56
P		0,045	0,030	S		0,03	0,028
Cr	16	18	16,71	Mo	2	3	2,06
Si		1	0,57	Ni	10	14	10,25

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

FLUITEK ORSENIGO VALVES SRL Q.C.

MFR AUTHORIZED INSPECTOR AND STAMP

Massimo Bernardi
Quality Dept.

T.M.V. MOLINARI
Q.A.MANAGER
APPROVATO

71827

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
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Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024000486193
DATE 23/05/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **2385**
Ordine N°/Order N° **240436**
Row Ref. **3**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Heavy Hex Nut ANSI B18.2.2 Tab.1.1.1-11
ASTM A194 Gr.8M
3/4"-10UNC

Q.ty[pcs]: 45 pcs.

Batch Code: B8B16352

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value
HBW	126	300	184

Test	Req. min	Req. MAX	Value
PROOF LOAD			POSIT

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 281685

Test	Req. min	Req. MAX	Value
C		0,08	0,016
P		0,045	0,030
Cr	16	18	16,65
Si		1	0,53

Test	Req. min	Req. MAX	Value
Mn		2	1,44
S		0,03	0,026
Mo	2	3	2,02
Ni	10	14	10,1

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

TEST	RICHIESTO/REQUEST	OTTENUTO/RESULT
KV -196°C	40/40 J	102-116-111

21 AGO. 2024
FRANCO CORBELLINI
080
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT (H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED (ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Matteo Bernardi
Quality Dept.

T.M.V. MOLINARI
QA MANAGER
APPROVATO

6 - 072246.PDF C 240062-005/01

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
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REA di PC n. 127630
www.tmvmolinari.it

72246

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024000947732
DATE 10/07/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **134**
Ordine N°/Order N° **240436**
Row Ref. **4**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Hex Thin Nut UNI 5589/DIN 936
ASTM A194 Gr.8M
M36x4

Q.ty[pcs]: 12 pcs.

Batch 132

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
HBW	126	300	181	PROOF LOAD			POSIT

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 281518

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C		0,08	0,011	Mn		2	1,55
P		0,045	0,031	S		0,03	0,026
Cr	16	18	16,58	Mo	2	3	2,1
Si		1	0,53	Ni	10	14	10,2

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

21 AGO. 2024
FRANCO CORBELLINI
QBJ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Marco Piseroni
Quality Dept.

T.M.V. MOLINARI
Q.A.MANAGER
APPROVATO

Fluitek Valves

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE
N° **C 240062-006/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**006**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
60	**1**

DESCRIPTION
ball valve fl 2 pz-fb2.4".300 lbs.att. pneumatico fail pos. open.rf a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0404.2.f10-hyd.att_pneu_fo.rf Rev0

TAG
25-BDV-016

SERIAL NUMBER
From 2400620060001 to 2400620060001

NOTES

COMPONENT

CHEMICAL ANALYSIS

PART NAME	MATERIAL	C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
		Al	Co	N	V	Nb	Sn	CE	Nb+Ta				

MECHANICAL PROPERTIES. IMPACT TESTS

HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,017	1,720	0,510	0,021	0,031	17,010	2,020	10,010		0,520		064509
			0,151	0,080						24,956			
	290048	560,00	257,00	62,00	70,00	195,00	191,00	192,00	-196°C (L)	171 HBW			
BALL	A182 F316/316L	0,016	1,660	0,620	0,027	0,031	17,030	2,090	10,220		0,510		068196
			0,115	0,075						25,127			
	437516	559,00	250,00	55,00	67,00	230,00	228,00	221,00	-196°C (L)	158 HBW			
STEM	API 6ACRA UNS N07718	0,014	0,060	0,060	<0,001	0,005	17,980	3,030	54,100	0,950	0,040	17,960	071346
		0,530	0,180	0,006		5,020	0,001		5,040	28,075			
	CVJ847	173,61	130,24	32,00	48,00	50,00	51,00	47,00	-76°C (L)	38,3 HRC			
FLANGE	A182 F316/316L	0,017	1,720	0,510	0,021	0,031	17,010	2,020	10,010		0,520		064509
			0,151	0,080						24,956			
	290048	560,00	257,00	62,00	70,00	195,00	191,00	192,00	-196°C (L)	171 HBW			
STUD	A193 B8M	0,013	1,560	0,570	0,028	0,030	16,710	2,060	10,250				071826
	430187	593,00	284,00	55,80	73,00					176 HBW			
NUT	A194 G8M	0,016	1,440	0,530	0,026	0,030	16,650	2,020	10,100				071827
	281685					102,00	116,00	111,00	-196°C (L)	184 HBW			
NUT	A194 G8M	0,011	1,550	0,530	0,026	0,031	16,580	2,100	10,200				072246
	281518									181 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU and was subjected to the conformity assessment procedure H
The monitoring is performed by BV Notified Body 1370
PED Manager Mr. Belotti Pierpaolo

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	FRANCO CORBELLINI 21 AGO. 2024 CROSSWIND R DATE	FLUITEK ORSENIGO VALVES SRL Q.C. DATE 06/08/2024

64509

1 - 064509.PDF C 240062-006/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell / Your order / Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Fucinato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'esseyeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404/316/316L

SPECIFICHE : / Anforderungen / Requirements / Exigences

VAL STOCK A 1.4404/316L A
MDS S01 5 316 A (0)
MDS S17 1 316 A (1)
AISI . 316/316L
AMS-QQ-S-763 D 316/316L A
ASME SA182 2021 S31600/03 A (2)
ASME SA193 2021 B8M CLASS 1 (3)
ASME SA276 2021 S31600/03 A (4)
ASME SA320 2021 B8M CLASS 1 (5)
ASME SA479 2021 S31600/03 A (6)
ASTM A182 2022 S31600/03 A (7)
ASTM A193 2021 B8M CLASS 1
ASTM A262 PR. E 2015 316/316L (8)
ASTM A276 2017 S31600/03 A
ASTM A320 2022 B8M CLASS 1 CLASS1
ASTM A370 2021 .
ASTM A479 2021 S31600/03 A
ASTM E10 2018 .
ASTM E8 2022 .
EN 10088 PART 3 2014 1.4401 A (9)
EN 10088 PART 3 2014 1.4404 A (A)
EN 10272 2016. 1.4401 A
EN 10272 2016. 1.4404 A
ISO 148-1 2016 .
ISO 3651-2 98 METHOD A T1
ISO 6506-1 2014 .
ISO 6892-1 2019 .
NACE MR0103 2015 S31600/03 A (B)
NACE MR0175 2015 S31600/03 A (C)
QQ-S-763 F 316/316L A
ACH CO . .
KV L -196C . ISO 148-1
KV T -196C . ISO 148-1

Note: / Aufzeichnungen / Notes / Notes

(0)Norsok-standard M-630 Edition 6, October 2013
(1)Norsok-standard M-630: 2020 (2020-09-30)
(2)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
(3)Section II Part A 2021 EDITION
(4)Section II Part A 2021 EDITION
(5)Section II Part A 2021 EDITION
(6)Section II Part A 2021 EDITION
(7)For products machined directly from bar refer also to ASTM A479.
(8)Reapproved 2021
(9)Chemical and mechanical properties only.
(A)Chemical and mechanical properties only.
(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
(C)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

21 AGO. 2023
FRANCO CORBELLINI
QBQ
CROSSWIND

Pos. nr. / Item nr. / Nr. de poste	Oggetto / Gegenstand / Product description / Descrip. du produit	Tolleranza: k13 — Dimensioni - mm / Abmessungen / Dimension / Dimension	Lunghezza - mm / Länge / Length / Longueur	Colata / Schmelze / Heat / Coulée	Pezzi / Stückzahl / Pieces / Pieces	Peso - KG / Gewicht / Weight / Poids	Lotto nr. / Losnr. / Lot nr. / Lot nr.
0040	Tondo	260,000	2000/ 2000	290048		849,0	207409440

FLUITEK ORSENIGO VALVES SRL Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 11/05/2023	Direzione Qualità / Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto / Produktmanagement/Product Management/Direction Produit	Pagina
VCQ052 - MEST062477	R.BERTELLI	P.MESSORI	1 di 5

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
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Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell / Your order / Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Fucinato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werksachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung / Marking / Marquage

21 AGO. 2024

FRANCO CORBELLINI
QB1
CROSSWIND

TEST ALLO STATO DI FORNITURA

TEST		min	max	
A	Dimensioni grano x ASTM E112			2

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion - Lateral ex mm			Shear - Shear - % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
B	10X10	-196	L	195	191	192	1,264	1,515	1,135	65	60	66

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		210	-	520 790	-	40	-	50	-			-		
C	12,5	20	L	267		555		62		65				167		

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	257		560		55		70						

FLUITEK ORSENIGO VALVES SRL Q.C.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.230786

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI23003590

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI23002971

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Fucinato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssechverständigen / Inspector's stamp/Poinçon de l'essayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404/316/316L

Prova di trazione per ISO 6892-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			200	235	500 700	30	-	-	-	-			-	215	
E	10	20	T		261	306	554	58		65					169		
F	10	20	T		261	305	553	59		66					171		

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			-	-	-	-	-	-	-	-	-
G	10X10	-196	T		86	76	84	0,694	0,506	0,885	35	36	30

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			60	60	60	-	-	-	-	-	-
J	10X10	20	T		120	124	130						
K	10X10	20	T		126	131	126						

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

21 AGO. 2024
FRANCO CORBELLINI
089
CROSSWIND

FLUITEK ORSENIGO VALVES SRL QC

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST062477 / 2023 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell
Your order
Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Fucinato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung
Marking
Marquage

Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
min -	-	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-	
290048	0,017	0,51	1,72	17,01	2,02	0,52	10,01	0,151	0,031	0,021	0,080				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 4,9 : 1
Solution annealed 1080°C for 6 h /water cooled.
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

21 AGO. 2023
FRANCO CORBELLINI
QB9
CROSSWIND

FLUITEK ORSENIGO VALVES SRL

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell / Your order / Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Fucinato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung / Marking / Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

21 AGO. 2023
FRANCO CORBELLINI
QBJ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL QC

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

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In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012690 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

SPECIFICHE :
Anforderungen / Requirements / Exigences

VAL STOCK W2 A/1 1.4404/316L A
MDS S01 5 316 A (0)
MDS S17 1 316 A (1)
AD 2000-M. W 2 2022 1.4401 A (2)
AD 2000-M. W 2 2022 1.4404 A (3)
AISI . 316/316L
AMS-QQ-S-763 D 316/316L A
ASME SA182 2021 S31600/03 A (4)
ASME SA193 2021 B8M CLASS 1 (5)
ASME SA276 2021 S31600/03 A (6)
ASME SA320 2021 B8M CLASS 1 (7)
ASME SA479 2021 S31600/03 A (8)
ASTM A182 2023 S31600/03 A (9)
ASTM A193 2023 B8M CLASS 1
ASTM A262 PR. E 2015 316/316L (A)
ASTM A276 2023 S31600/03 A
ASTM A320 2022 B8M CLASS 1 CLASS1
ASTM A370 2022 .
ASTM A479 2023A S31600/03 A
ASTM E10 2023 .
ASTM E8 2022 .
EN 10088 PART 3 2014 1.4401 A
EN 10088 PART 3 2014 1.4404 A
EN 10272 2016. 1.4401 A
EN 10272 2016. 1.4404 A
ISO 148-1 2016 .
ISO 3651-2 98 METHOD A T1
ISO 6506-1 2014 .
ISO 6892-1 2019 .
NACE MR0103 2015 S31600/03 A (B)
NACE MR0175 4 S31600/03 A (C)
QQ-S-763 F 316/316L A
ACH CO . .
KV L -196C . ISO 148-1
KV T -196C . ISO 148-1

Note:
Aufzeichnungen / Notes / Notes

(0)Norsok-standard M-630 Edition 6, October 2013
(1)Norsok-standard M-630: 2020 (2020-09-30)
(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
(5)Section II Part A 2021 EDITION
(6)Section II Part A 2021 EDITION
(7)Section II Part A 2021 EDITION
(8)Section II Part A 2021 EDITION
(9)For products machined directly from bar refer also to ASTM A479.
(A)Reapproved 2021

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

FLUITEK ORSENIGO VALVES SRL Q.A.C.

(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.

		Tolleranza: k12 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Lange Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0090	Tondo	165,000	5062/ 5100	437516		1722,0	306706970

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024
VCQ052 - MEST012690

Direzione Qualità
Qualitätsmanagement/Quality Management/Gestion Qualité
R.BERTELLI

Direzione Prodotto
Produktmanagement/Product Management/Direction Produit
P.MESSORI

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

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In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

TEST ALLO STATO DI FORNITURA

TEST		min	max	
A	Dimensioni grano x ASTM E112			4

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max			-	-	-	-	-	-	-	-	-
B	10X10	-196	L		230	228	221	1,800	1,785	2,192	71	68	70

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max			210	-	520 / 790	-	40	-	50	-			- / 223		
C	12,5	20	L		261		559		60		71				158		

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max			205	-	515	-	40	-	50	-			-		
D	12,5	20	T		253		554		55		67						

FLUITEK ORSENIGO VALVES SRL Q.C.

Acciaierie Valbruna S.p.A.

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Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Prova di trazione per ISO 6892-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probestage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		200	235	500	30	-	-	-	-			-		
		max				700									215	
E	10	20	T	250	293	551	54		65					155		
J	10	20	T	255	299	556	53		64					158		

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probestage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion - Lateral ex mm			Shear - Shear - % Shear %		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
F	10X10	-196	T	87	90	91	0,848	0,701	0,795	20	22	20

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probestage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion -			Shear - Shear -		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		60	60	60	-	-	-	-	-	-
		max										
I	10X10	20	T	91	88	87						
K	10X10	20	T	99	81	80						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
QB9
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.M.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ052 - MEST012690	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 3 di 5

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
min -	-	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
max 0,030	1,00	2,00		18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-
437516	0,016	0,62	1,66	17,03	2,09	0,51	10,22	0,115	0,031	0,027	0,075				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 11,3 : 1
Solution annealed 1080°C for 3,5 h /water cooled.
SURFACE QUALITY GUARANTEE BY ET INSPECTION (max defect depth 1% DIAMETER)
UT ACC. TO ASTM A388; EN 10308 Cl.1
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

FRANCO CORBELLINI
21 AGO 2024
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

Sono state soddisfatte tutte le condizioni richieste / Die gestellen Anforderungen sind it. Anlage erfüllt / The material has been furnished in accordance with the requirements / Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK / Verwechslungprüfung: durch XRF/QES Gerät geführt : OK / Antimixing testing performed with XRF/OES portable : OK / Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze / Besichtigung und Ausmessung: ohne Beanstandung / Visual inspection and dimensional checks:satisfactory / Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
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CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
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Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD'S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WBP2097531FC9631E2853FC9743FC97A3FC

21 AGO. 2024
FRANCO CORBELLINI
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FLUITEK ORSENIGO Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ052 - MEST012690	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 5 di 5

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Nr. / No.: 974791 / 2022.09.13
Seite / Page: 1 / 11

Besteller/Purchaser/Acheteur:

Empfänger/Consignee/Destinaire:

Bestell-Nr./Purchaser order No./No. de commande:

Empfängerref.-Nr./Receiver reference-No./Rèfèrence destinaire:

-

Werksauftrags-Nr./Works order-No./No. de la commande de l´usine:

Lieferschein-Nr./Delivery note-No./Avisd´expedition du client:

Prüfgegenstand/Object of test/Object d´examen:

BÖHLER L718API
Stäbe, gewalzt, lösungsgeglüht, ausgehärtet
Bars, rolled, solution annealed, age hardened
IBO ECOMAX ISO 286/2 ITk12

Anforderungen/Requirements/Exigence:

Werkstoffdatenblatt Rohmaterial
Raw Material Data Sheet
No.: 269X Rev.-No.: 3 und / and
Anhang Werkstoffdatenblatt Rohmaterial
Annex Raw Material Data Sheet
No.: 269X Rev.-No.: 3
2.4668HX
API Standard 6ACRA
First Edition, August 2015
Addendum/Errata, February 2019
Material designation 120K
API Specification 6A
Twenty-first Edition, November 2018 - PSL4
Addendum/Errata September 2021
ANSI/NACE MR0175/ISO15156-3:2015
ANSI/NACE MR0103/ISO17945:2015
MS-011559-(05,55)-(01) Base Number Rev.33
MS-011559-(06,56)-(01) Base Number Rev.33
100237403 Rev.BA
CSP-4 Rev.BN
FMC M40910 Rev.W
FMC M40902 Rev.R
VGS 5.141.1 Rev.24 except para.14.1.1
VGS 5.541.1-120K Rev. 31 except para 13.1.1
WN-301 Rev.Z except para.4.0
ES-MA-46-2 Rev.Q
BMS N201 Rev.AD
BMS N213 Rev.T
UNS N07718

TMP L718API 00011 Rev.004

Umfang der Lieferung/Volume of delivery/liste descriptive

Pos./Los	Abmessung Dimensions Dimensions	Länge Length Longueur	Stückzahl No. of Pieces No. de Pieces	Gewicht kg Weight kgs Poids kg	Mat.-ID	Prüf-Nr. Test No. Eprouvette	Schmelze-Nr. Heat No. No. de coulee
10/1	RD 82,55 MM	3.000 - 5.000 MM	-	2614,0	HGFC	2262472-1	CVJ847

FLUITEK ORSENIGO VALVES S.R.L. QC

21 AGO. 2024
FRANCO CORBELLINI
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Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Blockgröße / Ingot size = **rd. 510 mm (20 inch)**
Umformgrad / Reduction ratio = 36 : 1

Qualitätswärmebehandlung / Quality heat treatment
Temperatur Überwachung / Temperature monitoring = Nickel-based alloy heat sink thermocouples

	Temperatur Temperature	Haltezeit Soak time	Abkühlung Cooling
Lösungsgeglüht / Solution Annealed	1886°F (1030°C)	1.5 h M	Wasser / Water
Ausgehärtet / Age hardened	1436°F (780°C)	6.3 h M	Luft / Air

M...Haltezeit auf Zieltemperatur nachdem das Materialzentrum die Toleranzgrenze erreicht hat.
M...Holding time at nominal temperature after center of material has reached the tolerance limit.

Die Temperaturmessung entspricht der AMS 2750F, wie in SAE-AMS-H-6875 B verlangt.
Pyrometry according to AMS 2750F, as required by SAE-AMS-H-6875 B.
AMS 2750F erfüllt alle Anforderungen entsprechend API Specification 6A Twenty-first Edition, Appendix M.
AMS 2750F fulfills all requirements listed in API Specification 6A Twenty-first Edition, Appendix M.

Chemische Zusammensetzung/Chemical Composition/Composition chimique (%)

Schmelzanalyse/Chemical Composition Erschmelzungsart/Steelmaking Process: VIM+VAR										Schmelze-Nr. Heat No. No. de coulee
C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Co	
0,014	0,06	0,06	<0,005	0,0005	17,98	3,03	54,1	0,04	0,18	CVJ847
Ti	Al	Nb	B	Fe	N	Pb	Ta	O	Bi	
0,95	0,53	5,02	0,0031	17,96	0,006	<0,0003	<0,020	<0,0003	<0,00003	CVJ847
Ca	Mg	Sn	Se	FL029*						
<0,0002	0,0006	<0,0010	<0,0003	5,04						CVJ847

FL029 = Nb+Ta

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Q.C.

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Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Metallographische Prüfung / Metallographic examination

Makroätzprüfung / Macroetch examination

Prüfnorm / Testing standard = ASTM A 604/A 604M-07 (reapproved 2017)
Ätzmittel / Etchant = Hydrochloric-Peroxide
Lage / Location = Schopf und Boden des umgeschmolzenen Blockes / Top and bottom section of the remelted ingot
Orientierung / Orientation = Querschnitt / Transverse cross-section

Class 1	Freckles	Severity A
Class 2	White Spots	Severity A
Class 3	Radial Segregation	Severity A
Class 4	Ring Pattern	Severity A

Das Material entspricht den Anforderungen der Makroätzprüfung
nach API Standard 6ACRA - Para.4.2.1.
The material complies with the requirements of the macroetch examination
acc. to API Standard 6ACRA - Para.4.2.1.

Korngrößenbestimmung / Grain size evaluation

Prüfnorm / Testing standard = ASTM E112-13, ASTM E930-18
Ätzmittel / Etchant = Kalling's No. 2
Vergrößerung / Magnification = 50:1, 100:1, 500:1

Lage Location	Orientierung Orientation	Struktur Structure	Durchschnittliche Korngröße Average Grain Size	Duplex Verteilung Duplex Distribution
Rand Surface	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0
1/2 Radius (1/4T)	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0
Zentrum Center	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0

Das Material erfüllt die Anforderungen nach API Standard 6ACRA - Para. 4.2.2.2.2.
Es liegt keine topologische Duplexkorngrößenverteilung gemäß den Vorgaben der Norm ASTM E1181 vor.
The material complies with API Standard 6ACRA - Para. 4.2.2.2.2.
No presence of topological duplex grain size conditions as defined per ASTM E1181.

Gefügeuntersuchung nach schädlichen Phasen / Microstructural examination for deleterious phases

Ätzmittel / Etchant = Kalling's No. 2
Das Gefüge ist frei von kontinuierlichen Netzwerken, von Sekundärphasen entlang der Korngrenzen, oder anderen ungewöhnlichen mikrostrukturellen Eigenschaften. Die Gefügestruktur ist frei von nadelförmigen Deltaphasen, außer in einzelnene, isolierten Körnern, die nicht den Großteil der Gefügestruktur repräsentieren. Es gibt keine Laves Phasen.
The microstructure is free from continuous networks of secondary phases along grain boundaries or other unusual microstructural features. The microstructure is free from acicular delta phase except in individual, isolated grains that are not representing of the bulk of the microstructure. There is no laves phase.

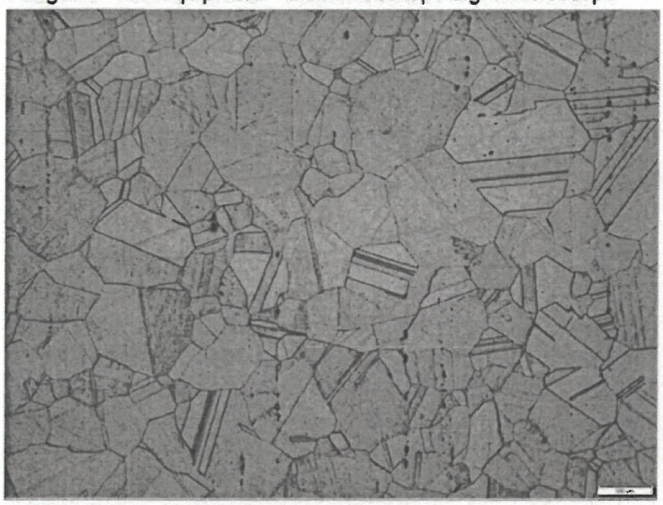
21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. QA

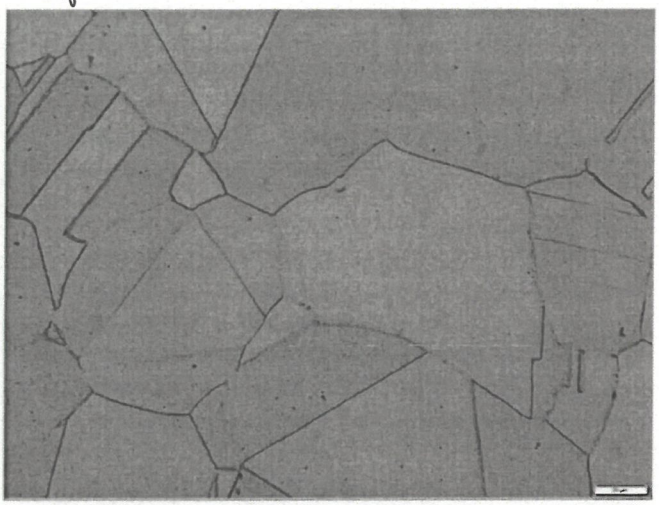
voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Gefügefotos / Photomicrographs

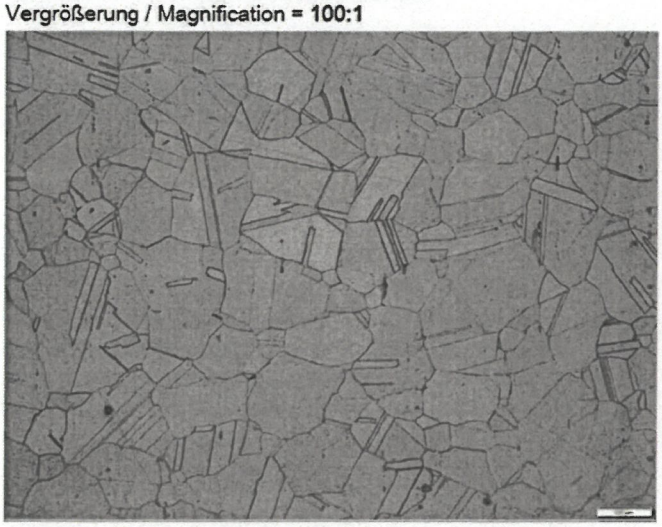
Prüfgerät / Test equipment = Lichtmikroskop / Light microscope



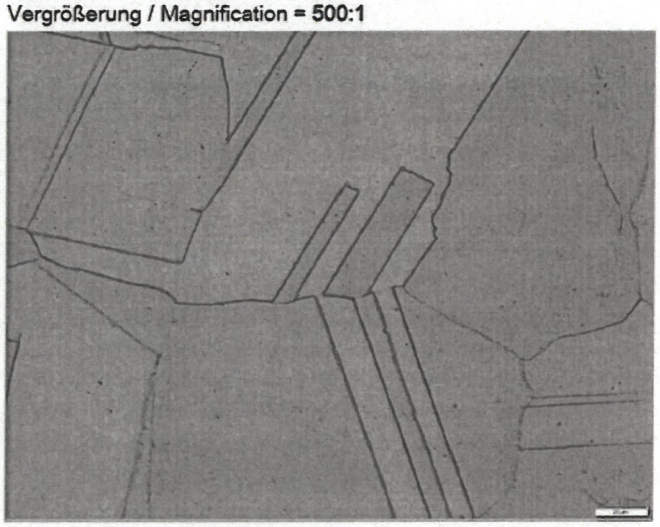
Lage / Location = Rand / Rim (near Surface)
Vergrößerung / Magnification = 100:1



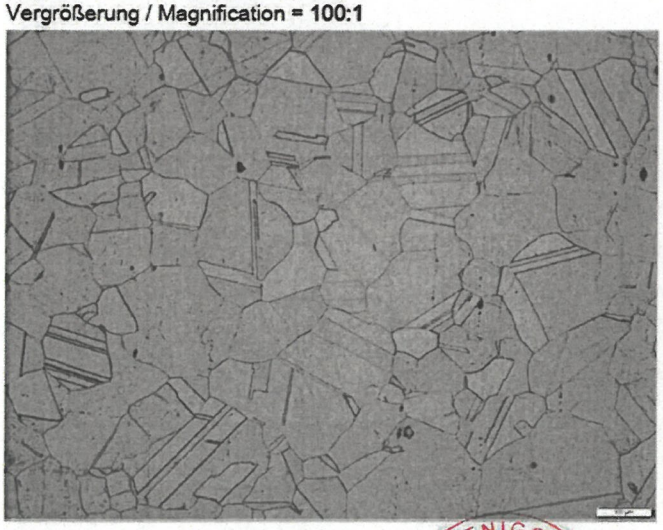
Lage / Location = Rand / Rim (near Surface)
Vergrößerung / Magnification = 500:1



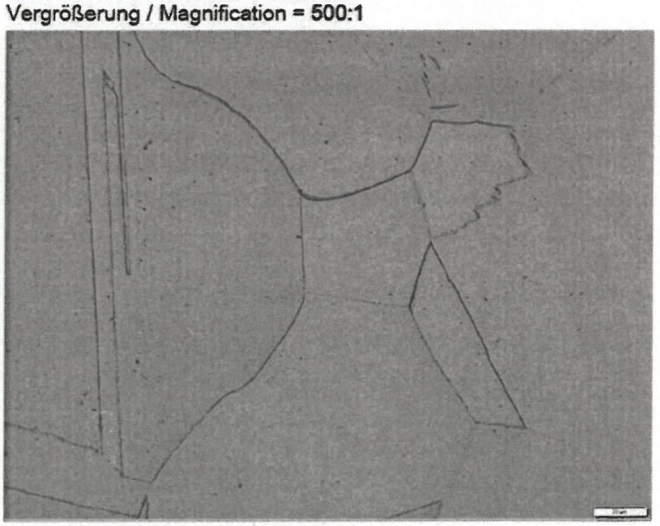
Lage / Location = 1/2 Radius (1/4T)
Vergrößerung / Magnification = 100:1



Lage / Location = 1/2 Radius (1/4T)
Vergrößerung / Magnification = 500:1



Lage / Location = Zentrum / Center
Vergrößerung / Magnification = 100:1



Lage / Location = Zentrum / Center
Vergrößerung / Magnification = 500:1

QUITEK ORSENIGO VALVES S.R.L. Q.C.

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Mechanische Eigenschaften / Mechanical properties

Der Probenabschnitt ist eine Verlängerung des endwärmebehandelten Stabes.
The QTC is a prolongation of the final heat treated bar.
Die Proben und die Prüfmethoden entsprechen der ASTM A370 - 21.
The test specimen and the test method are in accordance with ASTM A370 - 21.

21 AGO. 2024
FRANCO CORBELLINI
OBQ
CROSSWIND R

Zugversuchproben / Tensile test properties

Probenorientierung / Specimen orientation = längs / longitudinal
Probenlage / Specimen location = 1/2 Radius (1/4T)
Probe / Specimen = standard size 12.5 mm [0.500 inch] diameter

Zugversuch im Lieferzustand/Tensile test in delivery condition

*Legende / *Key
H = Härtester / hardest
W = Weichster / softest
S = Schopf / Top
M = Mitte / Middle
B = Boden / Bottom

Prüf-Nr. Test no.	*Stk.-Nr. *Piece no.	Prüfnorm Testing standard	Lage Location	Temp. °F	Dehngrenze Yield Strength Rp0,2 KSI	Zugfestigkeit Ultimate Tensile Strength Rm KSI	Dehnung Elongation A4 %	Einschnürung Reduction of Area Z %
					125 - 145	>=150	>=20	>=35
2262472-1	B1X	ASTM A 370-21 01.11.2021	L2	73	130.244	173.610	32	48

Kerbschlagversuchproben / Impact test properties

Probenorientierung / Specimen orientation = quer / transverse
Probenlage / Specimen location = 1/2 Radius (1/4T) oder tiefer / or deeper
Kerborientierung / Notch orientation = C-L
Probe / Specimen = standard size (Charpy-V) 10 x 10 mm [0.394 x 0.394 inch]

Kerbschlagversuch im Lieferzustand/Impact test in delivery condition

*Legende / *Key
H = Härtester / hardest
W = Weichster / softest
S = Schopf / Top
M = Mitte / Middle
B = Boden / Bottom

Prüf-Nr. Test no.	*Stk.-Nr. *Piece no.	Prüfnorm Testing standard	Lage Location	Temp. °F	Kerbschlagarbeit Impact energy Charpy-V ft-lbf	Laterale Breitung Lateral expansion LB mils	Zähbruch Shear area %
					>=35	>=15	info
2262472-1	B1X	ASTM E 23-18 01.11.2018	Q2	-76	50 51 47	26 25 24	20 20 20

Härteprüfung im Lieferzustand / Hardness test in delivery condition (QTC)

Der Probenabschnitt ist eine Verlängerung des endwärmebehandelten Stabes.
3 x 3 Messwerte 120° versetzt, 1/2 Radius (1/4T)
3 x 3 Messwerte 120° versetzt, oberflächennahe
1 x 3 Messwerte, Zentrum
Die angegebenen Werte, des Probenabschnittes, sind Mittelwerte und, in Klammern, Einzelwerte.

The QTC is a prolongation of the final heat treated bar.
3 x 3 readings 120° apart are taken at 1/2 Radius (1/4T).
3 x 3 readings 120° apart are taken near Surface.
1 x 3 readings are taken in the center
The values stated are the mean values and, in parentheses, the single values.

Härteprüfung im Lieferzustand/Hardness test in delivery condition

Prüf-Nr. Test no.	Stk. Nr. Piece no.	Prüfnorm Testing standard	Prüfort Location	Methode HRC
				34 - 39
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	37.3 (37 37 38)
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	38.3 (38 38 39)
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	36 (36 36 36)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	Zentrum / Center	36 (36 36 36)

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Härteprüfung im Lieferzustand / Hardness test in delivery condition (Bars)
Lage / Location = oberflächennahe / near Surface
Die Härteprüfungen an den Stäben wurde an Querschnittsschnitten je Stab durchgeführt.
Hardness tests on bars are performed on cross-sections slices, taken from each bar.

Härteprüfung im Lieferzustand/Hardness test in delivery condition

			Methode
Prüf-Nr. Test no.	Stk. Nr. Piece no.	Prüfnorm Testing standard	HRC
			34 - 39
2262472-1	1	ASTM E 18-20 01.03.2020	37 (36 37 38)
2262472-1	2	ASTM E 18-20 01.03.2020	37.7 (37 38 38)
2262472-1	3	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	4	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	5	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	6	ASTM E 18-20 01.03.2020	37 (37 37 37)
2262472-1	7	ASTM E 18-20 01.03.2020	36.7 (36 37 37)
2262472-1	8	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	9	ASTM E 18-20 01.03.2020	38 (38 38 38)
2262472-1	10	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	11	ASTM E 18-20 01.03.2020	37.7 (37 38 38)
2262472-1	12	ASTM E 18-20 01.03.2020	36.7 (36 37 37)
2262472-1	13	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	14	ASTM E 18-20 01.03.2020	36.7 (36 37 37)

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Korrosionsprüfung / Corrosion examination
Prüfnorm / Testing standard = ASTM G48 method A
Prüfdauer / Test period = 24h
Prüftemperatur / Test temperature = 20°C
Beizlösung / Pickling solution = 20 % HNO3 + 5 % HF
Beizdauer / Pickling period = 5 min.
Beiztemperatur / Pickling temperature = 60°C
Massenverlust = 0,06 g/m², kein Lochfraß bei 20facher Vergrößerung.
Weight loss = 0,06 g/m², no pitting at 20x magnification.

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Zerstörungsfreie Prüfung / Non-Destructive examination

Ultraschallprüfung / Ultrasonic examination
Prüfmenge / Inspection quantity = 100% der Stäbe / 100% of the bars
Prüfvorschrift / Inspection specification = ASTM A 388/A388M-19
Beurteilungsstandard / Evaluation standard = API Specification 6A Twenty-first Edition - PSL 4
Prüftechnik / Inspection technique = Phased Array (Senkrechteinschallung am Aussendurchmesser / straight-beam technique from the outside diameter)
Das Material entspricht den Anforderungen / The material fulfils the requirements

Oberflächenprüfung / Surface examination
Prüfmenge / Inspection quantity = 100% der Stäbe / 100% of the bars
Prüftechnik / Inspection technique = Wirbelstromprüfung / Eddy - Current test (ET)
Das Material ist frei von unzulässigen Oberflächenfehlern / The material is without unacceptable surface defects

Statements
Das Material ist frei von Quecksilber Kontamination.
The material is free of mercury contamination.

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Es wurden keine Schweißungen am Material durchgeführt.
No weld repair has been performed on this material.

Herkunfts- und Erschmelzungsland: OESTERREICH
Country of origin: AUSTRIA
Country of melting and pouring: AUSTRIA
Name der Schmelzquelle: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name of melt source: voestalpine BÖHLER Edelstahl GmbH & Co KG

Name des Umformbetriebs /
Company performing the hot work operations: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name des Wärmebehandlungsbetriebs /
Company performing the heat treatment: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name der Prüfbetriebe /
Company performing the testing: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name des Prüflabors /
Name of test laboratory: In-house test laboratory of voestalpine BÖHLER Edelstahl GmbH & Co KG

Anlagen / Attachment
Wärmebehandlungsprotokolle / Furnace charts
UT Befund / Report
Prüferqualifikation / Operator qualification

Radioaktivitätskontrolle/Radioactivity inspection: Co-60<0,1Bq/g
Hiermit kleiner als Grenzwert in der anzuwendenden Spezifikation IAEA RS-G-1.7 für unbedenkliche Stoffe.
Therefore smaller than upper limit required according to specification IAEA RS-G-1.7 for inoffensive material.

Wir bestätigen hiermit, dass die obengenannten Erzeugnisse den Bestellvorschriften entsprechen.
We hereby certify that the above mentioned products are consistent with the order prescriptions

Zeichen des Lieferwerks:
Brand of Manufacturer: K

Besichtigung und Nachmessung: Keine Beanstandung
Inspection and Checking of Dimensions: Satisfactory

Zeichen des Prüfers:
Symbol of Inspector: K A

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25
8605 Kapfenberg, AUSTRIA
www.bohler-edelstahl.com

Wolfgang.Mlatschnig@bohler-edelstahl.at
AUSSTELLER/
ORIGINATOR

Abnahmebeauftragter
Inspection Representative

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Abteilung/Department
EWV/O

Wärmebehandlungsprotokoll
heat treating report

BÖHLER

Fa./Los Nr./Splitt Nr.: / AG Nr.:works order:
Gewicht/weight: **2915 kg**
WBH-Schl.: **L46**
Marke/material: **L343**
Charge/heat no.: **CVJ847**
Abmessung/dimension: **0x85 mm**
PP/EKK Nr.: _

Ofen Nr.: furnace no.: **60**
Ofenklasse: furnace class: **3 (+/-8°C)**
Ofenqualifizierung lt. AMS2750 letztgültige Rev. furnace qualification per AMS2750 latest rev.:

Solldaten / nominal values
lt. EV2 3600/0021/30/letztgültige Rev. / per working procedure latest rev.

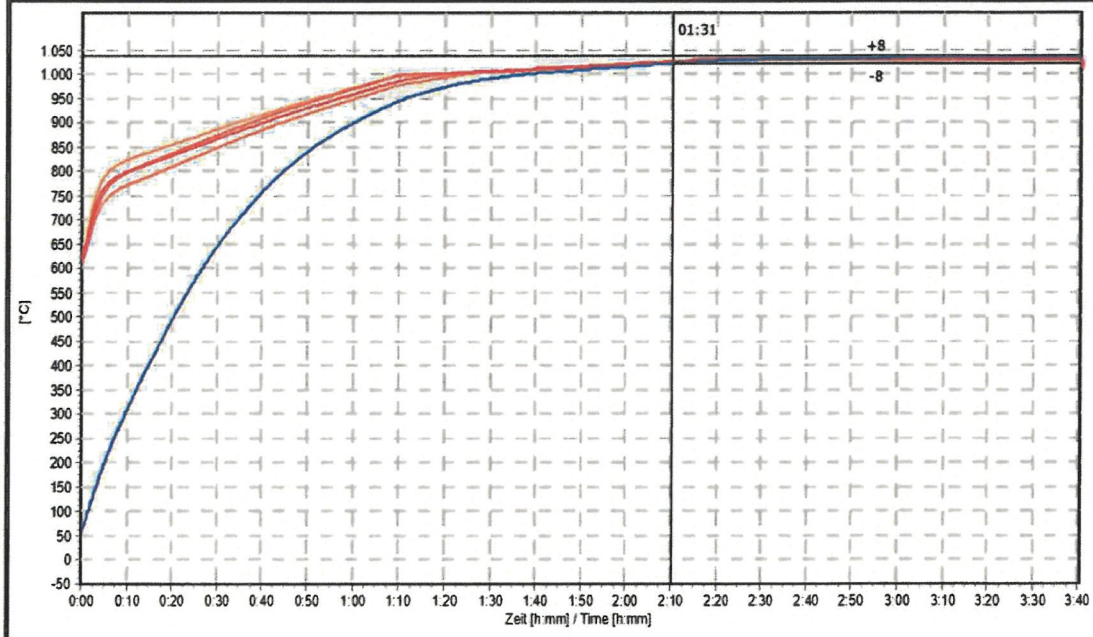
Wärmebehandlungsvorschrift: / heat treatment procedure

WBH-Zyklus HT cycle: 1030°C/1.5M/W
daraus erstellte Programm Nr. lt. EV: Program no. per working procedure: 52/00

Wassertemperatur: water temperature: max. 30°C (Toleranz lt. AV2-36-0015-07 letztgültige Revision)
Materialhaltezeit Toleranz: soak time tolerance: (Toleranz lt. AV2-36-0015-07 letztgültige Revision)

Isttemperaturverlauf / process data

Auflage Nr.: / lot no.: 8028



Materialeintritt: / material entrance time: 08.08.2022 10:55:48
Materialaustritt: / exit time: 08.08.2022 14:36:28

Abkühlbecken/Quench tank: KO - WB
Wassertemperatur water temperature
Eintritt: entrance: **08.08.2022 14:37:28** **14** °C
Austritt: exit: **08.08.2022 15:02:35** **18** °C
Zeit Wasserumwälzung: agitation time: 1507 Sek

Die Richtigkeit der durchgeführten Wärmebehandlung wird bestätigt:
The correctness of the conducted heat treatment is confirmed:

Datum / date: 09.08.2022

Unterschrift: signature: **Krammer Andreas**

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Abteilung/Department
EWV/O

Wärmebehandlungsprotokoll
heat treating report

BÖHLER

Fa./Los Nr./Splitt Nr.: / AG Nr.:works order:
Gewicht/weight: **2915 kg**
WBH-Schl.: **A46**
Marke/material: **L343**
Charge/heat no.: **CVJ847**
Abmessung/dimension: **0x85 mm**
PP/EKK Nr.: _

Ofen Nr.: furnace no.: **59**
Ofenklasse: furnace class: **2 (+/-5°C)**
Ofenqualifizierung lt. AMS2750 letztgültige Rev. furnace qualification per AMS2750 latest rev.:

Solldaten / nominal values
lt. EV2 3600/0021/30/letztgültige Rev. / per working procedure latest rev.

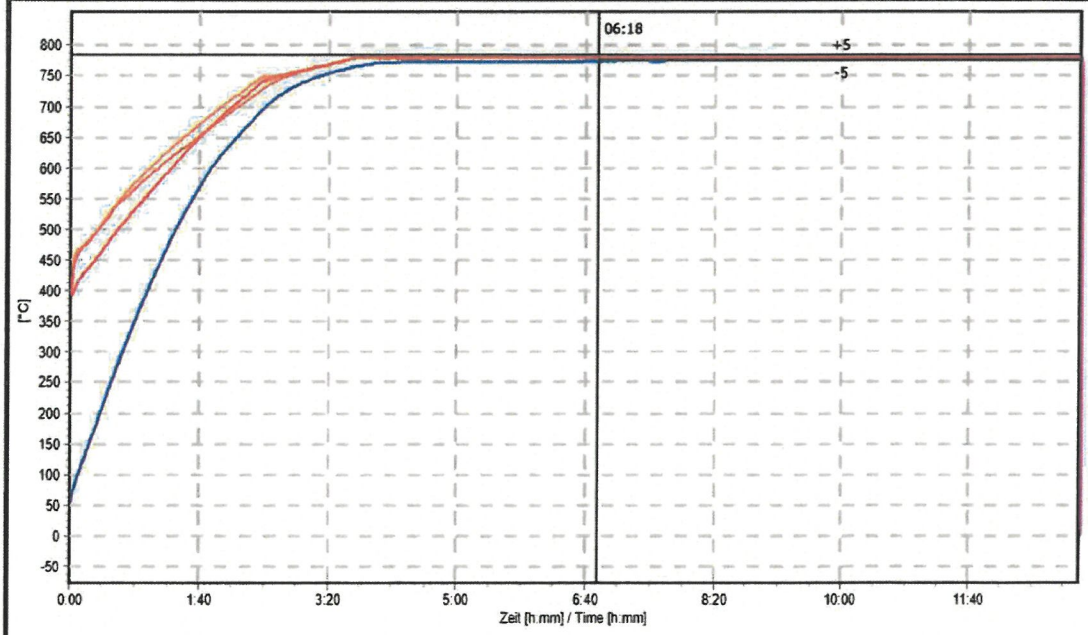
Wärmebehandlungsvorschrift: / heat treatment procedure

WBH-Zyklus HT cycle: 780°C/6,3M/L
daraus erstellte Programm Nr. lt. EV: Program no. per working procedure: 80/00

Wassertemperatur: water temperature: max. 30°C (Toleranz lt. AV2-36-0015-07 letztgültige Revision)
Materialhaltezeit Toleranz: soak time tolerance: (Toleranz lt. AV2-36-0015-07 letztgültige Revision)

Isttemperaturverlauf / process data

Auflage Nr.: / lot no.: 3706



Materialeintritt: / material entrance time: 09.08.2022 12:07:40
Materialaustritt: / exit time: 10.08.2022 01:16:12

Abkühlbecken/Quench tank: __
Wassertemperatur water temperature: Eintritt: entrance: - __ °C
Austritt: exit: - __ °C
Zeit Wasserumwälzung: agitation time: __ Sek.

Die Richtigkeit der durchgeführten Wärmebehandlung wird bestätigt:
The correctness of the conducted heat treatment is confirmed:

Datum / date: 11.08.2022

Unterschrift: signature: Krammer Andreas

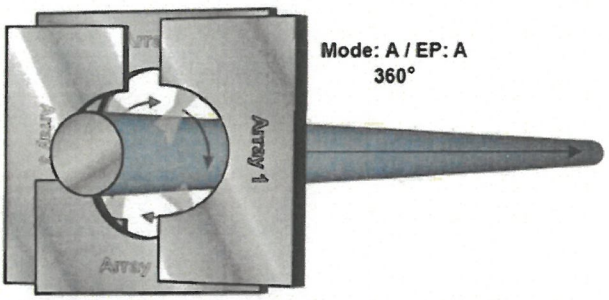
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voestalpine BÖHLER Edelstahl GmbH & Co KG

BÖHLER UT PRÜFBERICHT C / REPORT C / PROCES-VERBAL TYPE C		Besteller / Purchaser / Client		Werks Auftrag / Working Order / Commande interne	Pos / Item / Repère 1
Nr./No/No	97-0409-2022	Bestell-Nr. / Order No. / No. de commande		Prüfobjekt / Test object / Pièce contrôlée	Stabstahl / steel bars
Seite / Page / Page	01 von / of / sur 01	Stückzahl / Quantity / Quantité	1 Bd.	Kennzeichnung / Identification / Identification	Schmelze, Werkstoff, Werks Auftrag / Heat, Material, Working Order
Abmessung / Dimension / Dimensions	RD 82,55 mm	Werkstoff / Material / Matériau	L343	Schmelze-Nr. / Heat-No. / No. de coulée	CVJ847
Oberflächenzust / Surface cond. / Etat de surface	geschält / peeled	Gewicht / Weight / Poids	2611 kg	Fertigungsstufe / Stage of production / Etat d'avancement de fabrication	Lieferzustand / delivery condition
Prüfbereich / Inspection area / Plage d'essai	Gesamte Stablänge / whole length			Wärmebehandlung / Heat treatment / Traitement thermique	lösungsgeglüht + ausgehärtet / solution annealed + age hardened
Prüfvorschrift / Inspection Specification / Spécification de contrôle	API 6A PSL4 - 21st Edition ASTM A 388-19			Prüfumfang / Inspection coverage / Etendue du contrôle	siehe Skizze / see sketch
Beurteilungsstandard / Evaluation standard / Critères d'acceptation	lt. acc. to API 6A PSL4 + ASTM A 388-19			ZfP-Arbeitsvorschrift / NDT-procedure / Procédure END	AV2/36/5125/74 Rev. 02 + Scan PlanAPI 6A PSL4 -PAT-Rund-WP Rev. 02
EKK (FP / WP) Nr. / Traveller (FP / WP) No. / No. de fiche suiveuse	--			Zeichnungs-Nr., Schmiede-Nr. oder Einsatz-Nr. / Drawing No., forging No. or rolling No. / No. de plan, No. de forgeage ou No. de laminage	1454
Registriergrenze / Recording level / Seuil d'enregistrement	lt. acc. to API 6A PSL4 + ASTM A 388-19			Schritt / Prüf-Nr. / Step / Test no. / No. d'operation	--

Skizze / Sketch / Esquisse



Prüfgerät-Nr. / Equipment No / Appareil No.	ROWA B65/120 PAT 719260	Koppelmittel / Couplant / Produit de couplage	Wasser / water	Justierung / Adjustment / Ajustage	DAC
Justierkörper / Testblock / Bloc d'étalonnage	Nr. 132E	Referenzreflektor / Reference reflector / Réflecteur de référence	ø 1.19 mm FBH (-4 dB = 1,5 mm FBH)	S/N-Abstand / Signal-to-noise distance / Rapport signal sur bruit	> 6 dB
Transferkorrektur (weitere Korr.) / Transfer correction (further corr.) / Correction de transfert (correction additionnelle)					< 2 dB

Einschall-Pos. / Position of incidence / Direction d'inci-dence	Prüfkopf / Probe / Palpeur	Frequenz / Frequency / Fréquence MHz/Mc	Einschall-winkel / Angle of incidence / Angle d'inci-dence	Schall-laufweg / Sound path / Parcours du son mm	Schall-schw. / Sound att. / Atténua-tion du son dB/m	Anzeigentiefe / Indication depth / Profondeur de l'indication mm	Anzeigenlänge / Indication length / Longueur de l'indication mm	KSR-Wert / DSR value / Réflecteur disque de différente	dB zu Referenz / dB to reference / dB à la référence	Echoform / Type of echo / Type d'écho	RWE-Abfall dB / Loss of BWE dB / Appareil de l'écho de fond dB
A	5MHz/224EL/R120mmCCV/90DEG	5	0°	82,55	< 2	keine registrierpflichtigen Anzeigen / no indications above recording level					---

Prüfergebnis / Test result / Résultat: ☒ Entspricht / Within / Conforme ☐ Entspricht nicht der Vorschrift / Not within specification / Pas conforme de la specification		Prüfort / Place of inspection / Lieu de contrôle	Kapfenberg, Abt. / Dep. EWV/F
		Datum / Date / Date	23.08.2022
Kunde / Customer / Client		Prüfer / Stufe / Operator / Level / Opérateur / Niveau de qualification	Schuller A. LII ISO 9712
Gutachter / Sachverständiger / Authorized inspector / Agent de l'organisme de contrôle		Prüfverantwortlicher / Stufe / Supervisor / Level / Responsable de contrôle / Niveau de qualification	Koch W. LII ISO 9712

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ONE STEP AHEAD.

Akkreditierung Austria A 0909 ISO/IEC 17024

Akkreditierte Konformitätsbewertungsstelle
nach EN ISO/IEC 17024 (ID: 0909)
Accredited conformity assessment body according to EN ISO/IEC 17024 (ID: 0909)
Organisme d'évaluation de la conformité accrédité selon l'EN ISO/IEC 17024 (ID: 0909)
Anerkannte unabhängige Prüfstelle
gemäß Artikel 24 und Anhang I Z 3.1.3 der Richtlinie 2014/68/EU
Recognised third-party organisation according to article 24 of Directive 2014/68/EU
Entité tierce partie reconnue selon l'article 24 de la Directive 2014/68/UE

ÖSTERREICHISCHE GESELLSCHAFT FÜR ZERSTÖRUNGSFREIE PRÜFUNG ÖGfZP NDT

CERTIFICATE ZERTIFIKAT CERTIFICAT

Hiermit zertifizieren wir die Kompetenz
We hereby certify the competence / Nous certifions la competence

Herr Alexander Schuller

Titel, Vorname, Name / Title, first name, surname / Titre, prénom, nom

geboren am
date of birth/date de naissance
10.10.1989

Zertifikat-Nr.: **02/37595/2/22469**
No. of certificate/ N° de certificat

Prüfverfahren[1] und Stufe
NDT method[1] and level
Méthode d'essai[1] et niveau
Ultraschallprüfung UT Stufe 2 (zwei)

Industrie-[2]/Produktsektoren[1]
Industrial-[2]/Product sectors[1]
Secteurs industriels-[2]/produits[1]
Herstellung

nach den Normen
based on the Standards
en selon des normes
ÖNORMEN: EN ISO 9712

Gültigkeit der Zertifizierung
Validity of the certification
Validité de la certification
14.03.2022 bis 13.03.2027

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Österreichische Gesellschaft für Zerstörungsfreie Prüfung
Austrian Society for Non-Destructive Testing / Association d'Autriche des Essais Non Destructifs

1230 Wien, 15.11.2021

für die ÖGfZP
for the ÖGfZP / pour l'ÖGfZP

der Präsident
the president / le président
Dipl.-Ing. Dr. Wolfgang Schützenhofer

für die Zertifizierungsstelle
for the Certifying Body / pour l'organisme de certification

Ing. Andreas Schieder, MSc (0163)

Unterschrift der zertifizierten Person
signature of certified person / signature de la personne certifiée

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

1) gemäß EN ISO 9712 / according to EN ISO 9712 / selon EN ISO 9712
2) Herstellung (enthält w, f, c, wp, t) - Dienstleistungsprüfung bei Fertigung und Instandhaltung, eingeschlossen Herstellung (enthält w, f, c, wp, t, u.a) - Eisenbahn-Instandhaltung (enthält w, f, c, wp , t, u.a) - Luft- und Raumfahrt (enthält w, f, c, wp, t, p, u.a)

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71826

TMV MOLINARI
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1

N°2024000486192

DATE 23/05/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **2385**
Ordine N°/Order N° **240436**
Row Ref. **1**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Fully Threaded Stud-bolt Chamfers Included ANSI B16.5
ASTM A193 / ASTM A320 B8Mc1
3/4"-10UNC L:65 mm

Q.ty[pcs]: 38 pcs.

Batch Code: CC37DBC6

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
UTS Mpa	515		593	YS0,2% Mpa	205		284
A 50mm %	30		55,8	Z %	50		73
HBW		223	176				

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 430187

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C		0,08	0,013	Mn		2	1,56
P		0,045	0,030	S		0,03	0,028
Cr	16	18	16,71	Mo	2	3	2,06
Si		1	0,57	Ni	10	14	10,25

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

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THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

FLUITEK ORSENIGO VALVES SRL Q.C.

MFR AUTHORIZED INSPECTOR AND STAMP

Massimo Bernardi
Quality Dept.

T.M.V. MOLINARI
Q.A.MANAGER
APPROVATO

71827

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC). ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024000486193
DATE 23/05/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **2385**
Ordine N°/Order N° **240436**
Row Ref. **3**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Heavy Hex Nut ANSI B18.2.2 Tab.1.1.1-11
ASTM A194 Gr.8M
3/4"-10UNC

Q.ty[pcs]: 45 pcs.

Batch Code: B8B16352

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value
HBW	126	300	184

Test	Req. min	Req. MAX	Value
PROOF LOAD			POSIT

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 281685

Test	Req. min	Req. MAX	Value
C		0,08	0,016
P		0,045	0,030
Cr	16	18	16,65
Si		1	0,53

Test	Req. min	Req. MAX	Value
Mn		2	1,44
S		0,03	0,026
Mo	2	3	2,02
Ni	10	14	10,1

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

TEST	RICHIESTO/REQUEST	OTTENUTO/RESULT
KV -196°C	40/40 J	102-116-111

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT (H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED (ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Matteo Bernardi
Quality Dept.

T.M.V. MOLINARI
Q.A. MANAGER
APPROVATO

6 - 072246.PDF C 240062-006/01

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

72246

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1

N°2024000947732

DATE 10/07/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **134**
Ordine N°/Order N° **240436**
Row Ref. **4**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Hex Thin Nut UNI 5589/DIN 936
ASTM A194 Gr.8M
M36x4

Q.ty[pcs]: 12 pcs.

Batch 132

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
HBW	126	300	181	PROOF LOAD			POSIT

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 281518

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C		0,08	0,011	Mn		2	1,55
P		0,045	0,031	S		0,03	0,026
Cr	16	18	16,58	Mo	2	3	2,1
Si		1	0,53	Ni	10	14	10,2

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2024
FRANCO CORBELLINI
QC1
CROSSWIND

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Marco Piseroni
Quality Dept.

T.M.V. MOLINARI
Q.A. MANAGER
APPROVATO

Fluitek Valves

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE
N° **C 240062-007/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**007**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
70	**1**

TAG
25-BDV-019

SERIAL NUMBER
From 2400620070001 to 2400620070001

DESCRIPTION
ball valve fl 2 pz-fb2.4".300 lbs.att. pneumatico fail pos. open.rf a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0404.2.f10-hyd.att_pneu_fo.rf Rev0

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,017	1,720	0,510	0,021	0,031	17,010	2,020	10,010		0,520		064509
			0,151	0,080						24,956			
	290048	560,00	257,00	62,00	70,00	195,00	191,00	192,00	-196°C (L)	171 HBW			
BALL	A182 F316/316L	0,016	1,660	0,620	0,027	0,031	17,030	2,090	10,220		0,510		068196
			0,115	0,075						25,127			
	437516	559,00	250,00	55,00	67,00	230,00	228,00	221,00	-196°C (L)	158 HBW			
STEM	API 6ACRA UNS N07718	0,014	0,060	0,060	<0,001	0,005	17,980	3,030	54,100	0,950	0,040	17,960	071346
		0,530	0,180	0,006		5,020	0,001		5,040	28,075			
	CVJ847	173,61	130,24	32,00	48,00	50,00	51,00	47,00	-76°C (L)	38,3 HRC			
FLANGE	A182 F316/316L	0,017	1,720	0,510	0,021	0,031	17,010	2,020	10,010		0,520		064509
			0,151	0,080						24,956			
	290048	560,00	257,00	62,00	70,00	195,00	191,00	192,00	-196°C (L)	171 HBW			
STUD	A193 B8M	0,013	1,560	0,570	0,028	0,030	16,710	2,060	10,250				071826
	430187	593,00	284,00	55,80	73,00					176 HBW			
NUT	A194 G8M	0,016	1,440	0,530	0,026	0,030	16,650	2,020	10,100				071827
	281685					102,00	116,00	111,00	-196°C (L)	184 HBW			
NUT	A194 G8M	0,011	1,550	0,530	0,026	0,031	16,580	2,100	10,200				072246
	281518									181 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU and was subjected to the conformity assessment procedure H
The monitoring is performed by BV Notified Body 1370
PED Manager Mr. Belotti Pierpaolo

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
	FRANCO CORBELLINI 21 AGO 2024 CROSSWIND	FLUITEK ORSENIGO VALVES SRL
DATE	DATE	DATE 06/08/2024

64509

1 - 064509.PDF C 240062-007/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell / Your order / Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Fucinato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung / Marking / Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK A 1.4404/316L A MDS S01 5 316 A (0) MDS S17 1 316 A (1)	(0)Norsok-standard M-630 Edition 6, October 2013 (1)Norsok-standard M-630: 2020 (2020-09-30)
AISI . 316/316L AMS-QQ-S-763 D 316/316L A ASME SA182 2021 S31600/03 A (2)	(2)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2021 B8M CLASS 1 (3) ASME SA276 2021 S31600/03 A (4) ASME SA320 2021 B8M CLASS 1 (5)	(3)Section II Part A 2021 EDITION (4)Section II Part A 2021 EDITION (5)Section II Part A 2021 EDITION
ASME SA479 2021 S31600/03 A (6) ASTM A182 2022 S31600/03 A (7) ASTM A193 2021 B8M CLASS 1	(6)Section II Part A 2021 EDITION (7)For products machined directly from bar refer also to ASTM A479.
ASTM A262 PR. E 2015 316/316L (8) ASTM A276 2017 S31600/03 A ASTM A320 2022 B8M CLASS 1 CLASS1	(8)Reapproved 2021
ASTM A370 2021 . ASTM A479 2021 S31600/03 A ASTM E10 2018 . ASTM E8 2022 . EN 10088 PART 3 2014 1.4401 A (9) EN 10088 PART 3 2014 1.4404 A (A)	(9)Chemical and mechanical properties only. (A)Chemical and mechanical properties only.
EN 10272 2016. 1.4401 A EN 10272 2016. 1.4404 A ISO 148-1 2016 . ISO 3651-2 98 METHOD A T1 ISO 6506-1 2014 . ISO 6892-1 2019 .	
NACE MR0103 2015 S31600/03 A (B) NACE MR0175 2015 S31600/03 A (C) QQ-S-763 F 316/316L A ACH CO . . KV L -196C . ISO 148-1 KV T -196C . ISO 148-1	(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015 (C)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

		Tolleranza: k13 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0040	Tondo	260,000	2000/ 2000	290048		849,0	207409440

FLUITEK ORSENIGO VALVES SRL Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 11/05/2023 VCQ052 - MEST062477	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 1 di 5

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell / Your order / Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Fucinato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung / Marking / Marquage

21 AGO. 2023
FRANCO CORBELLINI
QB1
CROSSWIND

TEST ALLO STATO DI FORNITURA

TEST		min	max	
A	Dimensioni grano x ASTM E112			2

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
B	10X10	-196	L	195	191	192	1,264	1,515	1,135	65	60	66

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		210	-	520 790	-	40	-	50	-			-		223
C	12,5	20	L	267		555		62		65				167		

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	257		560		55		70						

FLUITEK ORSENIGO VALVES SRL Q.C.

Acciaierie Valbruna S.p.A.

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Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786 (Bestell / Your order / Commande)

Conferma ordine nr: MI23003590 (Werks/Our Order/Ref nr.)

Avviso di Spedizione: A-MI23002971 (Lieferanzeige/Packing list/B.L.)

Stato di fornitura: Fucinato - Solubilizzato Pelato (Lieferzustand / Delivery state / Etat de livraison)

Tipo di Elaborazione: E+AOD (Erschmelzungsart / Melting process / Mode d'elaboration)

Qualità: 1.4401/1.4404/316/316L (Werkstoff/Grade/Nuance)

Marca: MVAPML (MAXIVAL) (Markenbezeichnung / Brand / Nuance)

Produttore: (Hersteller/Item/Usine productrice)
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: (Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice) AV

Punzone del Collaudatore: (Stempel des Werksachverständigen / Inspector's stamp/Poinçon de l'essayeur) MR

Punzonatura: 1.4401/1.4404/316/316L (Kennzeichnung / Marking / Marquage)

Prova di trazione per ISO 6892-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		200	235	500	30	-	-	-	-			-		
		max				700									215	
E	10	20	T	261	306	554	58		65					169		
F	10	20	T	261	305	553	59		66					171		

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
G	10X10	-196	T	86	76	84	0,694	0,506	0,885	35	36	30

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		60	60	60	-	-	-	-	-	-
		max										
J	10X10	20	T	120	124	130						
K	10X10	20	T	126	131	126						

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

21 AGO. 2023
FRANCO CORBELLINI
QB3
CROSSWIND

FLUITEK ORSENIGO VALVES SRL QC

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST062477 / 2023 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Stato di fornitura : Fucinato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice
AV

Ordine nr: ORD.N.230786
Bestell
Your order
Commande

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'assayeur
MR

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung
Marking
Marquage

Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée															
	min - max 0,030	- 1,00	- 2,00	16,50 18,00	2,00 2,50	- 1,00	10,00 13,00	-	- 0,045	- 0,030	- 0,100	-	-	-	-
	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
290048	0,017	0,51	1,72	17,01	2,02	0,52	10,01	0,151	0,031	0,021	0,080				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 4,9 : 1
Solution annealed 1080°C for 6 h /water cooled.
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/OES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

21 AGO. 2023

FRANCO CORBELLINI
QB3
CROSSWIND

FLUITEK ORSENIGO VALVES SRL

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062477 / 2023 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.230786
Bestell / Your order / Commande

Conferma ordine nr: MI23003590
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23002971
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Fucinato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404/316/316L
Kennzeichnung / Marking / Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

21 AGO. 2024
FRANCO CORBELLINI
QB.1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.240068

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI24000623

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI24000573

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK W2 A/1 1.4404/316L A MDS S01 5 316 A (0) MDS S17 1 316 A (1)	(0)Norsok-standard M-630 Edition 6, October 2013 (1)Norsok-standard M-630: 2020 (2020-09-30)
AD 2000-M. W 2 2022 1.4401 A (2) AD 2000-M. W 2 2022 1.4404 A (3) AISI . 316/316L	(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020 (3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AMS-QQ-S-763 D 316/316L A ASME SA182 2021 S31600/03 A (4) ASME SA193 2021 B8M CLASS 1 (5)	(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479. (5)Section II Part A 2021 EDITION
ASME SA276 2021 S31600/03 A (6) ASME SA320 2021 B8M CLASS 1 (7) ASME SA479 2021 S31600/03 A (8)	(6)Section II Part A 2021 EDITION (7)Section II Part A 2021 EDITION (8)Section II Part A 2021 EDITION
ASTM A182 2023 S31600/03 A (9) ASTM A193 2023 B8M CLASS 1 ASTM A262 PR. E 2015 316/316L (A)	(9)For products machined directly from bar refer also to ASTM A479. (A)Reapproved 2021
ASTM A276 2023 S31600/03 A ASTM A320 2022 B8M CLASS 1 CLASS1 ASTM A370 2022 .	
ASTM A479 2023A S31600/03 A ASTM E10 2023 . ASTM E8 2022 .	
EN 10088 PART 3 2014 1.4401 A EN 10088 PART 3 2014 1.4404 A EN 10272 2016. 1.4401 A	
EN 10272 2016. 1.4404 A ISO 148-1 2016 . ISO 3651-2 98 METHOD A T1	
ISO 6506-1 2014 . ISO 6892-1 2019 . NACE MR0103 2015 S31600/03 A (B)	(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 4 S31600/03 A (C) QQ-S-763 F 316/316L A ACH CO . .	(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.
KV L -196C . ISO 148-1 KV T -196C . ISO 148-1	

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

		Tolleranza: k12 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0090	Tondo	165,000	5062/ 5100	437516		1722,0	306706970

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ052 - MEST012690	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 1 di 5

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

TEST ALLO STATO DI FORNITURA

TEST		min	max	
A	Dimensioni grano x ASTM E112			4

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV_2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
B	10X10	-196	L	230	228	221	1,800	1,785	2,192	71	68	70

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		210	-	520 790	-	40	-	50	-			-		
C	12,5	20	L	261		559		60		71				158		

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	253		554		55		67						

FLUITEK ORSENIGO VALVES SRL Q.C.

Acciaierie Valbruna S.p.A.

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Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell Your order Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand Delivery state Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart Melting process Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Herstellwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Prova di trazione per ISO 6892-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		200	235	500 700	30	-	-	-	-			-		215
E	10	20	T	250	293	551	54		65					155		
J	10	20	T	255	299	556	53		64					158		

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
F	10X10	-196	T	87	90	91	0,848	0,701	0,795	20	22	20

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		60	60	60	-	-	-	-	-	-
I	10X10	20	T	91	88	87						
K	10X10	20	T	99	81	80						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
089
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
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CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012690 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
min - max	- 0,030	- 1,00	- 2,00	16,50 - 18,00	2,00 - 2,50	- 1,00	10,00 - 13,00	- -	- 0,045	- 0,030	- 0,100	-	-	-	-
437516	0,016	0,62	1,66	17,03	2,09	0,51	10,22	0,115	0,031	0,027	0,075				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 11,3 : 1
Solution annealed 1080°C for 3,5 h /water cooled.
SURFACE QUALITY GUARANTEE BY ET INSPECTION (max defect depth 1% DIAMETER)
UT ACC. TO ASTM A388; EN 10308 Cl.1
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

FRANCO [illegible]ELLINI
21 AGO. 2024
QB3
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

Sono state soddisfatte tutte le condizioni richieste / Die gestellen Anforderungen sind it. Anlage erfüllt / The material has been furnished in accordance with the requirements / Le materiel à eté trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK / Verwechslungprüfung: durch XRF/QES Gerät geführt : OK / Antimixing testing performed with XRF/OES portable : OK / Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze / Besichtigung und Ausmessung: ohne Beanstandung / Visual inspection and dimensional checks:satisfactory / Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012690 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefermwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssechverständigen
Inspector's stamp/Poinçon de l'essayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD'S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WBP39F7531FC9431E8963FC9742FC9753FC

21 AGO. 2024

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FLUITEK ORSENIGO Q.M.C.

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Nr. / No.: 974791 / 2022.09.13
Seite / Page: 1 / 11

Besteller/Purchaser/Acheteur:

Empfänger/Consignee/Destinaire:

Bestell-Nr./Purchaser order No./No. de commande:

Empfängerref.-Nr./Receiver reference-No./Rèfèrence destinaire:

-

Werksauftrags-Nr./Works order-No./No. de la commande de l´usine:

Lieferschein-Nr./Delivery note-No./Avisd´expedition du client:

Prüfgegenstand/Object of test/Object d`examen:

BÖHLER L718API
Stäbe, gewalzt, lösungsgeglüht, ausgehärtet
Bars, rolled, solution annealed, age hardened
IBO ECOMAX ISO 286/2 ITk12

Anforderungen/Requirements/Exigence:

Werkstoffdatenblatt Rohmaterial
Raw Material Data Sheet
No.: 269X Rev.-No.: 3 und / and
Anhang Werkstoffdatenblatt Rohmaterial
Annex Raw Material Data Sheet
No.: 269X Rev.-No.: 3

2.4668HX

API Standard 6ACRA
First Edition, August 2015
Addendum/Errata, February 2019
Material designation 120K
API Specification 6A
Twenty-first Edition, November 2018 - PSL4
Addendum/Errata September 2021
ANSI/NACE MR0175/ISO15156-3:2015
ANSI/NACE MR0103/ISO17945:2015
MS-011559-(05,55)-(01) Base Number Rev.33
MS-011559-(06,56)-(01) Base Number Rev.33
100237403 Rev.BA
CSP-4 Rev.BN
FMC M40910 Rev.W
FMC M40902 Rev.R
VGS 5.141.1 Rev.24 except para.14.1.1
VGS 5.541.1-120K Rev. 31 except para 13.1.1
WN-301 Rev.Z except para.4.0
ES-MA-46-2 Rev.Q
BMS N201 Rev.AD
BMS N213 Rev.T
UNS N07718

TMP L718API 00011 Rev.004

Umfang der Lieferung/Volume of delivery/liste descriptive

Pos./Los	Abmessung Dimensions Dimensions	Länge Length Longueur	Stückzahl No. of Pieces No. de Pieces	Gewicht kg Weight kgs Poids kg	Mat.-ID	Prüf-Nr. Test No. Eprouvette	Schmelze-Nr. Heat No. No. de coulee
10/1	RD 82,55 MM	3.000 - 5.000 MM	-	2614,0	HGFC	2262472-1	CVJ847

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Blockgröße / Ingot size = **rd. 510 mm (20 inch)**
Umformgrad / Reduction ratio = 36 : 1

Qualitätswärmebehandlung / Quality heat treatment
Temperatur Überwachung / Temperature monitoring = Nickel-based alloy heat sink thermocouples

	Temperatur Temperature	Haltezeit Soak time	Abkühlung Cooling
Lösungsgeglüht / Solution Annealed	1886°F (1030°C)	1.5 h M	Wasser / Water
Ausgehärtet / Age hardened	1436°F (780°C)	6.3 h M	Luft / Air

M...Haltezeit auf Zieltemperatur nachdem das Materialzentrum die Toleranzgrenze erreicht hat.
M...Holding time at nominal temperature after center of material has reached the tolerance limit.

Die Temperaturmessung entspricht der AMS 2750F, wie in SAE-AMS-H-6875 B verlangt.
Pyrometry according to AMS 2750F, as required by SAE-AMS-H-6875 B.
AMS 2750F erfüllt alle Anforderungen entsprechend API Specification 6A Twenty-first Edition, Appendix M.
AMS 2750F fulfills all requirements listed in API Specification 6A Twenty-first Edition, Appendix M.

Chemische Zusammensetzung/Chemical Composition/Composition chimique (%)

Schmelzanalyse/Chemical Composition Erschmelzungsart/Steelmaking Process: VIM+VAR										Schmelze-Nr. Heat No. No. de coulee
C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Co	
0,014	0,06	0,06	<0,005	0,0005	17,98	3,03	54,1	0,04	0,18	CVJ847
Ti	Al	Nb	B	Fe	N	Pb	Ta	O	Bi	
0,95	0,53	5,02	0,0031	17,96	0,006	<0,0003	<0,020	<0,0003	<0,00003	CVJ847
Ca	Mg	Sn	Se	FL029*						
<0,0002	0,0006	<0,0010	<0,0003	5,04						CVJ847

FL029 = Nb+Ta

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Metallographische Prüfung / Metallographic examination

Makroätzprüfung / Macroetch examination

Prüfnorm / Testing standard = ASTM A 604/A 604M-07 (reapproved 2017)
Ätzmittel / Etchant = Hydrochloric-Peroxide
Lage / Location = Schopf und Boden des umgeschmolzenen Blockes / Top and bottom section of the remelted ingot
Orientierung / Orientation = Querschnitt / Transverse cross-section

Class 1	Freckles	Severity A
Class 2	White Spots	Severity A
Class 3	Radial Segregation	Severity A
Class 4	Ring Pattern	Severity A

Das Material entspricht den Anforderungen der Makroätzprüfung
nach API Standard 6ACRA - Para.4.2.1.
The material complies with the requirements of the macroetch examination
acc. to API Standard 6ACRA - Para.4.2.1.

Korngrößenbestimmung / Grain size evaluation

Prüfnorm / Testing standard = ASTM E112-13, ASTM E930-18
Ätzmittel / Etchant = Kalling's No. 2
Vergrößerung / Magnification = 50:1, 100:1, 500:1

Lage Location	Orientierung Orientation	Struktur Structure	Durchschnittliche Korngröße Average Grain Size	Duplex Verteilung Duplex Distribution
Rand Surface	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0
1/2 Radius (1/4T)	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0
Zentrum Center	längs longitudinal	Duplex ALA	ASTM No.3	ALA ASTM No.0

Das Material erfüllt die Anforderungen nach API Standard 6ACRA - Para. 4.2.2.2.2.
Es liegt keine topologische Duplexkorngrößenverteilung gemäß den Vorgaben der Norm ASTM E1181 vor.
The material complies with API Standard 6ACRA - Para. 4.2.2.2.2.
No presence of topological duplex grain size conditions as defined per ASTM E1181.

Gefügeuntersuchung nach schädlichen Phasen / Microstructural examination for deleterious phases

Ätzmittel / Etchant = Kalling's No. 2
Das Gefüge ist frei von kontinuierlichen Netzwerken, von Sekundärphasen entlang der Korngrenzen, oder anderen ungewöhnlichen mikrostrukturellen Eigenschaften. Die Gefügestruktur ist frei von nadelförmigen Deltaphasen, außer in einzelnene, isolierten Körnern, die nicht den Großteil der Gefügestruktur repräsentieren. Es gibt keine Laves Phasen.
The microstructure is free from continuous networks of secondary phases along grain boundaries or other unusual microstructural features. The microstructure is free from acicular delta phase except in individual, isolated grains that are not representing of the bulk of the microstructure. There is no laves phase.

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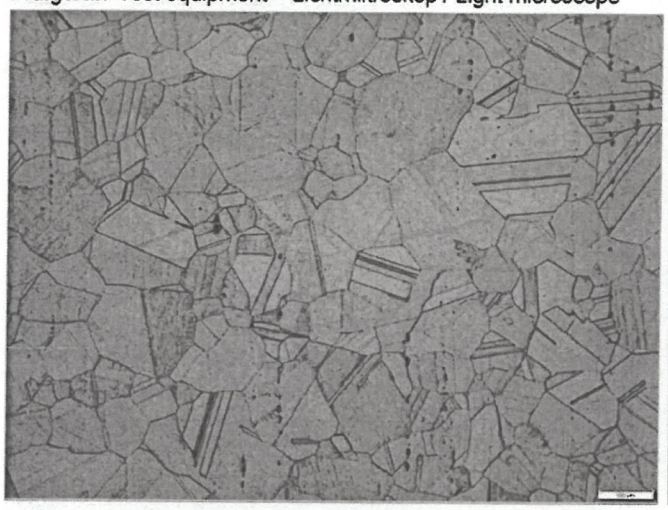
voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Nr. / No.: 974791 / 2022.09.13
Seite / Page: 4 / 11

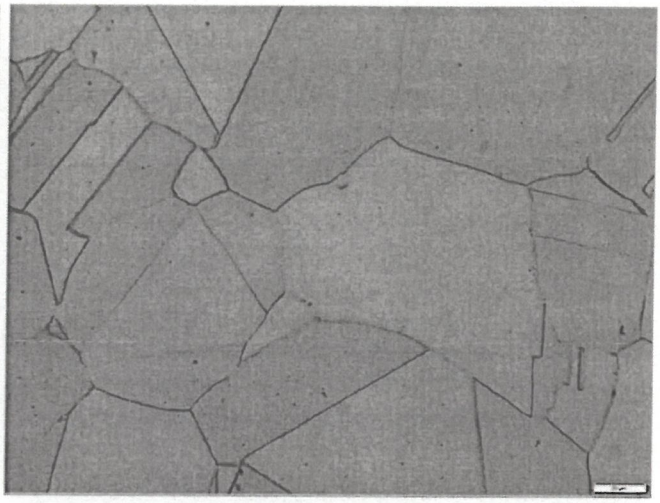
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Gefügefotos / Photomicrographs

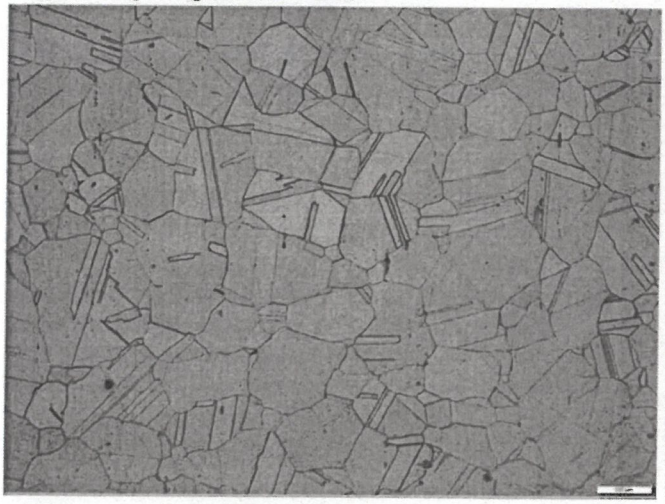
Prüfgerät / Test equipment = Lichtmikroskop / Light microscope



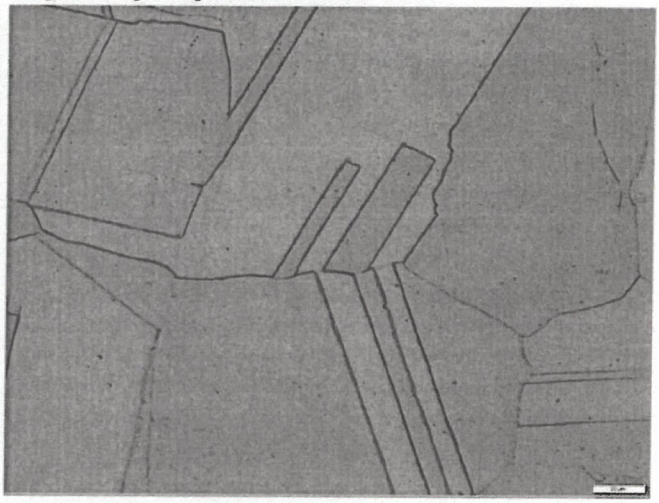
Lage / Location = **Rand / Rim (near Surface)**
Vergrößerung / Magnification = **100:1**



Lage / Location = **Rand / Rim (near Surface)**
Vergrößerung / Magnification = **500:1**



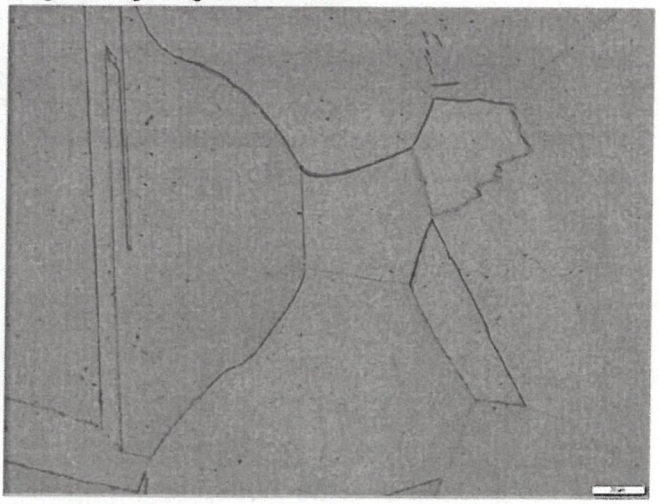
Lage / Location = **1/2 Radius (1/4T)**
Vergrößerung / Magnification = **100:1**



Lage / Location = **1/2 Radius (1/4T)**
Vergrößerung / Magnification = **500:1**



Lage / Location = **Zentrum / Center**
Vergrößerung / Magnification = **100:1**



Lage / Location = **Zentrum / Center**
Vergrößerung / Magnification = **500:1**

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Mechanische Eigenschaften / Mechanical properties

Der Probenabschnitt ist eine Verlängerung des endwärmebehandelten Stabes.
The QTC is a prolongation of the final heat treated bar.
Die Proben und die Prüfmethoden entsprechen der ASTM A370 - 21.
The test specimen and the test method are in accordance with ASTM A370 - 21.

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Zugversuchproben / Tensile test properties

Probenorientierung / Specimen orientation = längs / longitudinal
Probenlage / Specimen location = 1/2 Radius (1/4T)
Probe / Specimen = standard size 12.5 mm [0.500 inch] diameter

Zugversuch im Lieferzustand/Tensile test in delivery condition

*Legende / *Key
H = Härtester / hardest
W = Weichster / softest
S = Schopf / Top
M = Mitte / Middle
B = Boden / Bottom

Prüf-Nr. Test no.	*Stk.-Nr. *Piece no.	Prüfnorm Testing standard	Lage Location	Temp. °F	Dehngrenze Yield Strength	Zugfestigkeit Ultimate Tensile Strength	Dehnung Elongation	Einschnürung Reduction of Area
					Rp0,2	Rm	A4	Z
					KSI	KSI	%	%
					125 - 145	>=150	>=20	>=35
2262472-1	B1X	ASTM A 370-21 01.11.2021	L2	73	130.244	173.610	32	48

Kerbschlagversuchproben / Impact test properties

Probenorientierung / Specimen orientation = quer / transverse
Probenlage / Specimen location = 1/2 Radius (1/4T) oder tiefer / or deeper
Kerborientierung / Notch orientation = C-L
Probe / Specimen = standard size (Charpy-V) 10 x 10 mm [0.394 x 0.394 inch]

Kerbschlagversuch im Lieferzustand/Impact test in delivery condition

*Legende / *Key
H = Härtester / hardest
W = Weichster / softest
S = Schopf / Top
M = Mitte / Middle
B = Boden / Bottom

Prüf-Nr. Test no.	*Stk.-Nr. *Piece no.	Prüfnorm Testing standard	Lage Location	Temp. °F	Kerbschlagarbeit Impact energy	Laterale Breitung Lateral expansion	Zähbruch Shear area
					Charpy-V	LB	
					ft-lbf	mils	
							%
					>=35	>=15	info
2262472-1	B1X	ASTM E 23-18 01.11.2018	Q2	-76	50 51 47	26 25 24	20 20 20

Härteprüfung im Lieferzustand / Hardness test in delivery condition (QTC)

Der Probenabschnitt ist eine Verlängerung des endwärmebehandelten Stabes.
3 x 3 Messwerte 120° versetzt, 1/2 Radius (1/4T)
3 x 3 Messwerte 120° versetzt, oberflächennahe
1 x 3 Messwerte, Zentrum
Die angegebenen Werte, des Probenabschnittes, sind Mittelwerte und, in Klammern, Einzelwerte.

The QTC is a prolongation of the final heat treated bar.
3 x 3 readings 120° apart are taken at 1/2 Radius (1/4T).
3 x 3 readings 120° apart are taken near Surface.
1 x 3 readings are taken in the center
The values stated are the mean values and, in parentheses, the single values.

Härteprüfung im Lieferzustand/Hardness test in delivery condition

Prüf-Nr. Test no.	Stk. Nr. Piece no.	Prüfnorm Testing standard	Prüfort Location	Methode HRC
				34 - 39
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	37.3 (37 37 38)
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	38.3 (38 38 39)
2262472-1	4	ASTM E 18-20 01.03.2020	Oberflächennahe / near Surface	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	36 (36 36 36)
2262472-1	4	ASTM E 18-20 01.03.2020	1/2 Radius (1/4T)	37.7 (37 38 38)
2262472-1	4	ASTM E 18-20 01.03.2020	Zentrum / Center	36 (36 36 36)

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Härteprüfung im Lieferzustand / Hardness test in delivery condition (Bars)
Lage / Location = oberflächennahe / near Surface
Die Härteprüfungen an den Stäben wurde an Querschnittsschnitten je Stab durchgeführt.
Hardness tests on bars are performed on cross-sections slices, taken from each bar.

Härteprüfung im Lieferzustand/Hardness test in delivery condition

			Methode
Prüf-Nr. Test no.	Stk. Nr. Piece no.	Prüfnorm Testing standard	HRC
			34 - 39
2262472-1	1	ASTM E 18-20 01.03.2020	37 (36 37 38)
2262472-1	2	ASTM E 18-20 01.03.2020	37.7 (37 38 38)
2262472-1	3	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	4	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	5	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	6	ASTM E 18-20 01.03.2020	37 (37 37 37)
2262472-1	7	ASTM E 18-20 01.03.2020	36.7 (36 37 37)
2262472-1	8	ASTM E 18-20 01.03.2020	37.3 (37 37 38)
2262472-1	9	ASTM E 18-20 01.03.2020	38 (38 38 38)
2262472-1	10	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	11	ASTM E 18-20 01.03.2020	37.7 (37 38 38)
2262472-1	12	ASTM E 18-20 01.03.2020	36.7 (36 37 37)
2262472-1	13	ASTM E 18-20 01.03.2020	36.3 (36 36 37)
2262472-1	14	ASTM E 18-20 01.03.2020	36.7 (36 37 37)

Korrosionsprüfung / Corrosion examination
Prüfnorm / Testing standard = ASTM G48 method A
Prüfdauer / Test period = 24h
Prüftemperatur / Test temperature = 20°C
Beizlösung / Pickling solution = 20 % HNO3 + 5 % HF
Beizdauer / Pickling period = 5 min.
Beiztemperatur / Pickling temperature = 60°C
Massenverlust = 0,06 g/m², kein Lochfraß bei 20facher Vergrößerung.
Weight loss = 0,06 g/m², no pitting at 20x magnification.

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Zerstörungsfreie Prüfung / Non-Destructive examination

Ultraschallprüfung / Ultrasonic examination

Prüfmenge / Inspection quantity = 100% der Stäbe / 100% of the bars
Prüfvorschrift / Inspection specification = ASTM A 388/A388M-19
Beurteilungsstandard / Evaluation standard = API Specification 6A Twenty-first Edition - PSL 4
Prüftechnik / Inspection technique = Phased Array (Senkrechteinschallung am Aussendurchmesser / straight-beam technique from the outside diameter)
Das Material entspricht den Anforderungen / The material fulfils the requirements

Oberflächenprüfung / Surface examination

Prüfmenge / Inspection quantity = 100% der Stäbe / 100% of the bars
Prüftechnik / Inspection technique = Wirbelstromprüfung / Eddy - Current test (ET)
Das Material ist frei von unzulässigen Oberflächenfehlern / The material is without unacceptable surface defects

Statements

Das Material ist frei von Quecksilber Kontamination.
The material is free of mercury contamination.

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Es wurden keine Schweißungen am Material durchgeführt.
No weld repair has been performed on this material.

Herkunfts- und Erschmelzungsland: OESTERREICH
Country of origin: AUSTRIA
Country of melting and pouring: AUSTRIA
Name der Schmelzquelle: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name of melt source: voestalpine BÖHLER Edelstahl GmbH & Co KG

Name des Umformbetriebs /
Company performing the hot work operations: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name des Wärmebehandlungsbetriebs /
Company performing the heat treatment: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name der Prüfbetriebe /
Company performing the testing: voestalpine BÖHLER Edelstahl GmbH & Co KG
Name des Prüflabors /
Name of test laboratory: In-house test laboratory of voestalpine BÖHLER Edelstahl GmbH & Co KG

Anlagen / Attachment

Wärmebehandlungsprotokolle / Furnace charts
UT Befund / Report
Prüferqualifikation / Operator qualification

Radioaktivitätskontrolle/Radioactivity inspection: Co-60<0,1Bq/g
Hiermit kleiner als Grenzwert in der anzuwendenden Spezifikation IAEA RS-G-1.7 für unbedenkliche Stoffe.
Therefore smaller than upper limit required according to specification IAEA RS-G-1.7 for inoffensive material.

Wir bestätigen hiermit, dass die obengenannten Erzeugnisse den Bestellvorschriften entsprechen.
We hereby certify that the above mentioned products are consistent with the order prescriptions.

Zeichen des Lieferwerks:
Brand of Manufacturer: K

Besichtigung und Nachmessung: Keine Beanstandung
Inspection and Checking of Dimensions: Satisfactory

Zeichen des Prüfers:
Symbol of Inspector: K A

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25
8605 Kapfenberg, AUSTRIA
www.bohler-edelstahl.com

Wolfgang.Mlatschnig@bohler-edelstahl.at
AUSSTELLER/
ORIGINATOR

Abnahmebeauftragter
Inspection Representative

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Abteilung/Department
EWV/O

Wärmebehandlungsprotokoll
heat treating report

Fa./Los Nr./Splitt Nr.: / AG Nr.:works order:
Gewicht/weight: **2915 kg**
WBH-Schl.: **L46**
Marke/material: **L343**
Charge/heat no.: **CVJ847**
Abmessung/dimension: **0x85 mm**
PP/EKK Nr.: _

Ofen Nr.: furnace no.: **60**
Ofenklasse: furnace class: **3 (+/-8°C)**
Ofenqualifizierung lt. AMS2750 letztgültige Rev. furnace qualification per AMS2750 latest rev.:

Solldaten / nominal values
lt. EV2 3600/0021/30/letztgültige Rev. / per working procedure latest rev.

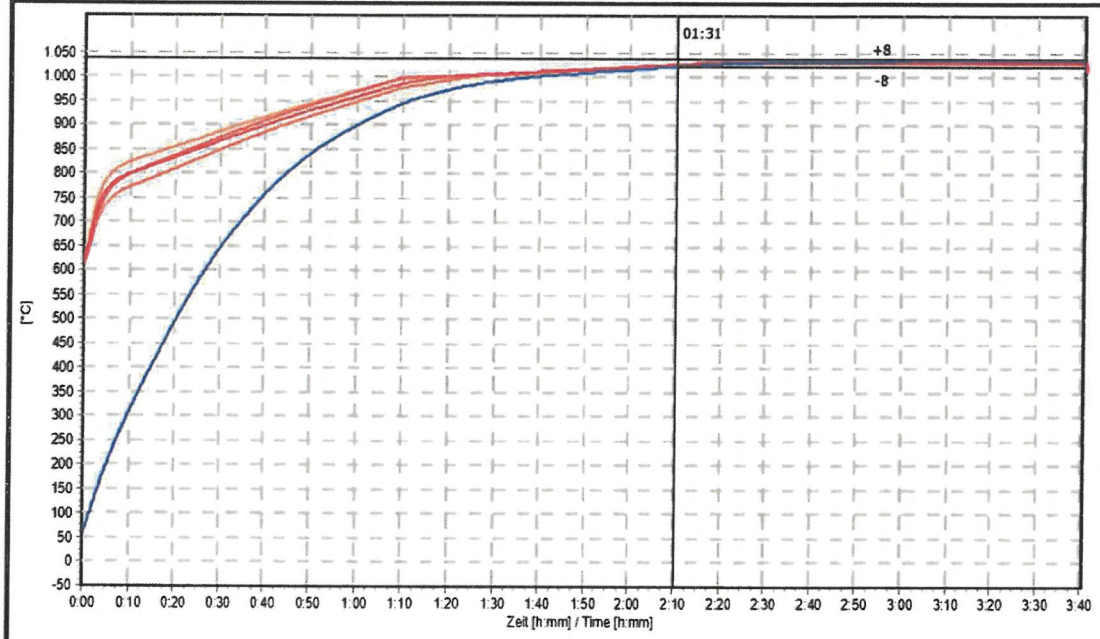
Wärmebehandlungsvorschrift: / heat treatment procedure

WBH-Zyklus HT cycle: 1030°C/1.5M/W
daraus erstellte Programm Nr. lt. EV: Program no. per working procedure: 52/00

Wassertemperatur: water temperature: max. 30°C (Toleranz lt. AV2-36-0015-07 letztgültige Revision)
Materialhaltezeit Toleranz: soak time tolerance: (Toleranz lt. AV2-36-0015-07 letztgültige Revision)

Isttemperaturverlauf / process data

Auflage Nr.: / lot no.: 8028



Materialeintritt: / material entrance time: 08.08.2022 10:55:48
Materialaustritt: / exit time: 08.08.2022 14:36:28

Abkühlbecken/Quench tank: KO - WB
Wassertemperatur water temperature Eintritt: entrance: **08.08.2022 14:37:28** 14 °C
Austritt: exit: **08.08.2022 15:02:35** 18 °C
Zeit Wasserumwälzung agitation time: 1507 Sek

Die Richtigkeit der durchgeführten Wärmebehandlung wird bestätigt:
The correctness of the conducted heat treatment is confirmed.
Datum / date: 09.08.2022
Unterschrift: signature: **Krammer Andreas**

21 AGO. 2022 FRANCO CORBELLINI
CROSSWIND Q.C.

voestalpine BÖHLER Edelstahl GmbH & Co KG
Mariazellerstrasse 25 / 8605 Kapfenberg / AUSTRIA

Abteilung/Department
EWV/O

Wärmebehandlungsprotokoll
heat treating report

BÖHLER

Fa./Los Nr./Splitt Nr.: / AG Nr.:works order:		Gewicht/weight:	**2915 kg**
WBH-Schl.:	**A46**		
Marke/material:	**L343**	Charge/heat no.:	**CVJ847**
Abmessung/dimension:	**0x85 mm**	PP/EKK Nr.:	_

Ofen Nr.: furnace no.:	**59**	Ofenklasse: furnace class:	**2 (+/-5°C)**	Ofenqualifizierung lt. AMS2750 letztgültige Rev. furnace qualification per AMS2750 latest rev.:

Solldaten / nominal values
lt. EV2 3600/0021/30/letztgültige Rev. / per working procedure latest rev.

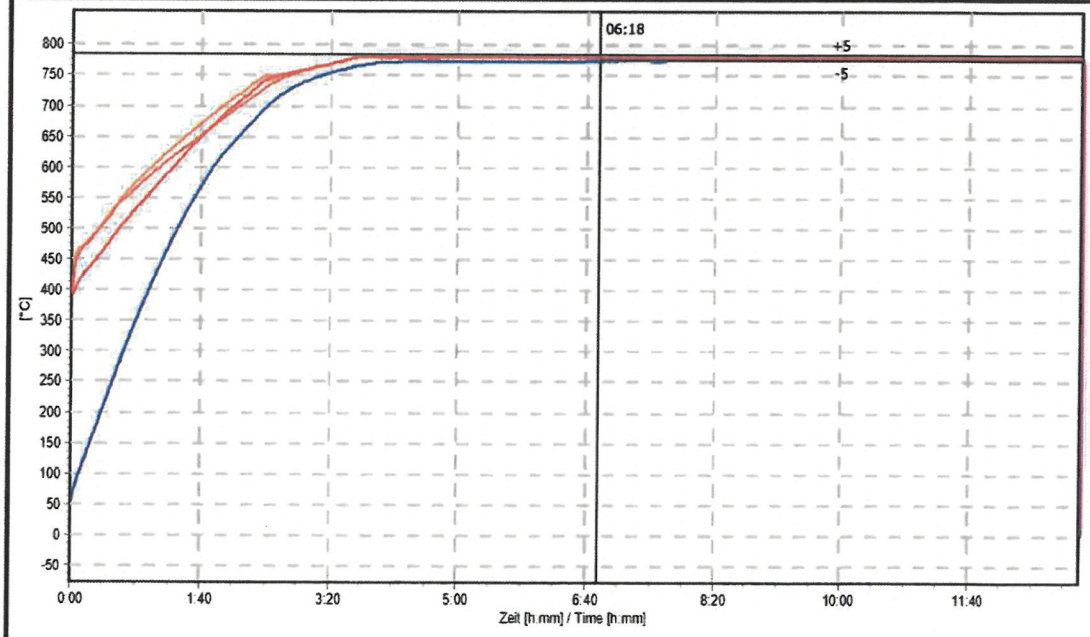
Wärmebehandlungsvorschrift: / heat treatment procedure

WBH-Zyklus HT cycle	780°C/6,3M/L	daraus erstellte Programm Nr. lt. EV: Program no. per working procedure:	80/00

Wassertemperatur: water temperature:	max. 30°C	(Toleranz lt. AV2-36-0015-07 letztgültige Revision)	Materialhaltezeit Toleranz: soak time tolerance:		(Toleranz lt. AV2-36-0015-07 letztgültige Revision)

Isttemperaturverlauf / process data

Auflage Nr.: / lot no.: 3706



Materialeintritt: / material entrance time:	Materialaustritt: / exit time:
09.08.2022 12:07:40	10.08.2022 01:16:12

Abkühlbecken/Quench tank: _

Wassertemperatur water temperature	Eintritt: entrance:	- __ °C	Austritt: exit:	- __ °C	Zeit Wasserumwälzung: agitation time:	__ Sek

Die Richtigkeit der durchgeführten Wärmebehandlung wird bestätigt:
The correctness of the conducted heat treatment is confirmed:

Datum / date: 11.08.2022

Unterschrift: signature: **Krammer Andreas**

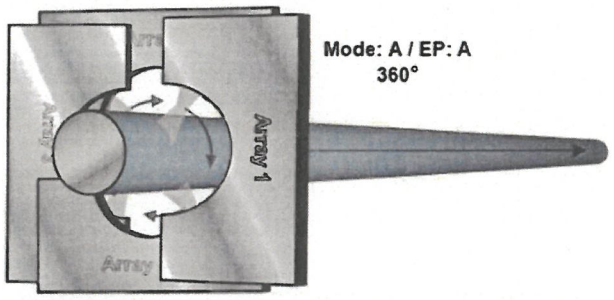
Digital Signature of Krammer Andreas voestalpine Böhler Edelstahl GmbH & Co KG EWV
User: KrammerA
Date: 11.08.2022 08:16:16

21 AGO. 2024
FRANCO CORBELLINI
QBJ
CROSSWIND

voestalpine BÖHLER Edelstahl GmbH & Co KG

BÖHLER UT PRÜFBERICHT C / REPORT C / PROCES-VERBAL TYPE C		Besteller / Purchaser / Client		Werks Auftrag / Working Order / Commande interne	Pos. / Item / Repère 1
Nr./No/No	97-0409-2022	Bestell-Nr. / Order No. / No. de commande		Prüfobjekt / Test object / Pièce contrôlée	Stabstahl / steel bars
Seite / Page / Page	01 von / of / sur 01	Stückzahl / Quantity / Quantité	1 Bd.	Kennzeichnung / Identification / Identification	Schmelze, Werkstoff, Werks Auftrag Heat, Material, Working Order
Abmessung / Dimension / Dimensions	RD 82,55 mm	Werkstoff / Material / Matériau	L343	Schmelze-Nr. / Heat-No. / No. de coulée	CVJ847
Oberflächenzust. / Surface cond. / Etat de surface	geschält / peeled	Gewicht / Weight / Poids	2611 kg	Fertigungsstufe / Stage of production / Etat d'avancement de fabrication	Lieferzustand / delivery condition
Prüfbereich / Inspection area / Plage d'essai	Gesamte Stablänge / whole length			Wärmebehandlung / Heat treatment / Traitement thermique	lösungsgeglüht + ausgehärtet / solution annealed + age hardened
Prüfvorschrift / Inspection Specification / Spécification de contrôle	API 6A PSL4 - 21st Edition ASTM A 388-19			Prüfumfang / Inspection coverage / Etendue du contrôle	siehe Skizze / see sketch
Beurteilungsstandard / Evaluation standard / Critères d'acceptation	lt. acc. to API 6A PSL4 + ASTM A 388-19			ZfP-Arbeitsvorschrift / NDT-procedure / Procédure END	AV2/36/5125/74 Rev. 02 + Scan PlanAPI 6A PSL4 -PAT-Rund-WP Rev. 02
EKK (FP / WP) Nr. / Traveller (FP / WP) No. / No. de fiche suiveuse	--			Zeichnungs-Nr., Schmiede-Nr. oder Einsatz-Nr. / Drawing No., forging No. or rolling No. / No. de plan, No. de forgeage ou No. de laminage	1454
Registriergrenze / Recording level / Seuil d'enregistrement	lt. acc. to API 6A PSL4 + ASTM A 388-19			Schritt / Prüf-Nr. / Step / Test no. / No. d'operation	--

Skizze / Sketch / Esquisse



Prüfgerät-Nr. / Equipment No / Appareil No.	ROWA B65/120 PAT 719260	Koppelmittel / Couplant / Produit de couplage	Wasser / water	Justierung / Adjustment / Ajustage	DAC
Justierkörper / Testblock / Bloc d'étalonnage	Nr. 132E	Referenzreflektor / Reference reflector / Réflecteur de référence	ø 1.19 mm FBH (-4 dB = 1,5 mm FBH)	S/N-Abstand / Signal-to-noise distance / Rapport signal sur bruit	> 6 dB
Transferkorrektur (weitere Korr.) / Transfer correction (further corr.) / Correction de transfert (correction additionnelle)					< 2 dB

Einschall-Pos. / Position of incidence / Direction d'incidence	Prüfkopf / Probe / Palpeur	Frequenz / Frequency / Fréquence MHz/Mc	Einschallwinkel / Angle of incidence / Angle d'incidence	Schallaufweg / Sound path / Parcours du son mm	Schallschw. / Sound att. / Atténuation du son dB/m	Anzeigentiefe / Indication depth / Profondeur de l'indication mm	Anzeigenlänge / Indication length / Longueur de l'indication mm	KSR-Wert / DSR value / Réflecteur disque de différente	dB zu Referenz / dB to reference / dB à la référence	Echoform / Type of echo / Type d'écho	RWE-Abfall dB / Loss of BWE dB / Appareil de l'écho de fond dB
A	5MHz/224EL/R120mmCCV/90DEG	5	0°	82,55	< 2	keine registrierpflichtigen Anzeigen no indications above recording level					---

Prüfergebnis / Test result / Résultat: ☒ Entspricht / Within / Conforme ☐ Entspricht nicht der Vorschrift / Not within specification / Pas conforme de la specification		Prüfort / Place of inspection / Lieu de contrôle	Kapfenberg, Abt. / Dep. EWV/F — Datum / Date / Date 23.08.2022
Kunde / Customer / Client		Prüfer / Stufe / Operator / Level / Opérateur / Niveau de qualification	Schuller A. LII ISO 9712
Gutachter / Sachverständiger / Authorized inspector / Agent de l'organisme de contrôle		Prüfverantwortlicher / Stufe / Supervisor / Level / Responsable de contrôle / Niveau de qualification	Koch W. LII ISO 9712

21 AGO. 2024
FRANCO CORBELLINI
CROSSWIND
GB1

voestalpine
ONE STEP AHEAD.

Akkreditierung Austria 0909 ISO/IEC 17024

Akkreditierte Konformitätsbewertungsstelle
nach EN ISO/IEC 17024 (ID: 0909)
Accredited conformity assessment body according to EN ISO/IEC 17024 (ID: 0909)
Organisme d'évaluation de la conformité accrédité selon l'EN ISO/IEC 17024 (ID: 0909)
Anerkannte unabhängige Prüfstelle
gemäß Artikel 24 und Anhang I Z 3.1.3 der Richtlinie 2014/68/EU
Recognised third-party organisation according to article 24 of Directive 2014/68/EU
Entité tierce partie reconnue selon l'article 24 de la Directive 2014/68/UE

ÖGfZP Österreichische Gesellschaft für Zerstörungsfreie Prüfung NDT

CERTIFICATE ZERTIFIKAT CERTIFICAT

Hiermit zertifizieren wir die Kompetenz
We hereby certify the competence / Nous certifions la competence

Herr Alexander Schuller

Titel, Vorname, Name / Title, first name, surname / Titre, prénom, nom

geboren am
date of birth/date de naissance
10.10.1989

Zertifikat-Nr.: **02/37595/2/22469**
No. of certificate/ N° de certificat

Prüfverfahren[1] und Stufe
NDT method[1] and level
Méthode d'essai[1] et niveau
Ultraschallprüfung UT Stufe 2 (zwei)

Industrie-[2]/Produktsektoren[1]
Industrial-[2]/Product sectors[1]
Secteurs industriels-[2]/produits[1]
Herstellung

nach den Normen
based on the Standards
en selon des normes
ÖNORMEN: EN ISO 9712

Gültigkeit der Zertifizierung
Validity of the certification
Validité de la certification
14.03.2022 bis 13.03.2027

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

Österreichische Gesellschaft für Zerstörungsfreie Prüfung
Austrian Society for Non-Destructive Testing / Association d'Autriche des Essais Non Destructifs

1230 Wien, 15.11.2021

für die ÖGfZP
for the ÖGfZP / pour l'ÖGfZP

der Präsident
the president / le président
Dipl.-Ing. Dr. Wolfgang Schützenhofer

für die Zertifizierungsstelle
for the Certifying Body / pour l'organisme de certification

Ing. Andreas Schieder, MSc (0163)

Unterschrift der zertifizierten Person
signature of certified person / signature de la personne certifiée

ÖGfZP Österreichische Gesellschaft für Zerstörungsfreie Prüfung NDT

TEKNIK ORSENIGO VALVES S.R.L. Q.C.

1) gemäß EN ISO 9712 / according to EN ISO 9712 / selon EN ISO 9712
2) Herstellung (enthält w, f, c, wp, t) - Dienstleistungsprüfung bei Fertigung und Instandhaltung, eingeschlossen Herstellung (enthält w, f, c, wp, t, u.a) - Eisenbahn-Instandhaltung (enthält w, f, c, wp , t, u.a) - Luft- und Raumfahrt (enthält w, f, c, wp, t, p, u.a)

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4 - 071826.PDF C 240062-007/01

71826

TMV MOLINARI
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1

N°2024000486192

DATE 23/05/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **2385**
Ordine N°/Order N° **240436**
Row Ref. **1**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Fully Threaded Stud-bolt Chamfers Included ANSI B16.5
ASTM A193 / ASTM A320 B8Mc1
3/4"-10UNC L:65 mm

Q.ty[pcs]: 38 pcs.

Batch Code: CC37DBC6

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
UTS Mpa	515		593	YS0,2% Mpa	205		284
A 50mm %	30		55,8	Z %	50		73
HBW		223	176				

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 430187

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C		0,08	0,013	Mn		2	1,56
P		0,045	0,030	S		0,03	0,028
Cr	16	18	16,71	Mo	2	3	2,06
Si		1	0,57	Ni	10	14	10,25

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

21 AGO. 2024
FRANCO CORBELLINI
081
CROSSWIND

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

FLUITEK ORSENIGO VALVES SRL Q.C.

MFR AUTHORIZED INSPECTOR AND STAMP

Massimo Bernardi
Quality Dept.

T.M.V. MOLINARI
QA MANAGER
APPROVATO

5 - 071827.PDF C 240062-007/01

71827

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
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Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024000486193
DATE 23/05/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **2385**
Ordine N°/Order N° **240436**
Row Ref. **3**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL — **Heat Treatment details: CST**

Heavy Hex Nut ANSI B18.2.2 Tab.1.1.1-11
ASTM A194 Gr.8M
3/4"-10UNC

Q.ty[pcs]: 45 pcs.

Batch Code: B8B16352

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value
HBW	126	300	184

Test	Req. min	Req. MAX	Value
PROOF LOAD			POSIT

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS — **HEAT N°: 281685**

Test	Req. min	Req. MAX	Value
C		0,08	0,016
P		0,045	0,030
Cr	16	18	16,65
Si		1	0,53

Test	Req. min	Req. MAX	Value
Mn		2	1,44
S		0,03	0,026
Mo	2	3	2,02
Ni	10	14	10,1

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

TEST	RICHIESTO/REQUEST	OTTENUTO/RESULT
KV -196°C	40/40 J	102-116-111

21 AGO. 2024
FRANCO CORBELLINI
081
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT (H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED (ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Matteo Bernardi
Quality Dept.

T.M.V. MOLINARI
Q.A. MANAGER
APPROVATO

6 - 072246.PDF C 240062-007/01

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
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P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

72246

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024000947732
DATE 10/07/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **134**
Ordine N°/Order N° **240436**
Row Ref. **4**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: CST

Hex Thin Nut UNI 5589/DIN 936
ASTM A194 Gr.8M
M36x4

Q.ty[pcs]: 12 pcs.

Batch 132

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
HBW	126	300	181	PROOF LOAD			POSIT

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 281518

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C		0,08	0,011	Mn		2	1,55
P		0,045	0,031	S		0,03	0,026
Cr	16	18	16,58	Mo	2	3	2,1
Si		1	0,53	Ni	10	14	10,2

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2024
FRANCO CORBELLINI
081
CROSSWIND

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Marco Piseroni
Quality Dept.

T.M.V. MOLINARI
Q.A. MANAGER
APPROVATO

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-008/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**008**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
80	**1**

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718////vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0

TAG
25-SDV-001

SERIAL NUMBER
From 2400620080001 to 2400620080001

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
SCREW	A193 B8M CL2	0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
	174374	1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORBELLINI QB1 CROSSWIND R DATE	FLUITEK ORSENIGO VALVES SRL Q.C. DATE 06/08/2024

60194

1 - 068194.PDF C 240062-008/01

Acciaierie Valbruna S.p.A.

Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

SPECIFICHE :
Anforderungen / Requirements / Exigences

Note:
Aufzeichnungen / Notes / Notes

VAL STOCK W2 A/1 1.4404/316L A
MDS S01 5 316 A (0)
MDS S17 1 316 A (1)

(0)Norsok-standard M-630 Edition 6, October 2013
(1)Norsok-standard M-630: 2020 (2020-09-30)

AD 2000-M. W 2 2022 1.4401 A (2)
AD 2000-M. W 2 2022 1.4404 A (3)

(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020

AISI . 316/316L
AMS-QQ-S-763 D 316/316L A

ASME SA182 2021 S31600/03 A (4)
ASME SA193 2021 B8M CLASS 1 (5)

(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
(5)Section II Part A 2021 EDITION

ASME SA276 2021 S31600/03 A (6)
ASME SA320 2021 B8M CLASS 1 (7)
ASME SA479 2021 S31600/03 A (8)

(6)Section II Part A 2021 EDITION
(7)Section II Part A 2021 EDITION
(8)Section II Part A 2021 EDITION

ASTM A182 2023 S31600/03 A (9)
ASTM A193 2023 B8M CLASS 1
ASTM A262 PR. E 2015 316/316L (A)

(9)For products machined directly from bar refer also to ASTM A479.

(A)Reapproved 2021

ASTM A276 2023 S31600/03 A
ASTM A320 2022 B8M CLASS 1 CLASS1
ASTM A370 2022 .
ASTM A479 2023A S31600/03 A
ASTM E10 2023 .
ASTM E8 2022 .
EN 10088 PART 3 2014 1.4401 A
EN 10088 PART 3 2014 1.4404 A
EN 10272 2016. 1.4401 A
EN 10272 2016. 1.4404 A
ISO 148-1 2016 .
ISO 3651-2 98 METHOD A T1
ISO 6506-1 2014 .
ISO 6892-1 2019 .
NACE MR0103 2015 S31600/03 A (B)

(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015

NACE MR0175 4 S31600/03 A (C)

(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.

QQ-S-763 F 316/316L A
ACH CO . .
KV L -196C . ISO 148-1
KV T -196C . ISO 148-1

21 AGO. 2024
FRANCO CORBELLINI
QB3
CROSSWIND

FLUITEK ORSENIGO QMC

Pos. nr.	Oggetto	Tolleranza: k12 Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
Pos. nr. Item nr. Nr. de poste	Gegenstand Product description Descrip. du produit	Abmessungen Dimension Dimension	Länge Length Longueur	Schmelze Heat Coulée	Stückzahl Pieces Pieces	Gewicht Weight Poids	Losnr. Lot nr. Lot nr.
0060	Tondo	135,000	5324/ 5533	291737	1	630,0	320205030

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 1 di 5

Acciaierie Valbruna S.p.A.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		200	235	500	40	-	-	-	-			-		
		max				700									215	
A	10	20	L	270	309	562	59		69					161		
I	10	20	L	278	311	575	57		67					162		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			3

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
B	10X10	-196	L	188	190	195	1,855	1,492	1,910	73	71	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		210	-	520	-	40	-	50	-			-		
		max				790									223	
C	12,5	20	L	258		552		22		73				158		

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO QVC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 2 di 5

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmetzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice
AV

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur
MR

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	267		561		50		64						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
E	10X10	-196	T	89	94	91	1,258	1,325	1,005	27	20	31

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		100	100	100	-	-	-	-	-	-
H	10X10	20	L	258	258	260						
J	10X10	20	L	253	247	255						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
QB3
CROSSWIND

FLUITEK ORSENIGO VALVES SRL QC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto Produktmanagement/Product Management/Direction Produit	Pagina
VCQ008 - MEST012686	R.BERTELLI	P.MESSORI	3 di 5

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 Z.I.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
	min -	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
	max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-
291737	0,022	0,42	1,58	16,80	2,04	0,37	10,13	0,166	0,033	0,028	0,051				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 3,2 : 1
Solution annealed 1080°C for 180'(total time)/ water cooled
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/OES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FLUITEK ORSENIGO QC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 4 di 5

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
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Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
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Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD'S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

21 AGO. 2024
FRANCO CORBELLINI
QBJ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

57606 | 2 - 057606.PDF | C 240062-008/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
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In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A MDS S01 5 316 A (0) AISI 316 AISI 316L	(0)Norsok-standard M-630 Edition 6, October 2013
ASME SA182 2019 S31600 A (1) ASME SA182 2019 S31603 A (2)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479. (2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3) ASME SA276 2019 S31600 A (4) ASME SA276 2019 S31603 A (5)	(3)Section II Part A 2019 EDITION (4)Section II Part A 2019 EDITION (5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6) ASME SA479 2019 S31600 A (7) ASME SA479 2019 S31603 A (8)	(6)Section II Part A 2019 EDITION (7)Section II Part A 2019 EDITION (8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9) ASTM A182 2020 S31603 (A) ASTM A193 2019 B8M CLASS 1	(9)For products machined directly from bar refer also to ASTM A479. (A)For products machined directly from bar refer also to ASTM A479.
ASTM A262 2015 PRACTICE E ASTM A276 2017 S31600 A ASTM A276 2017 S31603 A	
ASTM A314 2019 S31600 ASTM A320 2018 B8M CLASS 1 CLASS1 ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A ASTM A479 2019 S31603 A ASTM E10 2018 . ASTM E8 2016A . DIN 17440 96 1.4401 A DIN 17440 96 1.4404 A EN 10088-3 2014 1.4401 A EN 10088-3 2014 1.4404 A EN 10272 2007 1.4401 A EN 10272 2007 1.4404 A ISO 148-1 2016 . ISO 6506-1 2014 . ISO 6892-1 2019 .	
NACE MR0103 2015 S31600 A (C) NACE MR0103 2015 S31603 A (D)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015 (D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E) NACE MR0175 2015 S31603 A (F)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015 (F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

21 AGO. 2021
FRANCO CORBELLINI
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FLUITEK ORSENIGO VALVES Q.C.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Marchi di Fabbrica:
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice
AV

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Punzone del Collaudatore:
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur
MR

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-Mi21000250
Lieferanzeige/Packing list/B.L.

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

Tolleranza: k12
Tolleranza/Allowance/Tolerance

Pos. nr.	Oggetto	Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
Pos. nr. / Item nr. / Nr. de poste	Gegenstand / Product description / Descrip. du produit	Abmessungen / Dimension / Dimension	Länge / Length / Longueur	Schmelze / Heat / Coulée	Stückzahl / Pieces / Pieces	Gewicht / Weight / Poids	Losnr / Lot nr / Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA
Test on delivery condition Prüfung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta/ Probestab / Specimen/Eprouvette		°C	Posiz. Saggio / Probenlage / Location / Emplacement 1)	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 1% N/mm2	Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2	Allungamento / Bruchdehnung / Elongation / Allongement A5 %	Allungamento E 4d %	Strizione / Einschnürung / Reduction of area / Striction Z %	Strizione RA %	Resilienza / Kerbschlagarbeit / Impact Value / Resilience KV J			Durezza / Haerte / Hardness / Durete HB		
	Larg. diam Spess. Breite Diam. Dicke Width Diam Thickness Larg. diam. epais mm															
Valori richiesti / Anforderungen/Required values / Valeurs démendées		min / max			205	240	515 / 690	40	40	-	50	100			- / 215		
A	10	20	L		295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA
Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

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Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %
min -	-	-	-	16,50	2,00	10,00	-	-	-
max 0,030	1,00	2,00		18,00	2,50	13,00	0,045	0,030	0,100
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055

Acciaierie Valbruna S.p.A.

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Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

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Markenbezeichnung
Brand / Nuance

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Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

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Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

W3P4F29E3AD159E26AE37654046D199E28C

21 AGO. 2021
FRANCO CORBELLINI
QBQ
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MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-

21 AGO. 2024
FRANCO CORBELLINI
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General remarks

1: This test report cannot be partially reproduced without our written approval
2: Test results are relevant only to the specimens belonging to the indicated samples
3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy
4: Tests are performed on the material in as-received conditions, unless otherwise specified
5: Sampling has been performed by customer
6: If not otherwise agreed, tested specimens are kept for 30 days from the test date
7: The uncertainty value, when expressed, does not affect the conformity declaration
8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA
9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by

MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

Notched bar impact test

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration

Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	21 AGO. 2024 FRANCO CORBELLINI QBQ CROSSWIND R

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71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

VDM
Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668
Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

Specification
718 Rev. 13 03.02.2020 (Straightness 2:1000)
Yield Strength: min 120 KSI
temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718

UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1834-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straightness 2:1000); API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Meth	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Meth	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Meth	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation	A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2				49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

	Test Location
1 No 5	surface
1 No 5.5	1/4 thickness
1 No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Ünal Ücüncü, authorized inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

FLUITEKO RSENIGO VALVES S.R.L. Q.C.

Chairman of the Supervisory Board: Bernardo Velazquez Herreros
Management Board: Dr. Niclas Miller (Chairman),
Holger Arnold, Daniel Applaris Zemp, Frank Morris
Commercial register: Iserlohn local court, HR127
Company domicile: Werdohl

21 AGO. 2023
FRANCO CORBELLINI
QB1
CROSSWIND

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

printed: 14. AUG 2023

Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates		
1 718 Rev. 13 03.02.2020 (Straightness 2:1000)		
		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling(start 27°C - end 28°C - max. 29°C) + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.

For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.

MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.

No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.

All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.

SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.

The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.

Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

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Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Apitario Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
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Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 : 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

21 AGO. 2024

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QB1

CROSSWIND

VALVITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Arpitarte Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KVa 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

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FLUITEK ORSENIGO VALVES S.R.L. Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

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Holger Arnold, Daniel Arpiarte Zamp, Frank Morris
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Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38; Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

21 AGO. 2024
FRANCO CORBELLINI
QB3
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
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Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

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Holger Arnold, Daniel Arpiarte Zamp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II
Date of Inspection	22.07.2023		

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

21 AGO. 2024
FRANCO CORBELLINI
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FLUITEK ORSENIGO VALVES SRL
Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
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Company domicile: Werdohl

21 AUG. 2023
FRANCO CORBELLINI
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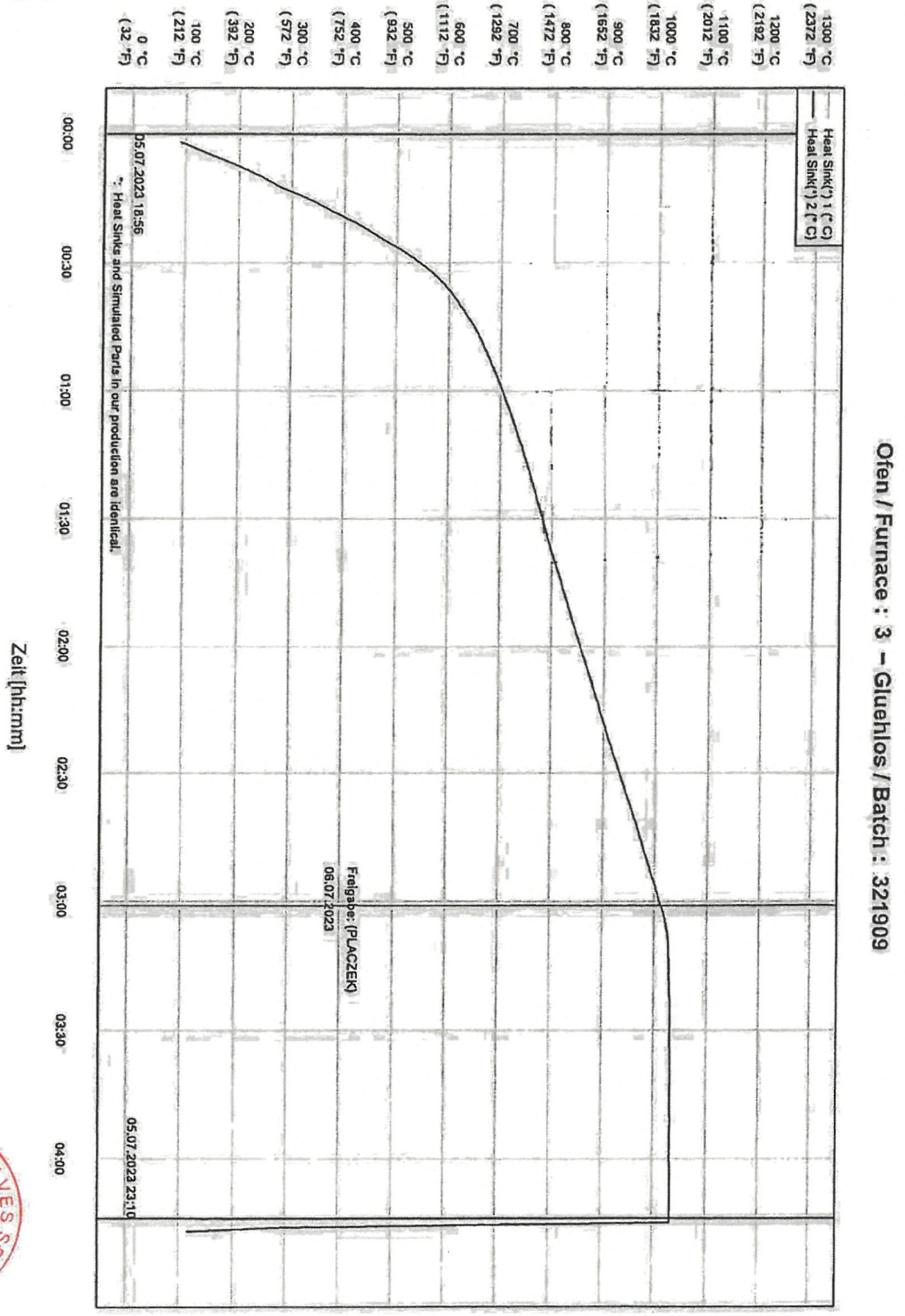
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

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Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephone: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Apitzsch Zamp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

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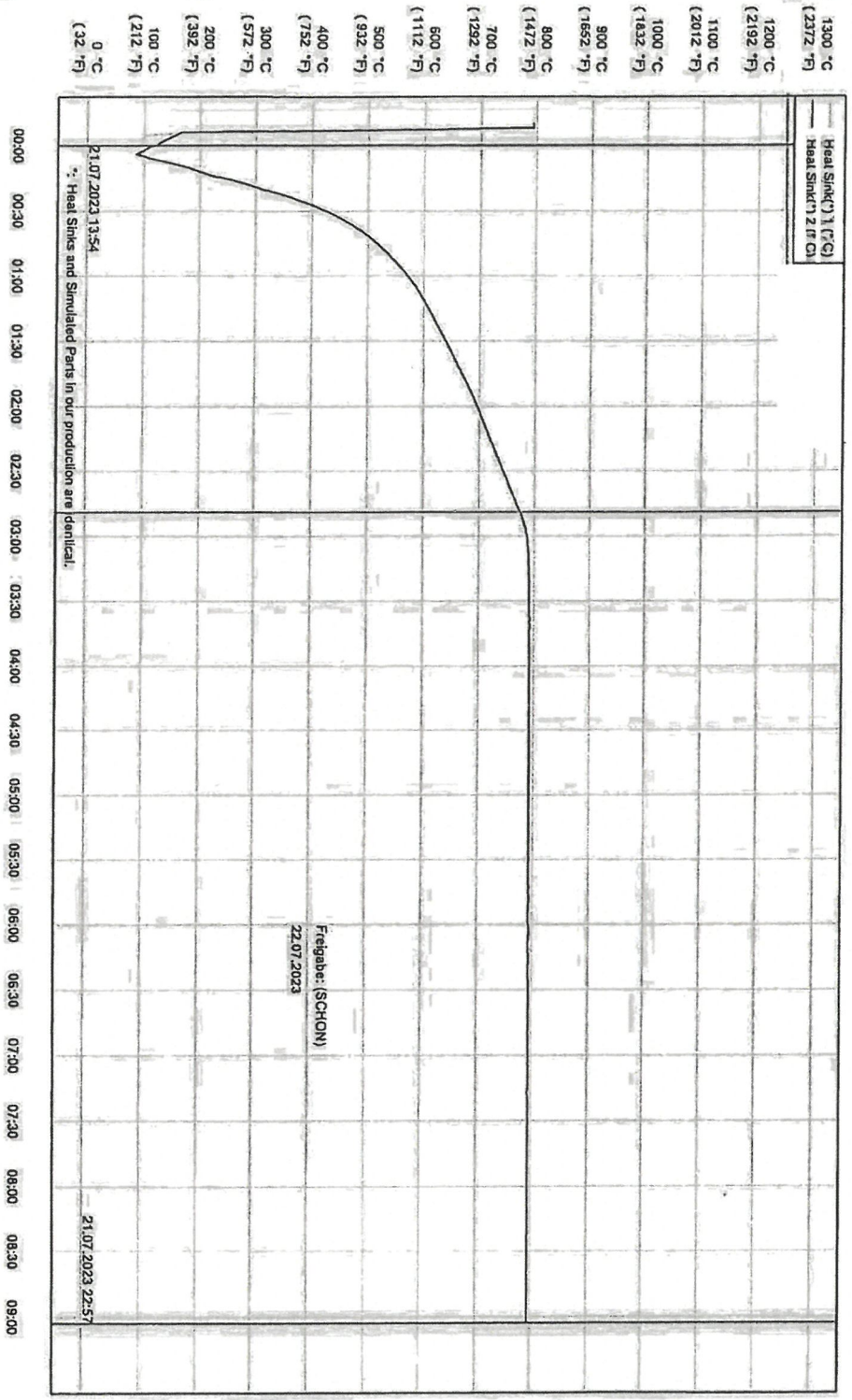
VDM Metals GmbH
on behalf of VDM Metals International GmbH

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Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023

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Ofen / Furnace: 3 - Gluehlos / Batch: 321955

FLUITEK ORSENIGO VALVES SRL

VDM Metals GmbH
Division Bar and Forgings
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Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

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Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

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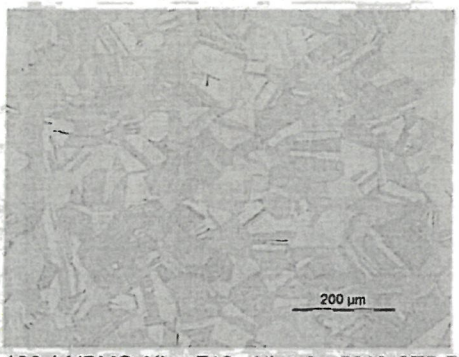
VDM Metals GmbH

VDM Metals

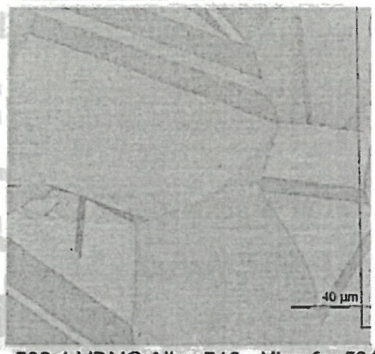
Microstructure Examination

Metallography Job No.:	194936
Lot No.:	105403101
Heat:	422416

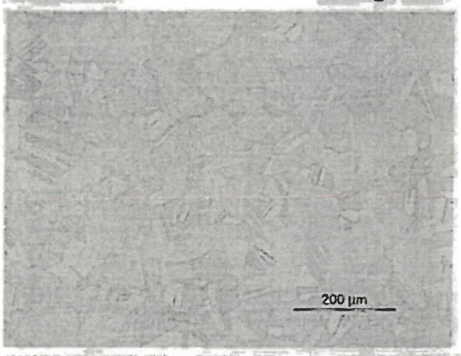
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Enclosure:	4
Page:	~~1 of 1~~



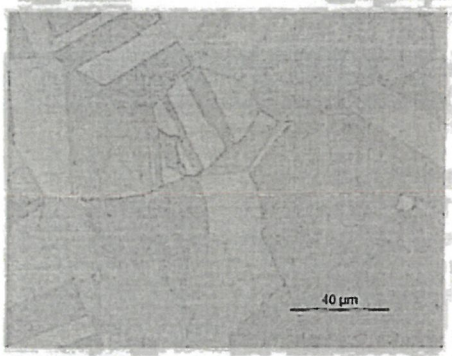
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102T001A02 surface
26.07.2023 Kallings No.2



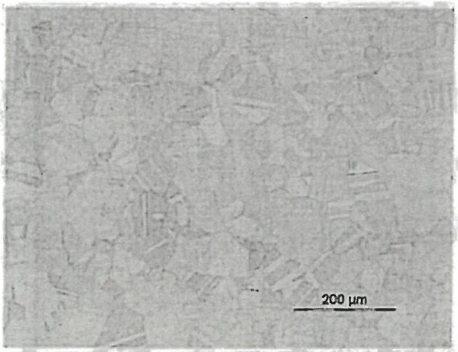
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



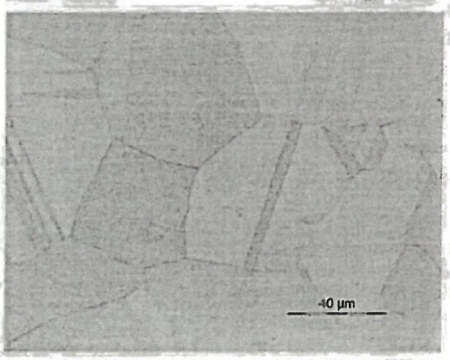
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

FLOWSERVE VALVES SRL Q.C.

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpiiarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

FLUITEK ORSENIGO VALVES SRL Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE **ORDER NUMBER:** 715430-1 **STEP:** 721719

PRODUCT CODE: 718 1.25 SAAH **HARDNESS RANGE (HBW):** 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
☐ A0-30	☐ 6403-4 R92033	☐ R984063	☑ 0510014	☐	☐ F68332/139	☐ 814574
☑ UC-71	☐ 6403_16897	☐	☐ 0907068	☐	☐	☐
☐ UC-72	☐ E50152/15(6503-1)	☐	☐ 1112032	☐	☐	☐
☐	☐ HMV1(6403-3)	☐	☐ 1112037	☐	☐	☐
☐	☐ R335(HMM1)	☐	☐	☐	☐	☐

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

									T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

21 AGO. 2024

FRANCO CORBELLINI

OBJ

CROSSWIND R

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
[signature]	316	316.5	27591/30AW	P	21/8/24

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4 - 061238.PDF C 240062-008/01

MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller*	FLUITEK ORSENIGO VALVES SRL	**Descrizione** *Description / Prüfgegenstand*	Vite TER - Bolt TER M10x25	**Certificato N°** *Certificate N° / Prüf Nr*	153954 R. 0
VIA DEI LIVELLI DI SOPRA	5/7				
		Disegno Cliente *Customer drawing / Kunden-design*	144356	**Classe materiale** *Material Class /W.n*	B8M cl.2 (<=M20) S31600
COSTA DI MEZZATE	BG	**N° pezzi** *Quantity / Stückzahl*	2000		ASTM A193/A193M-19; ASTM A320/A320M-18
N° DDT 222434	**data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr*	220638 POS. 003	**Colata** *Heat N° / Schmelze Nr*	174374

Analisi chimica

Chemical Analysis /Chemische Analyse

Valori richiesti %

		C	Mn	Si	Cr	Ni	Mo	S	P
Required values /	min.				16,000	10,000	2,000		
Sollwerte	max	0,080	2,000	1,000	18,000	14,000	3,000	0,030	0,045
Analisi colata		0,016	1,830	0,380	16,680	10,280	2,050	0,001	0,027

**Heat analysis / Schmelzanalyse*

* As reported on steel work or supplier certificate

Balance Fe

Caratteristiche meccaniche

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* **Rm [N/mm2]**		Snervamento *Yield strength Streck-grenze* **Rs [N/mm2]**	Allungamento *Elongation Bruch-dehnung* **A%**		Strizione *Reduction of area Bruch-einschn.* **Z%**	Durezza *Hardness Härteprüfung* **HB**		Resilienza *Impact test Schlagarbeit* **[J]**		Temperat. resilienza *Temp* **[°C]**
Valori richiesti *Required values/ Anforderungen*	min 760	max	min 655	4D min 15,00%	5D min	min 45,00%	min	max 321	media	min	
Valori ottenuti *Actual values / Ergebnisse*	1033		889	24,00%		66,20%		315			

Note

Trattamento termico Heat treatment	Carbide solution treated and strain hardened	**Esame decarburazione-carburazione** Decarburization and carburization test	Non applicabile - Not applicable	**Esame macroscopico** Macroetch examination result	Non applicabile - Not applicable
Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*	Positive	**P.M.I.**	Positive	**Marcature** *Marking / Kennzeichnung*	B8MSH MM
Rivestimento *Coating Oberflächenbeschichtung*					

Informazioni aggiuntive

Further information / Zusätzliche angaben

21 AGO. 2024

FRANCO CORBELLINI

QSI

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The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612 /

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta n. 27
21015 LONATE PO

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-009/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**009**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
90	**1**

TAG
25-SDV-023

SERIAL NUMBER
From 2400620090001 to 2400620090001

DESCRIPTION
ball valve fl 2 pz-fb2.1-1/2".300 lbs.att. pneumatico fail pos. open.rf.l-hydro a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718////vit.glt_aed+g

fb2.1m1m.2.lvfd-hyd.att_pneu_fo.rf Rev0 3F02 040_VL

NOTES

COMPONENT / CHEMICAL ANALYSIS / MECHANICAL PROPERTIES. IMPACT TESTS

PART NAME	MATERIAL	C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
		Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,020	1,320	0,420	0,027	0,025	16,950	2,100	10,180		0,420		066433
			0,180	0,090						25,320			
	301095	569,00	241,00	54,90	65,60	113,00	104,00	102,00	-196°C (L)	16 HBW			
BALL	A182 F316/316L	0,014	1,770	0,320	0,027	0,028	17,000	2,070	10,000		0,390		072008
			0,210	0,081						25,127			
	472390	601,00	258,00	56,20	80,50	180,00	183,00	174,00	-196°C (L)	156 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L	0,020	1,320	0,420	0,027	0,025	16,950	2,100	10,180		0,420		066433
			0,180	0,090						25,320			
	301095	569,00	241,00	54,90	65,60	113,00	104,00	102,00	-196°C (L)	16 HBW			
SCREW	A193 B8M CL2	0,021	0,562	0,487	0,001	0,027	16,644	2,060	11,020				060516
	038048	933,00	822,00	19,60	57,80					285 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU and was subjected to the conformity assessment procedure H
The monitoring is performed by BV Notified Body 1370
PED Manager Mr. Belotti Pierpaolo

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	FRANCO CORBELLINI 21 AGO. 2024 QB1 CROSSWIND R DATE	FLUITEK ORSENIGO VALVES SRL QC DATE 06/08/2024

COGNE ACCIAI SPECIALI S.p.a.
ITALY - 11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 250.000.000 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

66433

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)

DOCUMENT NUMBER 2023041483

CUSTOMER:	FLUITEK ORSENIGO VALVES SRL		
CUSTOMER'S ORDER:	231521		
MANUFACTURER'S WORKS:	AOSTA, VIA PARAVERA 16 - ITALY		
PRODUCER OF THE DOC:	QUALITY DEPARTMENT		
MANUFACTURER'S WORKS ORDER NO:	0001136561 / 000060		
MARK OF THE MANUFACTURER:	COGNE		
DISPATCH NOTE:	0081567030 / 000020 WEIGHT: 924 KG / 2037 LB		
INTERNAL SPEC:	AD2000MERKBLATTW10	TECHNICAL RULE:	AD2000
PRODUCT:	SPE ROUGHPEELED ROUND BARS	TOLERANCE:	+ 1,500 - 0,0000 (+ 0,0591 - 0 in)
SURFACE FINISH:	1X Hot Finished		
PRODUCT DELIVERY CONDITION:	RS SOLUTION ANNEALED		
PRODUCT DIMENSIONS (mm):	160,000 (6,299 in)	LENGTH (mm)	04000 06000 (00157 00236 in)
GRADE:	316L-S31600/31603-1.4404/4401	INTERNAL GRADE:	F316L5 IMCO
IDENTIFICATION HEAT NO:	301095	IDENTIFICATION LOT NO:	874260
MARKING OF THE PRODUCT:	1.4404	TEST PIECE N:	426

Melting process UHP + AOD + Continuous - Ingot Casting.
AISI 316/316L - UNS S31600/S31603 - 1.4404/1.4401
DOCUMENT ISSUED IN AGREEMENT WITH TUEV BAYERN(11.1972) WAVING OF COUNTERSIGNING (SEE TUEV BAYERN LETTER DATED 17.01.80).
REFERENCE NORMS: EN 10088-3 (14), EN 10272 (16), ASTM A276-r17/ASME SA276-21, ASTM A479-r21/ASME SA479-21, ASTM A193-23 B8M CLASSE 1D, ISO15156-3/NACE MR0175 (15), NACE MR0103/ISO 17945 (15).
REFERENCE NORMS FOR CHEMICAL COMPOSITION AND MECHANICAL PROPERTIES: ASTM A182-23/ ASME SA182-21.
REFERENCE NORMS FOR CHEMICAL COMPOSITION ONLY: EN 10222-5 (17), ASTM A484-22, ASTM A403-22b, ASTM A314-23.
REFERENCE NORMS: EN 10088-3 (14), EN 10272 (16), ASTM A276-r17/ASME SA276-21, ASTM A479/A479M-r21, ASTM A193-23 B8MCLASSE 1D, ASME SA276/SA276M-21,ASME SA479/SA479M-21, AMS 5653J, AMS 5648N, ISO15156-3/NACE MR0175 (15), NACE MR0103/ISO 17945 (15), NORSOK M630 MDSS01 REV5.
REFERENCE NORMS FOR CHEMICAL COMPOSITION AND MECHANICAL PROPERTIES: ASTM A182-23/ ASME SA182-21.
REFERENCE NORMS ONLY FOR CHEMICAL COMPOSITION: EN 10222-5 (17),ASTM A403-22b, ASTM A484-22, ASTM A314-23, AMS-QQ-S-763D.
ASME SECT.II PART A EDITION 2015-2017-2019-2021.
THE MATERIAL IS PRODUCED ACCORDING TO SPECIFICATION AD2000-MERKBLATT W2/W10
REFERENCE FOR APPLICABLE ASME STANDARD: SECTION II PART A ED. 2015-2017-2019-2021
HOT ROLLED
REDUCTION RATIO 16,4

CHEMICAL LADLE ANALYSIS ACCORDING TO ASTM A751 - EN ISO 14284
Control lot No. - Weight :020000972304 - 85.728 KG - 188.995 LB

ELEMENTS	C	Si	Mn	P	S	N	Cr	Mo	Ni	Cu
MEASUREMENT UNIT	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w
OBTAINED	0,020	0,42	1,32	0,025	0,027	0,090	16,95	2,10	10,18	0,42

ELEMENTS	Co
MEASUREMENT UNIT	% w/w
OBTAINED	0,18

HARDNESS TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000972657 - 16.217 KG - 35.752 LB
SPECIFICATION ENISO6506 HARDNESS TEST HB TESTING METHOD: 10/3000
OBTAINED 161

21 AGO 2023
FRANCO CORBELLINI
QBQ
CROSSWIND R

DATE 13.07.2023

BARBARA VIETTI MV(WORKS INSPECTOR) - ELECTRONICALLY GENERATED CERTIFICATE -Cogne

1 - 066433.PDF C 240062-009/01

COGNE ACCIAI SPECIALI S.p.a.
ITALY - 11100 AOSTA - VIA PARAVERA, 16
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CAP. SOC. 250.000.000 EUR INT. VERS.
C.F. 02187360887
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, IATF 16949, EN 9100, ISO 14001 and ISO 45001.

IMPACT TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000972657 - 16.217 KG - 35.752 LB
SPECIFICATION EN ISO 148-1-KV2 DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 20
MEASUREMENT UNIT J

OBTAINED	429	434	425	441	441	434	432	430	435	443
	440	434								

TENSILE TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000972657 - 16.217 KG - 35.752 LB
SPECIFICATION EN-ISO6892-1 DIRECTION OF THE TEST PIECE: L

	RM	RP02	A5	Z	RP1
MEASUREMENT UNIT	MPA	MPA	% 5.0 D	%	MPA
OBTAINED	565	241	54,9	65,6	279
	568	263	50,8	62,7	296
	568	250	49,8	59,4	289
	569	251	49,6	63,0	283

GRAIN SIZE
Control lot No. - Weight :020000972657 - 16.217 KG - 35.752 LB
SPECIFICATION ASTME112 --
OBTAINED 5

CORROSION TEST ACCORDING TO ASTM A262 PRACTICE E EN ISO 3651-2 PRACTICE A: SATISFACTORY.
MATERIAL ACCORDING TO ASME SEC. II Ed. 2015
IMPACT TEST
Control lot No. - Weight :020000972657 - 16.217 KG - 35.752 LB
SPECIFICATION EN ISO 148-1 DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 196-
MEASUREMENT UNIT J

OBTAINED	113	104	102	110	91	97	104	115	108	112
	109	116								

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21 AGO. 2023
FRANCO CORBELLINI
QB9
CROSSWIND

DATE 13.07.2023

BARBARA VIETTI MV(WORKS INSPECTOR) - ELECTRONICALLY GENERATED CERTIFICATE

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FLUITEK ORSENIGO

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CAP. SOC. 250.000.000 EUR INT. VERS.
C.F. 02187360957
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

TENSILE TEST
Control lot No. - Weight :020000972657 - 16.217 KG - 35.752 LB
SPECIFICATION ASTMA370-E8-0.5"SPEC DIRECTION OF THE TEST PIECE: L

	RMB	RP02B	RA	EL4
MEASUREMENT UNIT	KSI	KSI	%	%
				4,0 D
OBTAINED	83	35	66,6	53,9
	83	36	62,9	53,4
	83	35	58,5	53,8
	82	36	60,4	59,4

Cogne

MATERIAL ACCORDING TO NACE MR0103/ISO 17945
ULTRASONIC TEST ACCORDING TO EN 10308 Class.3, EN 10228 Class.3, ASTM A388 FBH 5 (diam. 102-250), FBH 8 (diam. 250,01-400).
VISUAL INSPECTION OF SURFACE AND DIMENSIONAL CONTROL ACCORDING TO EN10221 CLASS C AND EN10060: SATISFACTORY.
ANTIMIX TEST BY PORTABLE SPECTROMETRE: SATISFACTORY.
NO WELDING REPAIR ON THE MATERIAL.
FREE FROM RADIOCTIVITY CONTAMINATION.
MARKING: SYMBOL OF THE MANUF. WORK, MATERIAL N. , CAST N., LOT N., RECEIVING AGENT STAMP
COUNTRY OF MELTING AND ORIGIN: ITALY, THE MATERIAL COMPLIES WITH FAR DFARS
252.225-7009 ALT 1.
THE PRODUCT SATISFIES THE DIRECTIVES: 2015/863/EU (ROHS3) - 2011/65/EU (ROHS2) - 2000/53/EU - 2002/95/EU(RoHS) - 2003/11/EU-2005/618/EU AND PED 2014/68/EU.
ALL THE NORMS MENTIONED ARE INTENDED IN THEIR LAST REVISION AT THE DATE OF ISSUE OF THIS DOCUMENT.
QUALITY SYSTEM CERTIFIED BY KIWA CERMET ACCORDING TO UNI EN ISO 9001:2015 -IATF 16949:2016 (THE LAST ONE ONLY FOR WIRE ROD AND HOT ROLLED-PEELED-GROUND STAINLESS STEEL BARS).
INSPECTOR'S STAMP LF
THE MATERIAL IS FREE OF ANY MERCURY, MERCURY COMPOUNDS AND OR RADIUM CONTAMINATION AT TIME OF SHIPMENT AND WAS PRODUCED WITHOUT USING OZONE DEPLETING SUBSTANCES OF CLASS I AND II.
RADIOACTIVITY CONTROL PERFORMED WITH A GAMMA SPECTROMETER: ASTM E181.
GAMMA ACTIVITY ON THE PRODUCTS BELOW 0.1 BQ/G ACCORDING TO EU RESOLUTION 2013/59/EURATOM , IAEA RS-G-1.7 AND IAEA SSG-17.

21 NOV. 2023

FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO VALBRE Q.C.

DATE 13.07.2023

BARBARA VIETTI MV(WORKS INSPECTOR) - ELECTRONICALLY GENERATED CERTIFICATE -Cogne

1 - 066433.PDF C 240062-009/01

COGNE ACCIAI SPECIALI S.p.a.
ITALY - 11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 405.563.167,00 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

72008

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)

DOCUMENT NUMBER 2024013685

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

CUSTOMER:	FLUITEK ORSENIGO VALVES SRL		
CUSTOMER'S ORDER:	Ordine Mail		
MANUFACTURER'S WORKS:	AOSTA, VIA PARAVERA 16 - ITALY		
PRODUCER OF THE DOC:	QUALITY DEPARTMENT		
MANUFACTURER'S WORKS ORDER NO:	0001141078 / 000020		
MARK OF THE MANUFACTURER:	**COGNE**		
DISPATCH NOTE:	0081613723 / 000020 WEIGHT: 92 KG / 203 LB		
INTERNAL SPEC:	STOCKBARREW2	TECHNICAL RULE:	AD2000
PRODUCT:	PEL PEELED ROUND BARS TOLERANCE: ISOK11		
SURFACE FINISH:	2B Cold Finished		
PRODUCT DELIVERY CONDITION:	RS SOLUTION ANNEALED		
PRODUCT DIMENSIONS (mm):	70,000 (2,756 in)	LENGTH (mm)	04000 06200 (00157 00244 in)
GRADE:	316L-S31600/31603-1.4404/4401	INTERNAL GRADE:	F316L IMCO
IDENTIFICATION HEAT NO:	472390	IDENTIFICATION LOT NO:	576000
MARKING OF THE PRODUCT:	1.4404	TEST PIECE N:	600

REFERENCE NORMS: EN 10088-3 (14), EN 10272 (16), ASTM A276-r17/ASME SA276-21, ASTM A479/A479M-r21, ASTM A193-23 B8MCLASSE 1D, ASME SA276/SA276M-21,ASME SA479/SA479M-21, AMS 5653J, AMS 5648N, ISO15156-3/NACE MR0175 (15), NACE MR0103/ISO 17945 (15), NORSOK M630 MDSS01 REV5.
REFERENCE NORMS FOR CHEMICAL COMPOSITION AND MECHANICAL PROPERTIES: ASTM A182-23/ ASME SA182-21.
REFERENCE NORMS ONLY FOR CHEMICAL COMPOSITION: EN 10222-5 (17),ASTM A403-22b, ASTM A484-22, ASTM A314-23, AMS-QQ-S-763D.
ASME SECT.II PART A EDITION 2015-2017-2019-2021.
AISI 316/316L - UNS S31600/S31603 - 1.4404/1.4401
THE PRODUCT IS CONFORMING TO THE CONTRACT AGREEMENT AND TO THE RULE AD2000-MERKBLATT W0/W2.
STEELMAKING EAF + AOD + CONTINUOUS CASTING
ASTM A484 DOES NOT APPLY FOR SIZE AND LENGTH TOLERANCES.
STEELMAKING EAF + AOD + CONTINUOUS CASTING
REFERENCE FOR APPLICABLE ASME STANDARD: SECTION II PART A ED. 2015-2017-2019-2021
HOT ROLLED
REDUCTION RATIO 6,1

CHEMICAL LADLE ANALYSIS ACCORDING TO ASTM A751 - EN ISO 14284
Control lot No. - Weight :020000998392 - 83.811 KG - 184.769 LB

ELEMENTS	C	Si	Mn	P	S	N	Cr	Mo	Ni	Cu
MEASUREMENT UNIT	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w
OBTAINED	0,014	0,32	1,77	0,028	0,027	0,081	17,00	2,07	10,00	0,39

ELEMENTS	Co
MEASUREMENT UNIT	% w/w
OBTAINED	0,21

HARDNESS TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000998734 - 13.460 KG - 29.674 LB
SPECIFICATION ENISO6506 HARDNESS TEST HB TESTING METHOD: 10/3000
OBTAINED 156

FLUITEK ORSENIGO VALVES SRL Q.C.

DATE 20.03.2024

MORABITO ROSA CF(WORKS INSPECTOR) - ELECTRONICALLY GENERATED CERTIFICATE

-Cogne

2 - 072008.PDF C 240062-009/01

COGNE ACCIAI SPECIALI S.p.a.
ITALY - 11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 405.563.167,00 EUR INT. VERS.
C.F. 02187360957
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

IMPACT TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000998734 - 13.460 KG - 29.674 LB
SPECIFICATION EN ISO 148-1-KV2 DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 20
MEASUREMENT UNIT J

OBTAINED	436	440	438	437	439	440	430	436	435	431
	432	434								

TENSILE TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000998734 - 13.460 KG - 29.674 LB
SPECIFICATION EN-ISO6892-1 DIRECTION OF THE TEST PIECE: L

	RM	RP02	A5	Z	RP1
MEASUREMENT UNIT	MPA	MPA	% 5.0 D	%	NMM
OBTAINED	601	281	52,7	71,1	326
	588	258	56,2	80,5	315
	600	275	48,3	72,9	321
	594	258	53,6	76,9	315

GRAIN SIZE
Control lot No. - Weight :020000998734 - 13.460 KG - 29.674 LB
SPECIFICATION ASTME112 --
OBTAINED 6

MATERIAL HEATED AT A TEMP >1040°C, THEN RAPIDLY COOLED IN AIR TO AVOID CARBIDE PRECIPITATION
MATERIAL IN COMPLIANCE WITH THE NORSOK M-630 MDS S01
IMPACT TEST
Control lot No. - Weight :020000998734 - 13.460 KG - 29.674 LB
SPECIFICATION EN ISO 148-1 DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 196-
MEASUREMENT UNIT J

OBTAINED	180	183	174	188	186	170	170	182	178	198
	184	186								

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21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.M.C.

DATE 20.03.2024

MORABITO ROSA CF(WORKS INSPECTOR) - ELECTRONICALLY GENERATED CERTIFICATE

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COGNE ACCIAI SPECIALI S.p.a.
ITALY - 11100 AOSTA - VIA PARAVERA, 16
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CAP. SOC. 405.553.167,00 EUR INT. VERS.
C.F. 02187360887
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

TENSILE TEST
Control lot No. - Weight :020000998734 - 13.460 KG - 29.674 LB
SPECIFICATION ASTMA370-E8-0.5"SPEC DIRECTION OF THE TEST PIECE: L

	RMB	RP02B	ZB	AL2B
MEASUREMENT UNIT	KSI	KSI	%	% 4,0 D
OBTAINED	87	39	75,8	57,3
	85	39	80,0	60,4
	88	40	71,2	57,1
	88	40	71,6	54,7

COUNTRY OF MELTING AND ORIGIN: ITALY, THE MATERIAL COMPLIES WITH FAR DFARS 252.225-7009 ALT 1.
The products delivered are conforming to EN10088-5 and bear the CE marking on the basis of the test results here reported and the continuous surveillance, assessment and approval by MPA NRW (certificate no. 0432-CPR-00166-01)
Material produced according to the system #Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011#
DOCUMENT ISSUED IN AGREEMENT WITH TUEV BAYERN(11.1972) WAVING OF COUNTERSIGNING (SEE TUEV BAYERN LETTER DATED 17.01.80).
MARKING: SYMBOL OF THE MANUF. WORK, MATERIAL N. , CAST N., LOT N., RECEIVING AGENT STAMP
CORROSION TEST ACCORDING TO ASTM A262 PRACTICE E EN ISO 3651-2 PRACTICE A: SATISFACTORY.
ANTIMIXING TEST BY PORTABLE SPECTROMETRE: CONFORMING
EDDY CURRENT INSPECTION OF SURFACE ACCORDING TO EN 10277 CLASS 4.
DIMENSIONAL CONTROL ACCORDING TO EN 10278: SATISFACTORY.
NO WELDING REPAIR ON THE MATERIAL.
ULTRASONIC TEST ACCORDING TO EN 10308 Class.3: SATISFACTORY
QUALITY SYSTEM CERTIFIED BY KIWA CERMET ACCORDING TO UNI EN ISO 9001:2015 -IATF 16949:2016 (THE LAST ONE ONLY FOR WIRE ROD AND HOT ROLLED-PEELED-GROUND STAINLESS STEEL BARS).
INSPECTOR'S STAMP LF
MATERIAL CONFORM TO: 2015/863/EU (RoHS3) - 2011/65/EU (RoHS2) - 2000/53/EU - 2002/95/EU (RoHS) - 2003/11/EU - 2005/618/EU - PED 2014/68/EU e PE(S)R 2016/1105
THE MATERIAL IS FREE OF ANY MERCURY, MERCURY COMPOUNDS AND OR RADIUM CONTAMINATION AT TIME OF SHIPMENT AND WAS PRODUCED WITHOUT USING OZONE DEPLETING SUBSTANCES OF CLASS I AND II.
RADIOACTIVITY CONTROL PERFORMED WITH A GAMMA SPECTROMETER: ASTM E181.
GAMMA ACTIVITY ON THE PRODUCTS BELOW 0.1 BQ/G ACCORDING TO EU RESOLUTION 2013/59/EURATOM , IAEA RS-G-1.7 AND IAEA SSG-17.

CE 0432 UK CA 0038

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VA Q.C.

DATE 20.03.2024

MORABITO ROSA CF(WORKS INSPECTOR) - ELECTRONICALLY GENERATED CERTIFICATE

-Cogne

2 - 072008.PDF C 240062-009/01

3 - 071474.PDF C 240062-009/01

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

VDM
Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668
Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

Specification
718 Rev. 13 03.02.2020 (Straightness 2:1000)
Yield Strength: min 120 KSI
temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718
UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1934-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straightness 2:1000); API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Meth	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Meth	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Meth	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5.5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Ü. Ücüncü
Ünal Ücüncü, authorized Inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

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VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

FLUITEKORSENICO VALVES SRL Q.C.

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman), Holger Arnold, Daniel Apilanis Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates
1 718 Rev. 13 03.02.2020 (Straightness 2:1000)

		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling[start 27°C - end 28°C - max. 29°C] + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.

For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.

MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.

No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.

All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.

SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.

The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.

Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

FLUITEK ORSENIGO VALVES SRL
Q.C.

21 AGO. 2023
FRANCO CORBELLINI
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CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Apitario Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 ; 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

21 AGO. 2023
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FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apiñaniz Zemp, Frank Morris
Commercial register: berlahn local court, HS127
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KVs 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

21 AGO. 2024
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VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicias Müller (Chairman)
Holger Arnold, Daniel Arpitarte Zamp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection 22.07.2023

The material is in compliance with the test specification

Supervisor

Hirzbruch, Level II

21 AGO. 2023
FRANCO CORBELLINI
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EQUITEK ORSENIGO VALVES SRL
Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slighlty oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm
Cast - Product-ID	422416 - 102
Date of Inspection	22.07.2023

Reportable Indications

count	Inspector	level
0	Plaza-Wacker	Level II

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

21 AGO. 2024
FRANCO CORBELLINI
QBQ
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FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

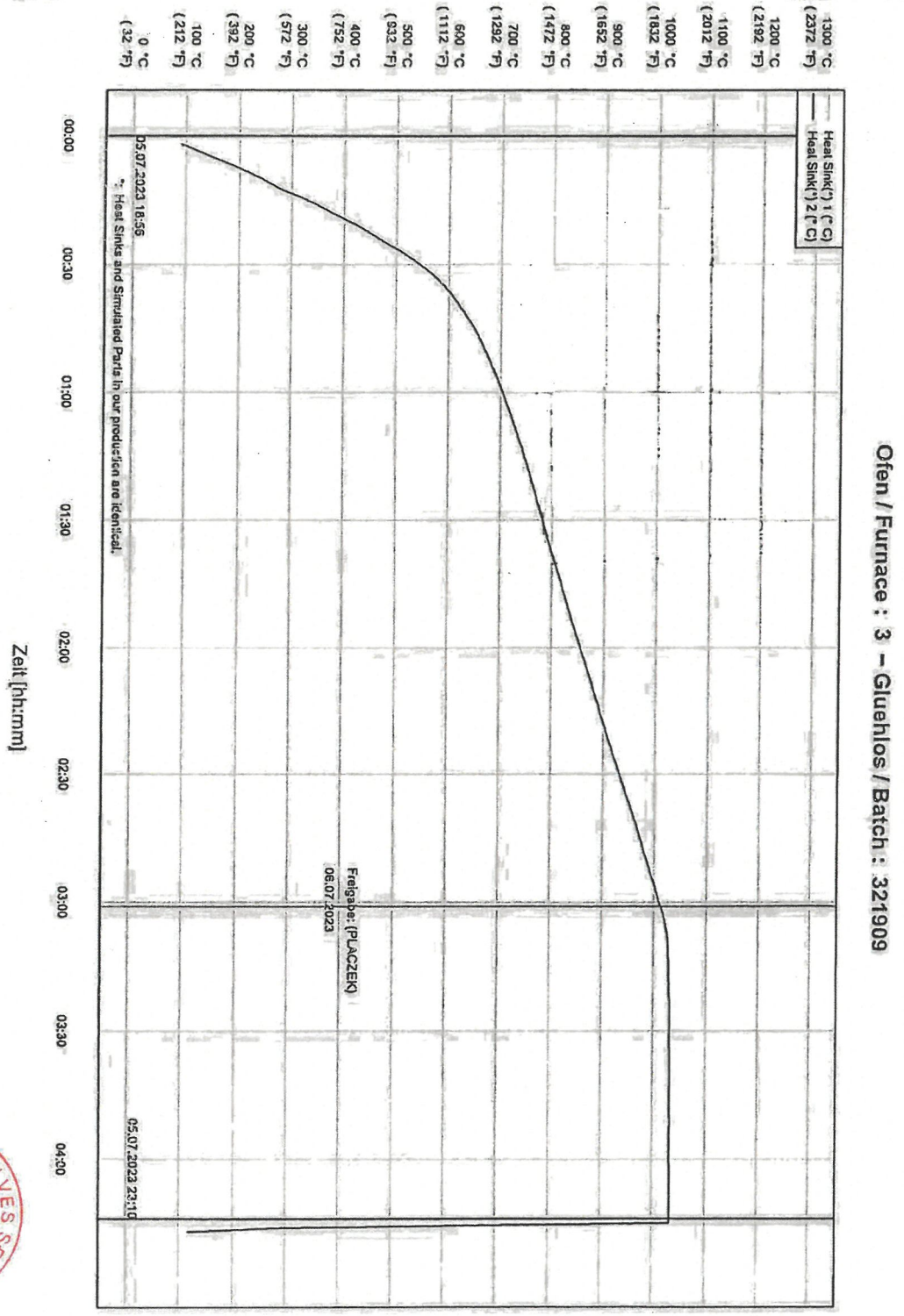
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman)
Holger Arnold, Daniel Apiñaniz Zamp, Frank Monis
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Mats Muter (Chairman)
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

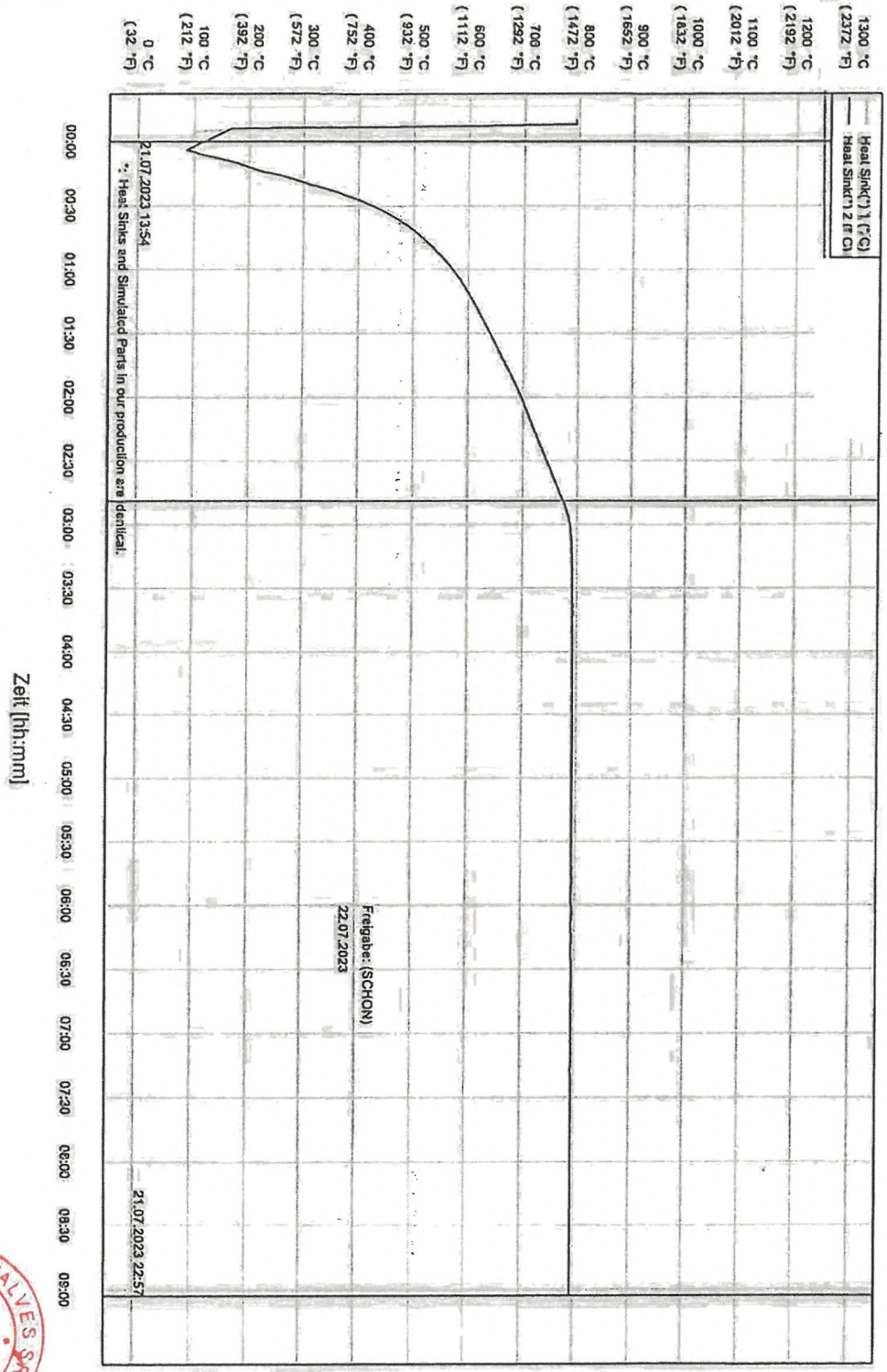
21 AGO. 2024
FRANCO CORBELLINI
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321955

QUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicas Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

21 NOV. 2024
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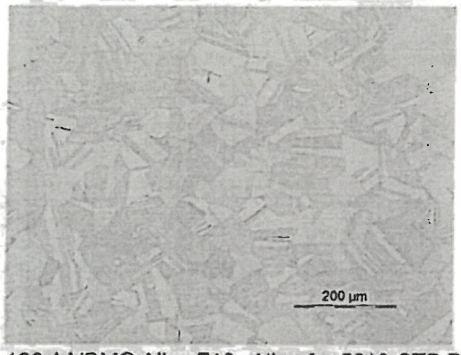
VDM Metals

VDM Metals GmbH

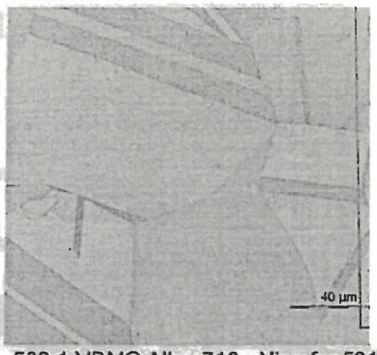
Microstructure Examination

Metallography Job No.:	194936
Lot No.:	105403101
Heat:	422416

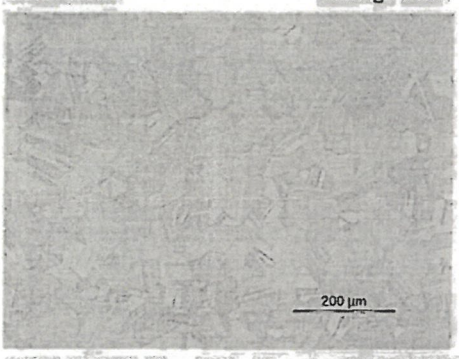
Inspection Certificate No.: 253749/1
Enclosure: 4
Page: ~~1 of 1~~



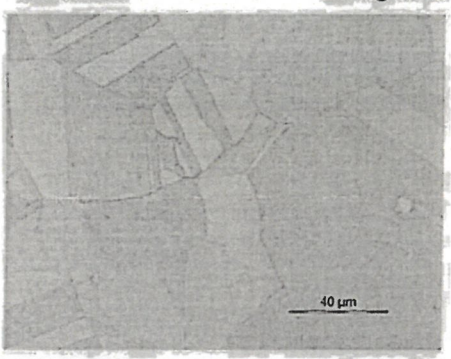
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



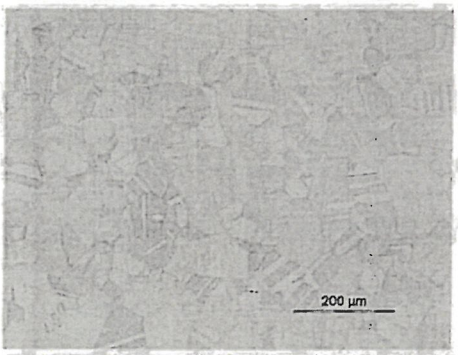
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



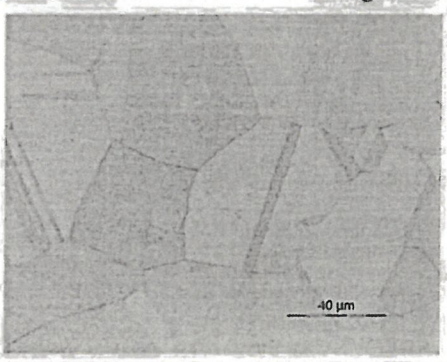
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

FLOURSENIGO VALVES S.R.L. Q.C.

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpilarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 AGO. 2024
FRANCO CORBELLINI
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FLUITEK ORSENIGO VALVES SPA Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE
ORDER NUMBER: 715430-1 **STEP:** 721719
PRODUCT CODE: 718 1.25 SAAH
HARDNESS RANGE (HBW): 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
☐ A0-30	☐ 6403-4 R92033	☐ R984063	☑ 0510014	☐	☐ F68332/139	☐ 814574
☑ UC-71	☐ 6403_16897	☐	☐ 0907068	☐	☐	☐
☐ UC-72	☐ E50152/15(6503-1)	☐	☐ 1112032	☐	☐	☐
☐	☐ HMV1(6403-3)	☐	☐ 1112037	☐	☐	☐
☐	☐ R335(HMM1)	☐	☐	☐	☐	☐

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

								T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
[signature]	316	316.5 21 AGO 2024	27591 30AW	P	21/8/24

01 March 2024

FRANCO CORBELLINI
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3 - 071474.PDF C 240062-009/01

MECCANICHE MORANDI s.r.l.
QUALITY MANAGEMENT SYSTEM DEPT.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia
Tel +39 0331 302949 Fax +39 0331 302948

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

Cliente *Customer / Besteller*	FLUITEK ORSENIGO VALVES SRL	**Descrizione** *Description / Prüfgegenstand*	Vite TER - Bolt TER M12x25	**Certificato N°** *Certificate N° / Prüf Nr*	152966 R. 0
VIA DEI LIVELLI DI SOPRA	5/7				
COSTA DI MEZZATE	BG	**Disegno Cliente** *Customer drawing / Kunden-design*	144252	**Classe materiale** *Material Class /W.n*	B8M cl.2 (<=M20) S31600
		N° pezzi *Quantity / Stückzahl*	220		ASTM A193/A193M-19; ASTM A320/A320M-18
N° DDT	221871 **data** *date / datum* 17/06/2022	**N° Ordine Cliente** *Order N° / Besteller Nr*	220328 POS. 007	**Colata** *Heat N° / Schmelze Nr*	038048

Analisi chimica

Chemical Analysis /Chemische Analyse

Valori richiesti %		C	Mn	Si	Cr	Ni	Mo	S	P
Required values /	min.				16,000	10,000	2,000		
Sollwerte	max	0,080	2,000	1,000	18,000	14,000	3,000	0,030	0,045
Analisi colata		0,021	0,562	0,487	16,644	11,020	2,060	0,001	0,027
**Heat analysis / Schmelzanalyse*		* As reported on steel work or supplier certificate							

Balance Fe

Caratteristiche meccaniche

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* Rm [N/mm2]		Snervamento *Yield strength Streck-grenze* Rs [N/mm2]	Allungamento *Elongation Bruch-dehnung* A%		Strizione *Reduction of area Bruch-einschn.* Z%	Durezza *Hardness Härteprüfung* HB		Resilienza *Impact test Schlagarbeit* [J]		Temperat. resilienza *Temp* [°C]
Valori richiesti *Required values/ Anforderungen*	min 760	max	min 655	4D min 15,00%	5D min	min 45,00%	min	max 321	media	min	
Valori ottenuti *Actual values / Ergebnisse*	933		822	19,60%		57,80%		285			
Note											

Trattamento termico
Heat treatment
Carbide solution treated and strain hardened

Esame decarburazione-carburazione
Decarburization and carburization test
Non applicabile - Not applicable

Esame macroscopico
Macroetch examination result
Non applicabile - Not applicable

Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*: Positive

P.M.I.: Positive

Marcature *Marking / Kennzeichnung*: B8MSH - MM

Rivestimento *Coating / Oberflächenbeschichtung*:

Informazioni aggiuntive
Further information / Zusätzliche angaben

21 AGO. 2024
FRANCO CORBELLINI
QFI
CROSSWIND

The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72374 /

Company with quality system certified by DNV = UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI srl
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-010/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**010**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
100	**1**

TAG
64-SDV-001

SERIAL NUMBER
From 2400620100001 to 2400620100001

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0

NOTES

COMPONENT

CHEMICAL ANALYSIS

PART NAME	MATERIAL	C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
		Al	Co	N	V	Nb	Sn	CE	Nb+Ta				

MECHANICAL PROPERTIES. IMPACT TESTS

HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
SCREW	A193 B8M CL2	0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
	174374	1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORBELLINI QBQ CROSSWIND R DATE	FLUITEK ORSENIGO VALVES SRL DATE 06/08/2024

60194

1 - 068194.PDF C 240062-010/01

Acciaierie Valbruna S.p.A.

Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

SPECIFICHE :	Note:
Anforderungen / Requirements / Exigences	Aufzeichnungen / Notes / Notes
VAL STOCK W2 A/1 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
MDS S17 1 316 A (1)	(1)Norsok-standard M-630: 2020 (2020-09-30)
AD 2000-M. W 2 2022 1.4401 A (2)	(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AD 2000-M. W 2 2022 1.4404 A (3)	(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AISI . 316/316L	
AMS-QQ-S-763 D 316/316L A	
ASME SA182 2021 S31600/03 A (4)	(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2021 B8M CLASS 1 (5)	(5)Section II Part A 2021 EDITION
ASME SA276 2021 S31600/03 A (6)	(6)Section II Part A 2021 EDITION
ASME SA320 2021 B8M CLASS 1 (7)	(7)Section II Part A 2021 EDITION
ASME SA479 2021 S31600/03 A (8)	(8)Section II Part A 2021 EDITION
ASTM A182 2023 S31600/03 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2023 B8M CLASS 1	
ASTM A262 PR. E 2015 316/316L (A)	(A)Reapproved 2021
ASTM A276 2023 S31600/03 A	
ASTM A320 2022 B8M CLASS 1 CLASS1	
ASTM A370 2022 .	
ASTM A479 2023A S31600/03 A	
ASTM E10 2023 .	
ASTM E8 2022 .	
EN 10088 PART 3 2014 1.4401 A	
EN 10088 PART 3 2014 1.4404 A	
EN 10272 2016. 1.4401 A	
EN 10272 2016. 1.4404 A	
ISO 148-1 2016 .	
ISO 3651-2 98 METHOD A T1	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600/03 A (B)	(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 4 S31600/03 A (C)	(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.
QQ-S-763 F 316/316L A	
ACH CO . .	
KV L -196C . ISO 148-1	
KV T -196C . ISO 148-1	

21 AGO. 2024
FRANCO CORBELLINI
QC
CROSSWIND

FLUITEK ORSENIGO QMC

		Tolleranza: k12 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Loenr. Lot nr. Lot nr.
0060	Tondo	135,000	5324/ 5533	291737	1	630,0	320205030

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 1 di 5

Acciaierie Valbruna S.p.A.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

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Certificato nr. MEST012686 / 2024 /
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Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

TEST ALLO STATO DI FORNITURA
Test on delivery condition Prüfung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min			200	235	500	40	-	-	-	-			-		
		max					700									215	
A	10	20	L		270	309	562	59		69					161		
I	10	20	L		278	311	575	57		67					162		

TEST ALLO STATO DI FORNITURA
Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			3

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min			-	-	-	-	-	-	-	-	-
		max											
B	10X10	-196	L		188	190	195	1,855	1,492	1,910	73	71	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min			210	-	520	-	40	-	50	-			-		
		max					790									223	
C	12,5	20	L		258		562		62		73				158		

21 AGO. 2024

FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO QVC

Vicenza, 29/01/2024
VCQ008 - MEST012686

Direzione Qualità
Qualitätsmanagement/Quality Management/Gestion Qualité
R.BERTELLI

Direzione Prodotto
Produktmanagement/Product Management/Direction Produit
P.MESSORI

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.240068

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI24000623

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI24000573

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefermerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probestage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	267		561		50		64						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probestage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
E	10X10	-196	T	89	94	91	1,258	1,325	1,005	27	20	31

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probestage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		100	100	100	-	-	-	-	-	-
H	10X10	20	L	258	258	260						
J	10X10	20	L	253	247	255						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO QC

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'esssayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
	min -	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
	max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-
291737	0,022	0,42	1,58	16,80	2,04	0,37	10,13	0,166	0,033	0,028	0,051				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result .
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 3,2 : 1
Solution annealed 1080°C for 180'(total time)/ water cooled
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

Sono state soddisfatte tutte le condizioni richieste / Die gestellen Anforderungen sind lt. Anlage erfüllt / The material has been furnished in accordance with the requirements / Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK / Verwechslungprüfung: durch XRF/QES Gerät geführt : OK / Antimixing testing performed with XRF/OES portable : OK / Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze / Besichtigung und Ausmessung: ohne Beanstandung / Visual inspection and dimensional checks:satisfactory / Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FLUITEK ORSENIGO Q.C.

Acciaierie Valbruna S.p.A.
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Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
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FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
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Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSPB216CM30DH6XDA63AA9662E0C9630C

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. QC

57606 | 2 - 057606.PDF | C 240062-010/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A MDS S01 5 316 A (0) AISI 316	(0)Norsok-standard M-630 Edition 6, October 2013
AISI 316L ASME SA182 2019 S31600 A (1) ASME SA182 2019 S31603 A (2)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479. (2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3) ASME SA276 2019 S31600 A (4) ASME SA276 2019 S31603 A (5)	(3)Section II Part A 2019 EDITION (4)Section II Part A 2019 EDITION (5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6) ASME SA479 2019 S31600 A (7) ASME SA479 2019 S31603 A (8)	(6)Section II Part A 2019 EDITION (7)Section II Part A 2019 EDITION (8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9) ASTM A182 2020 S31603 (A) ASTM A193 2019 B8M CLASS 1	(9)For products machined directly from bar refer also to ASTM A479. (A)For products machined directly from bar refer also to ASTM A479.
ASTM A262 2015 PRACTICE E ASTM A276 2017 S31600 A ASTM A276 2017 S31603 A	
ASTM A314 2019 S31600 ASTM A320 2018 B8M CLASS 1 CLASS1 ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A ASTM A479 2019 S31603 A ASTM E10 2018 .	
ASTM E8 2016A . DIN 17440 96 1.4401 A DIN 17440 96 1.4404 A	
EN 10088-3 2014 1.4401 A EN 10088-3 2014 1.4404 A EN 10272 2007 1.4401 A	
EN 10272 2007 1.4404 A ISO 148-1 2016 . ISO 6506-1 2014 .	
ISO 6892-1 2019 . NACE MR0103 2015 S31600 A (C) NACE MR0103 2015 S31603 A (D)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015 (D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E) NACE MR0175 2015 S31603 A (F)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015 (F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

21 AGO. 2024
FRANCO CORBELLINI
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CROSSWIND

FLUITEK ORSENIGO VALVES Q.C.

Acciaierie Valbruna S.p.A.

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Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

Pos. nr.	Oggetto	Tolleranza: k12 — Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
Pos. nr. Item nr. Nr. de poste	Gegenstand Product description Descrip. du produit	Abmessungen Dimension Dimension	Lange Length Longueur	Schmelze Heat Coulée	Stückzahl Pieces Pieces	Gewicht Weight Poids	Losnr Lot nr Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA
Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %	Allungamento E 4d %	Strizione Einschnürung Reduction of area Striction Z %	Strizione RA %	Resilienza Kerbschlagarbeit Impact Value Resilience KV J			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs demandées		min		205	240	515	40	40	-	50	100			-		
		max				690								215		
A	10	20	L	295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA
Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

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Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %
min -	-	-	-	16,50	2,00	10,00	-	-	-
max 0,030	1,00	2,00		18,00	2,50	13,00	0,045	0,030	0,100
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055

Acciaierie Valbruna S.p.A.

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CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell Your order Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/4/316/L

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

W3P4F29E34D159E26AE37954046D159E28C

21 AGO. 2021
FRANCO CORBELLINI
QBQ
CROSSWIND

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-

21 AGO. 2024
FRANCO CORBELLINI
QBJ
CROSSWIND

General remarks

1: This test report cannot be partially reproduced without our written approval
2: Test results are relevant only to the specimens belonging to the indicated samples
3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy
4: Tests are performed on the material in as-received conditions, unless otherwise specified
5: Sampling has been performed by customer
6: If not otherwise agreed, tested specimens are kept for 30 days from the test date
7: The uncertainty value, when expressed, does not affect the conformity declaration
8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA
9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by
MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 TRS-23-2166-001 Rev. 0

21 AGO. 2024
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QBQ
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Notched bar impact test

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration

Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

3 - 071474.PDF C 240062-010/01

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

VDM
Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668

Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

21 AGO. 2024
FRANCO CORBELLINI
QB1
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Specification
718 Rev. 13 03.02.2020 (Straigthness 2:1000)
Yield Strength: min 120 KSI
temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718
UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1934-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straigthness 2:1000); API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Melt	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Melt	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Melt	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5.5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

M. Ücüncü
Ünal Ücüncü , authorized inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

FLUITEK ORSENIGO VALVES SRL Q.C.

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Applarix Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

printed: 14. AUG 2023

Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates		
1	718 Rev. 13 03.02.2020 (Straightness 2:1000)	
		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling[start 27°C - end 28°C - max. 29°C] + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.

For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.

MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.

No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.

All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.

SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.

The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.

Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

21 AGO. 2024
FRANCO CORBELLINI
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FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Apitario Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 : 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

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FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Arpitarte Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KVa 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

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VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
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Chairman of the Supervisory Board: Bernardo Velázquez Herreros
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Holger Arnold, Daniel Arpitarte Zamp, Frank Morris
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Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

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Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of inspection 22.07.2023

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

21 AGO. 2024
FRANCO CORBELLINI
QB3
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FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor
Hinzbruch, Level II

21 AGO. 2024
FRANCO CORBELLINI
QBQ
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FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

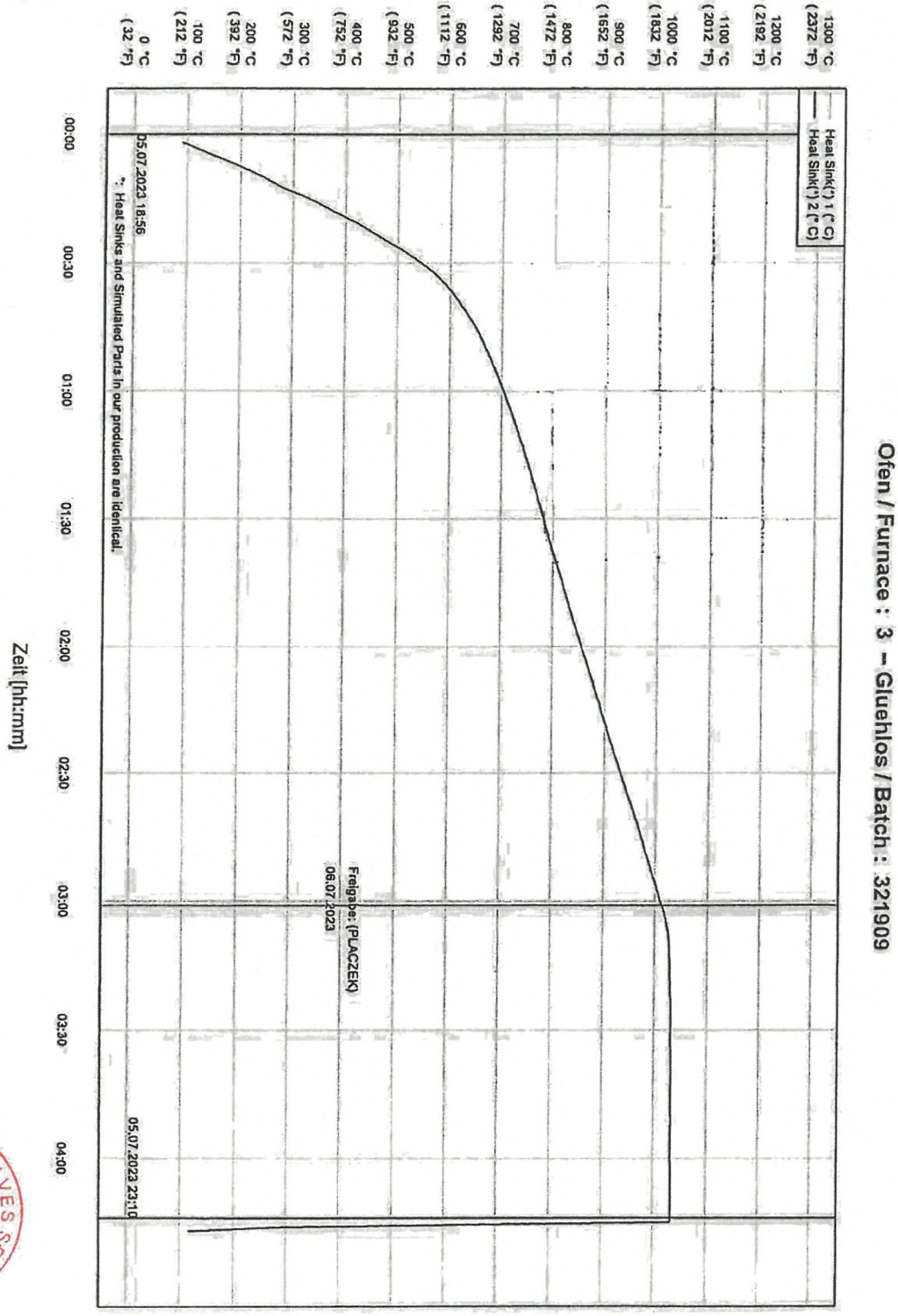
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zamp, Frank Moritz
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Mats Müller (Chairman)
Holger Arnold, Daniel Aparicio Zemp, Frank Morris
Commercial register: berlohn local court, #5327
Company domicile: Werdohl

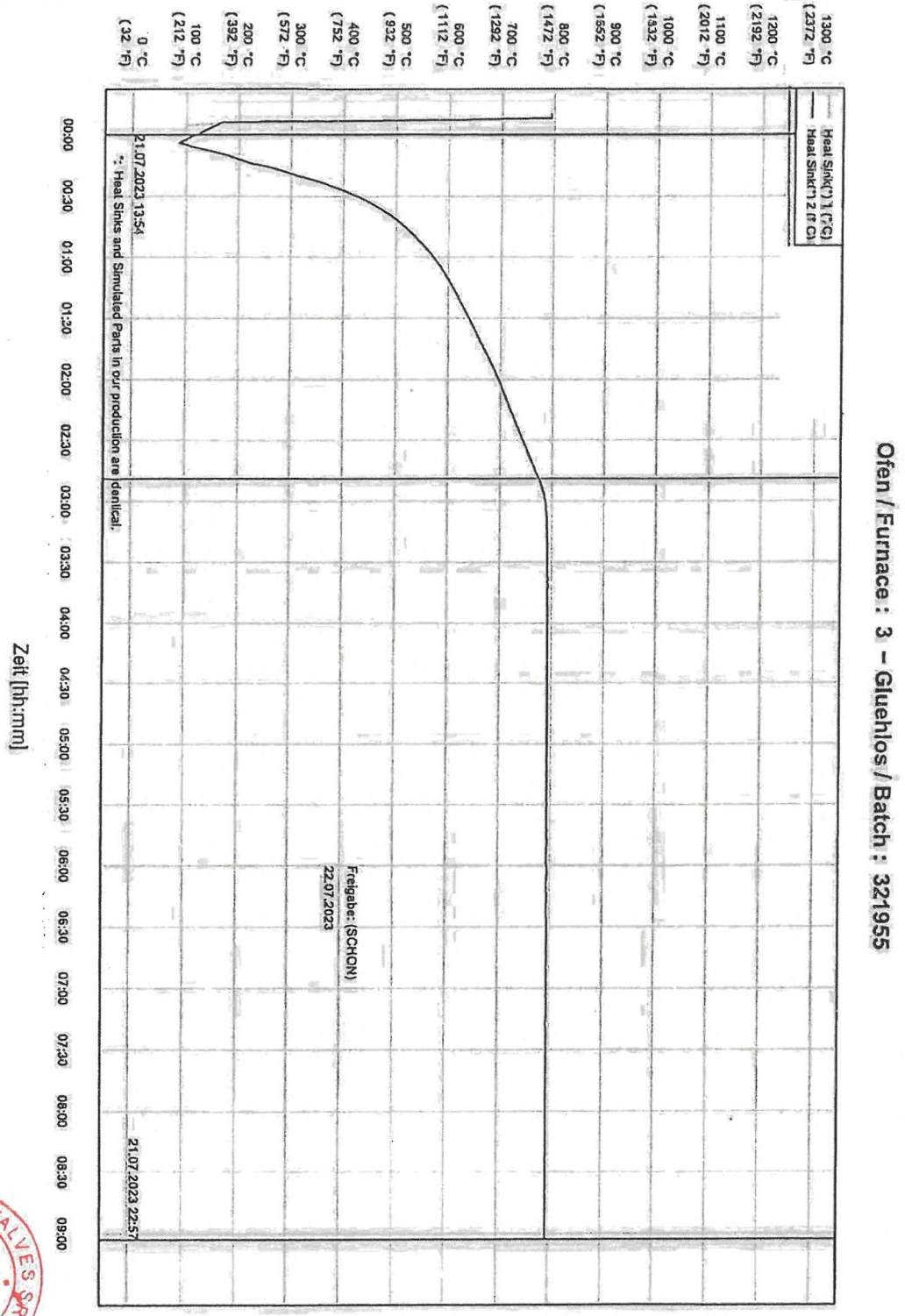
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

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Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321955

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
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Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Aspiazu Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

21 AGO. 2023
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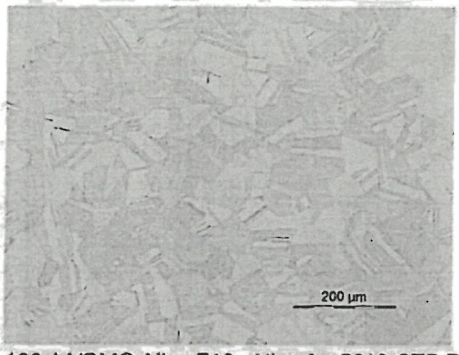
VDM Metals

VDM Metals GmbH

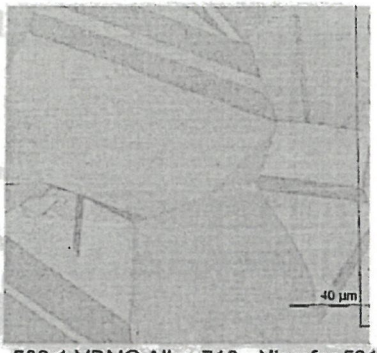
Microstructure Examination

Metallography Job No.:	194936
Lot No.:	105403101
Heat:	422416

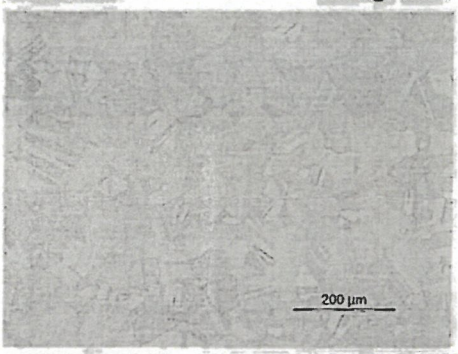
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Enclosure:	4
Page:	~~1 of 1~~



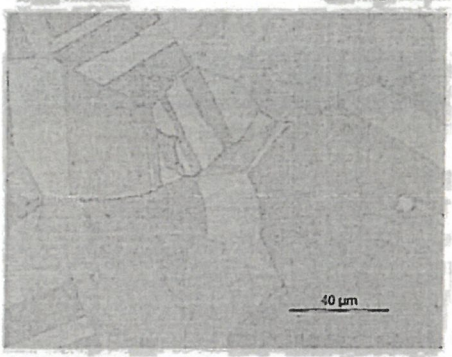
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102T001A02 surface
26.07.2023 Kallings No.2



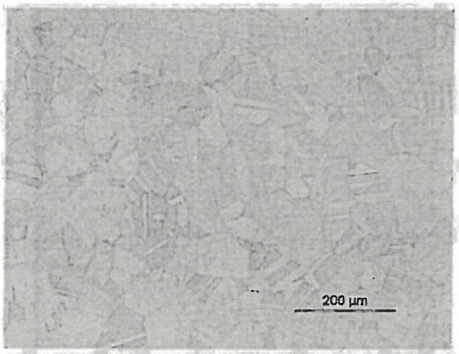
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



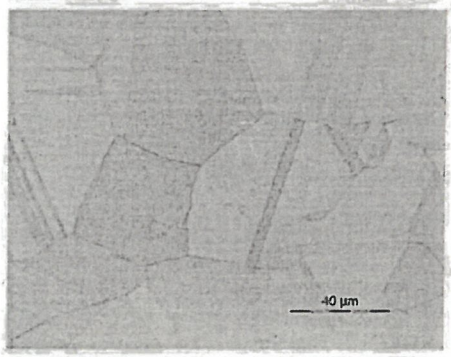
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

FLOURSENIGO VALVES SRL Q.C.

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpilarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 AGO. 2024

FRANCO CORBELLINI
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FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE **ORDER NUMBER:** 715430-1 **STEP:** 721719

PRODUCT CODE: 718 1.25 SAAH **HARDNESS RANGE (HBW):** 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
A0-30	6403-4 R92033	R984063	0510014		F68332/139	814574
☑ UC-71	6403_16897		0907068			
UC-72	E50152/15(6503-1)		1112032			
	HMV1(6403-3)		1112037			
	R335(HMM1)					

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

									T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
	316	316.5	27591 30AW	P	21/8/24

21 AGO. 2024

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061

CROSSWING

3 - 071474.PDF C 240062-010/01

4 - 061238.PDF C 240062-010/01

MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller*	FLUITEK ORSENIGO VALVES SRL	**Descrizione** *Description / Prüfgegenstand*	Vite TER - Bolt TER M10x25	**Certificato N°** *Certificate N° / Prüf Nr*	153954 R. 0
VIA DEI LIVELLI DI SOPRA	5/7				
COSTA DI MEZZATE	BG	**Disegno Cliente** *Customer drawing / Kunden-design*	144356	**Classe materiale** *Material Class /W.n*	B8M cl.2 (<=M20) S31600 ASTM A193/A193M-19; ASTM A320/A320M-18
		N° pezzi *Quantity / Stückzahl*	2000		
N° DDT 222434	**data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr*	220638 POS. 003	**Colata** *Heat N° / Schmelze Nr*	174374

Analisi chimica

Chemical Analysis /Chemische Analyse

Valori richiesti %

		C	Mn	Si	Cr	Ni	Mo	S	P
Required values / Sollwerte	min.				16,000	10,000	2,000		
	max	0,080	2,000	1,000	18,000	14,000	3,000	0,030	0,045
Analisi colata **Heat analysis / Schmelzanalyse*		0,016	1,830	0,380	16,680	10,280	2,050	0,001	0,027

* As reported on steel work or supplier certificate

Balance Fe

Caratteristiche meccaniche

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* Rm [N/mm2]		Snervamento *Yield strength Streck-grenze* Rs [N/mm2]	Allungamento *Elongation Bruch-dehnung* A%		Strizione *Reduction of area Bruch-einschn.* Z%	Durezza *Hardness Härteprüfung* HB		Resilienza *Impact test Schlagarbeit* [J]		Temperat. resilienza *Temp* [°C]
Valori richiesti *Required values/ Anforderungen*	min 760	max	min 655	4D min 15,00%	5D min	min 45,00%	min	max 321	media	min	
Valori ottenuti *Actual values / Ergebnisse*	1033		889	24,00%		66,20%		315			

Note

Trattamento termico *Heat treatment*	**Esame decarburazione-carburazione** *Decarburization and carburization test*	**Esame macroscopico** *Macroetch examination result*
Carbide solution treated and strain hardened	Non applicabile - Not applicable	Non applicabile - Not applicable

Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*	Positive	**P.M.I.**	Positive	**Marcature** *Marking / Kennzeichnung*	B8MSH MM	**Rivestimento** *Coating Oberflächenbeschichtung*	

Informazioni aggiuntive
Further information / Zusätzliche angaben

21 AGO. 2024

FRANCO CORBELLINI

081

CROSSWIND

The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612 /

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta n. 27
21015 LONATE PO...

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE
N° **C 240062-011/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**011**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
110	**1**

TAG
25-XV-004

SERIAL NUMBER
From 2400620110001 to 2400620110001

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316_316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
SCREW	A193 B8M CL2	0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
	174374	1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	FRANCO CORBELLINI 21 AGO. 2024 CROSSWIND DATE	FLUITEK ORSENIGO VALVES SRL DATE 06/08/2024

60194

1 - 068194.PDF C 240062-011/01

Acciaierie Valbruna S.p.A.

Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK W2 A/1 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
MDS S17 1 316 A (1)	(1)Norsok-standard M-630: 2020 (2020-09-30)
AD 2000-M. W 2 2022 1.4401 A (2)	(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AD 2000-M. W 2 2022 1.4404 A (3)	(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AISI . 316/316L	
AMS-QQ-S-763 D 316/316L A	
ASME SA182 2021 S31600/03 A (4)	(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2021 B8M CLASS 1 (5)	(5)Section II Part A 2021 EDITION
ASME SA276 2021 S31600/03 A (6)	(6)Section II Part A 2021 EDITION
ASME SA320 2021 B8M CLASS 1 (7)	(7)Section II Part A 2021 EDITION
ASME SA479 2021 S31600/03 A (8)	(8)Section II Part A 2021 EDITION
ASTM A182 2023 S31600/03 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2023 B8M CLASS 1	
ASTM A262 PR. E 2015 316/316L (A)	(A)Reapproved 2021
ASTM A276 2023 S31600/03 A	
ASTM A320 2022 B8M CLASS 1 CLASS1	
ASTM A370 2022 .	
ASTM A479 2023A S31600/03 A	
ASTM E10 2023 .	
ASTM E8 2022 .	
EN 10088 PART 3 2014 1.4401 A	
EN 10088 PART 3 2014 1.4404 A	
EN 10272 2016. 1.4401 A	
EN 10272 2016. 1.4404 A	
ISO 148-1 2016 .	
ISO 3651-2 98 METHOD A T1	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600/03 A (B)	(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 4 S31600/03 A (C)	(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.
QQ-S-763 F 316/316L A	
ACH CO . .	
KV L -196C . ISO 148-1	
KV T -196C . ISO 148-1	

21 AGO. 2024
FRANCO CORBELLINI
QB9
CROSSWIND

FLUITEK ORSENIGO QMC

		Tolleranza: k12 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Lange Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0060	Tondo	135,000	5324/ 5533	291737	1	630,0	320205030

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 1 di 5

Acciaierie Valbruna S.p.A.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / test a l'etat de fourniture / Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance á traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		200	235	500	40	-	-	-	-			-		
		max				700									215	
A	10	20	L	270	309	562	59		69					161		
I	10	20	L	278	311	575	57		67					162		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			3

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
B	10X10	-196	L	188	190	195	1,855	1,492	1,910	73	71	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance á traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		210	-	520	-	40	-	50	-			-		
		max				790									223	
C	12,5	20	L	258		552		62		73				158		

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO QVC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 Z.I.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min / max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	267		561		50		64						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min / max		-	-	-	-	-	-	-	-	-
E	10X10	-196	T	89	94	91	1,258	1,325	1,005	27	20	31

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min / max		100	100	100	-	-	-	-	-	-
H	10X10	20	L	258	258	260						
J	10X10	20	L	253	247	255						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO S.r.l. QC

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.240068

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI24000623

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI24000573

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
min -	-	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
max	0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-
291737	0,022	0,42	1,58	16,80	2,04	0,37	10,13	0,166	0,033	0,028	0,051				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 3,2 : 1
Solution annealed 1080°C for 180'(total time)/ water cooled
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

Sono state soddisfatte tutte le condizioni richieste / Die gestellen Anforderungen sind it. Anlage erfüllt / The material has been furnished in accordance with the requirements / Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK / Verwechslungprüfung: durch XRF/QES Gerät geführt : OK / Antimixing testing performed with XRF/OES portable : OK / Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze / Besichtigung und Ausmessung: ohne Beanstandung / Visual inspection and dimensional checks:satisfactory / Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy — No welding or weld repair — Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FLUITEK ORSENIGO Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024	Direzione Qualità / Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto / Produktmanagement/Product Management/Direction Produit	Pagina
VCQ008 - MEST012686	R.BERTELLI	P.MESSORI	4 di 5

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 Z.I.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD'S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

21 AGO. 2024
FRANCO CORBELLINI
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FLUITEK ORSENIGO VALVES SRL Q.C.

57606 | 2 - 057606.PDF | C 240062-011/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
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Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A MDS S01 5 316 A (0) AISI 316 AISI 316L	(0)Norsok-standard M-630 Edition 6, October 2013
ASME SA182 2019 S31600 A (1) ASME SA182 2019 S31603 A (2)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479. (2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3) ASME SA276 2019 S31600 A (4) ASME SA276 2019 S31603 A (5)	(3)Section II Part A 2019 EDITION (4)Section II Part A 2019 EDITION (5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6) ASME SA479 2019 S31600 A (7) ASME SA479 2019 S31603 A (8)	(6)Section II Part A 2019 EDITION (7)Section II Part A 2019 EDITION (8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9) ASTM A182 2020 S31603 (A) ASTM A193 2019 B8M CLASS 1 ASTM A262 2015 PRACTICE E ASTM A276 2017 S31600 A ASTM A276 2017 S31603 A ASTM A314 2019 S31600 ASTM A320 2018 B8M CLASS 1 CLASS1	(9)For products machined directly from bar refer also to ASTM A479. (A)For products machined directly from bar refer also to ASTM A479.
ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A ASTM A479 2019 S31603 A ASTM E10 2018 . ASTM E8 2016A . DIN 17440 96 1.4401 A DIN 17440 96 1.4404 A EN 10088-3 2014 1.4401 A EN 10088-3 2014 1.4404 A EN 10272 2007 1.4401 A EN 10272 2007 1.4404 A ISO 148-1 2016 . ISO 6506-1 2014 . ISO 6892-1 2019 .	
NACE MR0103 2015 S31600 A (C) NACE MR0103 2015 S31603 A (D)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015 (D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E) NACE MR0175 2015 S31603 A (F)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015 (F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

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FRANCO CORBELLINI
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FLUITEK ORSENIGO VALVES Q.C.

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Telefono 0444.968211 - Fax 0444.963836
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In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

Pos. nr.	Oggetto	Tolleranza: k12 Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
		Tolleranza/Allowance/Tolerance					
Pos. nr. / Item nr. / Nr. de poste	Gegenstand / Product description / Descrip. du produit	Abmessungen / Dimension / Dimension	Lange / Length / Longueur	Schmelze / Heat / Coulée	Stückzahl / Pieces / Pieces	Gewicht / Weight / Poids	Losnr. / Lot nr. / Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab / Specimen/Eprouvette / Larg.diam Spess. / Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais	°C	Posiz. Saggio / Probenlage / Location / Emplacement 1)	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 1% N/mm2	Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2	Allungamento / Bruchdehnung / Elongation / Allongement A5 %	Allungamento E 4d %	Strizione / Einschnürung / Reduction of area / Striction Z %	Strizione RA %	Resilienza / Kerbschlagarbeit / Impact Value / Resilience KV J			Durezza / Haerte / Hardness / Durete HB		
	mm															
Valori richiesti / Anforderungen/Required values / Valeurs demandées		min		205	240	515	40	40	-	50	100			-		
		max				690								215		
A	10	20	L	295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

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Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée																
	min -	-	-	-	16,50	2,00	10,00	-	-	-	-	-	-	-	-	-
	max 0,030	1,00	2,00	18,00	2,50	13,00	0,045	0,030	0,100	-	-	-	-	-	-	-
	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %							
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055							

Acciaierie Valbruna S.p.A.

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In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
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Your order
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Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

W9P4F20E3AD1F6E26AE37B54048D159E28C

21 AGO. 2024
FRANCO CORBELLINI

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MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-
General remarks	1: This test report cannot be partially reproduced without our written approval 2: Test results are relevant only to the specimens belonging to the indicated samples 3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy 4: Tests are performed on the material in as-received conditions, unless otherwise specified 5: Sampling has been performed by customer 6: If not otherwise agreed, tested specimens are kept for 30 days from the test date 7: The uncertainty value, when expressed, does not affect the conformity declaration 8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA 9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

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Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by
MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 TRS-23-2166-001 Rev. 0

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

Notched bar impact test

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration
Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

3 - 071474.PDF C 240062-011/01

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

21 AGO. 2023
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VDM
Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668
Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

Specification
718 Rev. 13 03.02.2020 (Straigthness 2:1000)
Yield Strength: min 120 KSI
temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718
UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1934-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straigthness 2:1000); API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Melt	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Melt	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Melt	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5.5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Ünal Üçüncü, authorized inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

FLUITEKNORSENIGO VALVES S.R.L. Q.C.

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Mäfer (Chairman),
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

printed: 14. AUG 2023

Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates
1 718 Rev. 13 03.02.2020 (Straighness 2:1000)

		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling(start 27°C - end 28°C - max. 29°C) + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection
No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.
For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.
MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.
No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.
All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.
SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.
The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.
Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany
Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

21 AGO. 2023
FRANCO CORBELLINI
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FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method	Values			Mean
105403101	102T001 -A01	R / 2 ; 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method	Values			Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method	Values			Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method	Values			Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method	Values			Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method	Values			Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

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FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apilarte Zemp, Frank Morris
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Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KV$_a$ 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	1021002 -A02	-60	112	110	113		1.11	0.93	1.14	70	70	70

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VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
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Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch l=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

21 AGO. 2023
FRANCO CORBELLINI
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FLUITEK ORSENIGO VALVES S.R.L. Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
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Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor
Hinzbruch, Level II

21 AGO. 2023
FRANCO CORBELLINI
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FLUITEK ORSENIGO VALVES SRL
Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
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Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

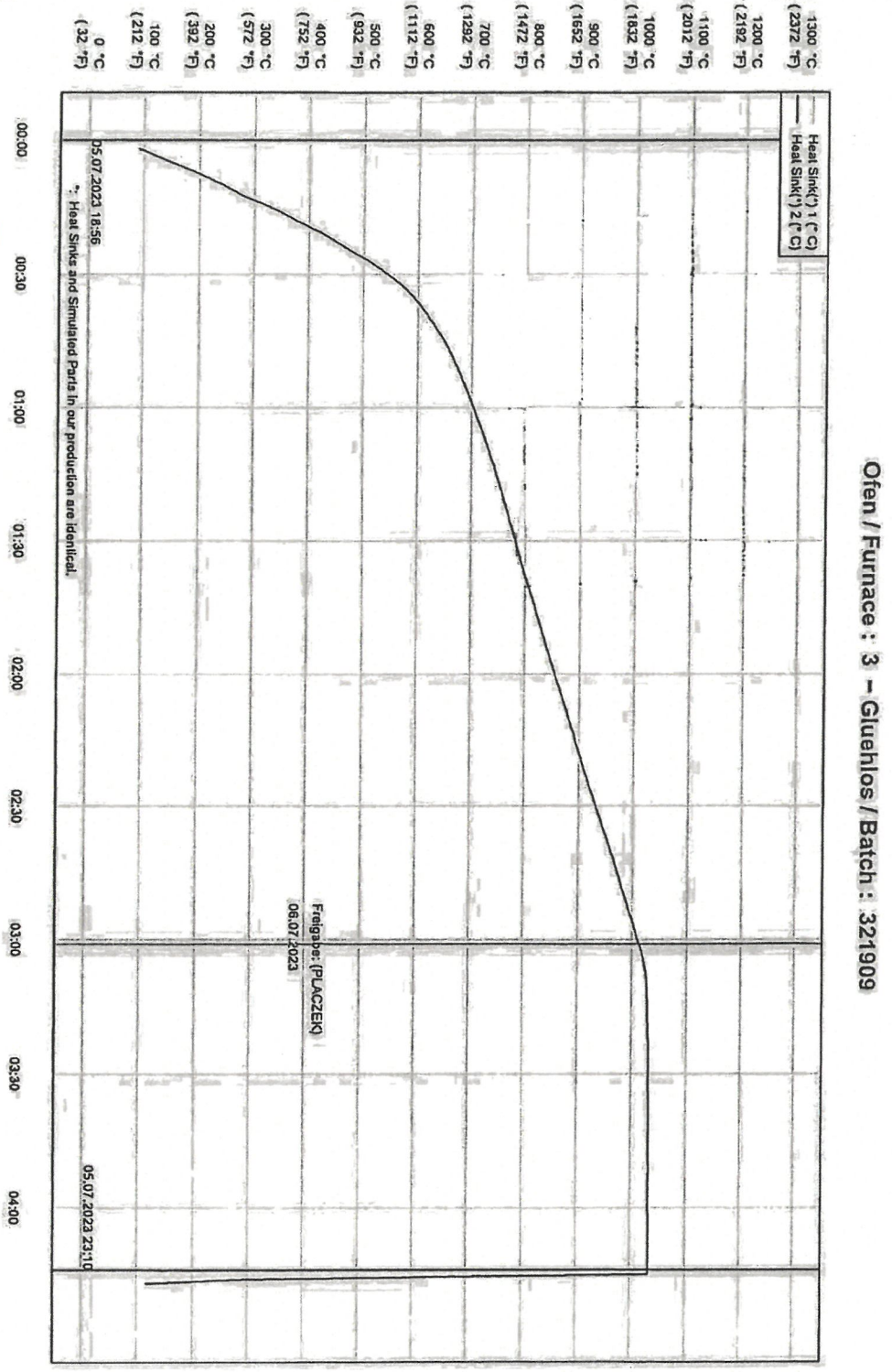
3 - 071474.PDF C 240062-011/01

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 263749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

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FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

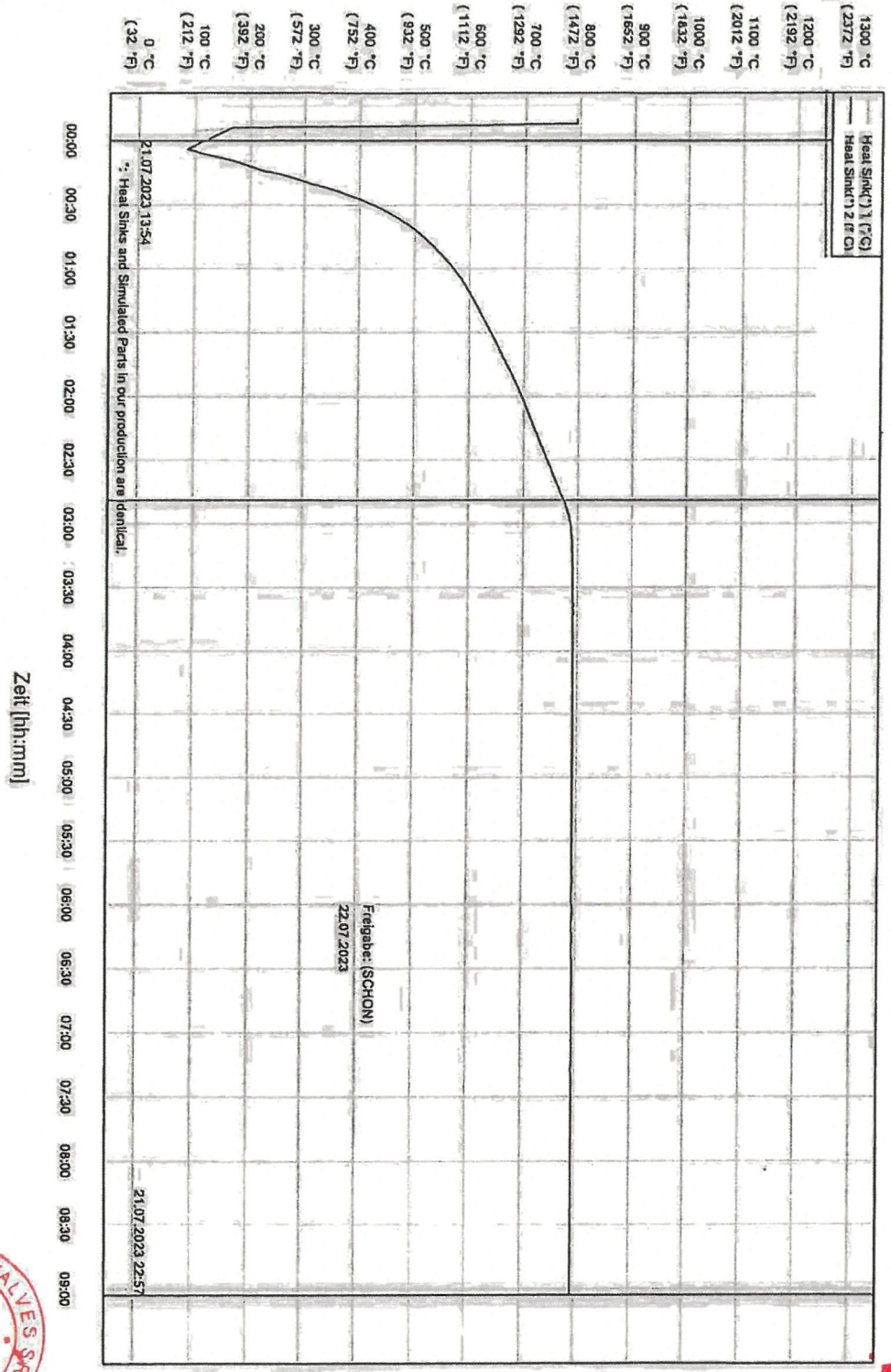
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Matts Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zamp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321955

QUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2024

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VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
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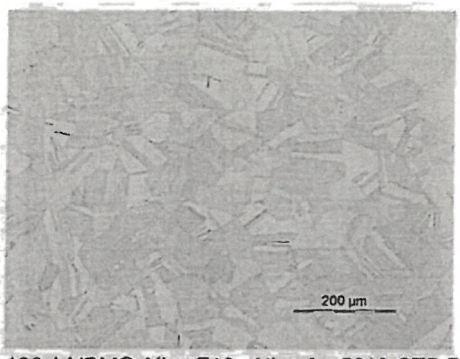
VDM Metals GmbH

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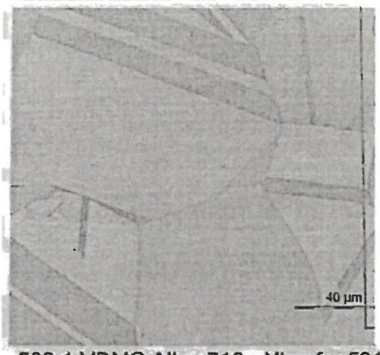
Microstructure Examination

Metallography Job No.: 194936
Lot No.: 105403101
Heat: 422416

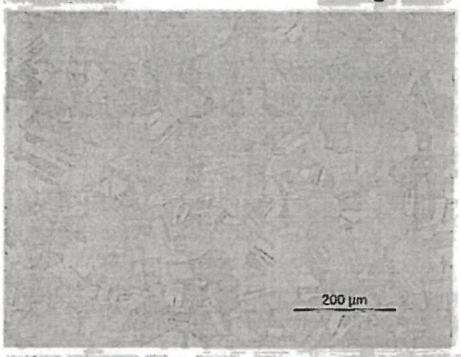
Inspection Certificate No.: 253749/1
Enclosure: 4
Page: ~~1 of 1~~



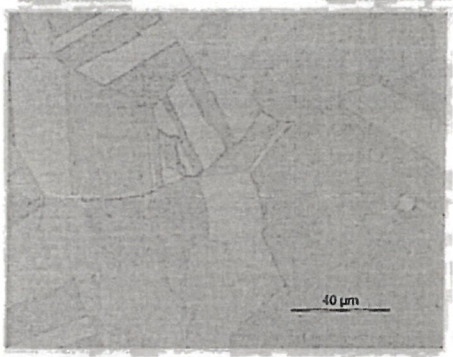
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



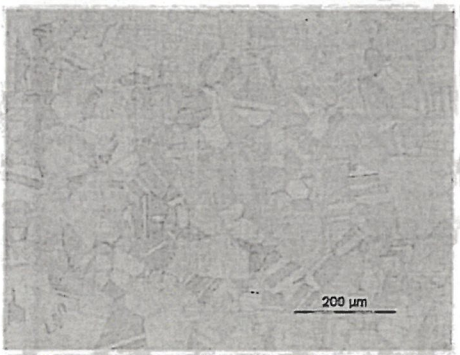
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



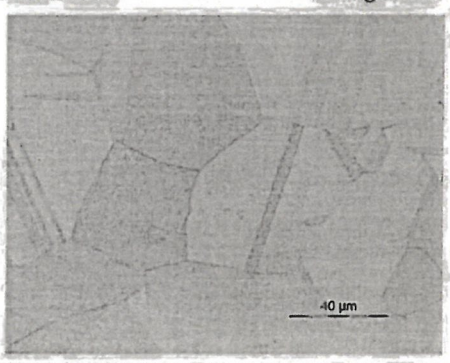
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
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Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 AGO. 2024
FRANCO CORBELLINI
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FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE
ORDER NUMBER: 715430-1 **STEP:** 721719
PRODUCT CODE: 718 1.25 SAAH
HARDNESS RANGE (HBW): 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
A0-30	6403-4 R92033	R984063	0510014		F68332/139	814574
☑ UC-71	6403_16897		0907068			
UC-72	E50152/15(6503-1)		1112032			
	HMV1(6403-3)		1112037			
	R335(HMM1)					

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

									T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
	316 21 AGO. 2024	316.5	37591 30AW	P	21/8/24

01 March 2024

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3 - 071474.PDF C 240062-011/01

4 - 061238.PDF C 240062-011/01

MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller*	FLUITEK ORSENIGO VALVES SRL	**Descrizione** *Description / Prüfgegenstand*	Vite TER - Bolt TER M10x25	**Certificato N°** *Certificate N° / Prüf Nr*	153954 R. 0
VIA DEI LIVELLI DI SOPRA	5/7				
COSTA DI MEZZATE	BG	**Disegno Cliente** *Customer drawing / Kunden-design*	144356	**Classe materiale** *Material Class /W.n*	B8M cl.2 (<=M20) S31600 ASTM A193/A193M-19; ASTM A320/A320M-18
		N° pezzi *Quantity / Stückzahl*	2000		
N° DDT	222434 **data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr*	220638 POS. 003	**Colata** *Heat N° / Schmelze Nr*	174374

Analisi chimica

Chemical Analysis /Chemische Analyse

Valori richiesti %		C	Mn	Si	Cr	Ni	Mo	S	P
Required values / *Sollwerte*	min.				16,000	10,000	2,000		
	max	0,080	2,000	1,000	18,000	14,000	3,000	0,030	0,045
Analisi colata **Heat analysis / Schmelzanalyse*		0,016	1,830	0,380	16,680	10,280	2,050	0,001	0,027

* As reported on steel work or supplier certificate

Balance Fe

Caratteristiche meccaniche

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* **Rm [N/mm2]** min	Rottura max	Snervamento *Yield strength Streck-grenze* **Rs [N/mm2]** min	Allungamento *Elongation Bruch-dehnung* **A%** 4D min	Allungamento 5D min	Strizione *Reduction of area Bruch-einschn.* **Z%** min	Durezza *Hardness Härteprüfung* **HB** min	Durezza max	Resilienza *Impact test Schlagarbeit* **[J]** media	Resilienza min	Temperat. resilienza *Temp* **[°C]**
Valori richiesti *Required values/ Anforderungen*	760		655	15,00%		45,00%		321			
Valori ottenuti *Actual values / Ergebnisse*		1033	889	24,00%		66,20%		315			

Note

Trattamento termico Heat treatment	**Esame decarburazione-carburazione** Decarburization and carburization test	**Esame macroscopico** Macroetch examination result
Carbide solution treated and strain hardened	Non applicabile - Not applicable	Non applicabile - Not applicable

Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*	Positive	**P.M.I.**	Positive	**Marcature** *Marking / Kennzeichnung*	B8MSH MM	**Rivestimento** *Coating Oberflächenbeschichtung*	

Informazioni aggiuntive

Further information / Zusätzliche angaben

21 AGO. 2024

FRANCO CORBELLINI
QC1
CROSSWIND

The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612 /

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-012/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**012**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
120	**1**

TAG
25-XV-006

SERIAL NUMBER
From 2400620120001 to 2400620120001

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0

NOTES

COMPONENT / CHEMICAL ANALYSIS / MECHANICAL PROPERTIES. IMPACT TESTS

PART NAME	MATERIAL	C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
		Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
SCREW	A193 B8M CL2	0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
	174374	1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	DATE 21 AGO 2024 FRANCO CORBELLINI QB9 CROSSWIND	DATE 06/08/2024 FLUITEK ORSENIGO VALVES SRL

60194

1 - 068194.PDF C 240062-012/01

Acciaierie Valbruna S.p.A.

Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Punzone del Collaudatore: MR
Stempel des Werkssechverständigen / Inspector's stamp/Poinçon de l'assayeur

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

SPECIFICHE :
Anforderungen / Requirements / Exigences

Note:
Aufzeichnungen / Notes / Notes

VAL STOCK W2 A/1 1.4404/316L A
MDS S01 5 316 A (0)
MDS S17 1 316 A (1)
(0)Norsok-standard M-630 Edition 6, October 2013
(1)Norsok-standard M-630: 2020 (2020-09-30)

AD 2000-M. W 2 2022 1.4401 A (2)
AD 2000-M. W 2 2022 1.4404 A (3)
(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020

AISI . 316/316L
AMS-QQ-S-763 D 316/316L A
ASME SA182 2021 S31600/03 A (4)
ASME SA193 2021 B8M CLASS 1 (5)
(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
(5)Section II Part A 2021 EDITION

ASME SA276 2021 S31600/03 A (6)
ASME SA320 2021 B8M CLASS 1 (7)
ASME SA479 2021 S31600/03 A (8)
(6)Section II Part A 2021 EDITION
(7)Section II Part A 2021 EDITION
(8)Section II Part A 2021 EDITION

ASTM A182 2023 S31600/03 A (9)
ASTM A193 2023 B8M CLASS 1
ASTM A262 PR. E 2015 316/316L (A)
(9)For products machined directly from bar refer also to ASTM A479.
(A)Reapproved 2021

ASTM A276 2023 S31600/03 A
ASTM A320 2022 B8M CLASS 1 CLASS1
ASTM A370 2022 .
ASTM A479 2023A S31600/03 A
ASTM E10 2023 .
ASTM E8 2022 .
EN 10088 PART 3 2014 1.4401 A
EN 10088 PART 3 2014 1.4404 A
EN 10272 2016. 1.4401 A
EN 10272 2016. 1.4404 A
ISO 148-1 2016 .
ISO 3651-2 98 METHOD A T1
ISO 6506-1 2014 .
ISO 6892-1 2019 .
NACE MR0103 2015 S31600/03 A (B)
(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015

NACE MR0175 4 S31600/03 A (C)
(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.

QQ-S-763 F 316/316L A
ACH CO . .
KV L -196C . ISO 148-1
KV T -196C . ISO 148-1

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO QMC

Pos. nr.	Oggetto	Tolleranza: k12 Toleranz/Allowance/Tolerance Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
Pos. nr. / Item nr. / Nr. de poste	Gegenstand / Product description / Descrip. du produit	Abmessungen / Dimension / Dimension	Lange / Length / Longueur	Schmelze / Heat / Coulée	Stückzahl / Pieces / Pieces	Gewicht / Weight / Poids	Loenr. / Lot nr. / Lot nr.
0060	Tondo	135,000	5324/ 5533	291737	1	630,0	320205030

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto Produktmanagement/Product Management/Direction Produit	Pagina
VCQ008 - MEST012686	R.BERTELLI	P.MESSORI	1 di 5

Acciaierie Valbruna S.p.A.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			200	235	500 700	40	-	-	-	-			- 215		
A	10	20	L		270	309	562	59		69					161		
I	10	20	L		278	311	575	57		67					162		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			3

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			-	-	-	-	-	-	-	-	-
B	10X10	-196	L		188	190	195	1,855	1,492	1,910	73	71	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			210	-	520 790	-	40	-	50	-			- 223		
C	12,5	20	L		258		562		62		73				158		

21 AGO. 2024

FRANCO CORBELLINI
QBJ
CROSSWIND R

FLUITEK ORSENIGO QVC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 2 di 5

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 Z.I.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.240068

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI24000623

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI24000573

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Prebentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagerbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	267		561		50		64						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Prebentage Location Emplacement 1)	Resilienza Kerbschlagerbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion - Lateral ex mm			Shear - Shear - % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
E	10X10	-196	T	89	94	91	1,258	1,325	1,005	27	20	31

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Prebentage Location Emplacement 1)	Resilienza Kerbschlagerbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion -			Shear - Shear -		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		100	100	100	-	-	-	-	-	-
H	10X10	20	L	258	258	260						
J	10X10	20	L	253	247	255						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

FLUITEK ORSENIGO QMC

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
	min -	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
	max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-
291737	0,022	0,42	1,58	16,80	2,04	0,37	10,13	0,166	0,033	0,028	0,051				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 3,2 : 1
Solution annealed 1080°C for 180'(total time)/ water cooled
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FLUITEK ORSENIGO QC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto Produktmanagement/Product Management/Direction Produit	Pagina 4 di 5
VCQ008 - MEST012686	R.BERTELLI	P.MESSORI	

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 Z.I.
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Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSPBZ1ECM30DHDXDA63.AM00620CM30C

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 5 di 5

57606 | 2 - 057606.PDF | C 240062-012/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A MDS S01 5 316 A (0) AISI 316 AISI 316L	(0)Norsok-standard M-630 Edition 6, October 2013
ASME SA182 2019 S31600 A (1) ASME SA182 2019 S31603 A (2)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479. (2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3) ASME SA276 2019 S31600 A (4) ASME SA276 2019 S31603 A (5)	(3)Section II Part A 2019 EDITION (4)Section II Part A 2019 EDITION (5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6) ASME SA479 2019 S31600 A (7) ASME SA479 2019 S31603 A (8)	(6)Section II Part A 2019 EDITION (7)Section II Part A 2019 EDITION (8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9) ASTM A182 2020 S31603 (A) ASTM A193 2019 B8M CLASS 1 ASTM A262 2015 PRACTICE E ASTM A276 2017 S31600 A ASTM A276 2017 S31603 A ASTM A314 2019 S31600 ASTM A320 2018 B8M CLASS 1 CLASS1	(9)For products machined directly from bar refer also to ASTM A479. (A)For products machined directly from bar refer also to ASTM A479.
ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A ASTM A479 2019 S31603 A ASTM E10 2018 . ASTM E8 2016A . DIN 17440 96 1.4401 A DIN 17440 96 1.4404 A EN 10088-3 2014 1.4401 A EN 10088-3 2014 1.4404 A EN 10272 2007 1.4401 A EN 10272 2007 1.4404 A ISO 148-1 2016 . ISO 6506-1 2014 . ISO 6892-1 2019 .	
NACE MR0103 2015 S31600 A (C) NACE MR0103 2015 S31603 A (D)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015 (D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E) NACE MR0175 2015 S31603 A (F)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015 (F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

FLUITEK ORSENIGO VALVES Q.C.

21 AGO. 2024

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Telefono 0444.968211 - Fax 0444.963836
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In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
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Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

Pos. nr.	Oggetto	Tolleranza: k12 Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
		Tolleranza/Allowance/Tolerance					
Pos. nr. / Item nr. / Nr. de poste	Gegenstand / Product description / Descrip. du produit	Abmessungen / Dimension / Dimension	Länge / Length / Longueur	Schmelze / Heat / Coulée	Stückzahl / Pieces / Pieces	Gewicht / Weight / Poids	Losnr. / Lot nr. / Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab / Specimen/Eprouvette / Larg.diam Spess. / Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais mm	°C	Posiz. Saggio / Probenlage / Location / Emplacement 1)	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 1% N/mm2	Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2	Allungamento / Bruchdehnung / Elongation / Allongement A5 %	Allungamento E 4d %	Strizione / Einschnürung / Reduction of area / Striction Z %	Strizione RA %	Resilienza / Kerbschlagarbeit / Impact Value / Resilience KV J			Durezza / Haerte / Hardness / Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs demendées		min		205	240	515	40	40	-	50	100			-		
		max				690								215		
A	10	20	L	295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

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Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %
min -	-	-	-	16,50	2,00	10,00	-	-	-
max 0,030	1,00	2,00	18,00	2,50	13,00	0,045	0,030	0,100	
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055

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MR

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel ß été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

21 AGO. 2024
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W3P-AF28E3AD159EE5AE57654448D159E28C

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

General remarks

1: This test report cannot be partially reproduced without our written approval
2: Test results are relevant only to the specimens belonging to the indicated samples
3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy
4: Tests are performed on the material in as-received conditions, unless otherwise specified
5: Sampling has been performed by customer
6: If not otherwise agreed, tested specimens are kept for 30 days from the test date
7: The uncertainty value, when expressed, does not affect the conformity declaration
8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA
9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by
MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
LAB N° 1574 L

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

21 AGO. 2024
FRANCO CORBELLINI
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Notched bar impact test

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration
Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	

3 - 071474.PDF C 240062-012/01

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

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Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668

Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

Specification
718 Rev. 13 03.02.2020 (Straightness 2:1000)
Yield Strength: min 120 KSI
Temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718
UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1834-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straightness 2:1000); API 6 A CRA First Edition 08.2015,+ Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Melt	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Melt	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Melt	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation		A [%]	A [%]	RoA [%]
1	RT	876		1227	4D		31,2		49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5.5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Ünal Üçüncü, authorized inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, HR127
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

printed: 14. AUG 2023

Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates
1 718 Rev. 13 03.02.2020 (Straightness 2:1000)

		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling[start 27°C - end 28°C - max. 29°C] + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection
No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.

For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.

MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.

No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.

All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.

SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.

The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.

Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

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Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method	Values			Mean
105403101	102T001 -A01	R / 2 ; 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method	Values			Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method	Values			Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method	Values			Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method	Values			Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method	Values			Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velazquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apilarte Zemp, Frank Morris
Commercial register: berlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KV₈ 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

21 AGO. 2024
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FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicias Müller (Chairman)
Holger Arnold, Daniel Arpitarte Zamp, Frank Monts
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch l=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of inspection 22.07.2023

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

21 AGO. 2024
FRANCO CORBELLINI
OBJ
CROSSWIND R

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate **253749/1**
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor

Hinzbruch, Level II

21 AGO. 2023
FRANCO CORBELLINI
QB3
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

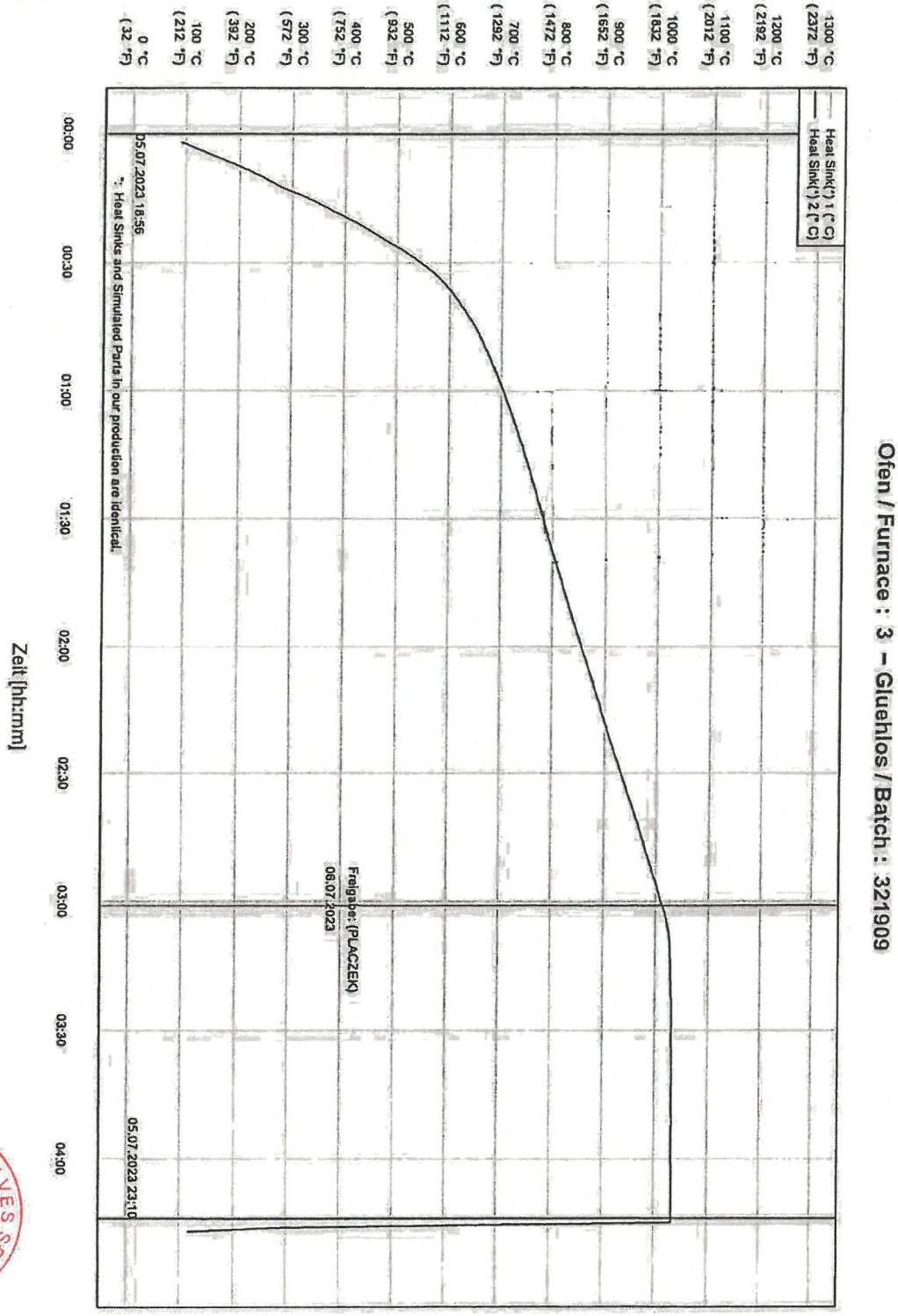
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zamp, Frank Moritz
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Apitzsch Zamp, Frank Morris
Commercial register: bedohn local court, #5327
Company domicile: Werdohl

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FRANCO CORBELLINI
QBQ
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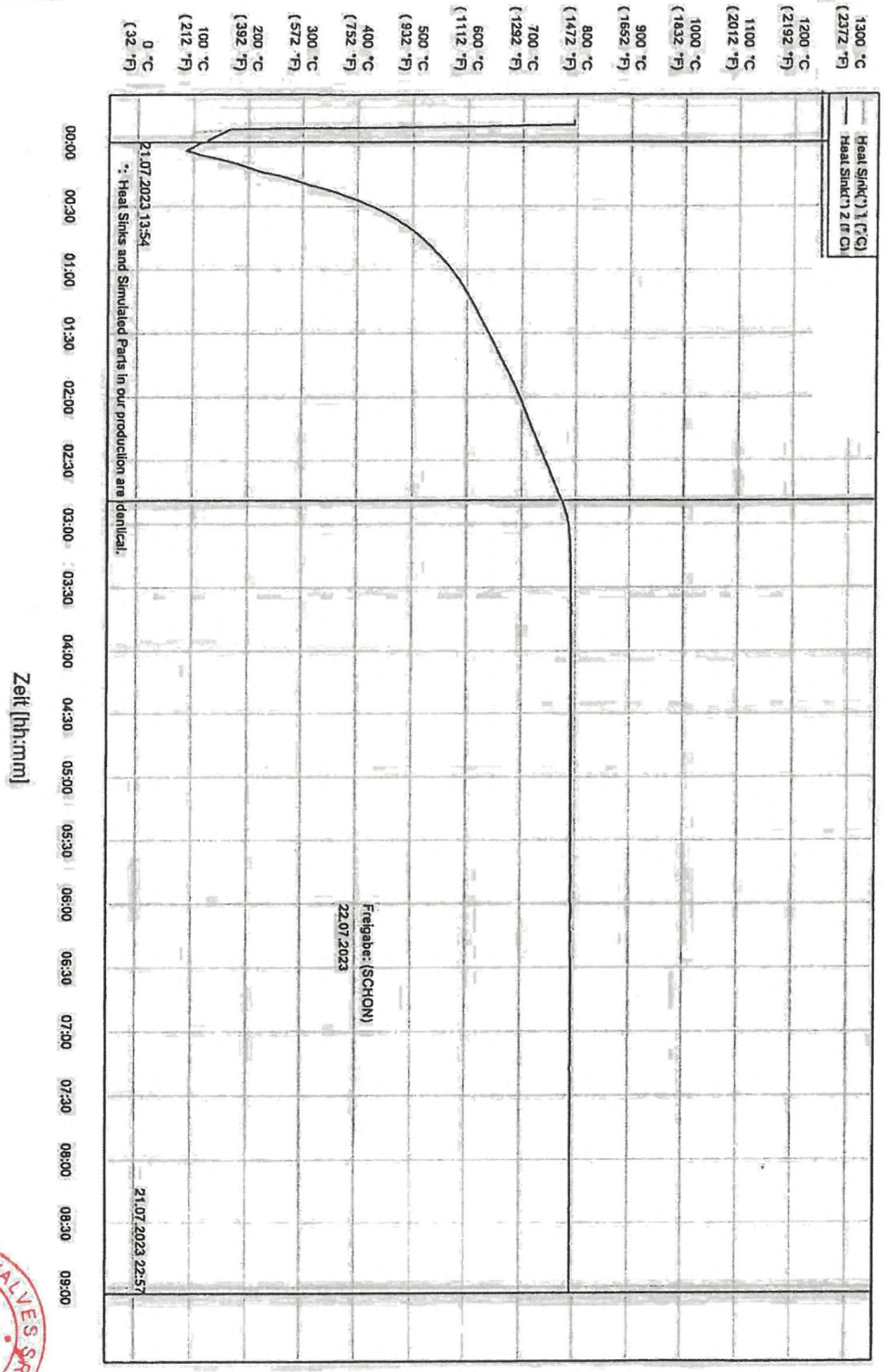
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace: 3 - Gluehlos / Batch: 321955

EUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

21 AGO. 2023

FRANCO GABELLINI
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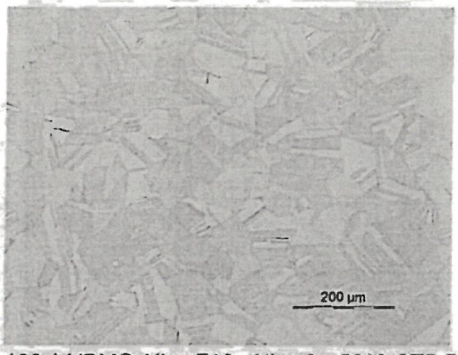
VDM Metals GmbH

VDM Metals

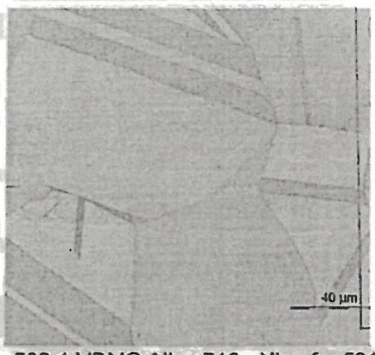
Microstructure Examination

Metallography Job No.: 194936
Lot No.: 105403101
Heat: 422416

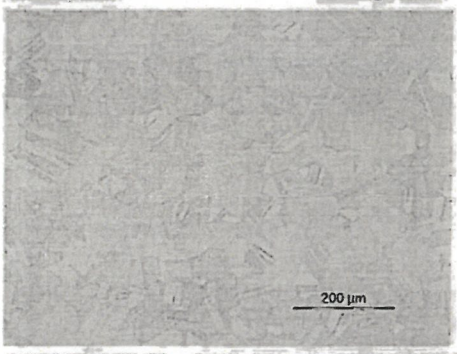
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Enclosure: 4
Page: ~~1 of 1~~



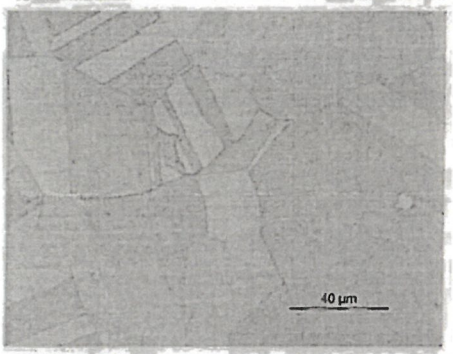
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



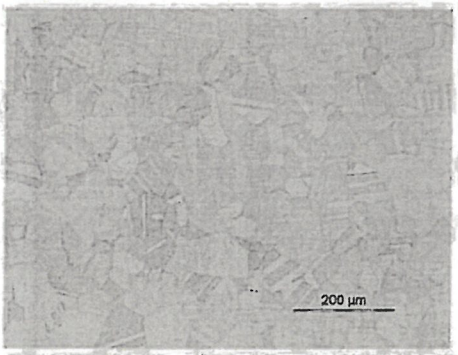
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



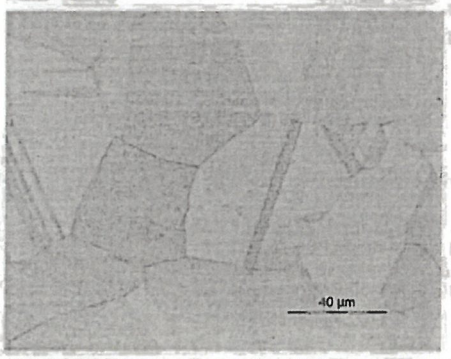
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

FLURSENIGO VALVES SRL Q.C.

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpilarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 AGO. 2024
FRANCO CORBELLINI
QBJ
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FLUITEK ORSENIGO VALVES S.p.A. Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE **ORDER NUMBER:** 715430-1 **STEP:** 721719

PRODUCT CODE: 718 1.25 SAAH **HARDNESS RANGE (HBW):** 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
☐ A0-30	☐ 6403-4 R92033	☐ R984063	☑ 0510014	☐	☐ F68332/139	☐ 814574
☑ UC-71	☐ 6403_16897	☐	☐ 0907068	☐	☐	☐
☐ UC-72	☐ E50152/15(6503-1)	☐	☐ 1112032	☐	☐	☐
☐	☐ HMV1(6403-3)	☐	☐ 1112037	☐	☐	☐
☐	☐ R335(HMM1)	☐	☐	☐	☐	☐

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

									T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
L	316	316.5	27591/30AW	P	21/8/24

21 AGO. 2024

FRANCO CORBELLINI

CSI

CROSSWIND R

3 - 071474.PDF C 240062-012/01

4 - 061238.PDF C 240062-012/01

MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller*	FLUITEK ORSENIGO VALVES SRL	**Descrizione** *Description / Prüfgegenstand*	Vite TER - Bolt TER M10x25
VIA DEI LIVELLI DI SOPRA 5/7			
COSTA DI MEZZATE BG		**Disegno Cliente** *Customer drawing / Kunden-design*	144356
		N° pezzi *Quantity / Stückzahl*	2000
N° DDT 222434	**data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr*	220638 POS. 003

Certificato N° *Certificate N° / Prüf Nr* 153954 R. 0

Classe materiale *Material Class /W.n* B8M cl.2 (<=M20) S31600

ASTM A193/A193M-19; ASTM A320/A320M-18

Colata *Heat N° / Schmelze Nr* 174374

Analisi chimica

Chemical Analysis /Chemische Analyse

Valori richiesti %	C	Mn	Si	Cr	Ni	Mo	S	P
Required values / min.				16,000	10,000	2,000		
Sollwerte max	0,080	2,000	1,000	18,000	14,000	3,000	0,030	0,045
Analisi colata	0,016	1,830	0,380	16,680	10,280	2,050	0,001	0,027

**Heat analysis / Schmelzanalyse*

* As reported on steel work or supplier certificate

Balance Fe

Caratteristiche meccaniche

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* **Rm [N/mm2]**		Snervamento *Yield strength Streck-grenze* **Rs [N/mm2]**	Allungamento *Elongation Bruch-dehnung* **A%**		Strizione *Reduction of area Bruch-einschn.* **Z%**	Durezza *Hardness Härteprüfung* **HB**		Resilienza *Impact test Schlagarbeit* **[J]**		Temperat. resilienza *Temp* **[°C]**
	min	max	min	4D min	5D min	min	min	max	media	min	
Valori richiesti *Required values/ Anforderungen*	760		655	15,00%		45,00%		321			
Valori ottenuti *Actual values / Ergebnisse*	1033		889	24,00%		66,20%		315			

Note

Trattamento termico *Heat treatment*	**Esame decarburazione-carburazione** *Decarburization and carburization test*	**Esame macroscopico** *Macroetch examination result*
Carbide solution treated and strain hardened	Non applicabile - Not applicable	Non applicabile - Not applicable

Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*	Positive	**P.M.I.**	Positive	**Marcature** *Marking / Kennzeichnung*	B8MSH MM	**Rivestimento** *Coating Oberflächenbeschichtung*	

Informazioni aggiuntive

Further information / Zusätzliche angaben

21 AGO. 2024

FRANCO CORBELLINI

OBJ

CROSSWIND R

The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612 /

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta 27
21015 LONATE POZZOLO

Fluitek Valves

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-013/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**013**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
130	**1**

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0

TAG
25-XV-008

SERIAL NUMBER
From 2400620130001 to 2400620130001

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316_316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
SCREW	A193 B8M CL2	0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
	174374	1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORBELLINI QB3 CROSSWIND DATE	FLUITEK ORSENIGO VALVES SRL DATE 06/08/2024

068194

1 - 068194.PDF C 240062-013/01

Acciaierie Valbruna S.p.A.

Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssechverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

SPECIFICHE :	Note:
Anforderungen / Requirements / Exigences	Aufzeichnungen / Notes / Notes
VAL STOCK W2 A/1 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
MDS S17 1 316 A (1)	(1)Norsok-standard M-630: 2020 (2020-09-30)
AD 2000-M. W 2 2022 1.4401 A (2)	(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AD 2000-M. W 2 2022 1.4404 A (3)	(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AISI . 316/316L	
AMS-QQ-S-763 D 316/316L A	
ASME SA182 2021 S31600/03 A (4)	(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2021 B8M CLASS 1 (5)	(5)Section II Part A 2021 EDITION
ASME SA276 2021 S31600/03 A (6)	(6)Section II Part A 2021 EDITION
ASME SA320 2021 B8M CLASS 1 (7)	(7)Section II Part A 2021 EDITION
ASME SA479 2021 S31600/03 A (8)	(8)Section II Part A 2021 EDITION
ASTM A182 2023 S31600/03 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2023 B8M CLASS 1	
ASTM A262 PR. E 2015 316/316L (A)	(A)Reapproved 2021
ASTM A276 2023 S31600/03 A	
ASTM A320 2022 B8M CLASS 1 CLASS1	
ASTM A370 2022 .	
ASTM A479 2023A S31600/03 A	
ASTM E10 2023 .	
ASTM E8 2022 .	
EN 10088 PART 3 2014 1.4401 A	
EN 10088 PART 3 2014 1.4404 A	
EN 10272 2016. 1.4401 A	
EN 10272 2016. 1.4404 A	
ISO 148-1 2016 .	
ISO 3651-2 98 METHOD A T1	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600/03 A (B)	(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 4 S31600/03 A (C)	(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.
QQ-S-763 F 316/316L A	
ACH CO . .	
KV L -196C . ISO 148-1	
KV T -196C . ISO 148-1	

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO QMC

		Tolleranza: k12 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0060	Tondo	135,000	5324/ 5533	291737	1	630,0	320205030

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 1 di 5

Acciaierie Valbruna S.p.A.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max		200	235	500 / 700	40	-	-	-	-			-		215
A	10	20	L	270	309	562	59		69					161		
I	10	20	L	278	311	575	57		67					162		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			3

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max		-	-	-	-	-	-	-	-	-
B	10X10	-196	L	188	190	195	1,855	1,492	1,910	73	71	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max		210	-	520 / 790	-	40	-	50	-			-		223
C	12,5	20	L	258		552		62		73				158		

21 AGO. 2024

FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO QVC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 Z.I.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	267		561		50		64						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max		-	-	-	-	-	-	-	-	-
E	10X10	-196	T	89	94	91	1,258	1,325	1,005	27	20	31

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max		100	100	100	-	-	-	-	-	-
H	10X10	20	L	258	258	260						
J	10X10	20	L	253	247	255						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO VALVES QC

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata / Heat / Schmelze/Coulée															
	min -	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
	max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-
	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
291737	0,022	0,42	1,58	16,80	2,04	0,37	10,13	0,166	0,033	0,028	0,051				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 3,2 : 1
Solution annealed 1080°C for 180'(total time)/ water cooled
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

Sono state soddisfatte tutte le condizioni richieste / Die gestellen Anforderungen sind lt. Anlage erfüllt / The material has been furnished in accordance with the requirements / Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK / Verwechslungprüfung: durch XRF/QES Gerät geführt : OK / Antimixing testing performed with XRF/OES portable : OK / Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze / Besichtigung und Ausmessung: ohne Beanstandung / Visual inspection and dimensional checks:satisfactory / Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy — No welding or weld repair — Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FLUITEK ORSENIGO Q.C.

Acciaierie Valbruna S.p.A.
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CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'essayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSPS21EC9630DHKXDA83AA9586205C9630C

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

57606 | 2 - 057606.PDF | C 240062-013/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
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In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
AISI 316	
AISI 316L	
ASME SA182 2019 S31600 A (1)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA182 2019 S31603 A (2)	(2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3)	(3)Section II Part A 2019 EDITION
ASME SA276 2019 S31600 A (4)	(4)Section II Part A 2019 EDITION
ASME SA276 2019 S31603 A (5)	(5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6)	(6)Section II Part A 2019 EDITION
ASME SA479 2019 S31600 A (7)	(7)Section II Part A 2019 EDITION
ASME SA479 2019 S31603 A (8)	(8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A182 2020 S31603 (A)	(A)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2019 B8M CLASS 1	
ASTM A262 2015 PRACTICE E	
ASTM A276 2017 S31600 A	
ASTM A276 2017 S31603 A	
ASTM A314 2019 S31600	
ASTM A320 2018 B8M CLASS 1 CLASS1	
ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A	
ASTM A479 2019 S31603 A	
ASTM E10 2018 .	
ASTM E8 2016A .	
DIN 17440 96 1.4401 A	
DIN 17440 96 1.4404 A	
EN 10088-3 2014 1.4401 A	
EN 10088-3 2014 1.4404 A	
EN 10272 2007 1.4401 A	
EN 10272 2007 1.4404 A	
ISO 148-1 2016 .	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600 A (C)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0103 2015 S31603 A (D)	(D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015
NACE MR0175 2015 S31603 A (F)	(F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

21 AGO. 2021
FRANCO CORBELLINI
QBO
CROSSWIND R

FLUITEK ORSENIGO VALVES Q.C.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

Tolleranza: k12
Toleranza/Allowance/Tolerance

Pos. nr.	Oggetto	Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
Pos. nr. / Item nr. / Nr. de poste	Gegenstand / Product description / Descrip. du produit	Abmessungen / Dimension / Dimension	Länge / Length / Longueur	Schmelze / Heat / Coulée	Stückzahl / Pieces / Pieces	Gewicht / Weight / Poids	Losnr. / Lot nr. / Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA
Test on delivery condition Prüfung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab / Specimen/Eprouvette / Larg.diam Spess. / Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais. mm	°C	Posiz. Saggio / Probenlage / Location / Emplacement 1)	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 1% N/mm2	Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2	Allungamento / Bruchdehnung / Elongation / Allongement A5 %	Allungamento E 4d %	Strizione / Einschnürung / Reduction of area / Striction Z %	Strizione RA %	Resilienza / Kerbschlagarbeit / Impact Value / Resilience KV J			Durezza / Haerte / Hardness / Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		205	240	515	40	40	-	50	100			-		
		max				690								215		
A	10	20	L	295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA
Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max
B	Dimensioni grano x ASTM E112		6

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Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %
min -	-	-	-	16,50	2,00	10,00	-	-	-
max	0,030	1,00	2,00	18,00	2,50	13,00	0,045	0,030	0,100
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055

Acciaierie Valbruna S.p.A.

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Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

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ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel ß été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSP4F29E34D159E26AE3704048015 9E28C

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 14/01/2021 VCQ052 - MEST662721	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 3 di 3

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

General remarks

1: This test report cannot be partially reproduced without our written approval
2: Test results are relevant only to the specimens belonging to the indicated samples
3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy
4: Tests are performed on the material in as-received conditions, unless otherwise specified
5: Sampling has been performed by customer
6: If not otherwise agreed, tested specimens are kept for 30 days from the test date
7: The uncertainty value, when expressed, does not affect the conformity declaration
8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA
9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by
MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 TRS-23-2166-001 Rev. 0

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QB1
CROSSWIND R

Notched bar impact test

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration
Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

3 - 071474.PDF C 240062-013/01

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

21 AGO. 2024
FRANCO CORBELLINI
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VDM
Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668

Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

Specification
718 Rev. 13 03.02.2020 (Straightness 2:1000)
Yield Strength: min 120 KSI
temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718

UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1934-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straightness 2:1000); API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Melt	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Melt	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Melt	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

	Test Location
1	No 5 surface
1	No 5.5 1/4 thickness
1	No 5 center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Ünal Üçüncü, authorized Inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephone: +49 2392 550
Internet: www.vdm-metals.com

FUITEKORSENIGO VALVES SRL Q.C.

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, #5127
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates
1 718 Rev. 13 03.02.2020 (Straightness 2:1000)

		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling[start 27°C - end 28°C - max. 29°C] + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.

For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.

MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.

No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.

All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.

SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.

The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.

Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

21 AGO. 2023
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FLUITEK ORSENIGO VALVES SRL Q.C.

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Division Bar and Forgings
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 : 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2023
FRANCO CORBELLINI
QB1
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velazques Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apilanz Zemp, Frank Morris
Commercial register: Iserlohn local court, HR 327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KV$_8$ 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

21 AGO. 2023
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FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
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Internet: www.vdm-metals.com

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Management Board: Dr. Nicko Müller (Chairman)
Holger Arnold, Daniel Arpitarte Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

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Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of inspection 22.07.2023

The material is in compliance with the test specification

Supervisor

Hirzbruch, Level II

21 AGO. 2023
FRANCO CORBELLINI
QBQ
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FLUITEK ORSENIGO VALVES SRL Q.C.

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Division Bar and Forgings
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Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block / sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor

Hirzbruch, Level II

21 AGO. 2023
FRANCO CORBELLINI
QB1
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FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

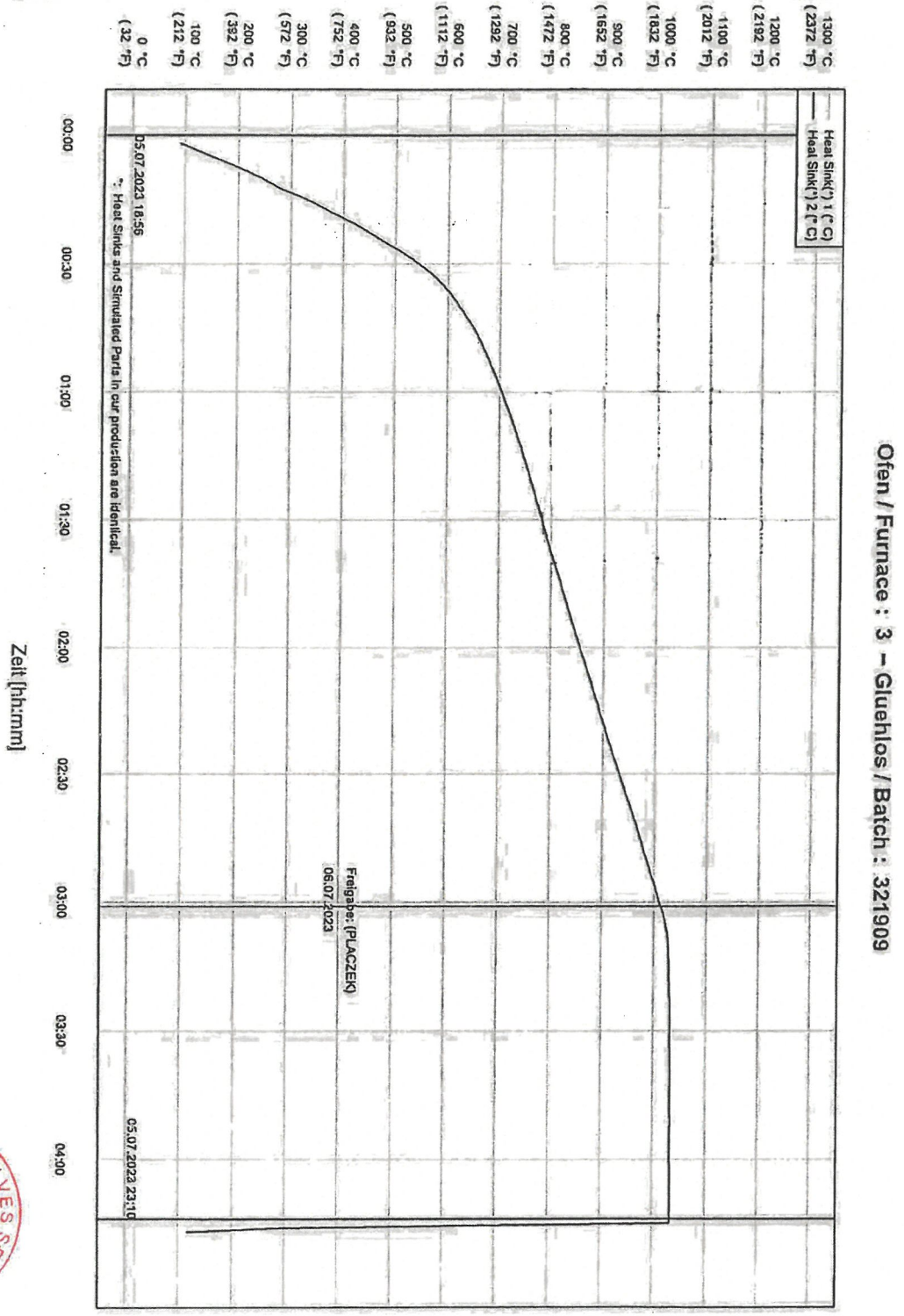
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zemp, Frank Monis
Commercial register: Iserlohn local court, HR327
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

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Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Mats Muller (Chairman)
Holger Arnold, Daniel Apitzsch, Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

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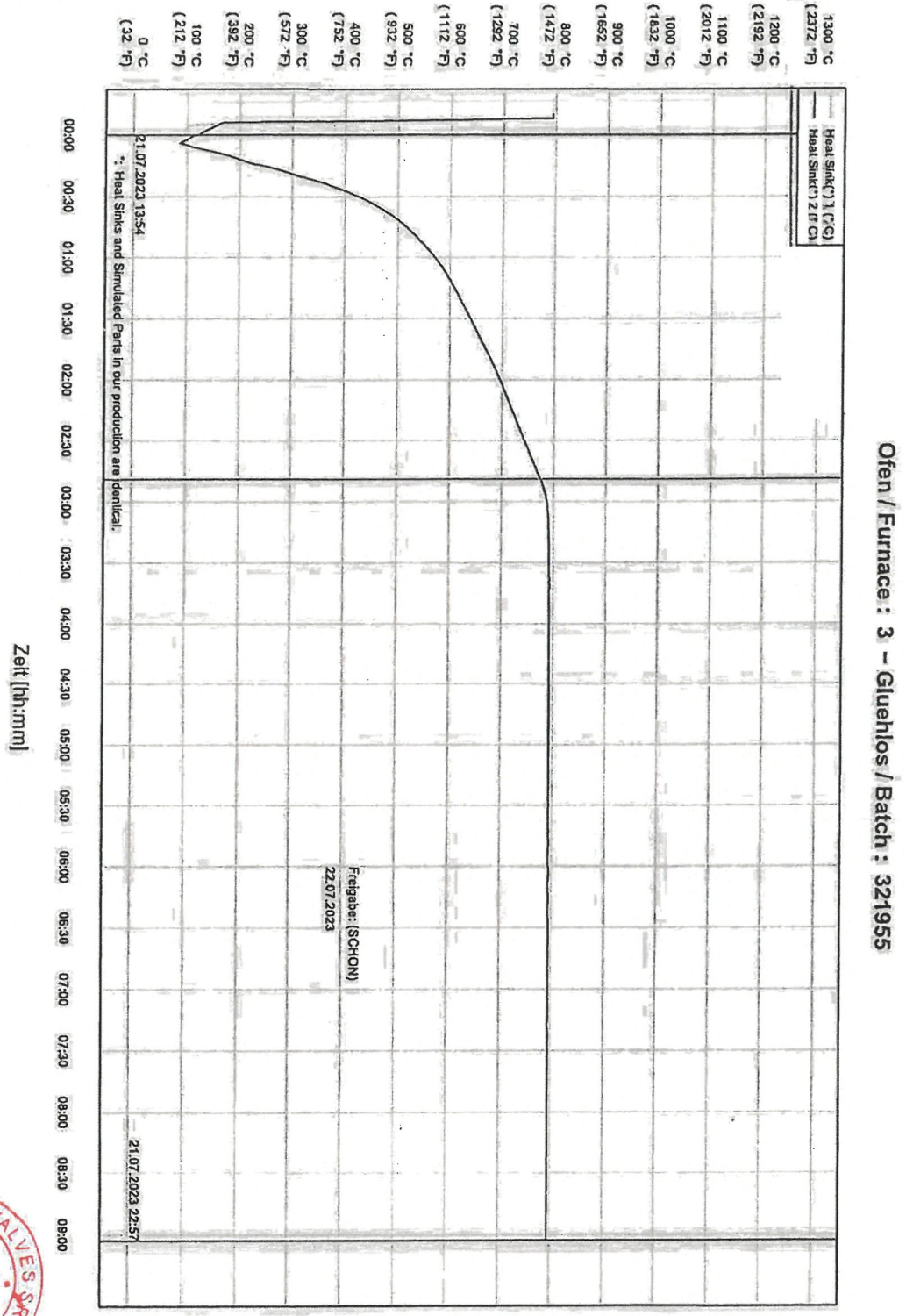
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

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Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321955

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VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicas Müller (Chairman)
Holger Arnold, Daniel Aspitarte Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

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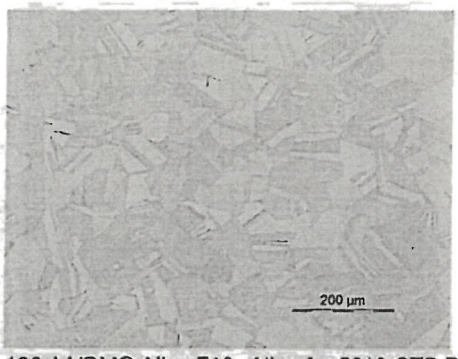
VDM Metals GmbH

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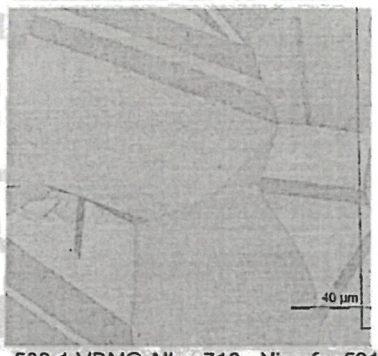
Microstructure Examination

Metallography Job No.: 194936
Lot No.: 105403101
Heat: 422416

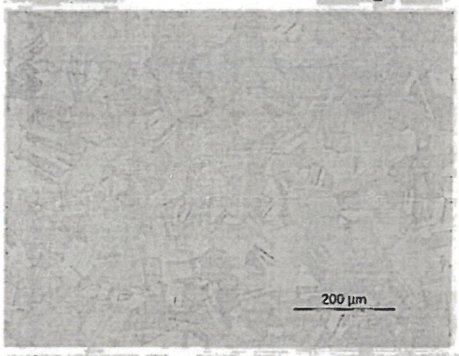
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Enclosure: 4
Page: ~~1 of 1~~



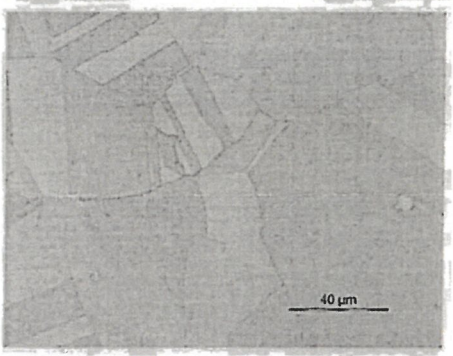
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



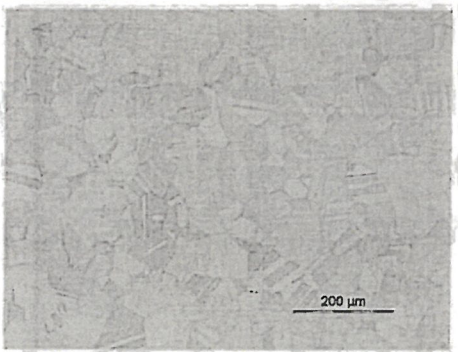
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



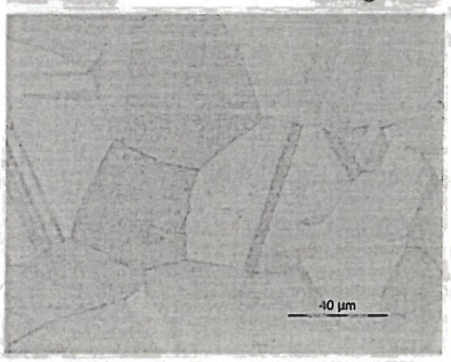
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

FORSENIGO VALVES SRL Q.C.

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicias Müller, Chairman; Daniel Azpiarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

FRANCO CORBELLINI
21 AGO 2024
CROSSWIND R

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE
ORDER NUMBER: 715430-1 **STEP:** 721719
PRODUCT CODE: 718 1.25 SAAH
HARDNESS RANGE (HBW): 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
☐ A0-30	☐ 6403-4 R92033	☐ R984063	☑ 0510014	☐	☐ F68332/139	☐ 814574
☑ UC-71	☐ 6403_16897	☐	☐ 0907068	☐	☐	☐
☐ UC-72	☐ E50152/15(6503-1)	☐	☐ 1112032	☐	☐	☐
☐	☐ HMV1(6403-3)	☐	☐ 1112037	☐	☐	☐
☐	☐ R335(HMM1)	☐	☐	☐	☐	☐

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

									T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
[signature]	316	316.5	37591 30AW	P	21/8/24

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4 - 061238.PDF C 240062-013/01

MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller*	FLUITEK ORSENIGO VALVES SRL	**Descrizione** *Description / Prüfgegenstand*	Vite TER - Bolt TER M10x25
VIA DEI LIVELLI DI SOPRA 5/7			
COSTA DI MEZZATE BG		**Disegno Cliente** *Customer drawing / Kunden-design*	144356
		N° pezzi *Quantity / Stückzahl*	2000
N° DDT 222434	**data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr*	220638 POS. 003

Certificato N° *Certificate N° / Prüf Nr*	153954 R. 0
Classe materiale *Material Class /W.n*	B8M cl.2 (<=M20) S31600 ASTM A193/A193M-19; ASTM A320/A320M-18
Colata *Heat N° / Schmelze Nr*	174374

Analisi chimica

Chemical Analysis /Chemische Analyse

Valori richiesti %

		C	Mn	Si	Cr	Ni	Mo	S	P
Required values /	min.				16,000	10,000	2,000		
Sollwerte	max	0,080	2,000	1,000	18,000	14,000	3,000	0,030	0,045
Analisi colata		0,016	1,830	0,380	16,680	10,280	2,050	0,001	0,027

**Heat analysis / Schmelzanalyse*

* As reported on steel work or supplier certificate

Caratteristiche meccaniche

Mechanical requirements / Mechanische Prüfungen

Balance Fe

	Rottura *Tensile strength Zugfestigkeit* Rm [N/mm2]		Snervamento *Yield strength Streck-grenze* Rs [N/mm2]	Allungamento *Elongation Bruch-dehnung* A%		Strizione *Reduction of area Bruch-einschn.* Z%	Durezza *Hardness Härteprüfung* HB		Resilienza *Impact test Schlagarbeit* [J]		Temperat. resilienza *Temp* [°C]
Valori richiesti *Required values/ Anforderungen*	min 760	max	min 655	4D min 15,00%	5D min	min 45,00%	min	max 321	media	min	
Valori ottenuti *Actual values / Ergebnisse*	1033		889	24,00%		66,20%		315			

Note

Trattamento termico Heat treatment: Carbide solution treated and strain hardened	**Esame decarburazione-carburazione** Decarburization and carburization test: Non applicabile - Not applicable	**Esame macroscopico** Macroetch examination result: Non applicabile - Not applicable			
Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*: Positive	**P.M.I.** Positive	**Marcature** *Marking / Kennzeichnung*: B8MSH MM	**Rivestimento** *Coating / Oberflächenbeschichtung*		

Informazioni aggiuntive

Further information / Zusätzliche angaben

21 AGO. 2024

FRANCO CORBELLINI

OPI

CROSSWIND

The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612 /

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta 27
21015 LONATE PO

Fluitek Valves

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-014/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**014**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
140	**1**

TAG
25-XV-009

SERIAL NUMBER
From 2400620140001 to 2400620140001

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0

NOTES

COMPONENT

CHEMICAL ANALYSIS

PART NAME	MATERIAL	C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
		Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
MECHANICAL PROPERTIES. IMPACT TESTS													
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
SCREW	A193 B8M CL2	0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
	174374	1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORBELLINI QBQ CROSSWIND R DATE	FLUITEK ORSENIGO VALVES SRL Q.C. DATE 06/08/2024

60194

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Acciaierie Valbruna S.p.A.

Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

SPECIFICHE :
Anforderungen / Requirements / Exigences

VAL STOCK W2 A/1 1.4404/316L A
MDS S01 5 316 A (0)
MDS S17 1 316 A (1)
AD 2000-M. W 2 2022 1.4401 A (2)
AD 2000-M. W 2 2022 1.4404 A (3)
AISI . 316/316L
AMS-QQ-S-763 D 316/316L A
ASME SA182 2021 S31600/03 A (4)
ASME SA193 2021 B8M CLASS 1 (5)
ASME SA276 2021 S31600/03 A (6)
ASME SA320 2021 B8M CLASS 1 (7)
ASME SA479 2021 S31600/03 A (8)
ASTM A182 2023 S31600/03 A (9)
ASTM A193 2023 B8M CLASS 1
ASTM A262 PR. E 2015 316/316L (A)
ASTM A276 2023 S31600/03 A
ASTM A320 2022 B8M CLASS 1 CLASS1
ASTM A370 2022 .
ASTM A479 2023A S31600/03 A
ASTM E10 2023 .
ASTM E8 2022 .
EN 10088 PART 3 2014 1.4401 A
EN 10088 PART 3 2014 1.4404 A
EN 10272 2016. 1.4401 A
EN 10272 2016. 1.4404 A
ISO 148-1 2016 .
ISO 3651-2 98 METHOD A T1
ISO 6506-1 2014 .
ISO 6892-1 2019 .
NACE MR0103 2015 S31600/03 A (B)
NACE MR0175 4 S31600/03 A (C)
QQ-S-763 F 316/316L A
ACH CO . .
KV L -196C . ISO 148-1
KV T -196C . ISO 148-1

Note:
Aufzeichnungen / Notes / Notes

(0)Norsok-standard M-630 Edition 6, October 2013
(1)Norsok-standard M-630: 2020 (2020-09-30)
(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
(5)Section II Part A 2021 EDITION
(6)Section II Part A 2021 EDITION
(7)Section II Part A 2021 EDITION
(8)Section II Part A 2021 EDITION
(9)For products machined directly from bar refer also to ASTM A479.
(A)Reapproved 2021

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. QMC

(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.

Pos. nr.	Oggetto	Tolleranza: k12 Toleranz/Allowance/Tolerance Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
Pos. nr. Item nr. Nr. de poste	Gegenstand Product description Descrip. du produit	Abmessungen Dimension Dimension	Länge Length Longueur	Schmelze Heat Coulée	Stückzahl Pieces Pieces	Gewicht Weight Poids	Loonr. Lot nr. Lot nr.
0060	Tondo	135,000	5324/ 5533	291737	1	630,0	320205030

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 1 di 5

Acciaierie Valbruna S.p.A.
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In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.240068

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI24000623

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI24000573

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

TEST ALLO STATO DI FORNITURA

Test on delivery condition — Prüefung auf lieferbereitem produkt — test a l'etat de fourniture — Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		200	235	500	40	-	-	-	-			-		
		max				700									215	
A	10	20	L	270	309	562	59		69					161		
I	10	20	L	278	311	575	57		67					162		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			3

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
B	10X10	-196	L	188	190	195	1,855	1,492	1,910	73	71	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		210	-	520	-	40	-	50	-			-		
		max				790									223	
C	12,5	20	L	258		552		62		73				158		

21 AGO. 2024
FRANCO CORBELLINI
QBJ
CROSSWIND

FLUITEK ORSENIGO QVC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 Z.I.
Telefono 0444.968211 - Fax 0444.963836
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Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.240068

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI24000623

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI24000573

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance á traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	267		561		50		64						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
E	10X10	-196	T	89	94	91	1,258	1,325	1,005	27	20	31

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		100	100	100	-	-	-	-	-	-
H	10X10	20	L	258	258	260						
J	10X10	20	L	253	247	255						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. QVC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 3 di 5

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
min -	-	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-	
291737	0,022	0,42	1,58	16,80	2,04	0,37	10,13	0,166	0,033	0,028	0,051				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 3,2 : 1
Solution annealed 1080°C for 180'(total time)/ water cooled
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

Sono state soddisfatte tutte le condizioni richieste / Die gestellen Anforderungen sind lt. Anlage erfüllt / The material has been furnished in accordance with the requirements / Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK / Verwechslungprüfung: durch XRF/OES Gerät geführt : OK / Antimixing testing performed with XRF/OES portable : OK / Contrôle antimélange avt technique XRF/OES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze / Besichtigung und Ausmessung: ohne Beanstandung / Visual inspection and dimensional checks:satisfactory / Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FLUITEK ORSENIGO QC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 4 di 5

1 - 068194.PDF C 240062-014/01

Acciaierie Valbruna S.p.A.

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In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
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Conferma ordine nr: MI24000623
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Avviso di Spedizione: A-MI24000573
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Stato di fornitura : Laminato - Solubilizzato Pelato
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Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD'S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSPI21ECN30DHD3DA83A4555820C9630C

21 AGO 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO VALVES S.R.L. Q.A.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 5 di 5

57606 | 2 - 057606.PDF | C 240062-014/01

Acciaierie Valbruna S.p.A.

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Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A MDS S01 5 316 A (0) AISI 316 AISI 316L	(0)Norsok-standard M-630 Edition 6, October 2013
ASME SA182 2019 S31600 A (1) ASME SA182 2019 S31603 A (2)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479. (2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3) ASME SA276 2019 S31600 A (4) ASME SA276 2019 S31603 A (5)	(3)Section II Part A 2019 EDITION (4)Section II Part A 2019 EDITION (5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6) ASME SA479 2019 S31600 A (7) ASME SA479 2019 S31603 A (8)	(6)Section II Part A 2019 EDITION (7)Section II Part A 2019 EDITION (8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9) ASTM A182 2020 S31603 (A) ASTM A193 2019 B8M CLASS 1	(9)For products machined directly from bar refer also to ASTM A479. (A)For products machined directly from bar refer also to ASTM A479.
ASTM A262 2015 PRACTICE E ASTM A276 2017 S31600 A ASTM A276 2017 S31603 A	
ASTM A314 2019 S31600 ASTM A320 2018 B8M CLASS 1 CLASS1 ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A ASTM A479 2019 S31603 A ASTM E10 2018 . ASTM E8 2016A . DIN 17440 96 1.4401 A DIN 17440 96 1.4404 A EN 10088-3 2014 1.4401 A EN 10088-3 2014 1.4404 A EN 10272 2007 1.4401 A EN 10272 2007 1.4404 A ISO 148-1 2016 . ISO 6506-1 2014 . ISO 6892-1 2019 .	
NACE MR0103 2015 S31600 A (C) NACE MR0103 2015 S31603 A (D)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015 (D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E) NACE MR0175 2015 S31603 A (F)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015 (F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

21 AGO. 2021
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES Q.C.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
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Certificato nr. MEST662721 / 2021 /
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Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Marchi di Fabbrica:
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Punzone del Collaudatore:
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Pos. nr.	Oggetto	Tolleranza: k12 Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
		Tolleranza/Allowance/Tolerance					
Pos. nr. / Item nr. / Nr. de poste	Gegenstand / Product description / Descrip. du produit	Abmessungen / Dimension / Dimension	Lange / Length / Longueur	Schmelze / Heat / Coulée	Stückzahl / Pieces / Pieces	Gewicht / Weight / Poids	Losnr. / Lot nr. / Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta/ Probestab / Specimen/Eprouvette: Larg.diam Spess. / Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais. mm	°C	Posiz. Saggio / Probenlage / Location / Emplacement 1)	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 1% N/mm2	Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2	Allungamento / Bruchdehnung / Elongation / Allongement A5 %	Allungamento E 4d %	Strizione / Einschnürung / Reduction of area / Striction Z %	Strizione RA %	Resilienza / Kerbschlagarbeit / Impact Value / Resilience KV J			Durezza / Haerte / Hardness / Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs demandées		min max		205	240	515 690	40	40	-	50	100			- 215		
A	10	20	L	295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

21 AGO. 2024
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Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée																
	min -	-	-	-	16,50	2,00	10,00	-	-	-	-	-	-	-	-	-
	max 0,030	1,00	2,00	18,00	2,50	13,00	0,045	0,030	0,100	-	-	-	-	-	-	-
	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %							
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055							

Acciaierie Valbruna S.p.A.

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Delivery state
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Erschmelzungsart
Melting process
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Brand / Nuance

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ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

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Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel â été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/OES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

W3P4F29E3AD159E26AE3704446D159E28C

21 AGO. 2014
FRANCO CORBELLINI
QBQ
CROSSWIND R

Vicenza, 14/01/2021 VCQ052 - MEST662721	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 3 di 3

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-

21 AGO. 2024
FRANCO CORBELLINI
QBA
CROSSWIND

General remarks

1: This test report cannot be partially reproduced without our written approval
2: Test results are relevant only to the specimens belonging to the indicated samples
3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy
4: Tests are performed on the material in as-received conditions, unless otherwise specified
5: Sampling has been performed by customer
6: If not otherwise agreed, tested specimens are kept for 30 days from the test date
7: The uncertainty value, when expressed, does not affect the conformity declaration
8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA
9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by
MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

Notched bar impact test

21 AGO. 2024
FRANCO BARBELLINI
QB1
CROSSWIND R

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration

Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

3 - 071474.PDF C 240062-014/01

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

VDM
Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668

Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

Specification
718 Rev. 13 03.02.2020 (Straightness 2:1000)
Yield Strength: min 120 KSI
Temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718

UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

CFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1834-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straightness 2:1000): API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Meth	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Meth	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Meth	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5,5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Onal Öcüncü, authorized inspection representative
EMail uenal.oecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Agilaria Zemp, Frank Morris
Commercial register: Iserlohn local court, #5127
Company domicile: Werdohl

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates		
1 718 Rev. 13 03.02.2020 (Straighness 2:1000)		
		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling[start 27°C - end 28°C - max. 29°C] + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.

For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.

MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.

No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.

All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.

SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.

The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.

Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

21 AGO. 2023
FRANCO CORBELLINI
QB1
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Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 : 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

21 AGO. 2024
FRANCO CORBELLINI
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EUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Arpitarte Zemp, Frank Moris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KVa 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

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VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
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Holger Arnold, Daniel Arpilarte Zemp, Frank Morris
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Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection 22.07.2023

The material is in compliance with the test specification

Supervisor

Hirzbruch, Level II

21 AGO. 2023
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FLUITEK ORSENIGO VALVES SRL
Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicki Müller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19 US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3) circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor

Hirzbruch, Level II

21 AGO. 2023
FRANCO CORBELLINI
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FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
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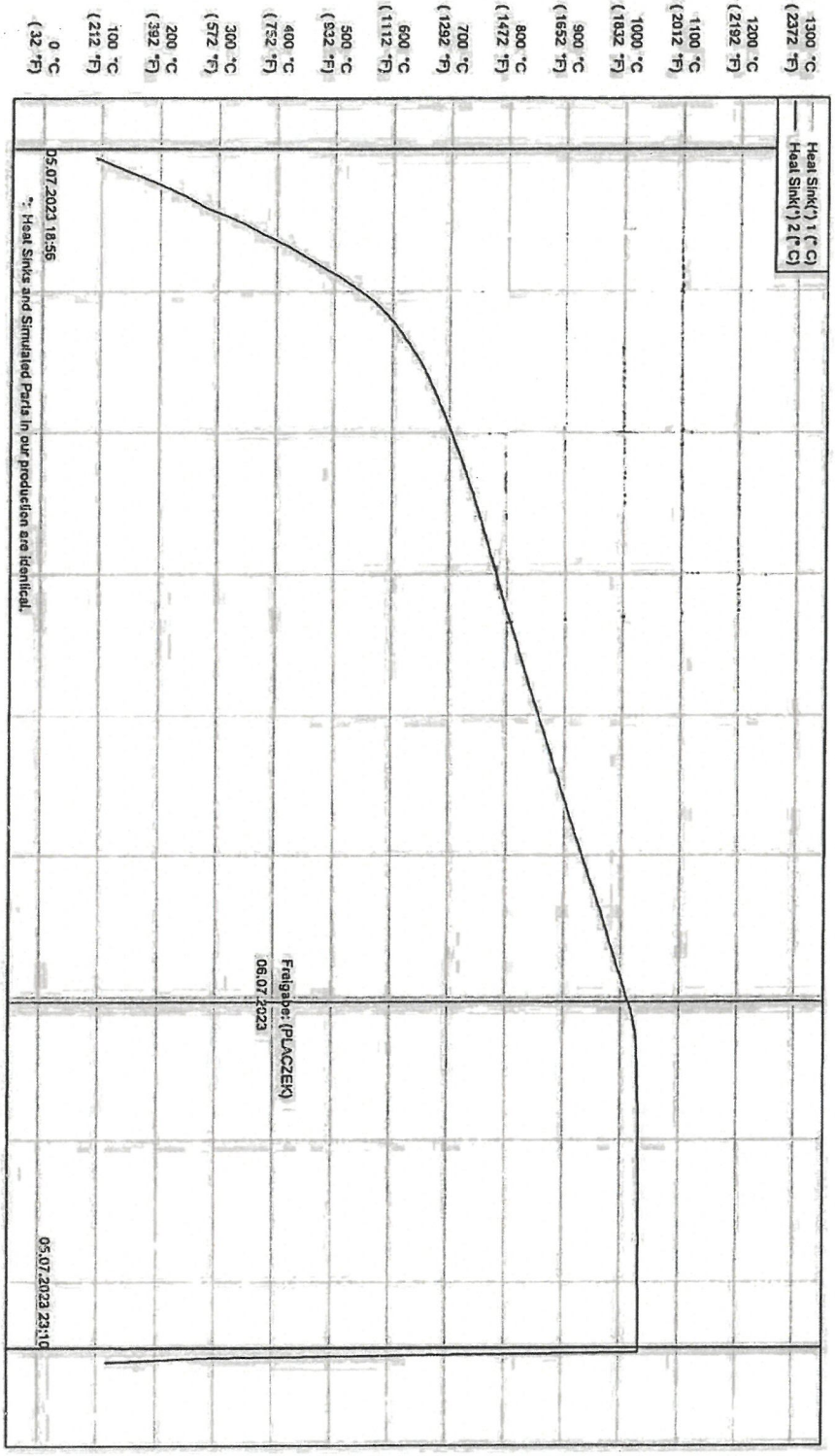
VDM Metals GmbH
on behalf of VDM Metals International GmbH

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Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023

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Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Mailer (Chairman)
Holger Arnold, Daniel Apitzsch Zamp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

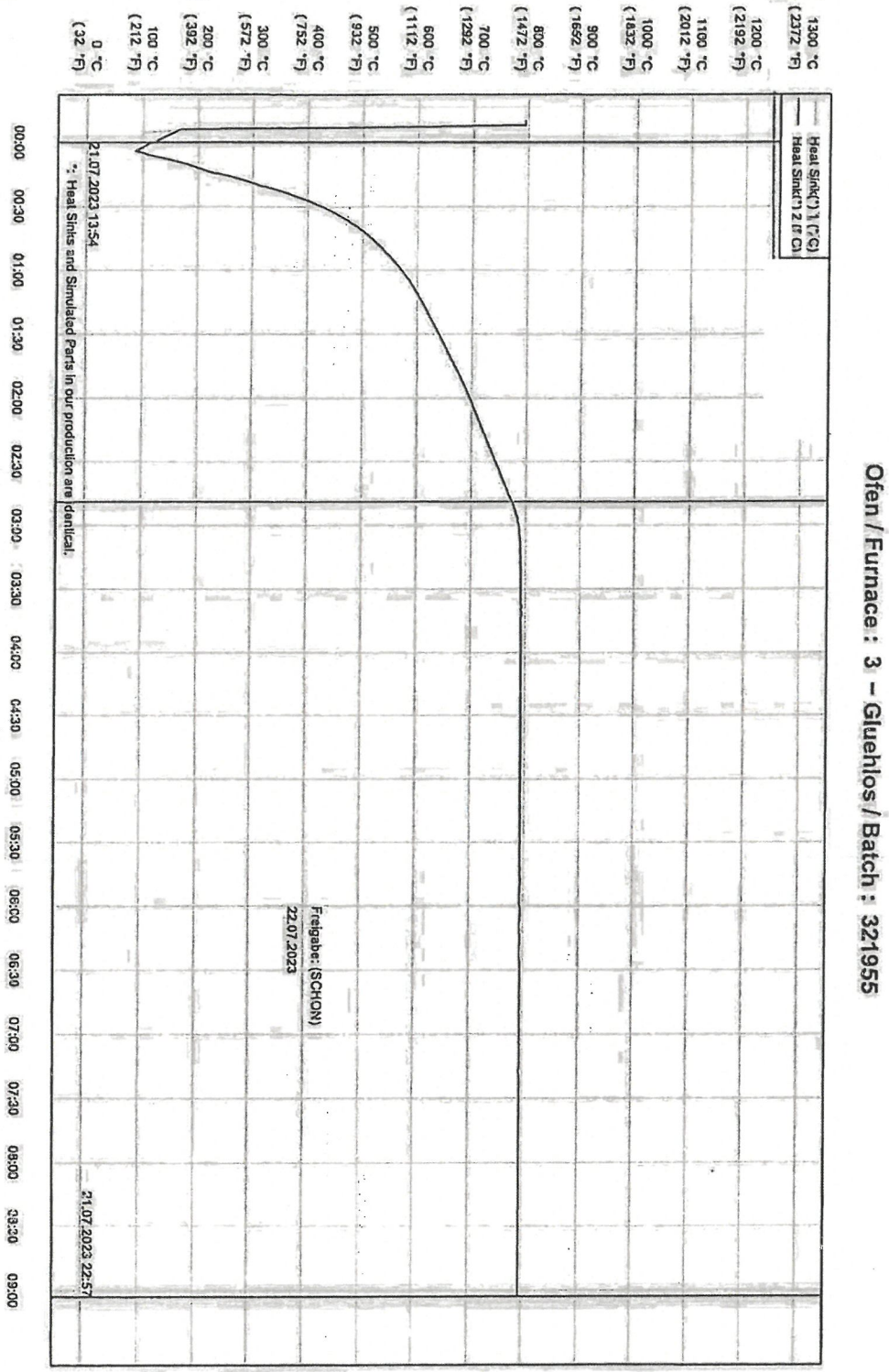
3 - 071474.PDF C 240062-014/01

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on behalf of VDM Metals International GmbH

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Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
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Ofen / Furnace : 3 - Gluehlos / Batch : 321955

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VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

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Holger Arnold, Daniel Apitante Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

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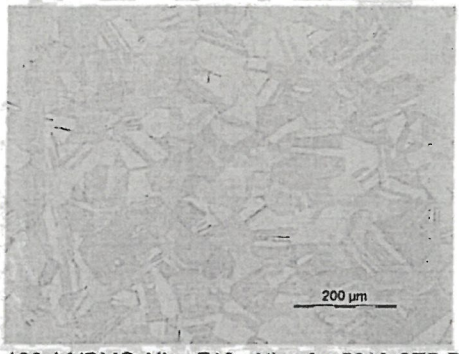
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Microstructure Examination

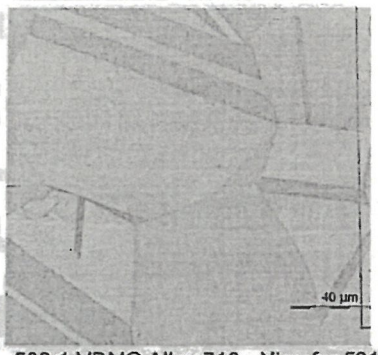
Metallography Job No.:	194936
Lot No.:	105403101
Heat:	422416

Inspection Certificate No.:	253749/1
Enclosure:	4
Page:	~~1 of 1~~

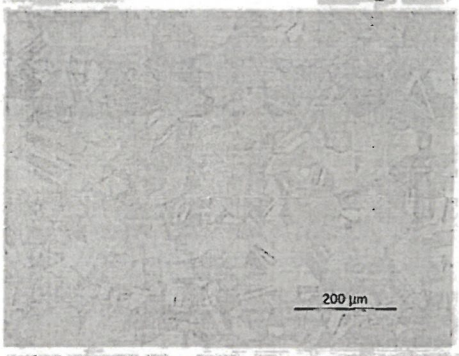
21 AGO. 2023
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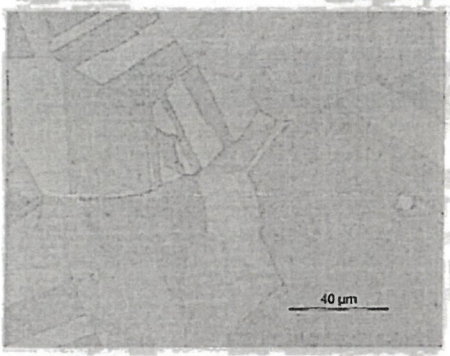
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



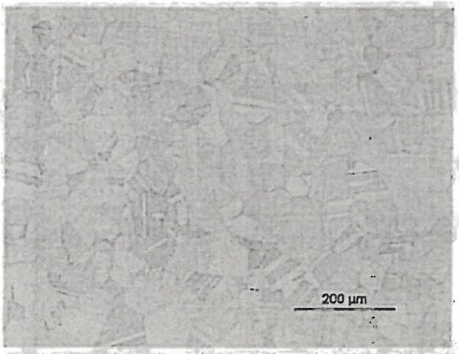
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



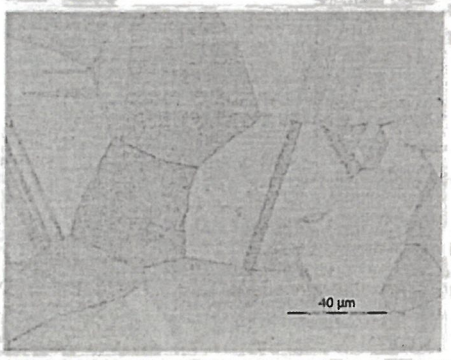
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

FLOWSERVE ORSENIGO VALVES S.R.L. Q.C.

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpitarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

FRANCO CORBELLINI

QBQ 21 AGO. 2024

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FLUITEK ORSENIGO VALVES Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE **ORDER NUMBER:** 715430-1 **STEP:** 721719

PRODUCT CODE: 718 1.25 SAAH **HARDNESS RANGE (HBW):** 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
☐ A0-30	☐ 6403-4 R92033	☐ R984063	☑ 0510014	☐	☐ F68332/139	☐ 814574
☑ UC-71	☐ 6403_16897	☐	☐ 0907068	☐	☐	☐
☐ UC-72	☐ E50152/15(6503-1)	☐	☐ 1112032	☐	☐	☐
☐	☐ HMV1(6403-3)	☐	☐ 1112037	☐	☐	☐
☐	☐ R335(HMM1)	☐	☐	☐	☐	☐

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

								T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
L	316	316.5	37591/30AW	P	21/8/24

3 - 071474.PDF C 240062-014/01

4 - 061238.PDF C 240062-014/01

MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller* FLUITEK ORSENIGO VALVES SRL	**Descrizione** Vite TER - Bolt TER *Description / Prüfgegenstand* M10x25	**Certificato N°** *Certificate N° / Prüf Nr* 153954 R. 0
VIA DEI LIVELLI DI SOPRA 5/7		
COSTA DI MEZZATE BG	**Disegno Cliente** *Customer drawing / Kunden-design* 144356	**Classe materiale** *Material Class /W.n* B8M cl.2 (<=M20) S31600
	N° pezzi *Quantity / Stückzahl* 2000	ASTM A193/A193M-19; ASTM A320/A320M-18
N° DDT 222434 **data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr* 220638 POS. 003	**Colata** *Heat N° / Schmelze Nr* 174374

Analisi chimica

Chemical Analysis /Chemische Analyse

Valori richiesti %

		C	Mn	Si	Cr	Ni	Mo	S	P
Required values /	min.				16,000	10,000	2,000		
Sollwerte	max	0,080	2,000	1,000	18,000	14,000	3,000	0,030	0,045
Analisi colata		0,016	1,830	0,380	16,680	10,280	2,050	0,001	0,027

**Heat analysis / Schmelzanalyse*

* As reported on steel work or supplier certificate

Caratteristiche meccaniche

Balance Fe

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* **Rm [N/mm2]**		Snervamento *Yield strength Streck-grenze* **Rs [N/mm2]**	Allungamento *Elongation Bruch-dehnung* **A%**		Strizione *Reduction of area Bruch-einschn.* **Z%**	Durezza *Hardness Härteprüfung* **HB**		Resilienza *Impact test Schlagarbeit* **[J]**		Temperat. resilienza *Temp* **[°C]**
Valori richiesti	min	max	min	4D min	5D min	min	min	max	media	min	
Required values/ Anforderungen	760		655	15,00%		45,00%		321			
Valori ottenuti *Actual values / Ergebnisse*	1033		889	24,00%		66,20%		315			

Note

Trattamento termico *Heat treatment*	**Esame decarburazione-carburazione** *Decarburization and carburization test*	**Esame macroscopico** *Macroetch examination result*
Carbide solution treated and strain hardened	Non applicabile - Not applicable	Non applicabile - Not applicable

Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*	Positive	**P.M.I.**	Positive	**Marcature** *Marking / Kennzeichnung*	B8MSH MM	**Rivestimento** *Coating Oberflächenbeschichtung*	

Informazioni aggiuntive

Further information / Zusätzliche angaben

21 AGO. 2022

FRANCO CORBELLINI
081
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The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612 /

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-015/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**015**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
150	**1**

TAG
25-XV-011

SERIAL NUMBER
From 2400620150001 to 2400620150001

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
SCREW	A193 B8M CL2	0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
	174374	1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORSELLINI QBQ CROSSWIND R DATE	FLUITEK ORSENIGO VALVES SRL QVC DATE 06/08/2024

60194

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Acciaierie Valbruna S.p.A.

Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

SPECIFICHE :	Note:
Anforderungen / Requirements / Exigences	Aufzeichnungen / Notes / Notes
VAL STOCK W2 A/1 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
MDS S17 1 316 A (1)	(1)Norsok-standard M-630: 2020 (2020-09-30)
AD 2000-M. W 2 2022 1.4401 A (2)	(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AD 2000-M. W 2 2022 1.4404 A (3)	(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AISI . 316/316L	
AMS-QQ-S-763 D 316/316L A	
ASME SA182 2021 S31600/03 A (4)	(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2021 B8M CLASS 1 (5)	(5)Section II Part A 2021 EDITION
ASME SA276 2021 S31600/03 A (6)	(6)Section II Part A 2021 EDITION
ASME SA320 2021 B8M CLASS 1 (7)	(7)Section II Part A 2021 EDITION
ASME SA479 2021 S31600/03 A (8)	(8)Section II Part A 2021 EDITION
ASTM A182 2023 S31600/03 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2023 B8M CLASS 1	
ASTM A262 PR. E 2015 316/316L (A)	(A)Reapproved 2021
ASTM A276 2023 S31600/03 A	
ASTM A320 2022 B8M CLASS 1 CLASS1	
ASTM A370 2022 .	
ASTM A479 2023A S31600/03 A	
ASTM E10 2023 .	
ASTM E8 2022 .	
EN 10088 PART 3 2014 1.4401 A	
EN 10088 PART 3 2014 1.4404 A	
EN 10272 2016. 1.4401 A	
EN 10272 2016. 1.4404 A	
ISO 148-1 2016 .	
ISO 3651-2 98 METHOD A T1	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600/03 A (B)	(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 4 S31600/03 A (C)	(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.
QQ-S-763 F 316/316L A	
ACH CO . .	
KV L -196C . ISO 148-1	
KV T -196C . ISO 148-1	

21 AGO. 2024
FRANCO CORBELLINI
QB3
CROSSWIND

FLUITEK ORSENIGO QVC

		Tolleranza: k12 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0060	Tondo	135,000	5324/ 5533	291737	1	630,0	320205030

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 1 di 5

Acciaierie Valbruna S.p.A.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

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Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max			200	235	500 / 700	40	-	-	-	-			- / 215		
A	10	20	L		270	309	562	59		69					161		
I	10	20	L		278	311	575	57		67					162		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			3

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expension Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max			-	-	-	-	-	-	-	-	-
B	10X10	-196	L		188	190	195	1,855	1,492	1,910	73	71	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min / max			210	-	520 / 790	-	40	-	50	-			- / 223		
C	12,5	20	L		258		552		62		73				158		

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO Q.V.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto Produktmanagement/Product Management/Direction Produit	Pagina
VCQ008 - MEST012686	R.BERTELLI	P.MESSORI	2 di 5

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 Z.I.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'esseyeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	267		561		50		64						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion - Lateral ex mm			Shear - Shear - % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
E	10X10	-196	T	89	94	91	1,258	1,325	1,005	27	20	31

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion -			Shear - Shear -		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		100	100	100	-	-	-	-	-	-
H	10X10	20	L	258	258	260						
J	10X10	20	L	253	247	255						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO QC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
min -	-	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-	
291737	0,022	0,42	1,58	16,80	2,04	0,37	10,13	0,166	0,033	0,028	0,051				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 3,2 : 1
Solution annealed 1080°C for 180'(total time)/ water cooled
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

Sono stata soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange avt technique XRF/OES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FLUITEK ORSENIGO QC

Acciaierie Valbruna S.p.A.
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In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
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Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD'S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Vaiplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSPB21EC9630DHEXDA83AA9998920C9630C

21 AGO. 2024
FRANCO CORBELLINI
QB9
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

57606 | 2 - 057606.PDF | C 240062-015/01

Acciaierie Valbruna S.p.A.

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Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
AISI 316	
AISI 316L	
ASME SA182 2019 S31600 A (1)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA182 2019 S31603 A (2)	(2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3)	(3)Section II Part A 2019 EDITION
ASME SA276 2019 S31600 A (4)	(4)Section II Part A 2019 EDITION
ASME SA276 2019 S31603 A (5)	(5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6)	(6)Section II Part A 2019 EDITION
ASME SA479 2019 S31600 A (7)	(7)Section II Part A 2019 EDITION
ASME SA479 2019 S31603 A (8)	(8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A182 2020 S31603 (A)	(A)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2019 B8M CLASS 1	
ASTM A262 2015 PRACTICE E	
ASTM A276 2017 S31600 A	
ASTM A276 2017 S31603 A	
ASTM A314 2019 S31600	
ASTM A320 2018 B8M CLASS 1 CLASS1	
ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A	
ASTM A479 2019 S31603 A	
ASTM E10 2018 .	
ASTM E8 2016A .	
DIN 17440 96 1.4401 A	
DIN 17440 96 1.4404 A	
EN 10088-3 2014 1.4401 A	
EN 10088-3 2014 1.4404 A	
EN 10272 2007 1.4401 A	
EN 10272 2007 1.4404 A	
ISO 148-1 2016 .	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600 A (C)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0103 2015 S31603 A (D)	(D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015
NACE MR0175 2015 S31603 A (F)	(F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

21 AGO. 2021
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 14/01/2021 VCQ052 - MEST662721	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 1 di 3

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

Tolleranza: k12
Tolleranza/Allowance/Tolerance

Pos. nr.	Oggetto	Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
Pos. nr. / Item nr. / Nr. de poste	Gegenstand / Product description / Descrip. du produit	Abmessungen / Dimension / Dimension	Länge / Length / Longueur	Schmelze / Heat / Coulée	Stückzahl / Pieces / Pieces	Gewicht / Weight / Poids	Losnr. / Lot nr. / Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA
Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab / Specimen/Eprouvette / Larg.diam Spess. / Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais. mm	°C	Posiz. Saggio / Probenlage / Location / Emplacement 1)	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 1% N/mm2	Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2	Allungamento / Bruchdehnung / Elongation / Allongement A5 %	Allungamento E 4d %	Strizione / Einschnürung / Reduction of area / Striction Z %	Strizione RA %	Resilienza / Kerbschlagarbeit / Impact Value / Resilience KV J			Durezza / Haerte / Hardness / Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs demandées		min		205	240	515	40	40	-	50	100			-		
		max				690								215		
A	10	20	L	295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA
Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

21 AGO. 2024
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QBA
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Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %
min -	-	-	-	16,50	2,00	10,00	-	-	-
max 0,030	1,00	2,00	18,00	2,50	13,00	0,045	0,030	0,100	
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055

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Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

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Marchi di Fabbrica: AV
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Accialerie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

W3P4F28E3AD159E26AE37654048D199E28C

FRANCO CORBELLINI
QBO 21 AGO. 2024
CROSSWIND

Vicenza, 14/01/2021	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto Produktmanagement/Product Management/Direction Produit	Pagina 3 di 3
VCQ052 - MEST662721	R.BERTELLI	P.MESSORI	

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

General remarks

1: This test report cannot be partially reproduced without our written approval
2: Test results are relevant only to the specimens belonging to the indicated samples
3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy
4: Tests are performed on the material in as-received conditions, unless otherwise specified
5: Sampling has been performed by customer
6: If not otherwise agreed, tested specimens are kept for 30 days from the test date
7: The uncertainty value, when expressed, does not affect the conformity declaration
8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA
9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by
MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
LAB N° 1574 L

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

Notched bar impact test

21 AGO 2024
FRANCO CORBELLINI
QBJ
CROSSWIND R

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration
Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Collazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	

3 - 071474.PDF C 240062-015/01

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

21 AGO. 2014
FRANCO CORBELLINI
QB9
CROSSWIND R

VDM Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668

Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

Specification
718 Rev. 13 03.02.2020 (Straightness 2:1000)
Yield Strength: min 120 KSI
Temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015,+ Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718
UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1834-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straightness 2:1000); API 6 A CRA First Edition 08.2015,+ Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Melt	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Melt	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Melt	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5.5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Ünal Üçüncü, authorized inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

FLUITEK FORSENIGO VALVES S.R.L. Q.C.

Chairman of the Supervisory Board: Bernardo Velazquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Apitzsch, Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Order No. Purchase Order No.

printed: 14. AUG 2023

21 AGO. 2024
FRANCO CORBELLINI
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Sample Condition solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates 1 718 Rev. 13 03.02.2020 (Straighness 2:1000)		
		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling(start 27°C - end 28°C - max. 29°C) + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.

For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.

MACROETCHING: conducted as per ASTM A 604, etchant "Aqua Regia", sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.

No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.

All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.

SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.

The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.

Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1	14.08.2023	VDM Metals error: correction heat treatment parameters
Rev.: 0	01.08.2023	

FLUITEK ORSENIGO VALVES SRL Q.C.

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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 : 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

21 AGO. 2023
FRANCO CORBELLINI
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CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Arpitarte Zemp, Frank Morris
Commercial register: Iserlohn local court, HR127
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KV₂ 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

FLUITEK ORSENIGO VALVES SRL Q.C.

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FRANCO CORSELLINI
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VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicko Müller (Chairman)
Holger Arnold, Daniel Arpitarte Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch l=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor

Hirzbruch, Level II

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

21 AGO. 2023
FRANCO CORBELLINI
QB3
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicki Muller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block, sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection 22.07.2023

The material is in compliance with the test specification

Supervisor
D. Hirschfuch
Hirschfuch, Level II

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, 15327
Company domicile: Werdohl

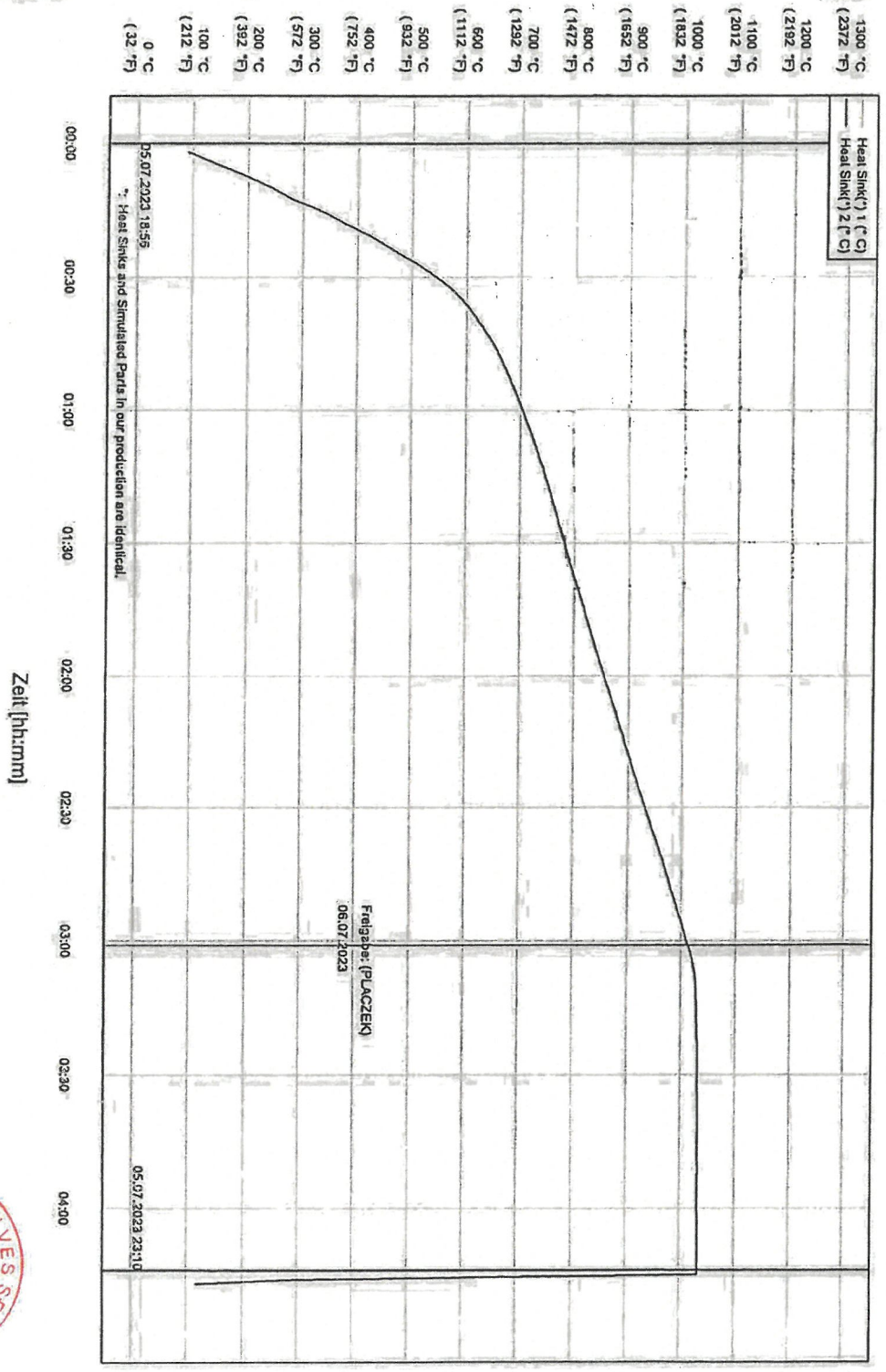
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2024

FRANCO CORBELLINI
QBQ
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Mats Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

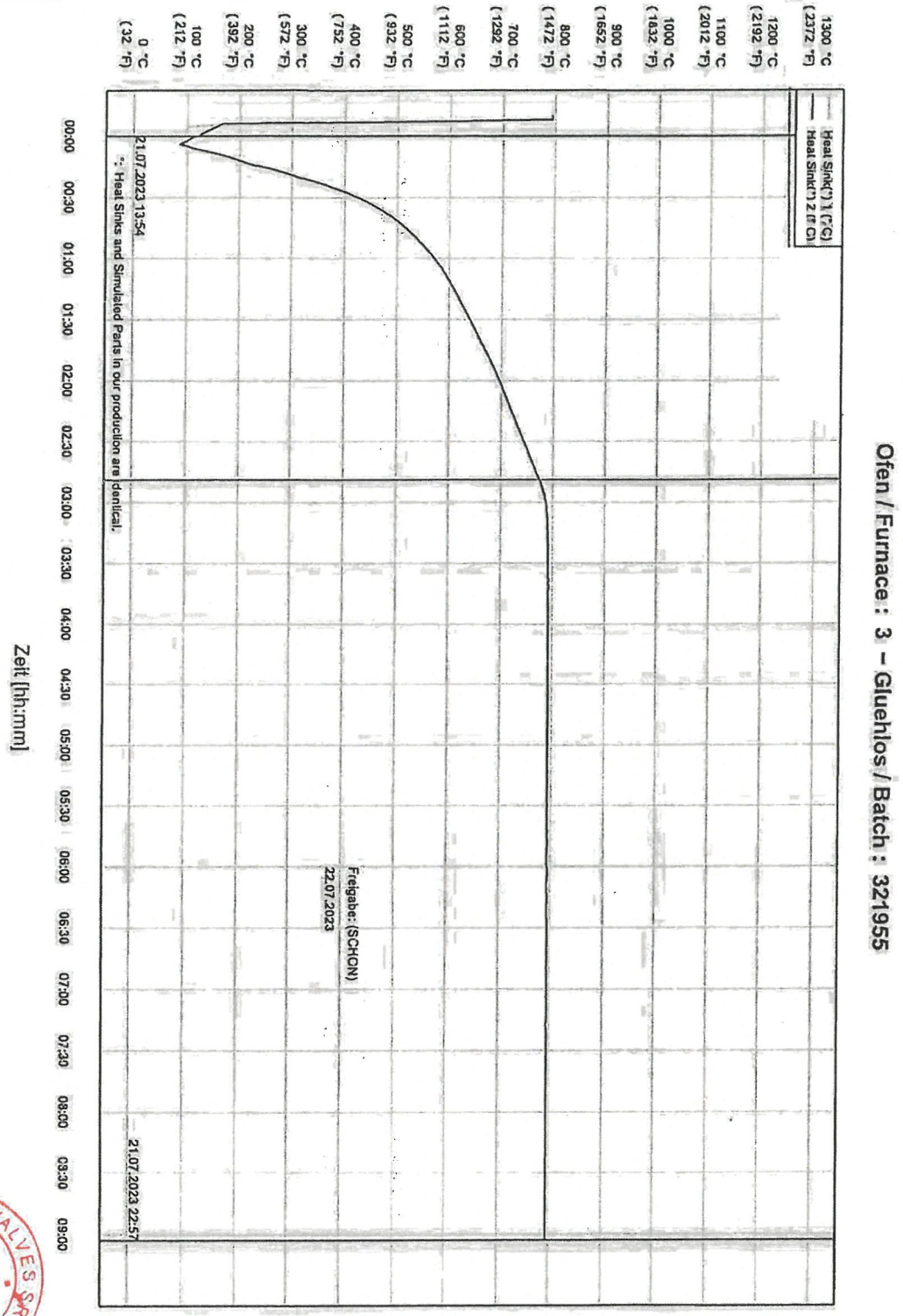
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace: 3 - Gluehlos / Batch: 321955

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicolas Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

21 AGO. 2023
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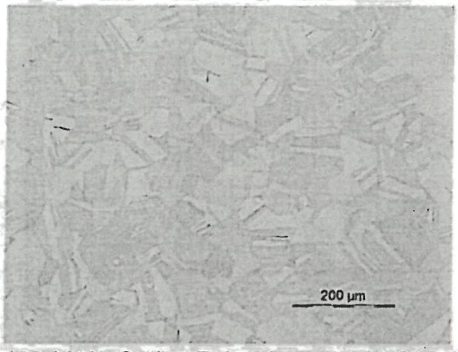
VDM Metals GmbH

VDM Metals

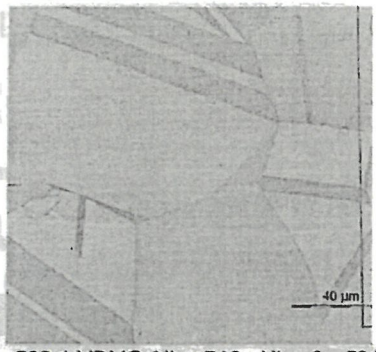
Microstructure Examination

Metallography Job No.: 194936
Lot No.: 105403101
Heat: 422416

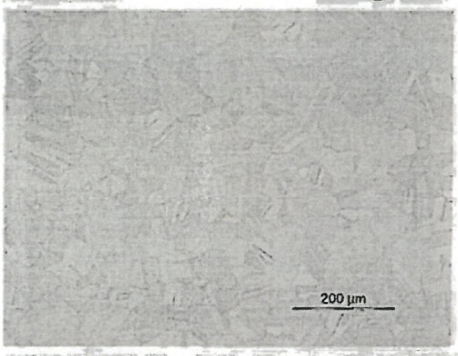
Inspection Certificate No.: 253749/1
Enclosure: 4
Page: ~~1 of 1~~



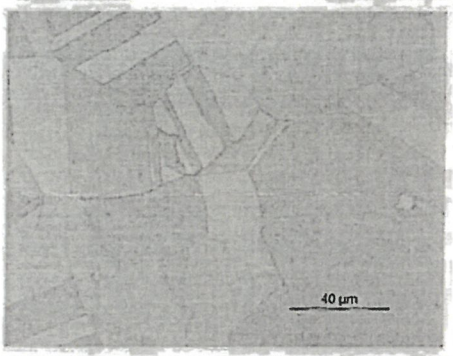
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102T001A02 surface
26.07.2023 Kallings No.2



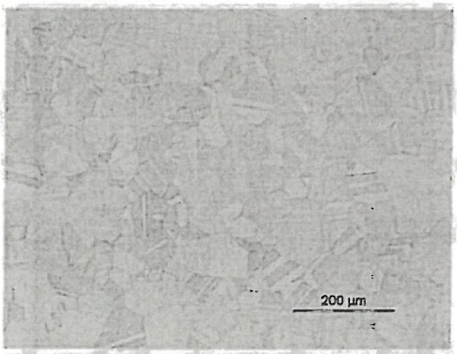
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



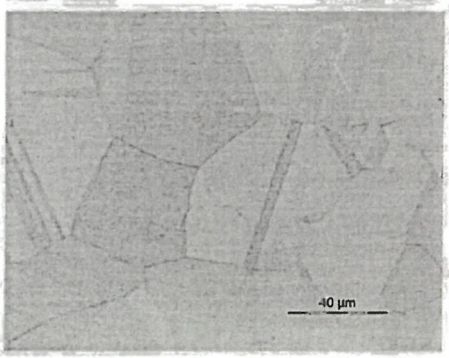
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

URSENIGO VALVES SRL Q.C.

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpilarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 NOV. 2024
FRANCO CORBELLINI
QBA
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE **ORDER NUMBER:** 715430-1 **STEP:** 721719

PRODUCT CODE: 718 1.25 SAAH **HARDNESS RANGE (HBW):** 298.0 - 363.0

21 AGO. 2024 FRANCO CORSELLINI QBO CROSSWIND

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
☐ A0-30	☐ 6403-4 R92033	☐ R984063	☑ 0510014	☐	☐ F68332/139	☐ 814574
☑ UC-71	☐ 6403_16897	☐	☐ 0907068	☐	☐	☐
☐ UC-72	☐ E50152/15(6503-1)	☐	☐ 1112032	☐	☐	☐
☐	☐ HMV1(6403-3)	☐	☐ 1112037	☐	☐	☐
☐	☐ R335(HMM1)	☐	☐	☐	☐	☐

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

								T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
L	316	316.5	27591 30AW	P	21/8/24

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4 - 061238.PDF C 240062-015/01

MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller*	FLUITEK ORSENIGO VALVES SRL	**Descrizione** *Description / Prüfgegenstand*	Vite TER - Bolt TER M10x25	**Certificato N°** *Certificate N° / Prüf Nr*	153954 R. 0
VIA DEI LIVELLI DI SOPRA	5/7				
COSTA DI MEZZATE	BG	**Disegno Cliente** *Customer drawing / Kunden-design*	144356	**Classe materiale** *Material Class /W.n*	B8M cl.2 (<=M20) S31600
		N° pezzi *Quantity / Stückzahl*	2000		ASTM A193/A193M-19; ASTM A320/A320M-18
N° DDT	222434 **data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr*	220638 POS. 003	**Colata** *Heat N° / Schmelze Nr*	174374

Analisi chimica

Chemical Analysis /Chemische Analyse

Valori richiesti %

		C	Mn	Si	Cr	Ni	Mo	S	P
Required values /	min.				16,000	10.000	2,000		
Sollwerte	max	0,080	2,000	1,000	18,000	14.000	3,000	0,030	0,045
Analisi colata		0,016	1,830	0,380	16,680	10,280	2,050	0,001	0,027

**Heat analysis / Schmelzanalyse*

* As reported on steel work or supplier certificate

Balance Fe

Caratteristiche meccaniche

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* Rm [N/mm2]		Snervamento *Yield strength Streck-grenze* Rs [N/mm2]	Allungamento *Elongation Bruch-dehnung* A%		Strizione *Reduction of area Bruch-einschn.* Z%	Durezza *Hardness Härteprüfung* HB		Resilienza *Impact test Schlagarbeit* [J]		Temperat. resilienza *Temp* [°C]
Valori richiesti *Required values/ Anforderungen*	min 760	max	min 655	4D min 15,00%	5D min	min 45,00%	min	max 321	media	min	
Valori ottenuti *Actual values / Ergebnisse*	1033		889	24,00%		66,20%		315			

Note

Trattamento termico *Heat treatment*	**Esame decarburazione-carburazione** *Decarburization and carburization test*	**Esame macroscopico** *Macroetch examination result*
Carbide solution treated and strain hardened	Non applicabile - Not applicable	Non applicabile - Not applicable

Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*	Positive	**P.M.I.**	Positive	**Marcature** *Marking / Kennzeichnung*	B8MSH MM	**Rivestimento** *Coating Oberflächenbeschichtung*	

Informazioni aggiuntive

Further information / Zusätzliche angaben

21 AGO. 2024

FRANCO CORBELLINI

The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612 /

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta N. 27
21015 LONATE POZZOLO (VA)

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-016/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**016**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
160	**1**

TAG
25-XV-012

SERIAL NUMBER
From 2400620160001 to 2400620160001

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
SCREW	A193 B8M CL2	0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
	174374	1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	DATE 21 AGO. 2024 FRANCO CORBELLINI QBE CROSSWIND R	DATE 06/08/2024 FLUITEK ORSENIGO VALVES S.R.L. Q.A.C.

60194

1 - 068194.PDF C 240062-016/01

Acciaierie Valbruna S.p.A.

Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

SPECIFICHE :
Anforderungen / Requirements / Exigences

Note:
Aufzeichnungen / Notes / Notes

VAL STOCK W2 A/1 1.4404/316L A
MDS S01 5 316 A (0)
MDS S17 1 316 A (1)
(0)Norsok-standard M-630 Edition 6, October 2013
(1)Norsok-standard M-630: 2020 (2020-09-30)

AD 2000-M. W 2 2022 1.4401 A (2)
AD 2000-M. W 2 2022 1.4404 A (3)
(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020

AISI . 316/316L
AMS-QQ-S-763 D 316/316L A
ASME SA182 2021 S31600/03 A (4)
ASME SA193 2021 B8M CLASS 1 (5)
(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
(5)Section II Part A 2021 EDITION

ASME SA276 2021 S31600/03 A (6)
ASME SA320 2021 B8M CLASS 1 (7)
ASME SA479 2021 S31600/03 A (8)
(6)Section II Part A 2021 EDITION
(7)Section II Part A 2021 EDITION
(8)Section II Part A 2021 EDITION

ASTM A182 2023 S31600/03 A (9)
ASTM A193 2023 B8M CLASS 1
ASTM A262 PR. E 2015 316/316L (A)
(9)For products machined directly from bar refer also to ASTM A479.
(A)Reapproved 2021

ASTM A276 2023 S31600/03 A
ASTM A320 2022 B8M CLASS 1 CLASS1
ASTM A370 2022 .
ASTM A479 2023A S31600/03 A
ASTM E10 2023 .
ASTM E8 2022 .
EN 10088 PART 3 2014 1.4401 A
EN 10088 PART 3 2014 1.4404 A
EN 10272 2016. 1.4401 A
EN 10272 2016. 1.4404 A
ISO 148-1 2016 .
ISO 3651-2 98 METHOD A T1
ISO 6506-1 2014 .
ISO 6892-1 2019 .
NACE MR0103 2015 S31600/03 A (B)
(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015

NACE MR0175 4 S31600/03 A (C)
QQ-S-763 F 316/316L A
ACH CO . .
KV L -196C . ISO 148-1
KV T -196C . ISO 148-1
(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO QMC

Pos. nr.	Oggetto	Tolleranza: k12 Toleranz/Allowance/Tolerance Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
Pos. nr. / Item nr. / Nr. de poste	Gegenstand / Product description / Descrip. du produit	Abmessungen / Dimension / Dimension	Länge / Length / Longueur	Schmelze / Heat / Coulée	Stückzahl / Pieces / Pieces	Gewicht / Weight / Poids	Losnr. / Lot nr. / Lot nr.
0060	Tondo	135,000	5324/ 5533	291737	1	630,0	320205030

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 1 di 5

Acciaierie Valbruna S.p.A.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance á traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min			200	235	500	40	-	-	-	-			-		
		max					700									215	
A	10	20	L		270	309	562	59		69					161		
I	10	20	L		278	311	575	57		67					162		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			3

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min			-	-	-	-	-	-	-	-	-
		max											
B	10X10	-196	L		188	190	195	1,855	1,492	1,910	73	71	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance á traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min			210	-	520	-	40	-	50	-			-		
		max					790									223	
C	12,5	20	L		258		552		62		73				158		

27 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO QVC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 2 di 5

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della Scienza, 25 Z.I.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliante / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	267		561		50		64						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
E	10X10	-196	T	89	94	91	1,258	1,325	1,005	27	20	31

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		100	100	100	-	-	-	-	-	-
H	10X10	20	L	258	258	260						
J	10X10	20	L	253	247	255						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO VALVES S.R.L. QMC

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
min -	-	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
max	0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-
291737	0,022	0,42	1,58	16,80	2,04	0,37	10,13	0,166	0,033	0,028	0,051				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 3,2 : 1
Solution annealed 1080°C for 180'(total time)/ water cooled
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 AGO. 2024
FRANCO CORSELLINI
QBQ
CROSSWIND

Sono state soddisfatte tutte le condizioni richieste / Die gestellen Anforderungen sind it. Anlage erfüllt / The material has been furnished in accordance with the requirements / Le materiel â été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK / Verwechslungprüfung: durch XRF/QES Gerät geführt : OK / Antimixing testing performed with XRF/OES portable : OK / Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze / Besichtigung und Ausmessung: ohne Beanstandung / Visual inspection and dimensional checks:satisfactory / Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy — No welding or weld repair — Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FLUITEK ORSENIGO QC

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
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Telefono 0471.924111 - Fax 0471.924497

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In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

57606 | 2 - 057606.PDF | C 240062-016/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
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Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/4/316/L

SPECIFICHE : (Anforderungen / Requirements / Exigences)	Note: (Aufzeichnungen / Notes / Notes)
VAL STOCK 2020 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
AISI 316	
AISI 316L	
ASME SA182 2019 S31600 A (1)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA182 2019 S31603 A (2)	(2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3)	(3)Section II Part A 2019 EDITION
ASME SA276 2019 S31600 A (4)	(4)Section II Part A 2019 EDITION
ASME SA276 2019 S31603 A (5)	(5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6)	(6)Section II Part A 2019 EDITION
ASME SA479 2019 S31600 A (7)	(7)Section II Part A 2019 EDITION
ASME SA479 2019 S31603 A (8)	(8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A182 2020 S31603 (A)	(A)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2019 B8M CLASS 1	
ASTM A262 2015 PRACTICE E	
ASTM A276 2017 S31600 A	
ASTM A276 2017 S31603 A	
ASTM A314 2019 S31600	
ASTM A320 2018 B8M CLASS 1 CLASS1	
ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A	
ASTM A479 2019 S31603 A	
ASTM E10 2018 .	
ASTM E8 2016A .	
DIN 17440 96 1.4401 A	
DIN 17440 96 1.4404 A	
EN 10088-3 2014 1.4401 A	
EN 10088-3 2014 1.4404 A	
EN 10272 2007 1.4401 A	
EN 10272 2007 1.4404 A	
ISO 148-1 2016 .	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600 A (C)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0103 2015 S31603 A (D)	(D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015
NACE MR0175 2015 S31603 A (F)	(F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

21 AGO. 2021

FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES Q.C.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

Tolleranza: k12
Tolleranza/Allowance/Tolerance

Pos. nr.	Oggetto	Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
Pos. nr. / Item nr. / Nr. de poste	Gegenstand / Product description / Descrip. du produit	Abmessungen / Dimension / Dimension	Länge / Length / Longueur	Schmelze / Heat / Coulée	Stückzahl / Pieces / Pieces	Gewicht / Weight / Poids	Losnr. / Lot nr. / Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / test a l'etat de fourniture / Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta/ Probestab / Specimen/Eprouvette / Larg.diam Spess. / Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais mm	°C	Posiz. Saggio / Probelage / Location / Emplacement 1)	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 1% N/mm2	Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2	Allungamento / Bruchdehnung / Elongation / Allongement A5 %	Allungamento E 4d %	Strizione / Einschnürung / Reduction of area / Striction Z %	Strizione RA %	Resilienza / Kerbschlagarbeit / Impact Value / Resilience KV J			Durezza / Haerte / Hardness / Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démendées		min max		205	240	515 690	40	40	-	50	100			- 215		
A	10	20	L	295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

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Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée																
	min -	-	-	16,50	2,00	10,00	-	-	-	-	-	-	-	-	-	-
	max 0,030	1,00	2,00	18,00	2,50	13,00	0,045	0,030	0,100	-	-	-	-	-	-	-
	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %							
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055							

Acciaierie Valbruna S.p.A.

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Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

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Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel ß été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

W9P4F29E3ED159E28AE3791404B0159E28C

21 AGO. 2021
FRANCO CORBELLINI
QBQ
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QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 14/01/2021 VCQ052 - MEST662721	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 3 di 3

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-

21 AGO. 2024
FRANCO CORBELLINI
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CROSSWIND

General remarks

1: This test report cannot be partially reproduced without our written approval
2: Test results are relevant only to the specimens belonging to the indicated samples
3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy
4: Tests are performed on the material in as-received conditions, unless otherwise specified
5: Sampling has been performed by customer
6: If not otherwise agreed, tested specimens are kept for 30 days from the test date
7: The uncertainty value, when expressed, does not affect the conformity declaration
8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA
9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by
MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

Notched bar impact test

21 AGO. 2024
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R

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration
Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	

3 - 071474.PDF C 240062-016/01

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

21 AGO. 2023
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R

VDM
Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668

Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

Specification
718 Rev. 13 03.02.2020 (Straigthness 2:1000)
Yield Strength: min 120 KSI
temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015,+ Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718

UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1934-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straigthness 2:1000): API 6 A CRA First Edition 08.2015,+ Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Meth	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Meth	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Meth	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

	Test Location
1	No 5 surface
1	No 5.5 1/4 thickness
1	No 5 center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

M. Ücüncü
Ünal Ücüncü , authorized Inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Chairman of the Supervisory Board: Bernardo Velazquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Order No. Purchase Order No.

printed: 14. AUG 2023

21 AGO. 2023
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Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates			
1	718 Rev. 13 03.02.2020 (Straightness 2:1000)		
			Test Location
1	Complying with delivery specification.		surface
1	Complying with delivery specification.		1/4 thickness
1	Complying with delivery specification.		center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling(start 27°C - end 28°C - max. 29°C) + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.

For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.

MACROETCHING: conducted as per ASTM A 604, etchant "Aqua Regia", sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.

No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.

All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.

SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.

The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.

Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

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Division Bar and Forgings
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 : 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

FUJITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2023
FRANCO CORBELLINI
QC
CROSSWIND R

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apilanz Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate **253749/1**
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KV$_8$ 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

21 AGO. 2024
FRANCO CORBELLINI
QB1
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VDM Metals GmbH
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Plettenberger Straße 2, D-58791 Werdohl
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch l=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of inspection 22.07.2023

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

21 AGO. 2023
FRANCO CORBELLINI
QB1
CROSSWIND R

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable Indications		
422416 - 102	count	Inspector	level
Date of Inspection	0	Plaza-Wacker	Level II
22.07.2023			

The material is in compliance with the test specification

Supervisor
Hinzbruch, Level II

21 AGO. 2023
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
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Internet: www.vdm-metals.com

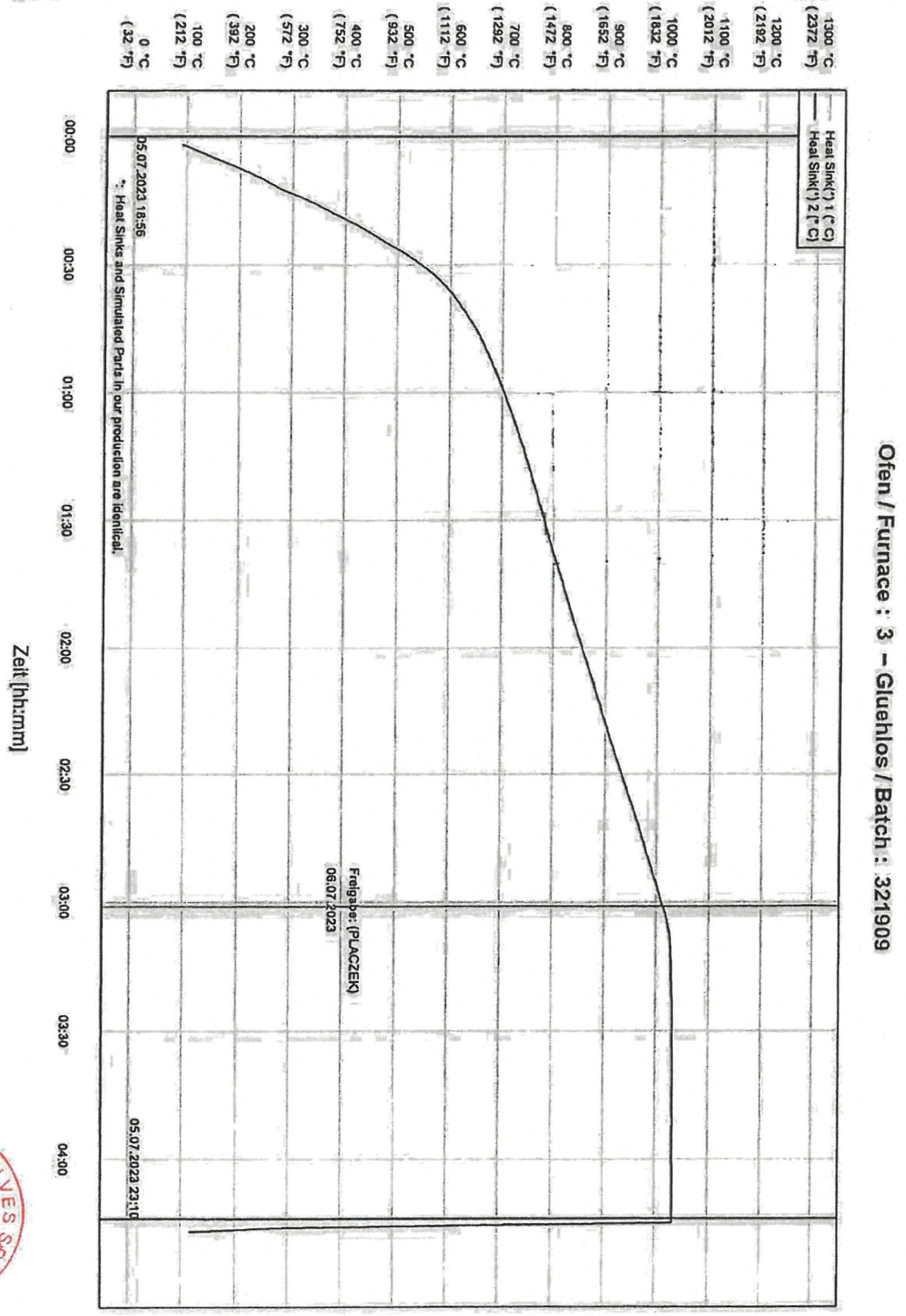
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
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Holger Arnold, Daniel Arpitarie Zemp, Frank Monis
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Matts Muller (Chairman)
Holger Arnold, Daniel Aspiazu Zemp, Frank Morris
Commercial register: berlohn local court, #5327
Company domicile: Werdohl

21 AGO. 2024
FRANCO CORBELLINI
QBJ
CROSSWIND

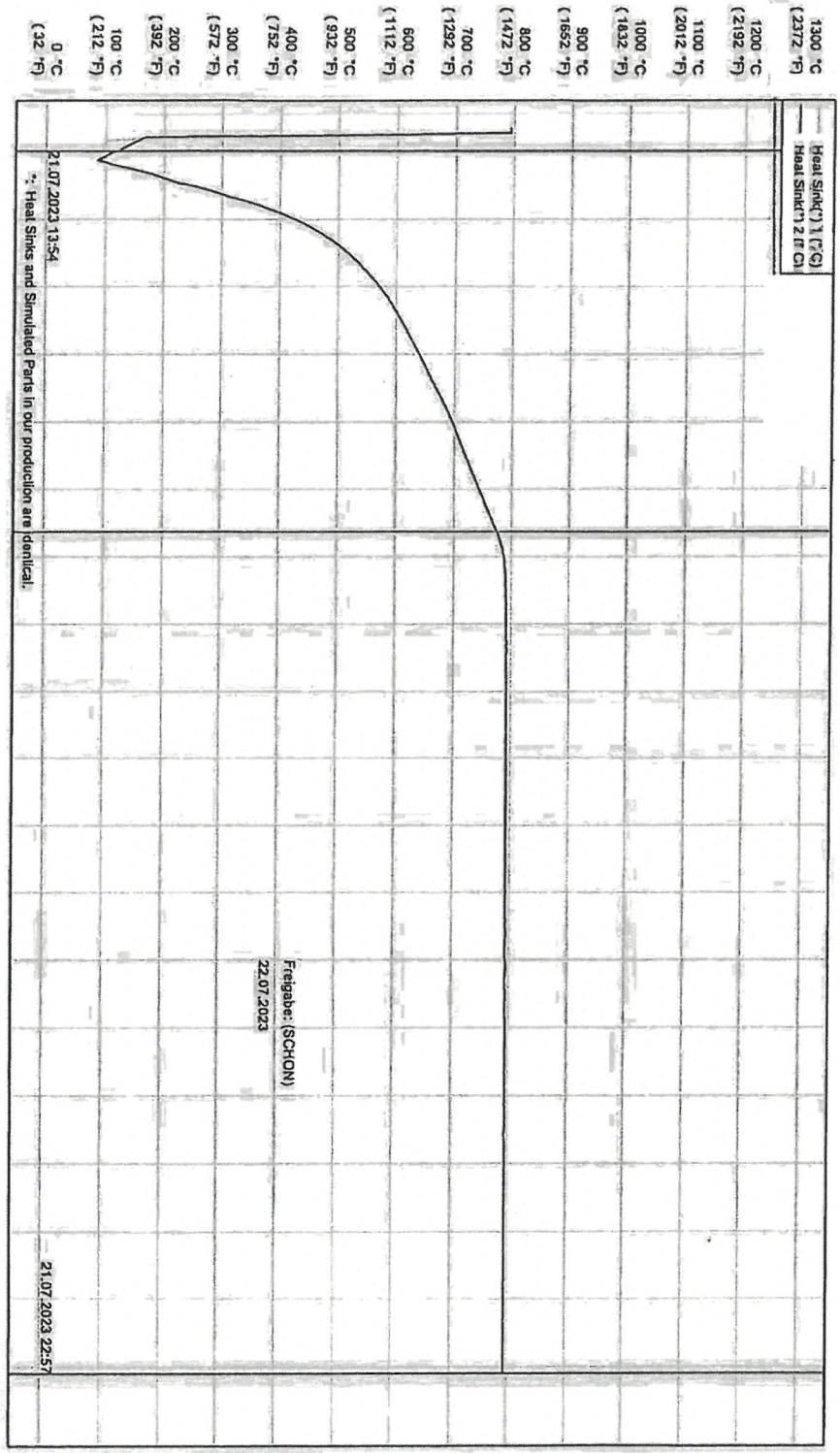
3 - 071474.PDF C 240062-016/01

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321955

TUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicas Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

21 AGO. 2024
FRANCO CORBELLINI
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CROSSWIND

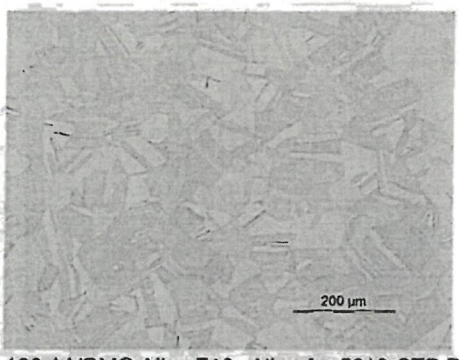
VDM Metals

VDM Metals GmbH

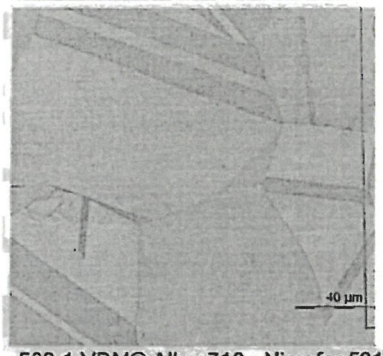
Microstructure Examination

Metallography Job No.:	**194936**
Lot No.:	**105403101**
Heat:	**422416**

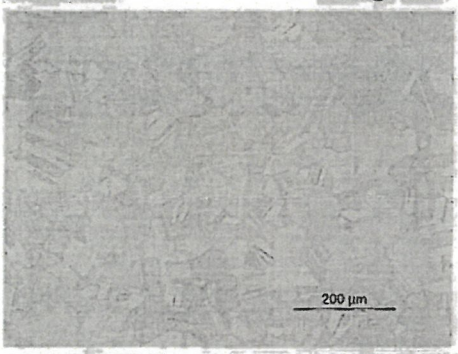
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Enclosure: **4**
Page: ~~1 of 1~~



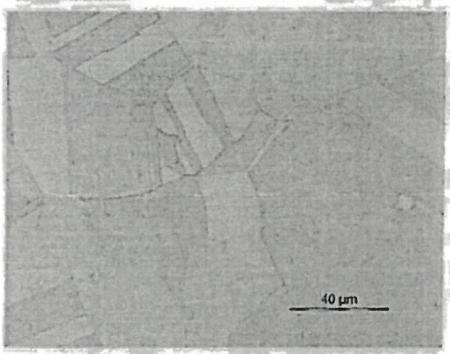
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102T001A02 surface
26.07.2023 Kallings No.2



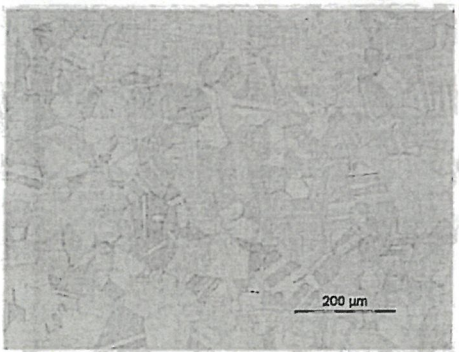
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



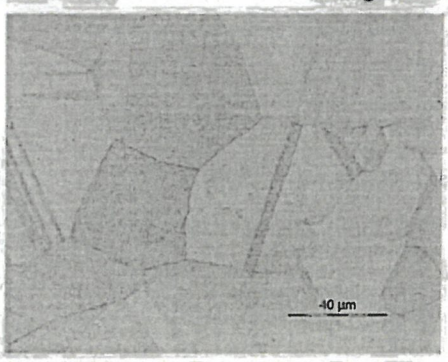
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

FLOWSERVE ORSENIGO VALVES S.R.L. Q.C.

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpilarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 AGO. 2023

FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES S.r.l. Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE **ORDER NUMBER:** 715430-1 **STEP:** 721719

PRODUCT CODE: 718 1.25 SAAH **HARDNESS RANGE (HBW):** 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
A0-30	6403-4 R92033	R984063	0510014		F68332/139	814574
☑ UC-71	6403_16897		0907068			
UC-72	E50152/15(6503-1)		1112032			
	HMV1(6403-3)		1112037			
	R335(HMM1)					

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

									T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
L	316	316.5	27591/30AW	P	21/8/24

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CROSSWIND
R

3 - 071474.PDF C 240062-016/01

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MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller*	FLUITEK ORSENIGO VALVES SRL	**Descrizione** *Description / Prüfgegenstand*	Vite TER - Bolt TER M10x25	**Certificato N°** *Certificate N° / Prüf Nr*	153954 R. 0
VIA DEI LIVELLI DI SOPRA	5/7	**Disegno Cliente** *Customer drawing / Kunden-design*	144356	**Classe materiale** *Material Class /W.n*	B8M cl.2 (<=M20) S31600
COSTA DI MEZZATE	BG	**N° pezzi** *Quantity / Stückzahl*	2000	ASTM A193/A193M-19; ASTM A320/A320M-18	
N° DDT 222434	**data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr*	220638 POS. 003	**Colata** *Heat N° / Schmelze Nr*	174374

Analisi chimica

Chemical Analysis /Chemische Analyse

Valori richiesti %

		C	Mn	Si	Cr	Ni	Mo	S	P
Required values / *Sollwerte*	min.				16,000	10,000	2,000		
	max	0,080	2,000	1,000	18,000	14,000	3,000	0,030	0,045
Analisi colata **Heat analysis / Schmelzanalyse*		0,016	1,830	0,380	16,680	10,280	2,050	0,001	0,027

* As reported on steel work or supplier certificate

Balance Fe

Caratteristiche meccaniche

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* Rm [N/mm2]		Snervamento *Yield strength Streck-grenze* Rs [N/mm2]	Allungamento *Elongation Bruch-dehnung* A%		Strizione *Reduction of area Bruch-einschn.* Z%	Durezza *Hardness Härteprüfung* HB		Resilienza *Impact test Schlagarbeit* [J]		Temperat. resilienza *Temp* [°C]
	min	max	min	4D min	5D min	min	min	max	media	min	
Valori richiesti *Required values/ Anforderungen*	760		655	15,00%		45,00%		321			
Valori ottenuti *Actual values / Ergebnisse*	1033		889	24,00%		66,20%		315			

Note

Trattamento termico *Heat treatment*	**Esame decarburazione-carburazione** *Decarburization and carburization test*	**Esame macroscopico** *Macroetch examination result*
Carbide solution treated and strain hardened	Non applicabile - Not applicable	Non applicabile - Not applicable

Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*	Positive	**P.M.I.**	Positive	**Marcature** *Marking / Kennzeichnung*	B8MSH MM	**Rivestimento** *Coating Oberflächenbeschichtung*	

Informazioni aggiuntive

Further information / Zusätzliche angaben

21 AGO. 2024

FRANCO CARBELLINI

CPT

CROSSWIND

The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612 /

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta n. 27
21015 LONATE POZZOLO

Fluitek Valves

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-017/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**017**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
170	**1**

TAG
25-XV-014

SERIAL NUMBER
From 2400620170001 to 2400620170001

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
SCREW	A193 B8M CL2	0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
	174374	1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	DATE 21 AGO. 2024	DATE 06/08/2024

FRANCESCO CASTELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L.

068194

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Acciaierie Valbruna S.p.A.

Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Siempel des Werkssechverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

SPECIFICHE :	Note:
Anforderungen / Requirements / Exigences	Aufzeichnungen / Notes / Notes
VAL STOCK W2 A/1 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
MDS S17 1 316 A (1)	(1)Norsok-standard M-630: 2020 (2020-09-30)
AD 2000-M. W 2 2022 1.4401 A (2)	(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AD 2000-M. W 2 2022 1.4404 A (3)	(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AISI . 316/316L	
AMS-QQ-S-763 D 316/316L A	
ASME SA182 2021 S31600/03 A (4)	(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2021 B8M CLASS 1 (5)	(5)Section II Part A 2021 EDITION
ASME SA276 2021 S31600/03 A (6)	(6)Section II Part A 2021 EDITION
ASME SA320 2021 B8M CLASS 1 (7)	(7)Section II Part A 2021 EDITION
ASME SA479 2021 S31600/03 A (8)	(8)Section II Part A 2021 EDITION
ASTM A182 2023 S31600/03 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2023 B8M CLASS 1	
ASTM A262 PR. E 2015 316/316L (A)	(A)Reapproved 2021
ASTM A276 2023 S31600/03 A	
ASTM A320 2022 B8M CLASS 1 CLASS1	
ASTM A370 2022 .	
ASTM A479 2023A S31600/03 A	
ASTM E10 2023 .	
ASTM E8 2022 .	
EN 10088 PART 3 2014 1.4401 A	
EN 10088 PART 3 2014 1.4404 A	
EN 10272 2016. 1.4401 A	
EN 10272 2016. 1.4404 A	
ISO 148-1 2016 .	
ISO 3651-2 98 METHOD A T1	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600/03 A (B)	(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 4 S31600/03 A (C)	(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.
QQ-S-763 F 316/316L A	
ACH CO . .	
KV L -196C . ISO 148-1	
KV T -196C . ISO 148-1	

21 AGO. 2024
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FLUITEK ORSENIGO QVC

		Tolleranza: k12 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0060	Tondo	135,000	5324/ 5533	291737	1	630,0	320205030

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 1 di 5

Acciaierie Valbruna S.p.A.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

TEST ALLO STATO DI FORNITURA

Test on delivery condition — Prüefung auf lieferbereitem produkt — test a l'etat de fourniture — Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. / Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais mm	°C	Posiz. Saggio Probenlage / Location / Emplacement 1)	Snervamento Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze / Yield Stress / Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2	Allungamento Bruchdehnung / Elongation / Allongement A5 %		Strizione Einschnürung / Reduction of area / Striction Z %		Resilienza Kerbschlagarbeit / Impact Value / Resilience			Durezza Haerte / Hardness / Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		200	235	500	40	-	-	-	-			-		
		max				700								215		
A	10	20	L	270	309	562	59		69					161		
I	10	20	L	278	311	575	57		67					162		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			3

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. / Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais mm	°C	Posiz. Saggio Probenlage / Location / Emplacement 1)	Resilienza Kerbschlagarbeit / Impact Value / Resilience KV2 J			Espansione laterale - Lateral Expansion - Lateral ex mm			Shear - Shear - % Shear %		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
B	10X10	-196	L	188	190	195	1,855	1,492	1,910	73	71	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. / Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais mm	°C	Posiz. Saggio Probenlage / Location / Emplacement 1)	Snervamento Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze / Yield Stress / Limite elastique	Resistenza Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2	Allungamento Bruchdehnung / Elongation / Allongement E 4d %		Strizione Einschnürung / Reduction of area / Striction RA %		Resilienza Kerbschlagarbeit / Impact Value / Resilience			Durezza Haerte / Hardness / Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		210	-	520	-	40	-	50	-			-		
		max				790								223		
C	12,5	20	L	258		552		62		73				158		

21 AGO. 2024
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FLUITEK ORSENIGO QVC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 2 di 5

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 Z.I.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probestage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			205	-	515	-	40	-	50	-			-		
D	12,5	20	T		267		561		50		64						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probestage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			-	-	-	-	-	-	-	-	-
E	10X10	-196	T		89	94	91	1,258	1,325	1,005	27	20	31

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probestage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			100	100	100	-	-	-	-	-	-
H	10X10	20	L		258	258	260						
J	10X10	20	L		253	247	255						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
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FLUITEK ORSENIGO VALVES SRL QC

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della Scienza, 25 Z.I.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
	min -	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
	max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-
291737	0,022	0,42	1,58	16,80	2,04	0,37	10,13	0,166	0,033	0,028	0,051				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 3,2 : 1
Solution annealed 1080°C for 180'(total time)/ water cooled
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 AGO. 2024
FRANCO CORBELLINI
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CROSSWIND

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FLUITEK ORSENIGO QC

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
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Telefono 0471.924111 - Fax 0471.924497

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In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

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FLUITEK ORSENIGO VALVES S.R.L. Q.C.

57606 | 2 - 057606.PDF | C 240062-017/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
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Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
AISI 316	
AISI 316L	
ASME SA182 2019 S31600 A (1)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA182 2019 S31603 A (2)	(2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3)	(3)Section II Part A 2019 EDITION
ASME SA276 2019 S31600 A (4)	(4)Section II Part A 2019 EDITION
ASME SA276 2019 S31603 A (5)	(5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6)	(6)Section II Part A 2019 EDITION
ASME SA479 2019 S31600 A (7)	(7)Section II Part A 2019 EDITION
ASME SA479 2019 S31603 A (8)	(8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A182 2020 S31603 (A)	(A)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2019 B8M CLASS 1	
ASTM A262 2015 PRACTICE E	
ASTM A276 2017 S31600 A	
ASTM A276 2017 S31603 A	
ASTM A314 2019 S31600	
ASTM A320 2018 B8M CLASS 1 CLASS1	
ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A	
ASTM A479 2019 S31603 A	
ASTM E10 2018 .	
ASTM E8 2016A .	
DIN 17440 96 1.4401 A	
DIN 17440 96 1.4404 A	
EN 10088-3 2014 1.4401 A	
EN 10088-3 2014 1.4404 A	
EN 10272 2007 1.4401 A	
EN 10272 2007 1.4404 A	
ISO 148-1 2016 .	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600 A (C)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0103 2015 S31603 A (D)	(D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015
NACE MR0175 2015 S31603 A (F)	(F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

FLUITEK ORSENIGO VALVES Q.C.

21 AGO. 2021

FRANCO CORBELLINI
QBQ
CROSSWIND

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur
MR

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

		Tolleranza: k12 Tolleranza/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Lange Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA
Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm		°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %	 E 4d %	Strizione Einschnürung Reduction of area Striction Z %	 RA %	Resilienza Kerbschlagarbeit Impact Value Resilience KV J			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées			min max		205	240	515 690	40	40	-	50	100			- 215		
A	10		20	L	295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA
Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el materiel así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

21 AGO. 2021
FRANCO CORBELLINI
QBA
CROSSWIND

Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée																
	min - max 0,030	- 1,00	- 2,00	16,50 18,00	2,00 2,50	10,00 13,00	- 0,045	- 0,030	- 0,100	-	-	-	-	-	-	-
	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %							
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055							

Acciaierie Valbruna S.p.A.

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Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel ß été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

W3F4F29E3401598E26AE37054448015962BC

21 AGO 2021
FRANCO CORBELLINI
QB1
CROSSWIND

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 14/01/2021 VCQ052 - MEST662721	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 3 di 3

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

General remarks

1: This test report cannot be partially reproduced without our written approval
2: Test results are relevant only to the specimens belonging to the indicated samples
3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy
4: Tests are performed on the material in as-received conditions, unless otherwise specified
5: Sampling has been performed by customer
6: If not otherwise agreed, tested specimens are kept for 30 days from the test date
7: The uncertainty value, when expressed, does not affect the conformity declaration
8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA
9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by
MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
LAB N° 1574 L

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

Notched bar impact test

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration

Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	21 NOV. 2023 FRANCO CORSELLINI QB1 CROSSWIND

3 - 071474.PDF C 240062-017/01

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

21 AGO. 2024
FRANCO CORBELLINI
QBJ
CROSSWIND R

Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668

Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

Specification
718 Rev. 13 03.02.2020 (Straigthness 2:1000)
Yield Strength: min 120 KSI
temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718
UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1834-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straigthness 2:1000); API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Meth	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Meth	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Meth	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5.5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Ünal Ücüncü, authorized inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Chairman of the Supervisory Board: Bernardo Velazquez Herreros
Management Board: Dr. Niclas Möller (Chairman),
Holger Arnold, Daniel Applaris Zemp, Frank Morris
Commercial register: Iserlohn local court, #5127
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates			
1	718 Rev. 13 03.02.2020 (Straighness 2:1000)		
			Test Location
1	Complying with delivery specification.		surface
1	Complying with delivery specification.		1/4 thickness
1	Complying with delivery specification.		center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling(start 27°C - end 28°C - max. 29°C) + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209.91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.

For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.

MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.

No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.

All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.

SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.

The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.

Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

21 AGO. 2023
FRANCO CORBELLINI
QBJ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

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Division Bar and Forgings
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 : 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2023

FRANCO CORBELLINI
QB1
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apilarte Zemp, Frank Morris
Commercial register: Berlahn local court, HR127
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KVa 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

21 AGO. 2023
FRANCO CORSELLINI
QBJ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection 22.07.2023

The material is in compliance with the test specification

Supervisor

Hirzbruch, Level II

FEUITEK ORSENIGO VALVES S.R.L. Q.C.

21 AGO. 2023
FRANCO CORBELLINI
081
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor

Hinzbruch, Level II

21 AGO. 2023
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
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Holger Arnold, Daniel Apitzsch Zamp, Frank Monis
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

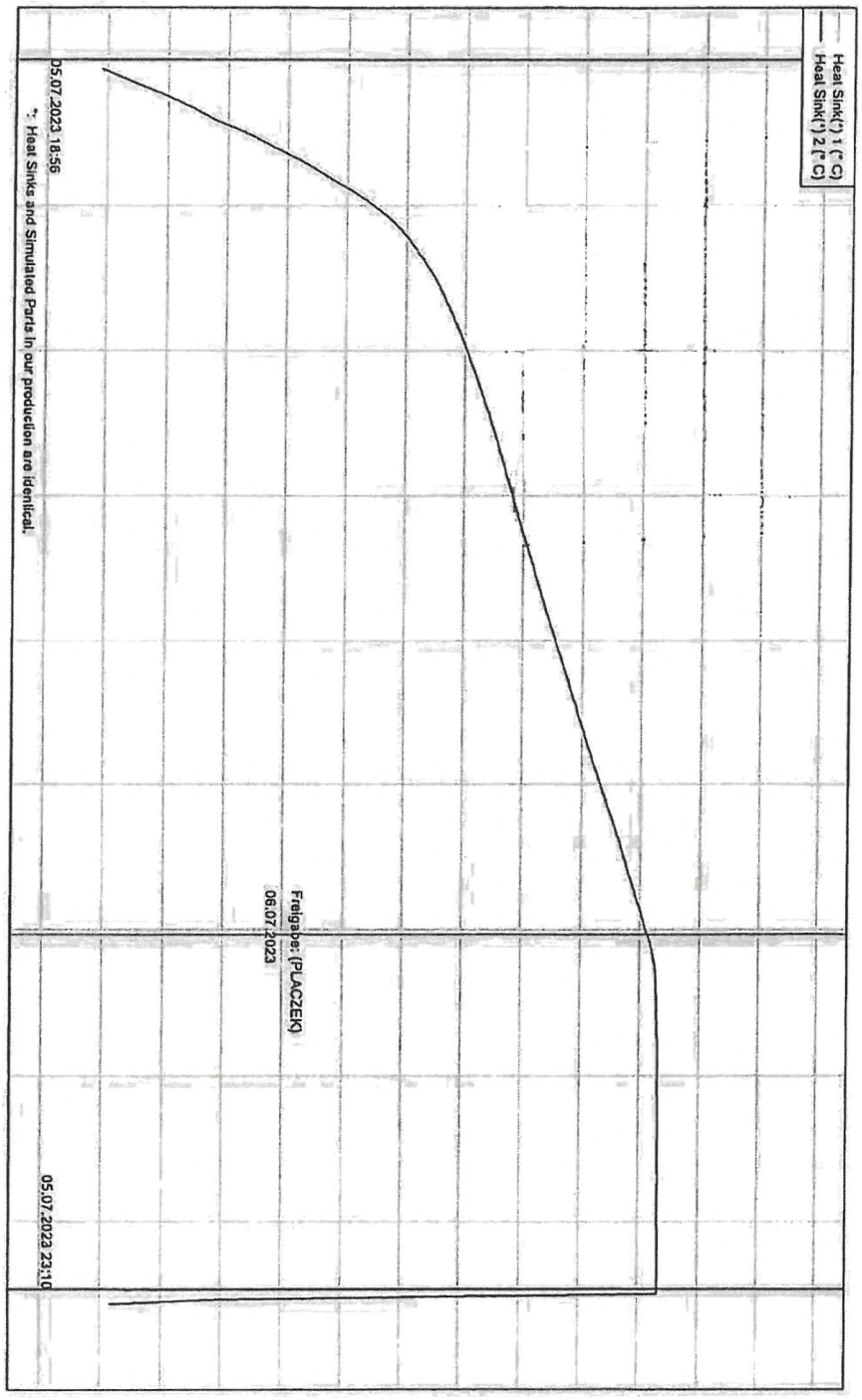
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

21 AGO. 2023
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Apiluria Zemp, Frank Morris
Commercial register: Iserlohn local court, 5327
Company domicile: Werdohl

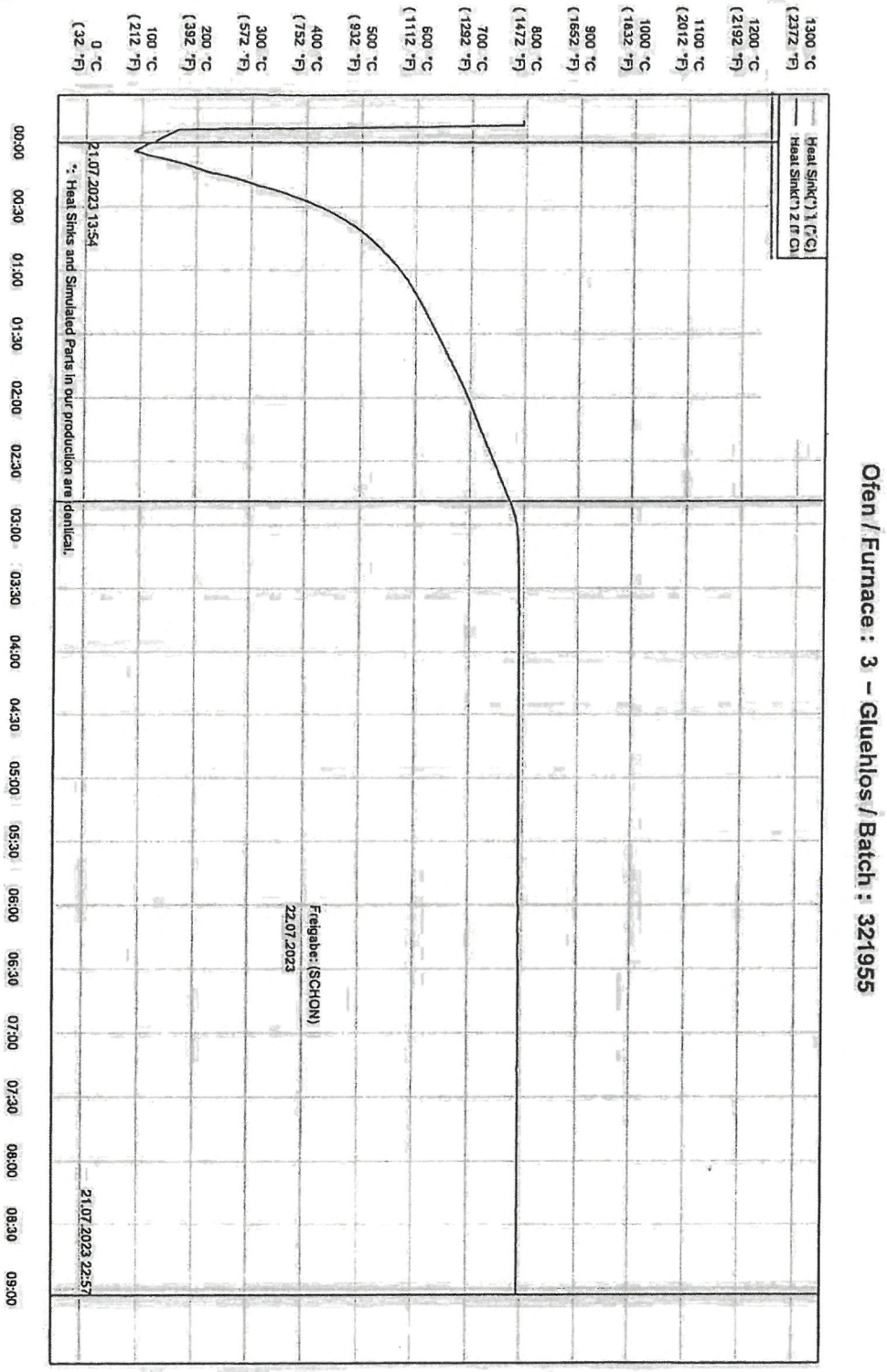
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321955

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

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Management Board: Dr. Nicas Müller (Chairman)
Holger Arnold, Daniel Apitante Zemp, Frank Moris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

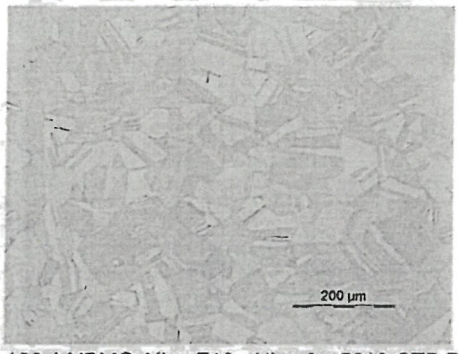
VDM Metals

VDM Metals GmbH

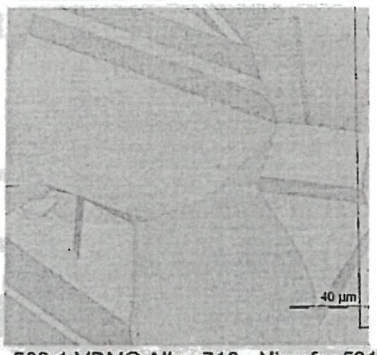
Microstructure Examination

Metallography Job No.:	**194936**
Lot No.:	**105403101**
Heat:	**422416**

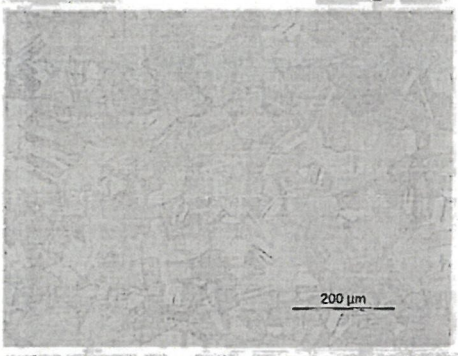
Inspection Certificate No.: **253749/1**
Enclosure: **4**
Page: ~~1 of 1~~



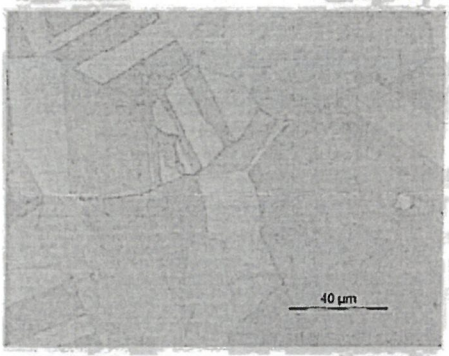
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



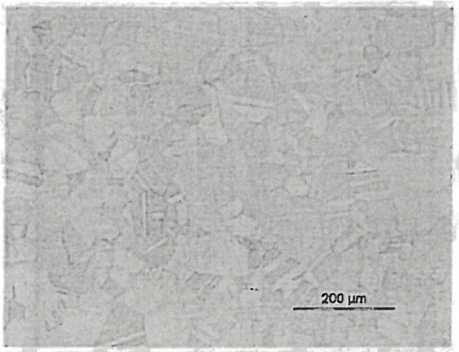
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



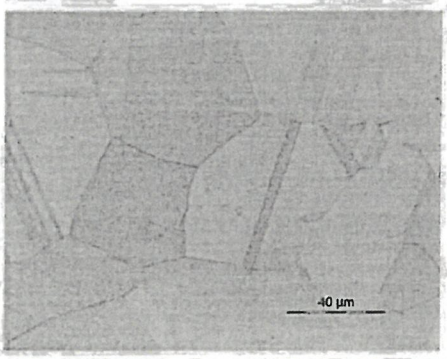
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpilarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 AGO. 2024
FRANCO CORSELLINI
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE **ORDER NUMBER:** 715430-1 **STEP:** 721719

PRODUCT CODE: 718 1.25 SAAH **HARDNESS RANGE (HBW):** 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
☐ A0-30	☐ 6403-4 R92033	☐ R984063	☑ 0510014	☐	☐ F68332/139	☐ 814574
☑ UC-71	☐ 6403_16897	☐	☐ 0907068	☐	☐	☐
☐ UC-72	☐ E50152/15(6503-1)	☐	☐ 1112032	☐	☐	☐
☐	☐ HMV1(6403-3)	☐	☐ 1112037	☐	☐	☐
☐	☐ R335(HMM1)	☐	☐	☐	☐	☐

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

									T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

21 AGO. 2024
FRANCO CORBELLINI
QE1
CROSSWIND R

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
[signature]	316	316.5	27591/30AW	P	21/8/24

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4 - 061238.PDF C 240062-017/01

MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller*	FLUITEK ORSENIGO VALVES SRL	**Descrizione** *Description / Prüfgegenstand*	Vite TER - Bolt TER M10x25	**Certificato N°** *Certificate N° / Prüf Nr*	153954 R. 0
VIA DEI LIVELLI DI SOPRA	5/7				
COSTA DI MEZZATE	BG	**Disegno Cliente** *Customer drawing / Kunden-design*	144356	**Classe materiale** *Material Class /W.n*	B8M cl.2 (<=M20) S31600
		N° pezzi *Quantity / Stückzahl*	2000		ASTM A193/A193M-19; ASTM A320/A320M-18
N° DDT	222434 **data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr*	220638 POS. 003	**Colata** *Heat N° / Schmelze Nr*	174374

Analisi chimica

Chemical Analysis /Chemische Analyse

Valori richiesti %		C	Mn	Si	Cr	Ni	Mo	S	P
Required values /	min.				16,000	10,000	2,000		
Sollwerte	max	0,080	2,000	1,000	18,000	14,000	3,000	0,030	0,045
Analisi colata		0,016	1,830	0,380	16,680	10,280	2,050	0,001	0,027

**Heat analysis / Schmelzanalyse*

* As reported on steel work or supplier certificate

Balance Fe

Caratteristiche meccaniche

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* **Rm [N/mm2]**		Snervamento *Yield strength Streck-grenze* **Rs [N/mm2]**	Allungamento *Elongation Bruch-dehnung* **A%**		Strizione *Reduction of area Bruch-einschn.* **Z%**	Durezza *Hardness Härteprüfung* **HB**		Resilienza *Impact test Schlagarbeit* **[J]**		Temperat. resilienza *Temp* **[°C]**
Valori richiesti *Required values/ Anforderungen*	min 760	max	min 655	4D min 15,00%	5D min	min 45,00%	min	max 321	media	min	
Valori ottenuti *Actual values / Ergebnisse*	1033		889	24,00%		66,20%		315			

Note

Trattamento termico *Heat treatment*	**Esame decarburazione-carburazione** *Decarburization and carburization test*	**Esame macroscopico** *Macroetch examination result*
Carbide solution treated and strain hardened	Non applicabile - Not applicable	Non applicabile - Not applicable

Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*	Positive	**P.M.I.**	Positive	**Marcature** *Marking / Kennzeichnung*	B8MSH MM	**Rivestimento** *Coating Oberflächenbeschichtung*	

Informazioni aggiuntive

Further information / Zusätzliche angaben

21 AGO. 2024

FRANCO CORBELLINI

ORO

CROSSWIND

The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612 /

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

Fluitek Valves

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE
N° **C 240062-018/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**018**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
180	**1**

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718////vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0

TAG
25-XV-015

SERIAL NUMBER
From 2400620180001 to 2400620180001

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
SCREW	A193 B8M CL2	0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
	174374	1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORBELLINI QBQ CROSSWIND R DATE	FLUITEK ORSENIGO VALVES SRL QC DATE 06/08/2024

60194

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Acciaierie Valbruna S.p.A.

Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Siempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

SPECIFICHE :
Anforderungen / Requirements / Exigences

Note:
Aufzeichnungen / Notes / Notes

VAL STOCK W2 A/1 1.4404/316L A
MDS S01 5 316 A (0)
MDS S17 1 316 A (1)
(0)Norsok-standard M-630 Edition 6, October 2013
(1)Norsok-standard M-630: 2020 (2020-09-30)

AD 2000-M. W 2 2022 1.4401 A (2)
AD 2000-M. W 2 2022 1.4404 A (3)
(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020

AISI . 316/316L
AMS-QQ-S-763 D 316/316L A
ASME SA182 2021 S31600/03 A (4)
ASME SA193 2021 B8M CLASS 1 (5)
(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
(5)Section II Part A 2021 EDITION

ASME SA276 2021 S31600/03 A (6)
ASME SA320 2021 B8M CLASS 1 (7)
ASME SA479 2021 S31600/03 A (8)
(6)Section II Part A 2021 EDITION
(7)Section II Part A 2021 EDITION
(8)Section II Part A 2021 EDITION

ASTM A182 2023 S31600/03 A (9)
ASTM A193 2023 B8M CLASS 1
(9)For products machined directly from bar refer also to ASTM A479.

ASTM A262 PR. E 2015 316/316L (A)
(A)Reapproved 2021

ASTM A276 2023 S31600/03 A
ASTM A320 2022 B8M CLASS 1 CLASS1
ASTM A370 2022 .
ASTM A479 2023A S31600/03 A
ASTM E10 2023 .
ASTM E8 2022 .
EN 10088 PART 3 2014 1.4401 A
EN 10088 PART 3 2014 1.4404 A
EN 10272 2016. 1.4401 A
EN 10272 2016. 1.4404 A
ISO 148-1 2016 .
ISO 3651-2 98 METHOD A T1
ISO 6506-1 2014 .
ISO 6892-1 2019 .
NACE MR0103 2015 S31600/03 A (B)
(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015

NACE MR0175 4 S31600/03 A (C)
(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.

QQ-S-763 F 316/316L A
ACH CO . .
KV L -196C . ISO 148-1
KV T -196C . ISO 148-1

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO Q.M.C.

		Tolleranza: k12 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0060	Tondo	135,000	5324/ 5533	291737	1	630,0	320205030

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 1 di 5

Acciaierie Valbruna S.p.A.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

TEST ALLO STATO DI FORNITURA

Test on delivery condition — Prüfung auf lieferbereitem produkt — test a l'etat de fourniture — Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		200	235	500	40	-	-	-	-			-		
		max				700									215	
A	10	20	L	270	309	562	59		69					161		
I	10	20	L	278	311	575	57		67					162		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			3

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
B	10X10	-196	L	188	190	195	1,855	1,492	1,910	73	71	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		210	-	520	-	40	-	50	-			-		
		max				790									223	
C	12,5	20	L	258		552		62		73				158		

21 NOV. 2024
FRANCO CORBELLINI
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CROSSWIND R

FLUITEK ORSENIGO QVC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 2 di 5

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance á traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	267		561		50		64						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
E	10X10	-196	T	89	94	91	1,258	1,325	1,005	27	20	31

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		100	100	100	-	-	-	-	-	-
H	10X10	20	L	258	258	260						
J	10X10	20	L	253	247	255						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 FEB 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO QC

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della Scienza, 25 Z.I.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
min -	-	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-
max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-	
291737	0,022	0,42	1,58	16,80	2,04	0,37	10,13	0,166	0,033	0,028	0,051				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 3,2 : 1
Solution annealed 1080°C for 180'(total time)/ water cooled
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 AGO. 2024
FRANCO CORBELLINI
QBJ
CROSSWIND

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/OES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FLUITEK ORSENIGO Q.C.

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
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Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSP92HEC9M30DIMSXDA83AA9R6I20C9K30C

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

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Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.210025

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI21000217

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI21000250

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/4/316/L

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A MDS S01 5 316 A (0) AISI 316	(0)Norsok-standard M-630 Edition 6, October 2013
AISI 316L ASME SA182 2019 S31600 A (1) ASME SA182 2019 S31603 A (2)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479. (2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3) ASME SA276 2019 S31600 A (4) ASME SA276 2019 S31603 A (5)	(3)Section II Part A 2019 EDITION (4)Section II Part A 2019 EDITION (5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6) ASME SA479 2019 S31600 A (7) ASME SA479 2019 S31603 A (8)	(6)Section II Part A 2019 EDITION (7)Section II Part A 2019 EDITION (8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9) ASTM A182 2020 S31603 (A) ASTM A193 2019 B8M CLASS 1	(9)For products machined directly from bar refer also to ASTM A479. (A)For products machined directly from bar refer also to ASTM A479.
ASTM A262 2015 PRACTICE E ASTM A276 2017 S31600 A ASTM A276 2017 S31603 A	
ASTM A314 2019 S31600 ASTM A320 2018 B8M CLASS 1 CLASS1 ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A ASTM A479 2019 S31603 A ASTM E10 2018 .	
ASTM E8 2016A . DIN 17440 96 1.4401 A DIN 17440 96 1.4404 A	
EN 10088-3 2014 1.4401 A EN 10088-3 2014 1.4404 A EN 10272 2007 1.4401 A	
EN 10272 2007 1.4404 A ISO 148-1 2016 . ISO 6506-1 2014 .	
ISO 6892-1 2019 . NACE MR0103 2015 S31600 A (C) NACE MR0103 2015 S31603 A (D)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015 (D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E) NACE MR0175 2015 S31603 A (F)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015 (F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

21 AGO. 2021

FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES Q.C.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

		Tolleranza: k12 Toleranza/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr Lot nr Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %	 E 4d %	Strizione Einschnürung Reduction of area Striction Z %	 RA %	Resilienza Kerbschlagarbeit Impact Value Resilience KV J			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démendées		min max		205	240	515 690	40	40	-	50	100			- 215		
A	10	20	L	295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée																
	min - max 0,030	- 1,00	- 2,00	16,50 18,00	2,00 2,50	10,00 13,00	- 0,045	- 0,030	- 0,100	-	-	-	-	-	-
	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %						
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055						

21 AGO. 2024
FRANCO CORBELLINI
QBJ
CROSSWIND

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 14/01/2021 VCQ052 - MEST662721	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 2 di 3

Acciaierie Valbruna S.p.A.

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Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice
AV

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur
MR

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel â été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

W3P4F29E3AD159E28AE37B64046D159E28C

21 AGO. 2021
FRANCO CORBELLINI
QBQ
CROSSWIND

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 14/01/2021 VCQ052 - MEST662721	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 3 di 3

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
LAB N° 1574 L

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

General remarks

1: This test report cannot be partially reproduced without our written approval
2: Test results are relevant only to the specimens belonging to the indicated samples
3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy
4: Tests are performed on the material in as-received conditions, unless otherwise specified
5: Sampling has been performed by customer
6: If not otherwise agreed, tested specimens are kept for 30 days from the test date
7: The uncertainty value, when expressed, does not affect the conformity declaration
8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA
9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by
MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
LAB N° 1574 L

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

Notched bar impact test

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration

Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	21 AGO 2024 FRANCO CORBELLINI QB1 CROSSWIND

3 - 071474.PDF C 240062-018/01

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668

Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

21 AGO. 2023
FRANCO CORBELLINI
QB1
CROSSWIND

Specification
718 Rev. 13 03.02.2020 (Straighness 2:1000)
Yield Strength: min 120 KSI
temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718
UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1834-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straighness 2:1000); API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Meth	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Meth	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Meth	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5.5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Ünal Ücüncü, authorized Inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

FLUITEKO RSENIGO VALVES S.R.L. Q.C.

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

printed: 14. AUG 2023

Sample Condition solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates
1 718 Rev. 13 03.02.2020 (Straighness 2:1000)

		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling(start 27°C - end 28°C - max. 29°C) + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.

For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.

MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.

No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.

All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.

SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.

The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.

Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2023
FRANCO CORBELLINI
QSI
CROSSWIND

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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 : 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

21 AGO. 2023
FRANCO CORBELLINI
QSQ
CROSSWIND

TUITEK ORSENIGO VALVES S.R.L. Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apilanz Zemp, Frank Moers
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KVa 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

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VDM Metals GmbH
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VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straigthness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor

Hirzbruch, Level II

FEUITEK ORSENIGO VALVES S.R.L. Q.C.

21 AGO. 2023
FRANCO CORBELLINI
OBJ
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor

Hinzbruch, Level II

21 AGO. 2023
FRANCO CORBELLINI
QC1
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

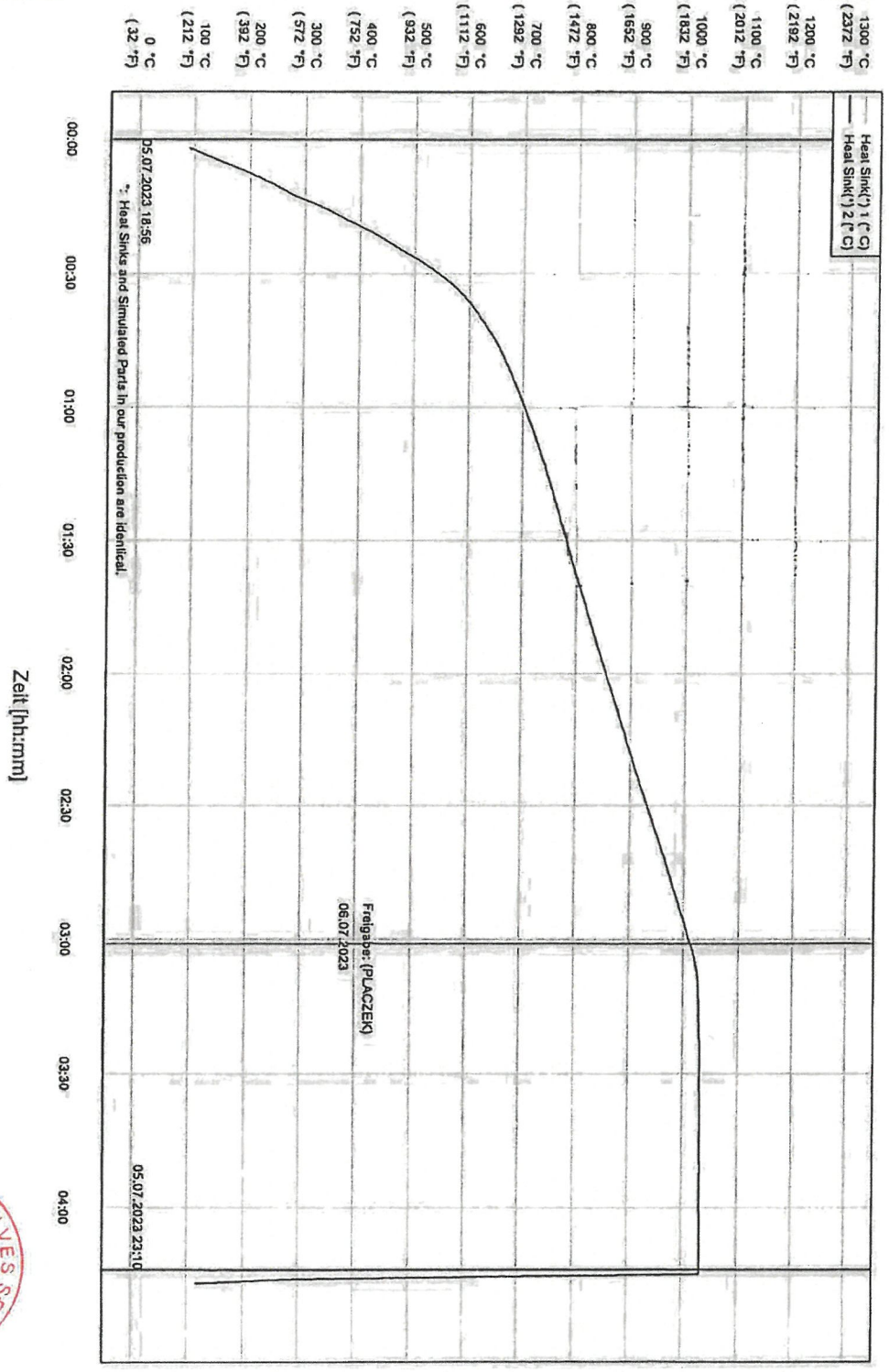
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zamp, Frank Monis
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Mats Muller (Chairman)
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

21 NOV. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

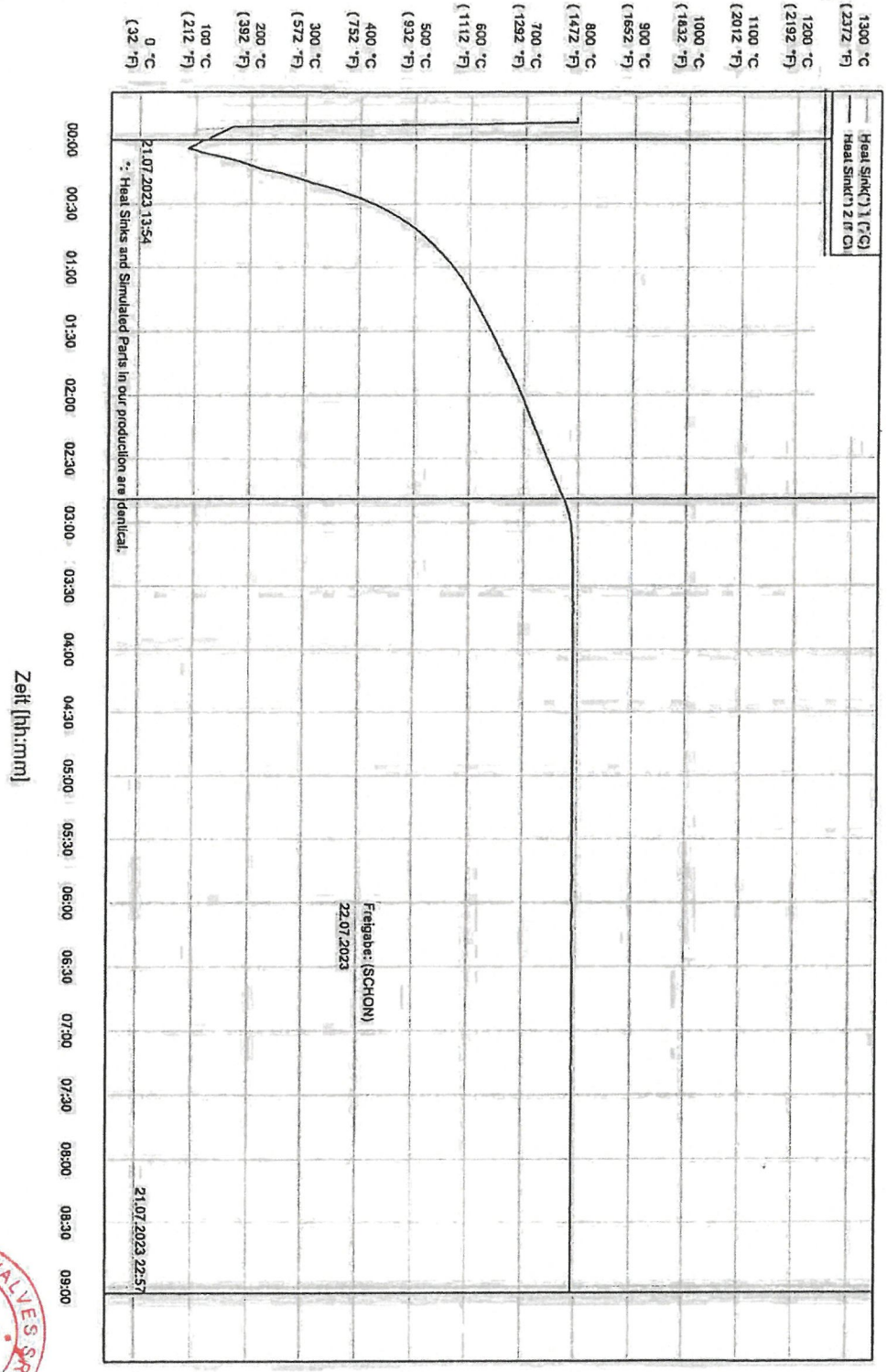
3 - 071474.PDF C 240062-018/01

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 – Gluehlos / Batch : 321955

FUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apitante Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

21 MO. 2024
FRANCO CORBELLINI
GB1
CROSSWIND

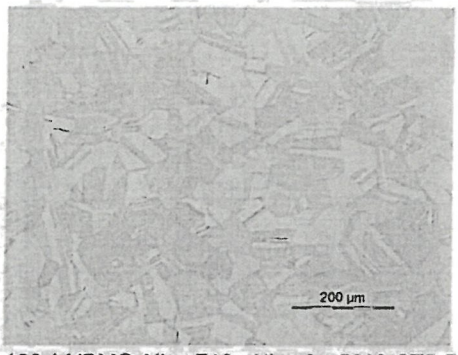
VDM Metals GmbH

VDM Metals

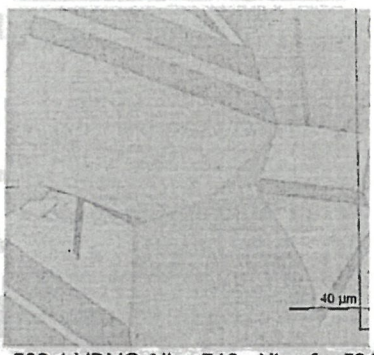
Microstructure Examination

Metallography Job No.: 194936
Lot No.: 105403101
Heat: 422416

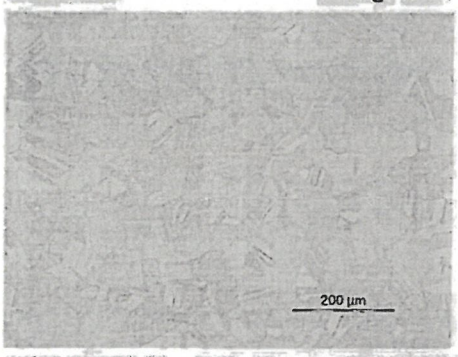
Inspection Certificate No.: 253749/1
Enclosure: 4
Page: ~~1 of 1~~



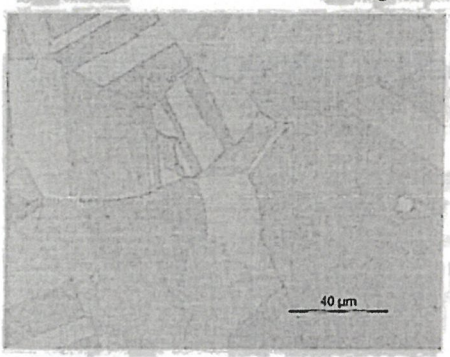
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



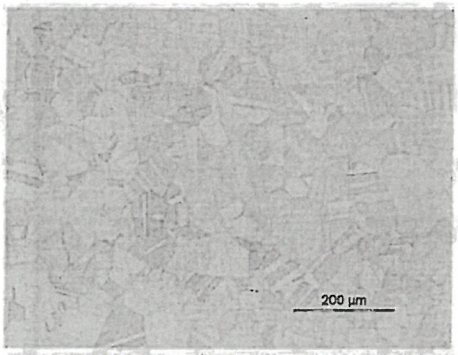
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



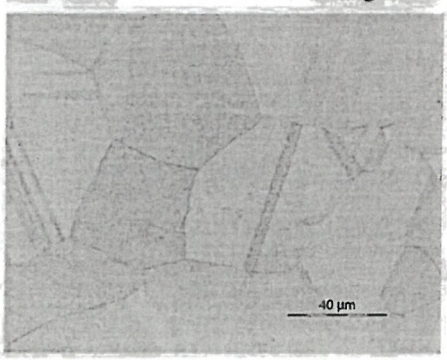
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

FELUSARSENIGO VALVES SRL Q.C.

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpilarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE **ORDER NUMBER:** 715430-1 **STEP:** 721719

PRODUCT CODE: 718 1.25 SAAH **HARDNESS RANGE (HBW):** 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
☐ A0-30	☐ 6403-4 R92033	☐ R984063	☑ 0510014	☐	☐ F68332/139	☐ 814574
☑ UC-71	☐ 6403_16897	☐	☐ 0907068	☐	☐	☐
☐ UC-72	☐ E50152/15(6503-1)	☐	☐ 1112032	☐	☐	☐
☐	☐ HMV1(6403-3)	☐	☐ 1112037	☐	☐	☐
☐	☐ R335(HMM1)	☐	☐	☐	☐	☐

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

									T/P Results (HBW)
1	354	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

21 MAR. 2024
FRANCO CORBELLINI
QC1
CROSSWIND

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
[signature]	316	316.5	27591/30AW	P	21/3/24

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4 - 061238.PDF C 240062-018/01

MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller*	FLUITEK ORSENIGO VALVES SRL	**Descrizione** *Description / Prüfgegenstand*	Vite TER - Bolt TER M10x25	**Certificato N°** *Certificate N° / Prüf Nr*	153954 R. 0
VIA DEI LIVELLI DI SOPRA 5/7					
COSTA DI MEZZATE BG		**Disegno Cliente** *Customer drawing / Kunden-design*	144356	**Classe materiale** *Material Class /W.n*	B8M cl.2 (<=M20) S31600
		N° pezzi *Quantity / Stückzahl*	2000		ASTM A193/A193M-19; ASTM A320/A320M-18
N° DDT 222434	**data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr*	220638 POS. 003	**Colata** *Heat N° / Schmelze Nr*	174374

Analisi chimica

Chemical Analysis /Chemische Analyse

		C	Mn	Si	Cr	Ni	Mo	S	P
Valori richiesti % *Required values / Sollwerte*	min.				16,000	10,000	2,000		
	max	0,080	2,000	1,000	18,000	14,000	3,000	0,030	0,045
Analisi colata **Heat analysis / Schmelzanalyse*		0,016	1,830	0,380	16,680	10,280	2,050	0,001	0,027

* As reported on steel work or supplier certificate

Balance Fe

Caratteristiche meccaniche

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* Rm [N/mm2]		Snervamento *Yield strength Streck-grenze* Rs [N/mm2]	Allungamento *Elongation Bruch-dehnung* A%		Strizione *Reduction of area Bruch-einschn.* Z%	Durezza *Hardness Härteprüfung* HB		Resilienza *Impact test Schlagarbeit* [J]		Temperat. resilienza *Temp* [°C]
Valori richiesti *Required values/ Anforderungen*	min 760	max	min 655	4D min 15,00%	5D min	min 45,00%	min	max 321	media	min	
Valori ottenuti *Actual values / Ergebnisse*	1033		889	24,00%		66,20%		315			

Note

Trattamento termico Heat treatment	**Esame decarburazione-carburazione** Decarburization and carburization test	**Esame macroscopico** Macroetch examination result
Carbide solution treated and strain hardened	Non applicabile - Not applicable	Non applicabile - Not applicable

Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*	Positive	**P.M.I.**	Positive	**Marcature** *Marking / Kennzeichnung*	B8MSH MM	**Rivestimento** *Coating Oberflächenbeschichtung*	

Informazioni aggiuntive

Further information / Zusätzliche angaben

21 AGO. 2024
FRANCO CORSELLINI
QSJ
CROSSWIND

The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta n. 27
21015 LONATE PO

Fluitek Valves

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-019/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**019**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
190	**1**

TAG
25-XV-017

SERIAL NUMBER
From 2400620190001 to 2400620190001

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0

NOTES

COMPONENT / **CHEMICAL ANALYSIS**

PART NAME	MATERIAL	HEAT CODE	HEAT NR	C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
				Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
MECHANICAL PROPERTIES. IMPACT TESTS															
				TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L			0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
					0,166	0,051						24,348			
		291737		575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
BALL	A182 F316/316L			0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
						0,055						24,136			
		283122		586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718			0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
				0,470	0,060			4,980	0,001		4,990				
		422416		1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L			0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
					0,166	0,051						24,348			
		291737		575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
SCREW	A193 B8M CL2			0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
		174374		1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	FRANCO CORBELLINI 21 AGO. 2024 CROSSWIND R DATE	FLUITEK ORSENIGO VALVES SRL DATE 06/08/2024

60194

1 - 068194.PDF C 240062-019/01

Acciaierie Valbruna S.p.A.

Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK W2 A/1 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
MDS S17 1 316 A (1)	(1)Norsok-standard M-630: 2020 (2020-09-30)
AD 2000-M. W 2 2022 1.4401 A (2)	(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AD 2000-M. W 2 2022 1.4404 A (3)	(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AISI . 316/316L	
AMS-QQ-S-763 D 316/316L A	
ASME SA182 2021 S31600/03 A (4)	(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2021 B8M CLASS 1 (5)	(5)Section II Part A 2021 EDITION
ASME SA276 2021 S31600/03 A (6)	(6)Section II Part A 2021 EDITION
ASME SA320 2021 B8M CLASS 1 (7)	(7)Section II Part A 2021 EDITION
ASME SA479 2021 S31600/03 A (8)	(8)Section II Part A 2021 EDITION
ASTM A182 2023 S31600/03 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2023 B8M CLASS 1	
ASTM A262 PR. E 2015 316/316L (A)	(A)Reapproved 2021
ASTM A276 2023 S31600/03 A	
ASTM A320 2022 B8M CLASS 1 CLASS1	
ASTM A370 2022 .	
ASTM A479 2023A S31600/03 A	
ASTM E10 2023 .	
ASTM E8 2022 .	
EN 10088 PART 3 2014 1.4401 A	
EN 10088 PART 3 2014 1.4404 A	
EN 10272 2016. 1.4401 A	
EN 10272 2016. 1.4404 A	
ISO 148-1 2016 .	
ISO 3651-2 98 METHOD A T1	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600/03 A (B)	(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 4 S31600/03 A (C)	(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.
QQ-S-763 F 316/316L A	
ACH CO . .	
KV L -196C . ISO 148-1	
KV T -196C . ISO 148-1	

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

FLUITEK ORSENIGO QVC

Pos. nr. (Pos. nr. / Item nr. / Nr. de poste)	Oggetto (Gegenstand / Product description / Descrip. du produit)	Tolleranza: k12 (Toleranz/Allowance/Tolerance) Dimensioni - mm (Abmessungen / Dimension / Dimension)	Lunghezza - mm (Länge / Length / Longueur)	Colata (Schmelze / Heat / Coulée)	Pezzi (Stückzahl / Pieces / Pieces)	Peso - KG (Gewicht / Weight / Poids)	Lotto nr. (Losnr. / Lot nr. / Lot nr.)
0060	Tondo	135,000	5324/ 5533	291737	1	630,0	320205030

Acciaierie Valbruna S.p.A.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.240068

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI24000623

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI24000573

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werksachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			200	235	500 700	40	-	-	-	-			-		215
A	10	20	L		270	309	562	59		69					161		
I	10	20	L		278	311	575	57		67					162		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			3

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			-	-	-	-	-	-	-	-	-
B	10X10	-196	L		188	190	195	1,855	1,492	1,910	73	71	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			210	-	520 790	-	40	-	50	-			-		223
C	12,5	20	L		258		552		62		73				158		

21 AGO. 2024

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FLUITEK ORSENIGO QVC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 2 di 5

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice
AV

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur
MR

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			205	-	515	-	40	-	50	-			-		
D	12,5	20	T		267		561		50		64						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion - Lateral ex mm			Shear - Shear - % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			-	-	-	-	-	-	-	-	-
E	10X10	-196	T		89	94	91	1,258	1,325	1,005	27	20	31

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion -			Shear - Shear -		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			100	100	100	-	-	-	-	-	-
H	10X10	20	L		258	258	260						
J	10X10	20	L		253	247	255						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO QC

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'essayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %
min -	-	-	-	16,50	2,00	-	10,00	-	-	-	-
max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-
291737	0,022	0,42	1,58	16,80	2,04	0,37	10,13	0,166	0,033	0,028	0,051

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 3,2 : 1
Solution annealed 1080°C for 180'(total time)/ water cooled
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 AGO. 2024
FRANCO CORBELLINI
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Sono state soddisfatte tutte le condizioni richieste / Die gestellen Anforderungen sind lt. Anlage erfüllt / The material has been furnished in accordance with the requirements / Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK / Verwechslungprüfung: durch XRF/QES Gerät geführt : OK / Antimixing testing performed with XRF/OES portable : OK / Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze / Besichtigung und Ausmessung: ohne Beanstandung / Visual inspection and dimensional checks:satisfactory / Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FLUITEK ORSENIGO Q.C.

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSPB216EC9630DH4XDA83AA9B6620C9630C

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

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Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Ordine nr. / Bestell / Your order / Commande: ORD.N.210025

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI21000217

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/4/316/L

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI21000250

SPECIFICHE : / Anforderungen / Requirements / Exigences	Note: / Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
AISI 316	
AISI 316L	
ASME SA182 2019 S31600 A (1)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA182 2019 S31603 A (2)	(2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3)	(3)Section II Part A 2019 EDITION
ASME SA276 2019 S31600 A (4)	(4)Section II Part A 2019 EDITION
ASME SA276 2019 S31603 A (5)	(5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6)	(6)Section II Part A 2019 EDITION
ASME SA479 2019 S31600 A (7)	(7)Section II Part A 2019 EDITION
ASME SA479 2019 S31603 A (8)	(8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A182 2020 S31603 (A)	(A)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2019 B8M CLASS 1	
ASTM A262 2015 PRACTICE E	
ASTM A276 2017 S31600 A	
ASTM A276 2017 S31603 A	
ASTM A314 2019 S31600	
ASTM A320 2018 B8M CLASS 1 CLASS1	
ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A	
ASTM A479 2019 S31603 A	
ASTM E10 2018 .	
ASTM E8 2016A .	
DIN 17440 96 1.4401 A	
DIN 17440 96 1.4404 A	
EN 10088-3 2014 1.4401 A	
EN 10088-3 2014 1.4404 A	
EN 10272 2007 1.4401 A	
EN 10272 2007 1.4404 A	
ISO 148-1 2016 .	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600 A (C)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0103 2015 S31603 A (D)	(D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015
NACE MR0175 2015 S31603 A (F)	(F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

FLUITEK ORSENIGO VALVES Q.C.

21 AGO 2021
FRANCO CORBELLINI
QB1
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Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

Pos. nr.	Oggetto	Tolleranza: k12 Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
Pos. nr. / Item nr. / Nr. de poste	Gegenstand / Product description / Descrip. du produit	Tolleranza/Allowance/Tolerance Abmessungen / Dimension / Dimension	Lange / Length / Longueur	Schmelze / Heat / Coulée	Stückzahl / Pieces / Pieces	Gewicht / Weight / Poids	Losnr. / Lot nr / Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / test a l'etat de fourniture / Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probestelle Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %	Allungamento E 4d %	Strizione Einschnürung Reduction of area Striction Z %	Strizione RA %	Resilienza Kerbschlagarbeit Impact Value Resilience KV J			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démendées		min max		205	240	515 690	40	40	-	50	100			- 215		
A	10	20	L	295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

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Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée	min - max 0,030	1,00	2,00	16,50 18,00	2,00 2,50	10,00 13,00	0,045	0,030	0,100							
	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %							
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055							

Acciaierie Valbruna S.p.A.

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Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel ß été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

W3P4F29E3AD158E29AE3791444D159E28C

21 AGO. 2021
FRANCO CORBELLINI
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CROSSWIND

Vicenza, 14/01/2021 VCQ052 - MEST662721	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 3 di 3

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-
General remarks	1: This test report cannot be partially reproduced without our written approval 2: Test results are relevant only to the specimens belonging to the indicated samples 3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy 4: Tests are performed on the material in as-received conditions, unless otherwise specified 5: Sampling has been performed by customer 6: If not otherwise agreed, tested specimens are kept for 30 days from the test date 7: The uncertainty value, when expressed, does not affect the conformity declaration 8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA 9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

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Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by
MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
LAB N° 1574 L

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

Notched bar impact test

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration

Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	21 NOV 23 FRANCO CORBELLINI CROSSWIND R

3 - 071474.PDF C 240062-019/01

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668

Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

21 AGO. 2023
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Specification
718 Rev. 13 03.02.2020 (Straighness 2:1000)
Yield Strength: min 120 KSI
temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015,+ Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718
UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1934-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straighness 2:1000); API 6 A CRA First Edition 08.2015,+ Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Meth	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Meth	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Meth	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5.5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Ünal Üçüncü, authorized inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Möller (Chairman),
Holger Arnold, Daniel Arpitaria Zemp, Frank Morris
Commercial register: Iserlohn local court, #5127
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

printed: 14. AUG 2023

Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates
1 718 Rev. 13 03.02.2020 (Straightness 2:1000)

		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling(start 27°C - end 28°C - max. 29°C) + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.

For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.

MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.

No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.

All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.

SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.

The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.

Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history			
Rev.: 1	14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0	01.08.2023		

21 AGO. 2023
FRANCO CORBELLINI
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FLUITEK ORSENIGO VALVES S.R.L. Q.C.

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Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 : 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

LUITEK ORSENIGO VALVES S.R.L. Q.C.

21 AGO. 2024
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VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
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Management Board: Dr. Nicos Müller (Chairman)
Holger Arnold, Daniel Apilanz Zemp, Frank Moers
Commercial register: Berlahn local court, 15327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KVa 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

21 AGO. 2023
FRANCO CORBELLINI
QB7
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicolas Möller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

21 AGO. 2024
FRANCO CORBELLINI
QC1
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of inspection 22.07.2023

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

21 AGO. 2024
FRANCO CORBELLINI
OBJ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

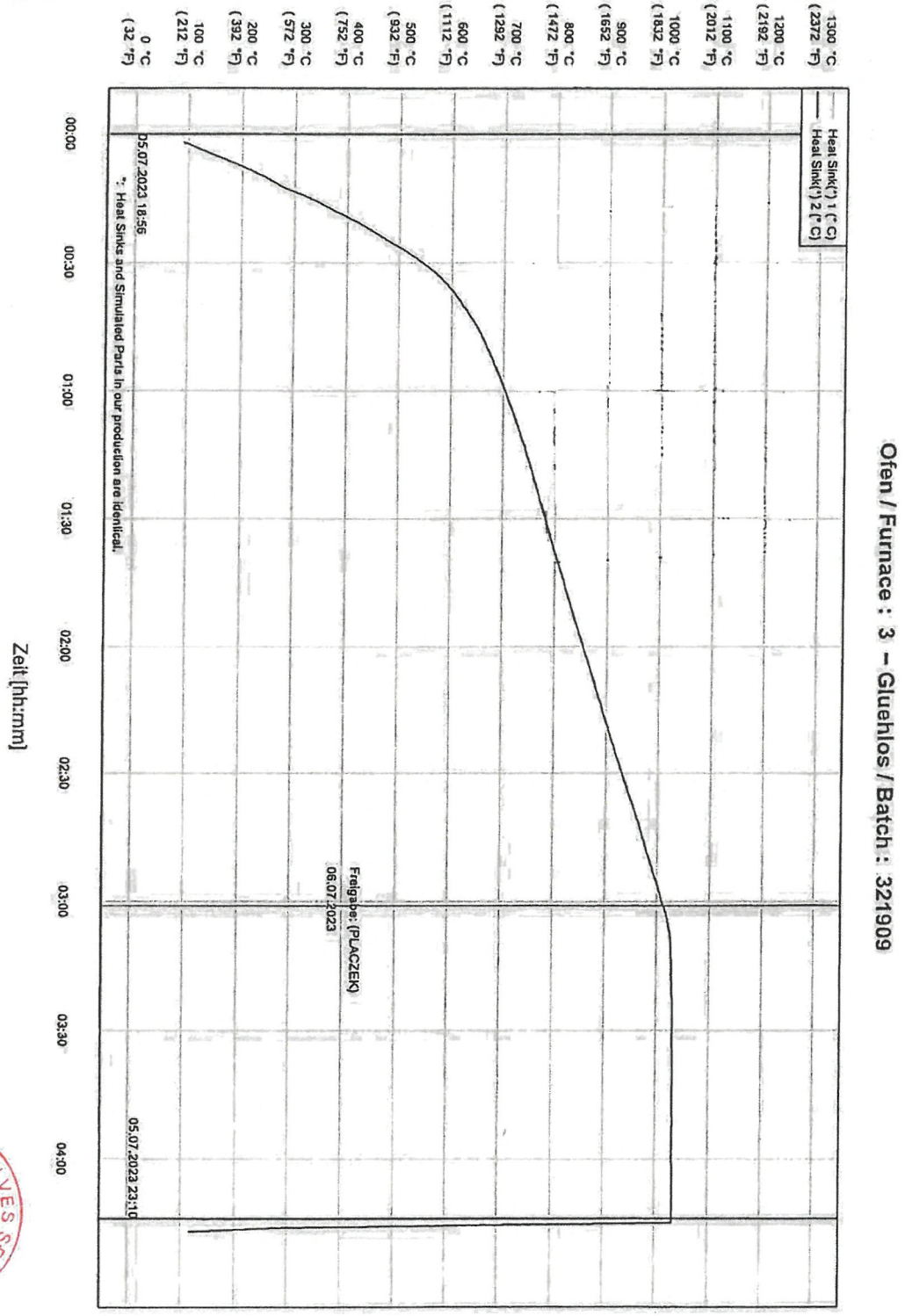
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nichs Müller (Chairman)
Holger Arnold, Daniel Arpitarie Zemp, Frank Monis
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephone: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Matts Muler (Chairman)
Holger Arnold, Daniel Apitzsch Zamp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

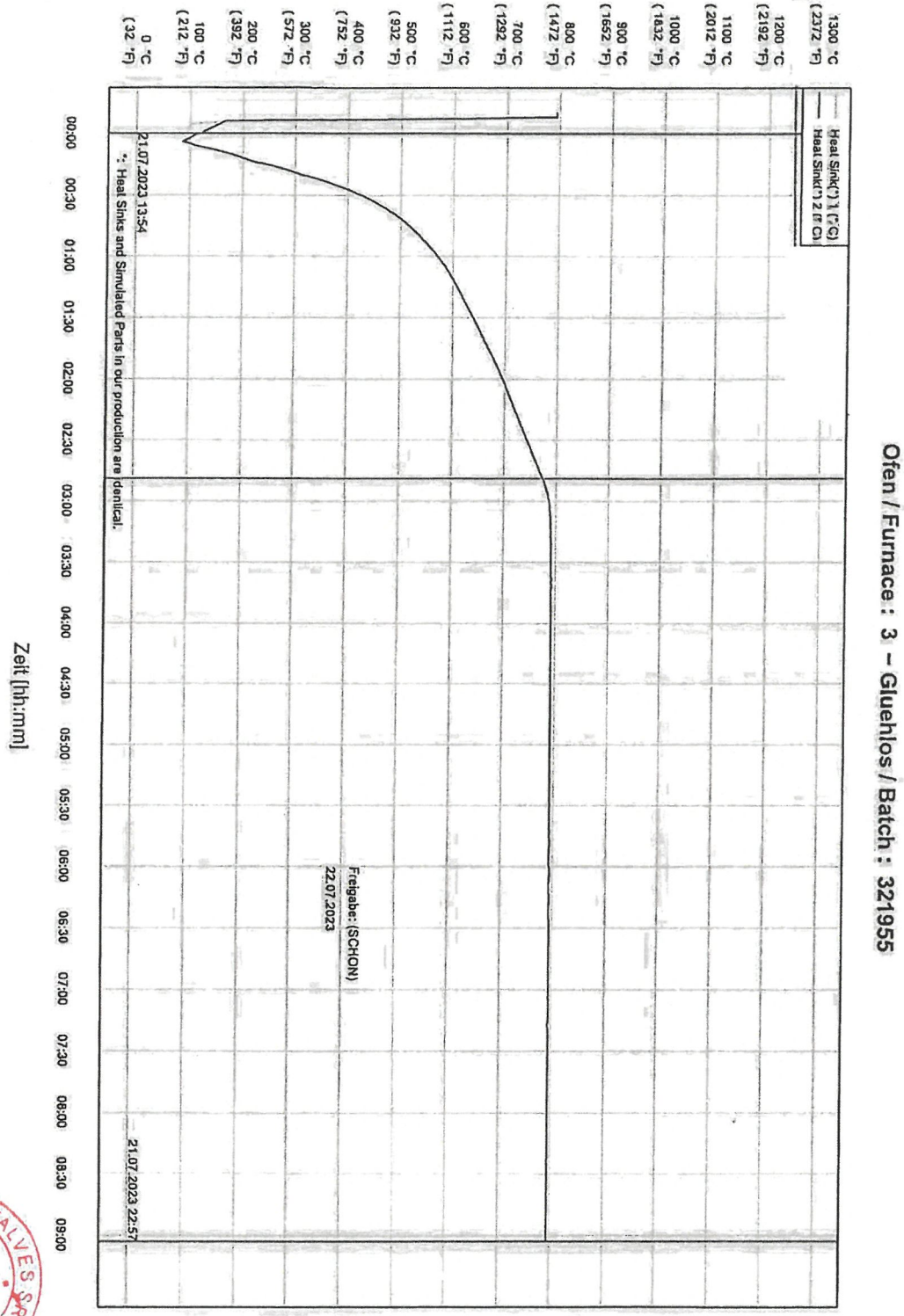
21 AGO. 2024
FRANCO CORDELLINI
QB1
CROSSWIND

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321955

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman)
Holger Arnold, Daniel Arpitante Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

21 AGO. 2024
FRANCO CORBELLINI
RBI
CROSSWIND

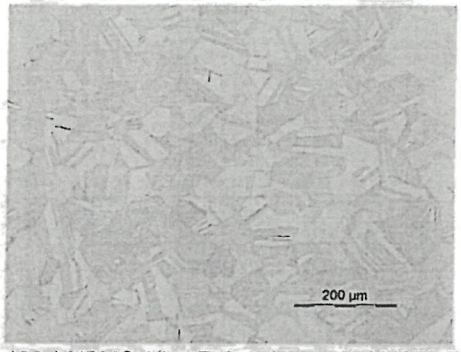
VDM Metals

VDM Metals GmbH

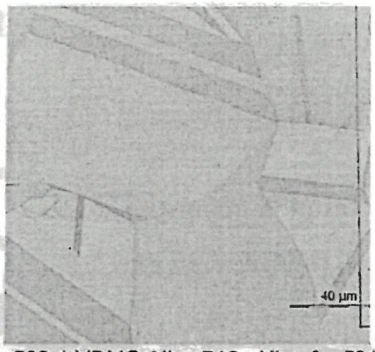
Microstructure Examination

Metallography Job No.:	**194936**
Lot No.:	**105403101**
Heat:	**422416**

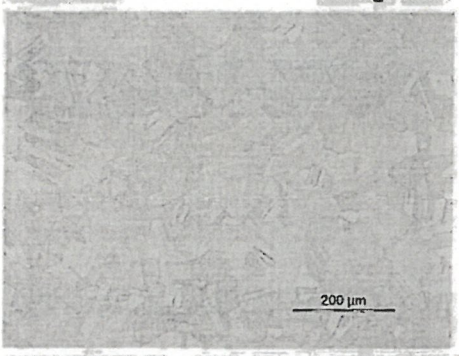
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Enclosure:	**4**
Page:	~~1 of 1~~



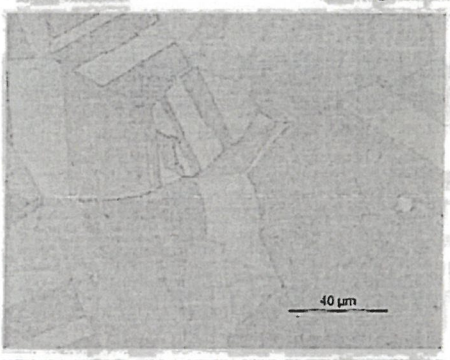
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102T001A02 surface
26.07.2023 Kallings No.2



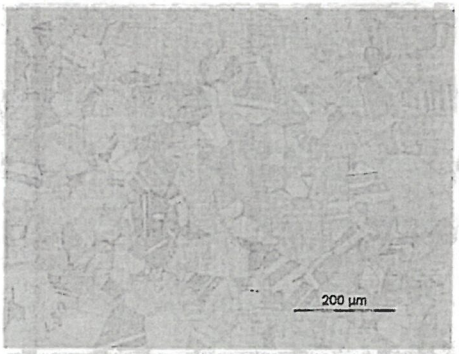
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



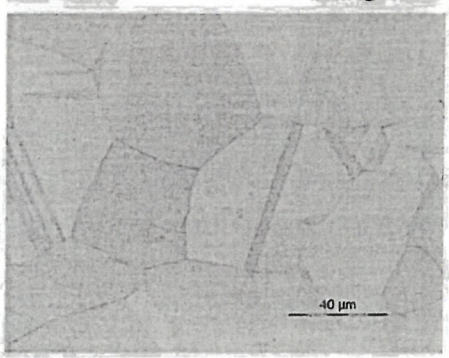
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

FORGIATURSENIGO VALVES SRL Q.C.

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpitarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE
ORDER NUMBER: 715430-1 **STEP:** 721719
PRODUCT CODE: 718 1.25 SAAH
HARDNESS RANGE (HBW): 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
A0-30	6403-4 R92033	R984063	0510014		F68332/139	814574
☑ UC-71	6403_16897		0907068			
UC-72	E50152/15(6503-1)		1112032			
	HMV1(6403-3)		1112037			
	R335(HMM1)					

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

									T/P Results (HBW)
1	354	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
	318	316.5	27591/30AW	P	21/5/24

21 AGO. 2024
FRANCO CORBELLINI
081
CROSSWIND R

3 - 071474.PDF C 240062-019/01

4 - 061238.PDF C 240062-019/01

MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller*	FLUITEK ORSENIGO VALVES SRL	**Descrizione** *Description / Prüfgegenstand*	Vite TER - Bolt TER M10x25	**Certificato N°** *Certificate N° / Prüf Nr*	153954 R. 0
VIA DEI LIVELLI DI SOPRA	5/7				
COSTA DI MEZZATE	BG	**Disegno Cliente** *Customer drawing / Kunden-design*	144356	**Classe materiale** *Material Class /W.n*	B8M cl.2 (<=M20) S31600
		N° pezzi *Quantity / Stückzahl*	2000		ASTM A193/A193M-19; ASTM A320/A320M-18
N° DDT	222434 **data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr*	220638 POS. 003	**Colata** *Heat N° / Schmelze Nr*	174374

Analisi chimica

Chemical Analysis /Chemische Analyse

Valori richiesti %		C	Mn	Si	Cr	Ni	Mo	S	P
Required values /	min.				16,000	10.000	2,000		
Sollwerte	max	0,080	2,000	1,000	18,000	14.000	3,000	0,030	0,045
Analisi colata		0,016	1.830	0,380	16,680	10,280	2,050	0,001	0,027

**Heat analysis / Schmelzanalyse*

* As reported on steel work or supplier certificate

Caratteristiche meccaniche

Balance Fe

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* **Rm [N/mm2]**		Snervamento *Yield strength Streck-grenze* **Rs [N/mm2]**	Allungamento *Elongation Bruch-dehnung* **A%**		Strizione *Reduction of area Bruch-einschn.* **Z%**	Durezza *Hardness Härteprüfung* **HB**		Resilienza *Impact test Schlagarbeit* **[J]**		Temperat. resilienza *Temp* **[°C]**
Valori richiesti *Required values/ Anforderungen*	min 760	max	min 655	4D min 15,00%	5D min	min 45,00%	min	max 321	media	min	
Valori ottenuti *Actual values / Ergebnisse*	1033		889	24,00%		66,20%		315			

Note

Trattamento termico *Heat treatment*	**Esame decarburazione-carburazione** *Decarburization and carburization test*	**Esame macroscopico** *Macroetch examination result*
Carbide solution treated and strain hardened	Non applicabile - Not applicable	Non applicabile - Not applicable

Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*	Positive	**P.M.I.**	Positive	**Marcature** *Marking / Kennzeichnung*	B8MSH MM	**Rivestimento** *Coating Oberflächenbeschichtung*	

Informazioni aggiuntive
Further information / Zusätzliche angaben

21 AGO. 2024
FRANCO CORBELLINI
CB1
CROSSWIND

The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612 /

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta n.
21015 LONATE PO

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-020/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**020**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
200	**1**

TAG
25-XV-018

SERIAL NUMBER
From 2400620200001 to 2400620200001

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718////vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
SCREW	A193 B8M CL2	0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
	174374	1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORBELLINI QBQ CROSSWIND R DATE	FLUITEK ORSENIGO VALVES SRL DATE 06/08/2024

00194

1 - 068194.PDF C 240062-020/01

Acciaierie Valbruna S.p.A.

Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Siempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

SPECIFICHE :
Anforderungen / Requirements / Exigences

Note:
Aufzeichnungen / Notes / Notes

VAL STOCK W2 A/1 1.4404/316L A
MDS S01 5 316 A (0)
MDS S17 1 316 A (1)

(0)Norsok-standard M-630 Edition 6, October 2013
(1)Norsok-standard M-630: 2020 (2020-09-30)

AD 2000-M. W 2 2022 1.4401 A (2)
AD 2000-M. W 2 2022 1.4404 A (3)

(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020

AISI . 316/316L
AMS-QQ-S-763 D 316/316L A
ASME SA182 2021 S31600/03 A (4)
ASME SA193 2021 B8M CLASS 1 (5)

(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
(5)Section II Part A 2021 EDITION

ASME SA276 2021 S31600/03 A (6)
ASME SA320 2021 B8M CLASS 1 (7)
ASME SA479 2021 S31600/03 A (8)

(6)Section II Part A 2021 EDITION
(7)Section II Part A 2021 EDITION
(8)Section II Part A 2021 EDITION

ASTM A182 2023 S31600/03 A (9)
ASTM A193 2023 B8M CLASS 1
ASTM A262 PR. E 2015 316/316L (A)

(9)For products machined directly from bar refer also to ASTM A479.

(A)Reapproved 2021

ASTM A276 2023 S31600/03 A
ASTM A320 2022 B8M CLASS 1 CLASS1
ASTM A370 2022 .
ASTM A479 2023A S31600/03 A
ASTM E10 2023 .
ASTM E8 2022 .
EN 10088 PART 3 2014 1.4401 A
EN 10088 PART 3 2014 1.4404 A
EN 10272 2016. 1.4401 A
EN 10272 2016. 1.4404 A
ISO 148-1 2016 .
ISO 3651-2 98 METHOD A T1
ISO 6506-1 2014 .
ISO 6892-1 2019 .
NACE MR0103 2015 S31600/03 A (B)

(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015

NACE MR0175 4 S31600/03 A (C)

(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.

QQ-S-763 F 316/316L A
ACH CO . .
KV L -196C . ISO 148-1
KV T -196C . ISO 148-1

21 AGO. 2024
FRANCO CORDELLINI
QQQ
CROSSWIND

FLUITEK ORSENIGO QMC

Pos. nr.	Oggetto	Tolleranza: k12 Toleranz/Allowance/Tolerance Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
Pos. nr. Item nr. Nr. de poste	Gegenstand Product description Descrip. du produit	Abmessungen Dimension Dimension	Länge Length Longueur	Schmelze Heat Coulée	Stückzahl Pieces Pieces	Gewicht Weight Poids	Losnr. Lot nr. Lot nr.
0060	Tondo	135,000	5324/ 5533	291737	1	630,0	320205030

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 1 di 5

Acciaierie Valbruna S.p.A.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

TEST ALLO STATO DI FORNITURA
Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		200	235	500	40	-	-	-	-			-		
		max				700								215		
A	10	20	L	270	309	562	59		69					161		
I	10	20	L	278	311	575	57		67					162		

TEST ALLO STATO DI FORNITURA
Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			3

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
B	10X10	-196	L	188	190	195	1,855	1,492	1,910	73	71	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		210	-	520	-	40	-	50	-			-		
		max				790								223		
C	12,5	20	L	258		552		62		73				158		

21 NOV 2024

FRANCO CORBELLINI
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FLUITEK ORSENIGO QVC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 2 di 5

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefermwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werksachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	267		561		50		64						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion - Lateral ex mm			Shear - Shear - % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
E	10X10	-196	T	89	94	91	1,258	1,325	1,005	27	20	31

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale - Lateral Expansion -			Shear - Shear -		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		100	100	100	-	-	-	-	-	-
H	10X10	20	L	258	258	260						
J	10X10	20	L	253	247	255						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
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FLUITEK ORSENIGO QC

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 Z.I.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice
AV

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur
MR

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée	C % min - max 0,030	Si % - 1,00	Mn % - 2,00	Cr % 16,50 18,00	Mo % 2,00 2,50	Cu % - 1,00	Ni % 10,00 13,00	Co % -	P % - 0,045	S % - 0,030	N % - 0,100	-	-	-	-
291737	0,022	0,42	1,58	16,80	2,04	0,37	10,13	0,166	0,033	0,028	0,051				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 3,2 : 1
Solution annealed 1080°C for 180'(total time)/ water cooled
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FLUITEK ORSENIGO Q.C.

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSPS21EC9630D9430DA83AA9962DC9630C

21 AGO. 2024
FRANCO CORBELLINI
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FLUITEK ORSENIGO VALVES S.R.L. Q.C.

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Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A MDS S01 5 316 A (0) AISI 316	(0)Norsok-standard M-630 Edition 6, October 2013
AISI 316L ASME SA182 2019 S31600 A (1) ASME SA182 2019 S31603 A (2)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479. (2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3) ASME SA276 2019 S31600 A (4) ASME SA276 2019 S31603 A (5)	(3)Section II Part A 2019 EDITION (4)Section II Part A 2019 EDITION (5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6) ASME SA479 2019 S31600 A (7) ASME SA479 2019 S31603 A (8)	(6)Section II Part A 2019 EDITION (7)Section II Part A 2019 EDITION (8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9) ASTM A182 2020 S31603 (A) ASTM A193 2019 B8M CLASS 1	(9)For products machined directly from bar refer also to ASTM A479. (A)For products machined directly from bar refer also to ASTM A479.
ASTM A262 2015 PRACTICE E ASTM A276 2017 S31600 A ASTM A276 2017 S31603 A	
ASTM A314 2019 S31600 ASTM A320 2018 B8M CLASS 1 CLASS1 ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A ASTM A479 2019 S31603 A ASTM E10 2018 .	
ASTM E8 2016A . DIN 17440 96 1.4401 A DIN 17440 96 1.4404 A	
EN 10088-3 2014 1.4401 A EN 10088-3 2014 1.4404 A EN 10272 2007 1.4401 A	
EN 10272 2007 1.4404 A ISO 148-1 2016 . ISO 6506-1 2014 .	
ISO 6892-1 2019 . NACE MR0103 2015 S31600 A (C) NACE MR0103 2015 S31603 A (D)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015 (D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E) NACE MR0175 2015 S31603 A (F)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015 (F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

FLUITEK ORSENIGO VALVES Q.C.

21 AGO. 2021
FRANCO CORBELLINI
QBQ
CROSSWIND

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.210025

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI21000217

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI21000250

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/4/316/L

Pos. nr.	Oggetto	Tolleranza: k12 — Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
		Tolleranza/Allowance/Tolerance					
Pos. nr. / Item nr. / Nr. de poste	Gegenstand / Product description / Descrip. du produit	Abmessungen / Dimension / Dimension	Länge / Length / Longueur	Schmelze / Heat / Coulée	Stückzahl / Pieces / Pieces	Gewicht / Weight / Poids	Losnr / Lot nr / Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / test a l'etat de fourniture / Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta / Probestab / Specimen/Eprouvette		°C	Posiz. Saggio / Probenlage / Location / Emplacement 1)	Snervamento / Streckgrenze / Yield Stress / Limite elastique	Snervamento / Streckgrenze / Yield Stress / Limite elastique	Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction	Allungamento / Bruchdehnung / Elongation / Allongement		Strizione / Einschnürung / Reduction of area / Striction		Resilienza / Kerbschlagarbeit / Impact Value / Resilience			Durezza / Haerte / Hardness / Durete		
	Larg. diam. Spess. / Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais	mm			Rp 0,2% N/mm2	Rp 1% N/mm2	Rm N/mm2	A5 %	E 4d %	Z %	RA %	KV J			HB		
Valori richiesti / Anforderungen/Required values / Valeurs démendées			min / max		205	240	515 / 690	40	40	-	50	100			- / 215		
A	10	20	L		295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

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Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata / Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %
min -	-	-	-	16,50	2,00	10,00	-	-	-
max	0,030	1,00	2,00	18,00	2,50	13,00	0,045	0,030	0,100
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

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Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel â été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/OES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD'S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

21.01.21

W3P4F29E3601586E26AE57654048015 9E28C

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OBO
CROSSWIND R

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 14/01/2021 VCQ052 - MEST662721	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 3 di 3

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-
General remarks	1: This test report cannot be partially reproduced without our written approval 2: Test results are relevant only to the specimens belonging to the indicated samples 3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy 4: Tests are performed on the material in as-received conditions, unless otherwise specified 5: Sampling has been performed by customer 6: If not otherwise agreed, tested specimens are kept for 30 days from the test date 7: The uncertainty value, when expressed, does not affect the conformity declaration 8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA 9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

21 NOV. 2023
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Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by
MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
LAB N° 1574 L

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

Notched bar impact test

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration

Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

21 NOV. 2023

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	FRANCO CORDELLINI QBQ CROSSWIND

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668

Product
Bar, round, hot rolled, solution ann. / age hardened, machined slightly oxidized

21 AGO. 2023
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Specification
718 Rev. 13 03.02.2020 (Straightness 2:1000)
Yield Strength: min 120 KSI
Temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718
UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1934-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straightness 2:1000); API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Meth	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Meth	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Meth	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5.5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Ünal Üçüncü, authorized inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

FLUITEKORSENIGO VALVES S.R.L. Q.C.

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Apilanlz Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

printed: 14. AUG 2023

Sample Condition solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates 1 718 Rev. 13 03.02.2020 (Straightness 2:1000)		
		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling(start 27°C - end 28°C - max. 29°C] + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.

For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.

MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.

No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.

All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.

SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.

The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.

Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

21 AGO. 2023
FRANCO CORBELLINI
QBJ
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FLUITEK ORSENIGO VALVES S.R.L. Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

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Holger Arnold, Daniel Aspiazu Zemp, Frank Morris
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VDM Metals GmbH
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VDM Metals

Enclosure for inspection certificate 253749/1
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Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 : 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

FUJITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2023
FRANCO CORBELLINI
QC1
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velazquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apilarte Zemp, Frank Morris
Commercial register: Berlohn local court, HS127
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

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Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KVa 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

21 AGO. 2023
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DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009 718 Rev. 13 03.02.2020 (Straigthness 2:1000) circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection 22.07.2023

The material is in compliance with the test specification

Supervisor

Hirzbruch, Level II

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

21 AGO. 2024
FRANCO CORBELLINI
QB-1
CROSSWIND R

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19 US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3) circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm
Cast - Product-ID	422416 - 102
Date of Inspection	22.07.2023

Reportable Indications

count	Inspector	level
0	Plaza-Wacker	Level II

The material is in compliance with the test specification

Supervisor

Hirsbruch, Level II

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

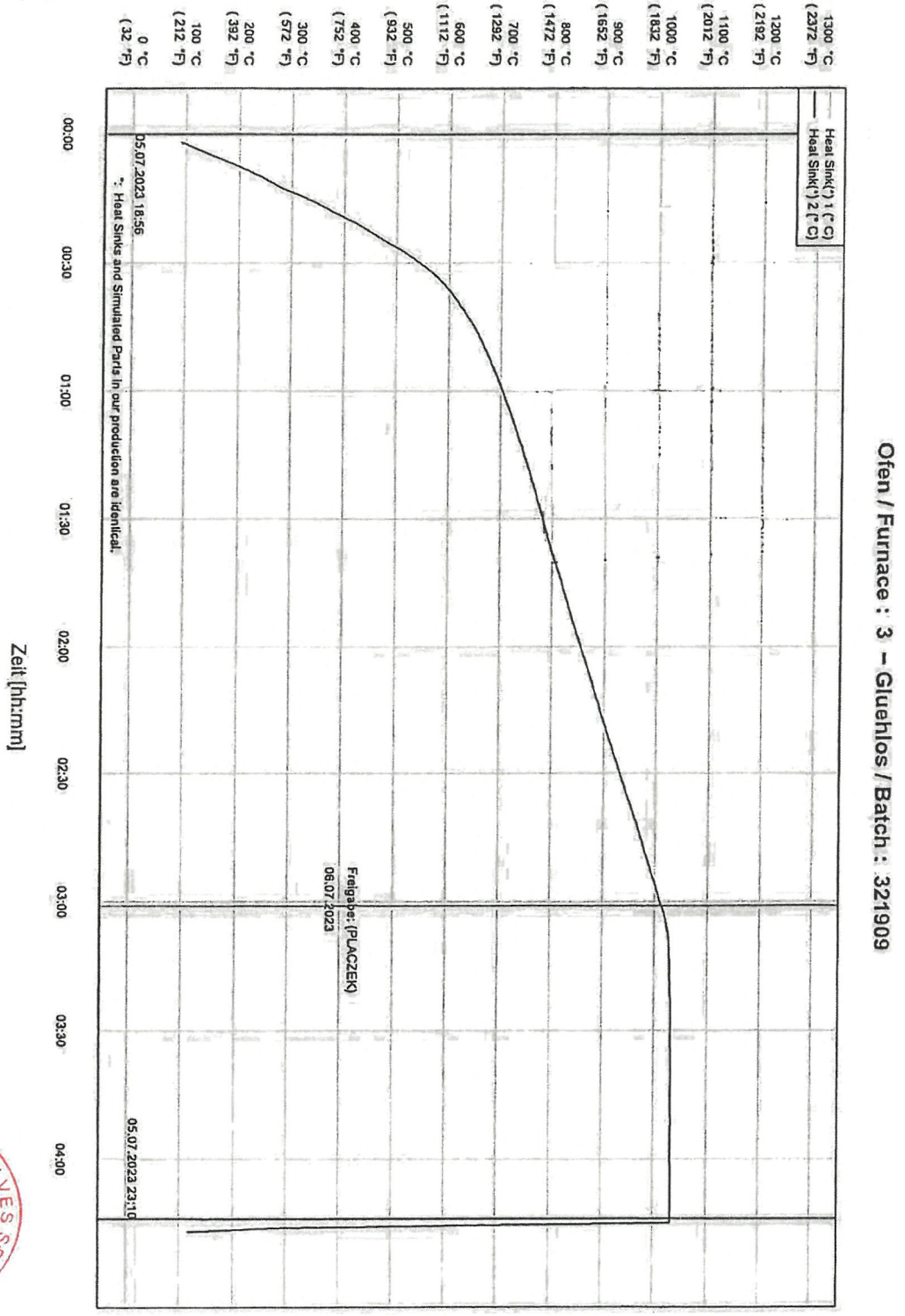
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zamp, Frank Monis
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

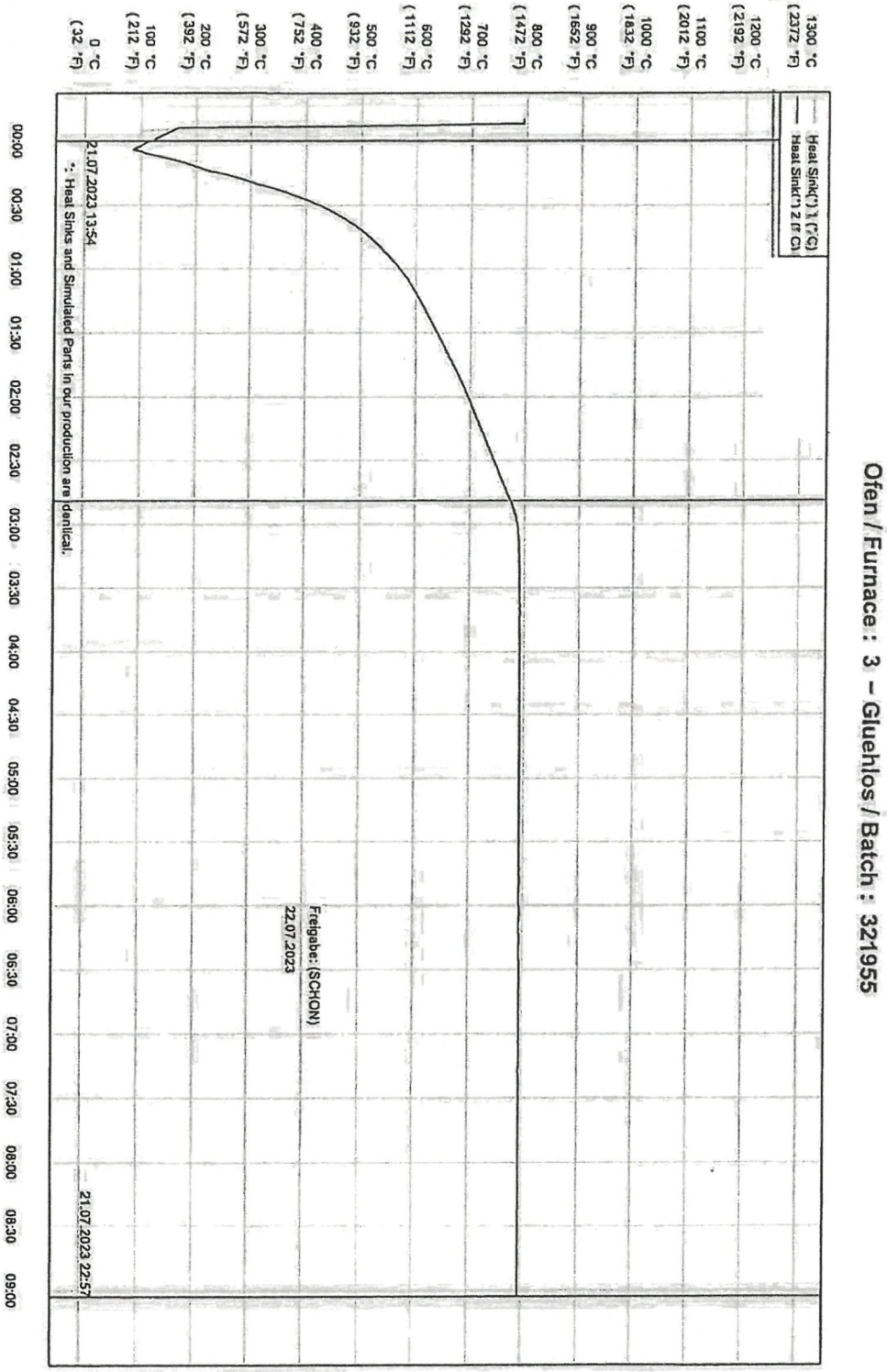
3 - 071474.PDF C 240062-020/01

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321955

FUJITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2024

FRANCO CORBELLINI
OBJ
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velazquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Arpitania Zemp, Frank Moris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

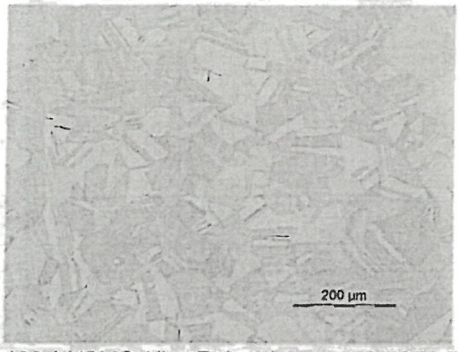
VDM Metals GmbH

VDM Metals

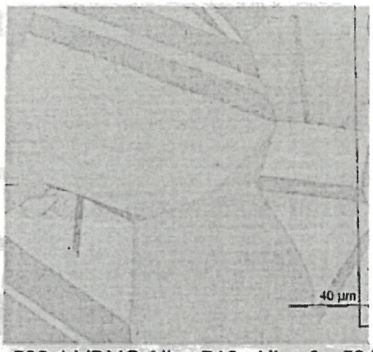
Microstructure Examination

Metallography Job No.: 194936
Lot No.: 105403101
Heat: 422416

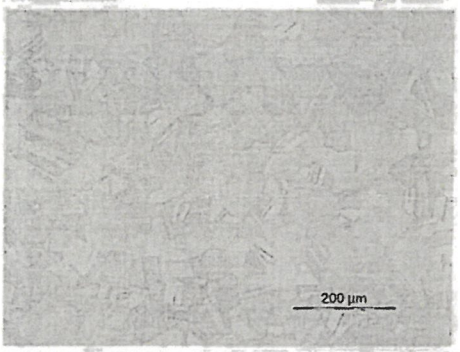
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Enclosure: 4
Page: ~~1 of 1~~



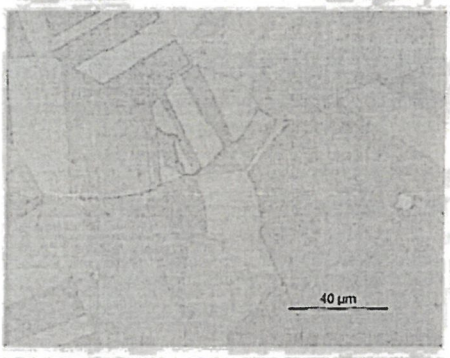
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102T001A02 surface
26.07.2023 Kallings No.2



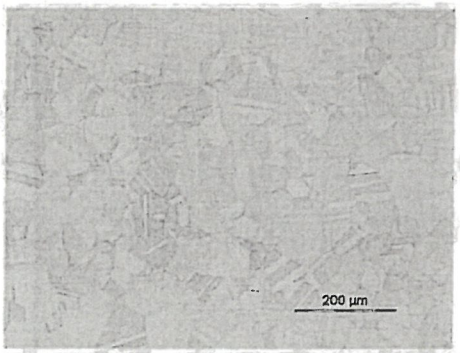
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102T001A02 surface
26.07.2023 Kallings No.2



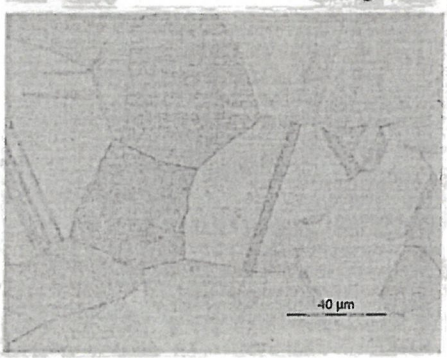
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102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpitarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 AGO. 2024
FRANCO CORBELLINI
081
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE
ORDER NUMBER: 715430-1 **STEP:** 721719
PRODUCT CODE: 718 1.25 SAAH
HARDNESS RANGE (HBW): 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
☐ A0-30	☐ 6403-4 R92033	☐ R984063	☑ 0510014	☐	☐ F68332/139	☐ 814574
☑ UC-71	☐ 6403_16897	☐	☐ 0907068	☐	☐	☐
☐ UC-72	☐ E50152/15(6503-1)	☐	☐ 1112032	☐	☐	☐
☐	☐ HMV1(6403-3)	☐	☐ 1112037	☐	☐	☐
☐	☐ R335(HMM1)	☐	☐	☐	☐	☐

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

									T/P Results (HBW)
1	354	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
L	316	316.5	27591/30AW	P	21/8/24

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4 - 061238.PDF C 240062-020/01

MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller*	FLUITEK ORSENIGO VALVES SRL	**Descrizione** *Description / Prüfgegenstand*	Vite TER - Bolt TER M10x25	**Certificato N°** *Certificate N° / Prüf Nr*	153954 R. 0
VIA DEI LIVELLI DI SOPRA	5/7				
		Disegno Cliente *Customer drawing / Kunden-design*	144356	**Classe materiale** *Material Class /W.n*	B8M cl.2 (<=M20) S31600
COSTA DI MEZZATE	BG	**N° pezzi** *Quantity / Stückzahl*	2000		ASTM A193/A193M-19; ASTM A320/A320M-18
N° DDT	222434 **data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr*	220638 POS. 003	**Colata** *Heat N° / Schmelze Nr*	174374

Analisi chimica

Chemical Analysis /Chemische Analyse

		C	Mn	Si	Cr	Ni	Mo	S	P
Required values / Sollwerte	min.				16,000	10.000	2,000		
	max	0,080	2,000	1,000	18,000	14.000	3,000	0,030	0,045
Analisi colata **Heat analysis / Schmelzanalyse*		0,016	1,830	0,380	16,680	10,280	2,050	0,001	0,027

* As reported on steel work or supplier certificate

Balance Fe

Caratteristiche meccaniche

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* **Rm [N/mm2]**		Snervamento *Yield strength Streck-grenze* **Rs [N/mm2]**	Allungamento *Elongation Bruch-dehnung* **A%**		Strizione *Reduction of area Bruch-einschn.* **Z%**	Durezza *Hardness Härteprüfung* **HB**		Resilienza *Impact test Schlagarbeit* **[J]**		Temperat. resilienza *Temp* **[°C]**
	min	max	min	4D min	5D min	min	min	max	media	min	
Valori richiesti *Required values/ Anforderungen*	760		655	15,00%		45,00%		321			
Valori ottenuti *Actual values / Ergebnisse*	1033		889	24,00%		66,20%		315			

Note

Trattamento termico *Heat treatment*	**Esame decarburazione-carburazione** *Decarburization and carburization test*	**Esame macroscopico** *Macroetch examination result*
Carbide solution treated and strain hardened	Non applicabile - Not applicable	Non applicabile - Not applicable

Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*	Positive	**P.M.I.**	Positive	**Marcature** *Marking / Kennzeichnung*	B8MSH MM	**Rivestimento** *Coating Oberflächenbeschichtung*	

Informazioni aggiuntive

Further information / Zusätzliche angaben

21 AGO. 2024
FRANCO CORBELLINI
CBI
CROSSWIND

The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612 /

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta
21015 LONATE PO

Fluitek Valves

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE
N° **C 240062-021/01**

Page N°. 1 / 1

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**021**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
210	**1**

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0

TAG
25-XV-020

SERIAL NUMBER
From 2400620210001 to 2400620210001

NOTES

COMPONENT		CHEMICAL ANALYSIS											
PART NAME	MATERIAL	C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
		Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
SCREW	A193 B8M CL2	0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
	174374	1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORBELLINI QB3 CROSSWIND R DATE	FLUITEK ORSENIGO VALVES SRL DATE 06/08/2024

60194

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Acciaierie Valbruna S.p.A.

Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Works/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Siempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

SPECIFICHE :
Anforderungen / Requirements / Exigences

Note:
Aufzeichnungen / Notes / Notes

VAL STOCK W2 A/1 1.4404/316L A
MDS S01 5 316 A (0)
MDS S17 1 316 A (1)
AD 2000-M. W 2 2022 1.4401 A (2)
AD 2000-M. W 2 2022 1.4404 A (3)
AISI . 316/316L
AMS-QQ-S-763 D 316/316L A
ASME SA182 2021 S31600/03 A (4)
ASME SA193 2021 B8M CLASS 1 (5)
ASME SA276 2021 S31600/03 A (6)
ASME SA320 2021 B8M CLASS 1 (7)
ASME SA479 2021 S31600/03 A (8)
ASTM A182 2023 S31600/03 A (9)
ASTM A193 2023 B8M CLASS 1
ASTM A262 PR. E 2015 316/316L (A)
ASTM A276 2023 S31600/03 A
ASTM A320 2022 B8M CLASS 1 CLASS1
ASTM A370 2022 .
ASTM A479 2023A S31600/03 A
ASTM E10 2023 .
ASTM E8 2022 .
EN 10088 PART 3 2014 1.4401 A
EN 10088 PART 3 2014 1.4404 A
EN 10272 2016. 1.4401 A
EN 10272 2016. 1.4404 A
ISO 148-1 2016 .
ISO 3651-2 98 METHOD A T1
ISO 6506-1 2014 .
ISO 6892-1 2019 .
NACE MR0103 2015 S31600/03 A (B)
NACE MR0175 4 S31600/03 A (C)
QQ-S-763 F 316/316L A
ACH CO . .
KV L -196C . ISO 148-1
KV T -196C . ISO 148-1

(0)Norsok-standard M-630 Edition 6, October 2013
(1)Norsok-standard M-630: 2020 (2020-09-30)
(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
(5)Section II Part A 2021 EDITION
(6)Section II Part A 2021 EDITION
(7)Section II Part A 2021 EDITION
(8)Section II Part A 2021 EDITION
(9)For products machined directly from bar refer also to ASTM A479.
(A)Reapproved 2021

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO Q.M.C.

(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.

Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Tolleranza: k12 Toleranz/Allowance/Tolerance Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0060	Tondo	135,000	5324/ 5533	291737	1	630,0	320205030

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024	Direzione Qualità	Direzione Prodotto	Pagina
VCQ008 - MEST012686	Qualitätsmanagement/Quality Management/Gestion Qualité	Produktmanagement/Product Management/Direction Produit	1 di 5
	R.BERTELLI	P.MESSORI	

Acciaierie Valbruna S.p.A.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		200	235	500	40	-	-	-	-			-		
		max				700									215	
A	10	20	L	270	309	562	59		69					161		
I	10	20	L	278	311	575	57		67					162		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			3

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
B	10X10	-196	L	188	190	195	1,855	1,492	1,910	73	71	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		210	-	520	-	40	-	50	-			-		
		max				790									223	
C	12,5	20	L	258		552		62		73				158		

FRANCO CORBELLINI
21 AGO. 2024
CROSSWIND

FLUITEK ORSENIGO QVC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024
VCQ008 - MEST012686

Direzione Qualità
Qualitätsmanagement/Quality Management/Gestion Qualité
R.BERTELLI

Direzione Prodotto
Produktmanagement/Product Management/Direction Produit
P.MESSORI

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probestage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	267		561		50		64						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probestage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
E	10X10	-196	T	89	94	91	1,258	1,325	1,005	27	20	31

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probestage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		100	100	100	-	-	-	-	-	-
H	10X10	20	L	258	258	260						
J	10X10	20	L	253	247	255						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 NOV. 2024
FRANCO CORBELLINI
QRQ
CROSSWIND

FLUITEK ORSENIGO S.R.L. QC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 Z.I.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice
AV

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur
MR

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat																
Schmelze/Coulée	min -	-	-	16,50	2,00	-	10,00	-	-	-	-	-	-	-	-	-
	max 0,030	1,00	2,00	18,00	2,50	1,00	13,00	-	0,045	0,030	0,100	-	-	-	-	
	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %					
291737	0,022	0,42	1,58	16,80	2,04	0,37	10,13	0,166	0,033	0,028	0,051					

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 3,2 : 1
Solution annealed 1080°C for 180'(total time)/ water cooled
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 GEN. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FLUITEK ORSENIGO QC

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSP8216EC9630D4E9DDA83AA9B6270C9630C

21 10. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

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Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
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CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.210025

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI21000217

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI21000250

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/4/316/L

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
AISI 316	
AISI 316L	
ASME SA182 2019 S31600 A (1)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA182 2019 S31603 A (2)	(2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3)	(3)Section II Part A 2019 EDITION
ASME SA276 2019 S31600 A (4)	(4)Section II Part A 2019 EDITION
ASME SA276 2019 S31603 A (5)	(5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6)	(6)Section II Part A 2019 EDITION
ASME SA479 2019 S31600 A (7)	(7)Section II Part A 2019 EDITION
ASME SA479 2019 S31603 A (8)	(8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A182 2020 S31603 (A)	(A)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2019 B8M CLASS 1	
ASTM A262 2015 PRACTICE E	
ASTM A276 2017 S31600 A	
ASTM A276 2017 S31603 A	
ASTM A314 2019 S31600	
ASTM A320 2018 B8M CLASS 1 CLASS1	
ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A	
ASTM A479 2019 S31603 A	
ASTM E10 2018 .	
ASTM E8 2016A .	
DIN 17440 96 1.4401 A	
DIN 17440 96 1.4404 A	
EN 10088-3 2014 1.4401 A	
EN 10088-3 2014 1.4404 A	
EN 10272 2007 1.4401 A	
EN 10272 2007 1.4404 A	
ISO 148-1 2016 .	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600 A (C)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0103 2015 S31603 A (D)	(D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015
NACE MR0175 2015 S31603 A (F)	(F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

21 AGO. 2021
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 14/01/2021 VCQ052 - MEST662721	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 1 di 3

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
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Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
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VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

Tolleranza: k12
Tolleranza/Allowance/Tolerance

Pos. nr.	Oggetto	Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
Pos. nr. / Item nr. / Nr. de poste	Gegenstand / Product description / Descrip. du produit	Abmessungen / Dimension / Dimension	Lange / Length / Longueur	Schmelze / Heat / Coulée	Stückzahl / Pieces / Pieces	Gewicht / Weight / Poids	Los-nr / Lot nr / Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / test a l'etat de fourniture / Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta/ Probestab / Specimen/Eprouvette / Larg.diam.Spess. / Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais. mm	°C	Posiz. Saggio / Probenlage / Location / Emplacement 1)	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 0,2% N/mm2	Snervamento / Streckgrenze / Yield Stress / Limite elastique Rp 1% N/mm2	Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction Rm N/mm2	Allungamento / Bruchdehnung / Elongation / Allongement A5 %	Allungamento E 4d %	Strizione / Einschnürung / Reduction of area / Striction Z %	Strizione RA %	Resilienza / Kerbschlagarbeit / Impact Value / Resilience KV J			Durezza / Haerte / Hardness / Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs demandées		min / max		205	240	515 / 690	40	40	-	50	100			- / 215		
A	10	20	L	295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %
min -		-	-	16,50	2,00	10,00	-	-	-
max 0,030		1,00	2,00	18,00	2,50	13,00	0,045	0,030	0,100
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055

21 AGO. 2021
FRANCO CORBELLINI
OBJ
CROSSWIND R

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 14/01/2021	Direzione Qualità	Direzione Prodotto	Pagina
VCQ052 - MEST662721	Qualitätsmanagement/Quality Management/Gestion Qualité	Produktmanagement/Product Management/Direction Produit	2 di 3
	R.BERTELLI	P.MESSORI	

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.I.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel â été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

W3P4F29E34D158E28AE37654046D159E28C

21 AGO. 2021
FRANCO CORBELLINI
OBQ
CROSSWIND

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 14/01/2021 VCQ052 - MEST662721	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 3 di 3

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-
General remarks	1: This test report cannot be partially reproduced without our written approval 2: Test results are relevant only to the specimens belonging to the indicated samples 3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy 4: Tests are performed on the material in as-received conditions, unless otherwise specified 5: Sampling has been performed by customer 6: If not otherwise agreed, tested specimens are kept for 30 days from the test date 7: The uncertainty value, when expressed, does not affect the conformity declaration 8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA 9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

21 NOV 2023

FRANCO CORBELLINI

QBJ

CROSSWIND

Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by

MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

Notched bar impact test

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration

Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	21 NOV. 2023 FRANCESCO GERMANI QB9 CROSSWIND R

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668
Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

Specification
718 Rev. 13 03.02.2020 (Straigthness 2:1000)
Yield Strength: min 120 KSI
temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015,+ Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718
UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1834-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straigthness 2:1000); API 6 A CRA First Edition 08.2015,+ Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Melt	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Melt	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Melt	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation	A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2				49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5.5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Onal Ücüncü, authorized Inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman), Holger Arnold, Daniel Applaris Zemp, Frank Morris
Commercial register: Iserlohn local court, #5127
Company domicile: Werdohl

FLUITEKORSENIGO VALVES SRL Q.C.

21 AGO. 2023
FRANCO CORBELLINI
QBQ
CROSSWIND
R

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

printed: 14. AUG 2023

Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates		
1 718 Rev. 13 03.02.2020 (Straighness 2:1000)		
		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling[start 27°C - end 28°C - max. 29°C] + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection
No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.
For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.
MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.
No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.
All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.
SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.
The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.
Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2023
FRANCO CORBELLINI
QB1
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephone: +49 2392 550
Internet: www.vdm-metals.com

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Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Apitario Zemp, Frank Morris
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Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 ; 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

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Commercial register: Iserlohn local court, HR327
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Order No.	Delivery No.	Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KVa 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

21 NOV. 2023
FRANCO CORBELLINI
QBJ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

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VDM Metals GmbH
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VDM Metals

Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38; Rectangular Notch l=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of inspection 22.07.2023

The material is in compliance with the test specification

Supervisor

Hirzbruch, Level II

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

21 AGO. 2024
FRANCO CORBELLINI
OBJ
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19 US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3) circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection 22.07.2023

The material is in compliance with the test specification

Supervisor

Hirzbruch, Level II

21 AGO. 2023
FRANCO CORBELLINI
QC
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

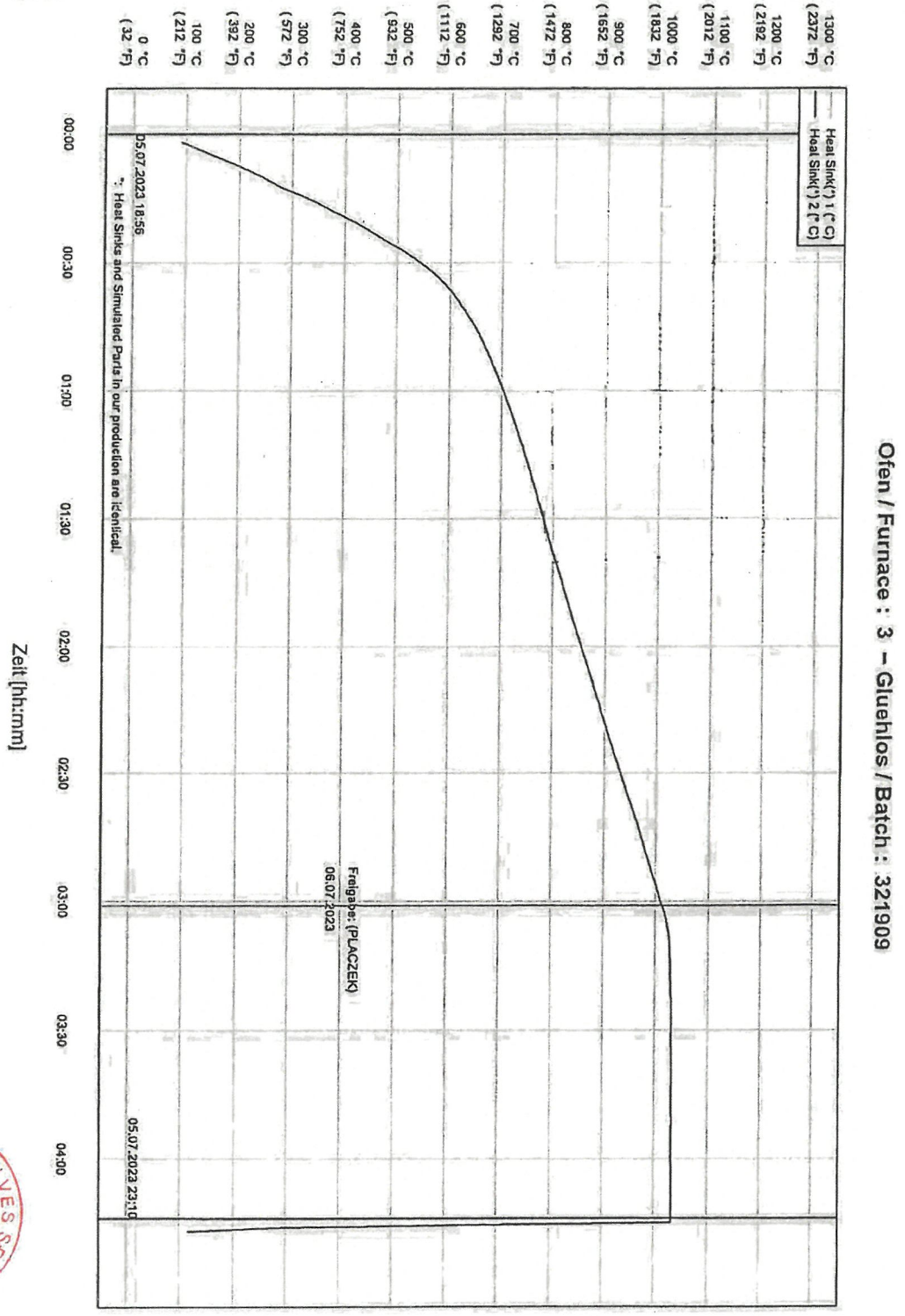
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zemp, Frank Monis
Commercial register: Iserlohn local court, HR127
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Mats Muter (Chairman)
Holger Arnold, Daniel Apitzsch Zamp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

21 AGO. 2023
FRANCO CORBELLINI
QBQ
CROSSWIND

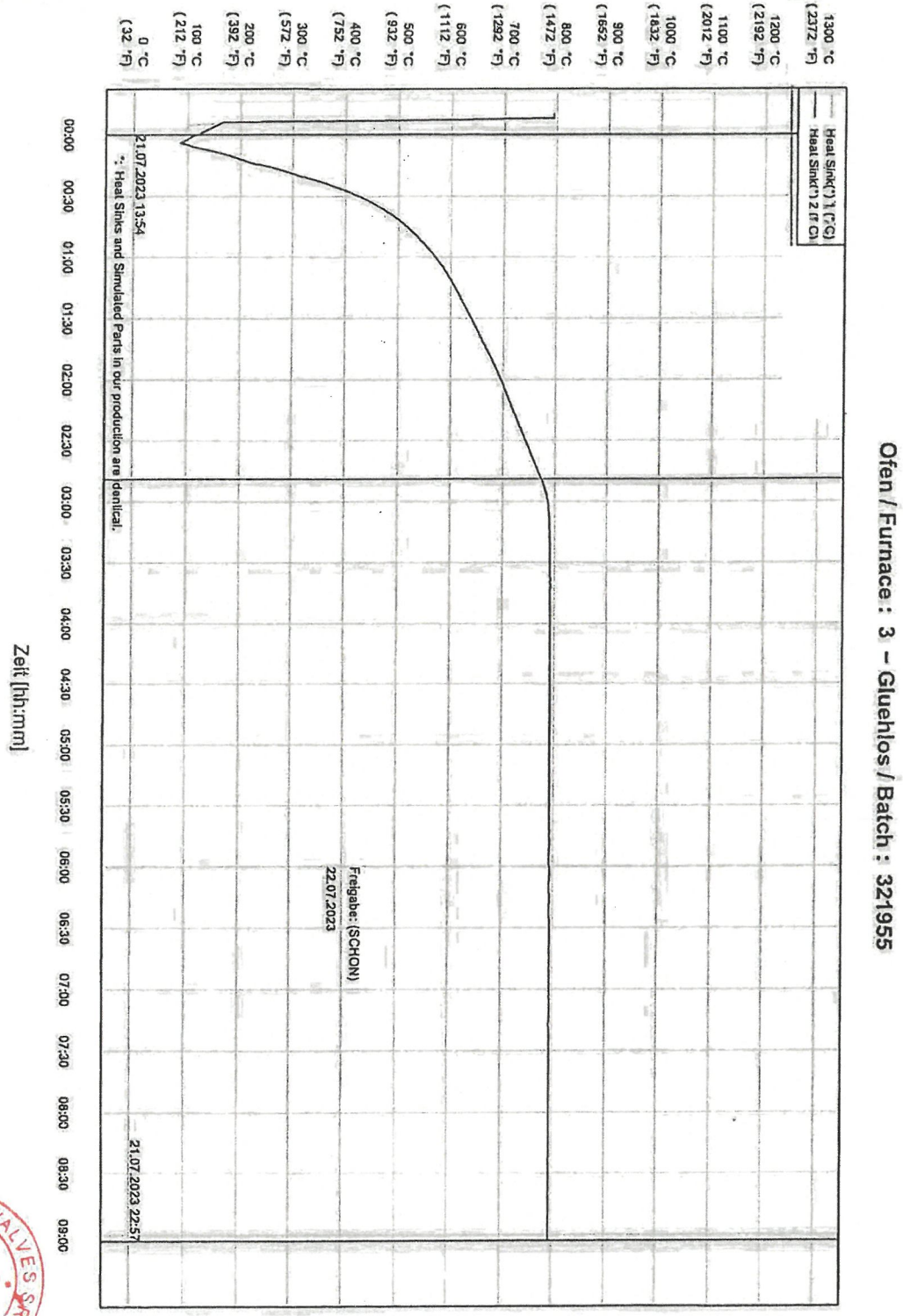
3 - 071474.PDF C 240062-021/01

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321955

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Arpitania Zemp, Frank Moris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

21 FEB. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

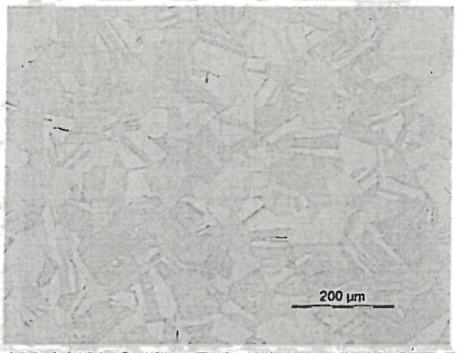
VDM Metals GmbH

VDM Metals

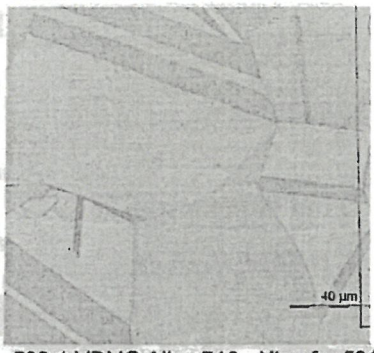
Microstructure Examination

Metallography Job No.: 194936
Lot No.: 105403101
Heat: 422416

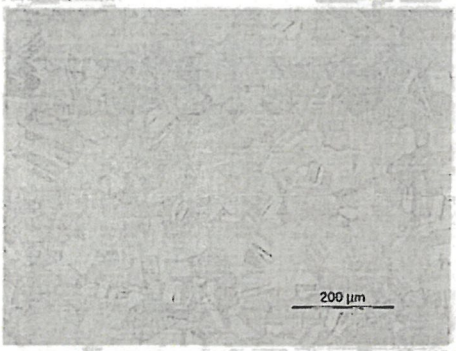
Inspection Certificate No.: 253749/1
Enclosure: 4
Page: ~~1 of 1~~



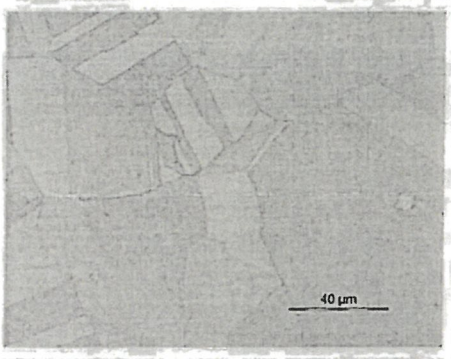
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102T001A02 surface
26.07.2023 Kallings No.2



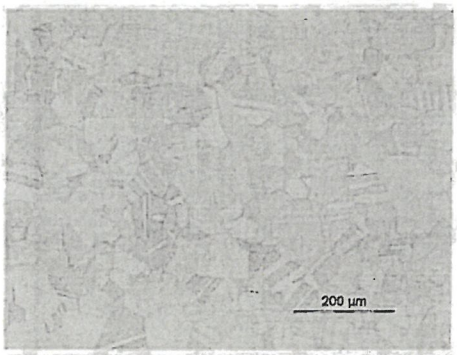
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102T001A02 surface
26.07.2023 Kallings No.2



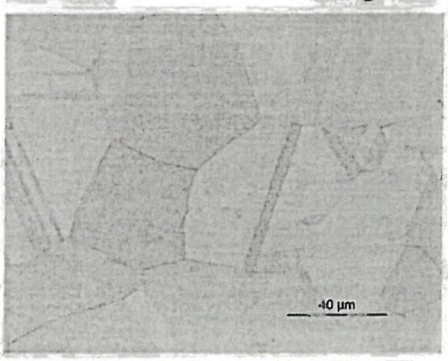
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102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpilarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 MAG. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE
ORDER NUMBER: 715430-1 **STEP:** 721719
PRODUCT CODE: 718 1.25 SAAH
HARDNESS RANGE (HBW): 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
☐ A0-30	☐ 6403-4 R92033	☐ R984063	☑ 0510014	☐	☐ F68332/139	☐ 814574
☑ UC-71	☐ 6403_16897	☐	☐ 0907068	☐	☐	☐
☐ UC-72	☐ E50152/15(6503-1)	☐	☐ 1112032	☐	☐	☐
☐	☐ HMV1(6403-3)	☐	☐ 1112037	☐	☐	☐
☐	☐ R335(HMM1)	☐	☐	☐	☐	☐

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

									T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
L	316	316.5	375911 30AW	P	21/3/24

21 MAR 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

3 - 071474.PDF C 240062-021/01

4 - 061238.PDF C 240062-021/01

MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller*	FLUITEK ORSENIGO VALVES SRL	**Descrizione** *Description / Prüfgegenstand*	Vite TER - Bolt TER M10x25	**Certificato N°** *Certificate N° / Prüf Nr*	153954 R. 0
VIA DEI LIVELLI DI SOPRA	5/7				
		Disegno Cliente *Customer drawing / Kunden-design*	144356	**Classe materiale** *Material Class /W.n*	B8M cl.2 (<=M20) S31600
COSTA DI MEZZATE	BG	**N° pezzi** *Quantity / Stückzahl*	2000		ASTM A193/A193M-19; ASTM A320/A320M-18
N° DDT 222434	**data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr*	220638 POS. 003	**Colata** *Heat N° / Schmelze Nr*	174374

Analisi chimica

Chemical Analysis /Chemische Analyse

Valori richiesti %		C	Mn	Si	Cr	Ni	Mo	S	P
Required values /	min.				16,000	10,000	2,000		
Sollwerte	max	0,080	2,000	1,000	18,000	14,000	3,000	0,030	0,045
Analisi colata		0,016	1,830	0,380	16,680	10,280	2,050	0,001	0,027

**Heat analysis / Schmelzanalyse*

* As reported on steel work or supplier certificate

Balance Fe

Caratteristiche meccaniche

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* **Rm [N/mm2]**		Snervamento *Yield strength Streck-grenze* **Rs [N/mm2]**	Allungamento *Elongation Bruch-dehnung* **A%**		Strizione *Reduction of area Bruch-einschn.* **Z%**	Durezza *Hardness Härteprüfung* **HB**		Resilienza *Impact test Schlagarbeit* **[J]**		Temperat. resilienza *Temp* **[°C]**
Valori richiesti *Required values/ Anforderungen*	min 760	max	min 655	4D min 15,00%	5D min	min 45,00%	min	max 321	media	min	
Valori ottenuti *Actual values / Ergebnisse*	1033		889	24,00%		66,20%		315			

Note

Trattamento termico *Heat treatment*	**Esame decarburazione-carburazione** *Decarburization and carburization test*	**Esame macroscopico** *Macroetch examination result*
Carbide solution treated and strain hardened	Non applicabile - Not applicable	Non applicabile - Not applicable

Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*	Positive	**P.M.I.**	Positive	**Marcature** *Marking / Kennzeichnung*	B8MSH MM	**Rivestimento** *Coating Oberflächenbeschichtung*	

Informazioni aggiuntive

Further information / Zusätzliche angaben

21 MAR 2022
FRANCO CORBELLINI
QBQ
CROSSWIND

The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612 /

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-022/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**022**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
220	**1**

TAG
25-XV-021

SERIAL NUMBER
From 2400620220001 to 2400620220001

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718///vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0

NOTES

COMPONENT		CHEMICAL ANALYSIS											
PART NAME	MATERIAL	C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
		Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
SCREW	A193 B8M CL2	0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
	174374	1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORBELLINI QBQ CROSSWIND DATE	FLUITEK ORSENIGO VALVES SRL Q.C. DATE 06/08/2024

60194

1 - 068194.PDF C 240062-022/01

Acciaierie Valbruna S.p.A.

Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

SPECIFICHE :
Anforderungen / Requirements / Exigences

VAL STOCK W2 A/1 1.4404/316L A
MDS S01 5 316 A (0)
MDS S17 1 316 A (1)
AD 2000-M. W 2 2022 1.4401 A (2)
AD 2000-M. W 2 2022 1.4404 A (3)
AISI . 316/316L
AMS-QQ-S-763 D 316/316L A
ASME SA182 2021 S31600/03 A (4)
ASME SA193 2021 B8M CLASS 1 (5)
ASME SA276 2021 S31600/03 A (6)
ASME SA320 2021 B8M CLASS 1 (7)
ASME SA479 2021 S31600/03 A (8)
ASTM A182 2023 S31600/03 A (9)
ASTM A193 2023 B8M CLASS 1
ASTM A262 PR. E 2015 316/316L (A)
ASTM A276 2023 S31600/03 A
ASTM A320 2022 B8M CLASS 1 CLASS1
ASTM A370 2022 .
ASTM A479 2023A S31600/03 A
ASTM E10 2023 .
ASTM E8 2022 .
EN 10088 PART 3 2014 1.4401 A
EN 10088 PART 3 2014 1.4404 A
EN 10272 2016. 1.4401 A
EN 10272 2016. 1.4404 A
ISO 148-1 2016 .
ISO 3651-2 98 METHOD A T1
ISO 6506-1 2014 .
ISO 6892-1 2019 .
NACE MR0103 2015 S31600/03 A (B)
NACE MR0175 4 S31600/03 A (C)
QQ-S-763 F 316/316L A
ACH CO . .
KV L -196C . ISO 148-1
KV T -196C . ISO 148-1

Note:
Aufzeichnungen / Notes / Notes

(0)Norsok-standard M-630 Edition 6, October 2013
(1)Norsok-standard M-630: 2020 (2020-09-30)
(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
(5)Section II Part A 2021 EDITION
(6)Section II Part A 2021 EDITION
(7)Section II Part A 2021 EDITION
(8)Section II Part A 2021 EDITION
(9)For products machined directly from bar refer also to ASTM A479.
(A)Reapproved 2021

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO QMC

(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.

		Tolleranza: k12 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Lange Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Loenr. Lot nr. Lot nr.
0060	Tondo	135,000	5324/ 5533	291737	1	630,0	320205030

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 1 di 5

Acciaierie Valbruna S.p.A.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.240068

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI24000623

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI24000573

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

TEST ALLO STATO DI FORNITURA

Test on delivery condition — Prüefung auf lieferbereitem produkt — test a l'etat de fourniture — Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Prelevatage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance á traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min			200	235	500	40	-	-	-		-		-		
		max					700								215		
A	10	20	L		270	309	562	59		69					161		
I	10	20	L		278	311	575	57		67					162		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			3

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Prelevatage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min			-	-	-	-	-	-	-	-	-
		max											
B	10X10	-196	L		188	190	195	1,855	1,492	1,910	73	71	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Prelevatage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance á traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min			210	-	520	-	40	-	50	-			-		
		max					790								223		
C	12,5	20	L		258		552		62		73				158		

FRANCO CORBELLINI
QBQ
CROSSWIND 21 AGO. 2024

FLUITEK ORSENIGO QVC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 2 di 5

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell Your order Commande: ORD.N.240068

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI24000623

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI24000573

Stato di fornitura / Lieferzustand Delivery state Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart Melting process Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes Trade marks Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung Marking Marquage: 1.4401/1.4404

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			205	-	515	-	40	-	50	-			-		
D	12,5	20	T		267		561		50		64						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			-	-	-	-	-	-	-	-	-
E	10X10	-196	T		89	94	91	1,258	1,325	1,005	27	20	31

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C		Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max			100	100	100	-	-	-	-	-	-
H	10X10	20	L		258	258	260						
J	10X10	20	L		253	247	255						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
OBQ
CROSSWIND

FLUITEK ORSENIGO QVC

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
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CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'asssayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
	min - max 0,030	- 1,00	- 2,00	16,50 18,00	2,00 2,50	- 1,00	10,00 13,00	- -	- 0,045	- 0,030	- 0,100	-	-	-	-
291737	0,022	0,42	1,58	16,80	2,04	0,37	10,13	0,166	0,033	0,028	0,051				

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 3,2 : 1
Solution annealed 1080°C for 180'(total time)/ water cooled
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/OES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FLUITEK ORSENIGO Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024	Direzione Qualità	Direzione Prodotto	
VCQ008 - MEST012686	Qualitätsmanagement/Quality Management/Gestion Qualité	Produktmanagement/Product Management/Direction Produit	
	R.BERTELLI	P.MESSORI	

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSPB21EC9630DH6X0A83AAH6H29CH630C

21 AGO. 2024
FRANCO CORBELLINI
QBJ
CROSSWIND

FLUITEK ORSENIGO VALVES Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 5 di 5

57606 | 2 - 057606.PDF | C 240062-022/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
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Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
AISI 316	
AISI 316L	
ASME SA182 2019 S31600 A (1)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA182 2019 S31603 A (2)	(2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3)	(3)Section II Part A 2019 EDITION
ASME SA276 2019 S31600 A (4)	(4)Section II Part A 2019 EDITION
ASME SA276 2019 S31603 A (5)	(5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6)	(6)Section II Part A 2019 EDITION
ASME SA479 2019 S31600 A (7)	(7)Section II Part A 2019 EDITION
ASME SA479 2019 S31603 A (8)	(8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A182 2020 S31603 (A)	(A)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2019 B8M CLASS 1	
ASTM A262 2015 PRACTICE E	
ASTM A276 2017 S31600 A	
ASTM A276 2017 S31603 A	
ASTM A314 2019 S31600	
ASTM A320 2018 B8M CLASS 1 CLASS1	
ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A	
ASTM A479 2019 S31603 A	
ASTM E10 2018 .	
ASTM E8 2016A .	
DIN 17440 96 1.4401 A	
DIN 17440 96 1.4404 A	
EN 10088-3 2014 1.4401 A	
EN 10088-3 2014 1.4404 A	
EN 10272 2007 1.4401 A	
EN 10272 2007 1.4404 A	
ISO 148-1 2016 .	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600 A (C)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0103 2015 S31603 A (D)	(D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015
NACE MR0175 2015 S31603 A (F)	(F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

21 AGO. 2021
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES Q.C.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
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Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
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24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Conferma ordine nr: MI21000217
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Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/4/316/L

Pos. nr.	Oggetto	Tolleranza: k12 — Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
		Tolleranza/Allowance/Tolerance					
Pos. nr. / Item nr. / Nr. de poste	Gegenstand / Product description / Descrip. du produit	Abmessungen / Dimension / Dimension	Länge / Length / Longueur	Schmelze / Heat / Coulée	Stückzahl / Pieces / Pieces	Gewicht / Weight / Poids	Losnr. / Lot nr. / Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / test a l'etat de fourniture / Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab / Specimen/Eprouvette / Larg.diam Spess. / Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais — mm	°C	Posiz. Saggio / Probenlage / Location / Emplacement 1)	Snervamento / Streckgrenze / Yield Stress / Limite elastique — Rp 0,2% N/mm2	Snervamento / Streckgrenze / Yield Stress / Limite elastique — Rp 1% N/mm2	Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction — Rm N/mm2	Allungamento / Bruchdehnung / Elongation / Allongement — A5 %	Allungamento — E 4d %	Strizione / Einschnürung / Reduction of area / Striction — Z %	Strizione — RA %	Resilienza / Kerbschlagarbeit / Impact Value / Resilience — KV J			Durezza / Haerte / Hardness / Durete — HB		
Valori richiesti / Anforderungen/Required values / Valeurs demendées		min		205	240	515	40	40	-	50	100			-		
		max				690								215		
A	10	20	L	295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata / Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %
min - max	0,030	1,00	2,00	16,50 - 18,00	2,00 - 2,50	10,00 - 13,00	0,045	0,030	0,100
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055

21 AGO. 2021
FRANCO CORBELLINI
QBQ
CROSSWIND

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 14/01/2021	Direzione Qualità / Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto / Produktmanagement/Product Management/Direction Produit	Pagina
VCQ052 - MEST662721	R.BERTELLI	P.MESSORI	2 di 3

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr / Bestell / Your order / Commande: ORD.N.210025

Conferma ordine nr / Werks/Our Order/Ref nr.: MI21000217

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI21000250

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

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Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/4/316/L

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel ê eté trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD'S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

W3P4F29E34D158E28AE57654046D159E28C

21 AGO. 2021
FRANCO CORBELLINI
QBQ
CROSSWIND R

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 14/01/2021 VCQ052 - MEST662721	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 3 di 3

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

General remarks

1: This test report cannot be partially reproduced without our written approval
2: Test results are relevant only to the specimens belonging to the indicated samples
3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy
4: Tests are performed on the material in as-received conditions, unless otherwise specified
5: Sampling has been performed by customer
6: If not otherwise agreed, tested specimens are kept for 30 days from the test date
7: The uncertainty value, when expressed, does not affect the conformity declaration
8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA
9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by
MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA LAB
ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
LAB N° 1574 L
QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

Notched bar impact test

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration
Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	21 AGO. 2024 FRANCO CORBELLINI QBQ CROSSWIND R

3 - 071474.PDF C 240062-022/01

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668

Product
Bar, round, hot rolled, solution ann. / age hardened, machined slightly oxidized

Specification
718 Rev. 13 03.02.2020 (Straightness 2:1000)
Yield Strength: min 120 KSI
Temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718
UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1934-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straightness 2:1000); API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Melt	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Melt	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Melt	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

	Test Location
1 No 5	surface
1 No 5.5	1/4 thickness
1 No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Ünal Üçüncü, authorized inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephone: +49 2392 550
Internet: www.vdm-metals.com

FLUITEKNORSENTGO VALVES S.R.L. Q.C.

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Mäder (Chairman), Holger Arnold, Daniel Apitzsch, Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

21 AGO. 2023
FRANCO CORDELLINI
CROSSWIND

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

printed: 14. AUG 2023

Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates
1 718 Rev. 13 03.02.2020 (Straightness 2:1000)

		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling(start 27°C - end 28°C - max. 29°C) + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.
For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.
MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.
No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.
All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.
SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.
The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.
Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history			
Rev.: 1	14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0	01.08.2023		

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

21 AGO. 2024
FRANCO CORBELLINI
QC
CROSSWIND R

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

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Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Apitario Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 : 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

LUITEK ORSENIGO VALVES S.R.L. Q.C.

21 AGO. 2024
FRANCO CORBELLINI
GBQ
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KV₈ 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

21 AGO. 2024
FRANCO CORBELLINI
OBJ
CROSSWIND R

FLUITEK ORSENIGO VALVES SRL Q.C.

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Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman)
Holger Arnold, Daniel Arpitarte Zamp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straigthness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection 22.07.2023

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

21 AGO. 2023
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Arpitarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 3B: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm
Cast - Product-ID	422416 - 102
Date of Inspection	22.07.2023

Reportable Indications

count	inspector	level
0	Plaza-Wacker	Level II

The material is in compliance with the test specification

Supervisor
Hinzbruch, Level II

21 AGO 2024
FRANCO CORBELLINI
OBJ
CROSSWIND R

FONDERIA ORSENIGO VALVES S.R.L. Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

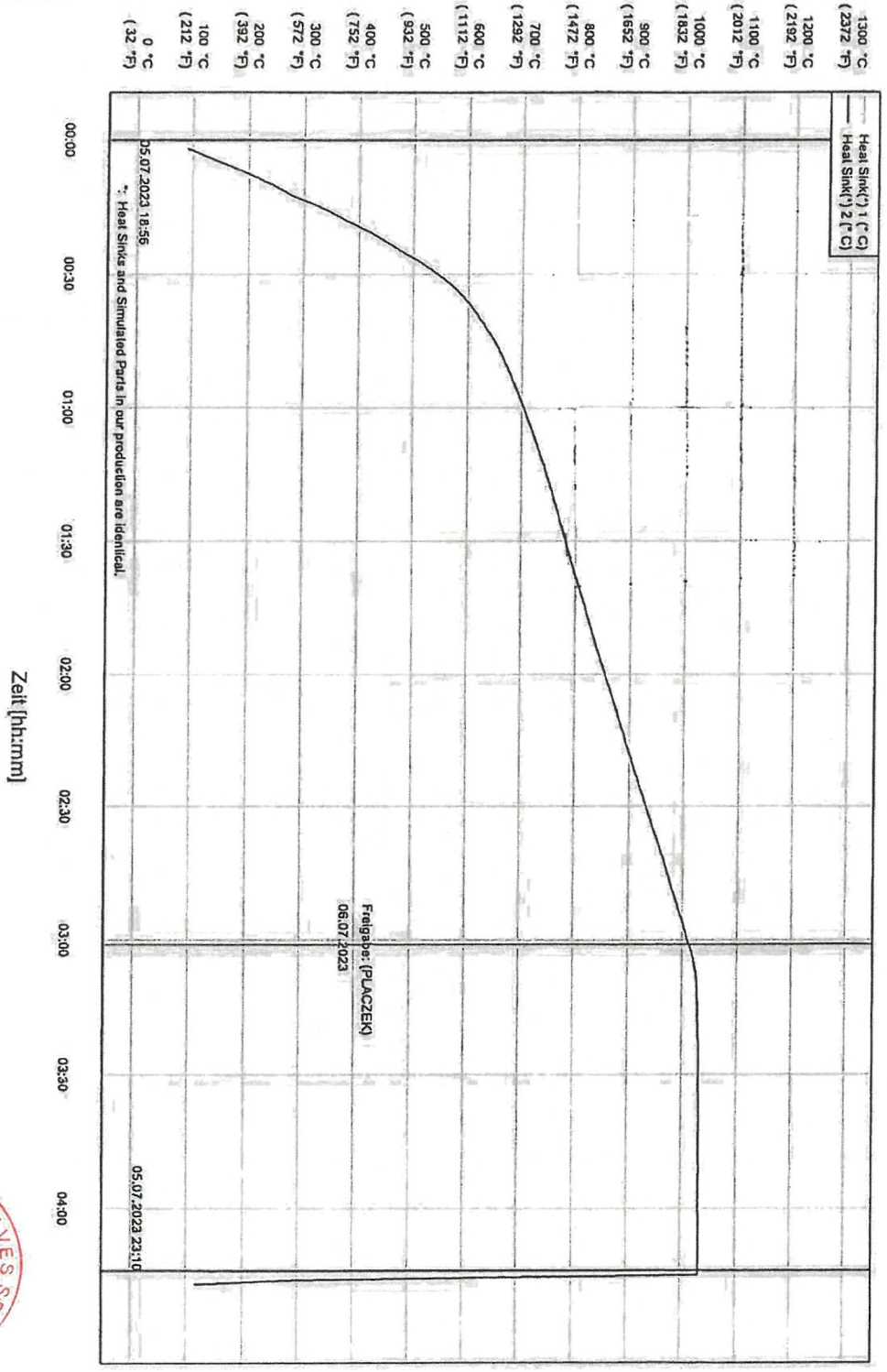
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zamp, Frank Monis
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Mats Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zamp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

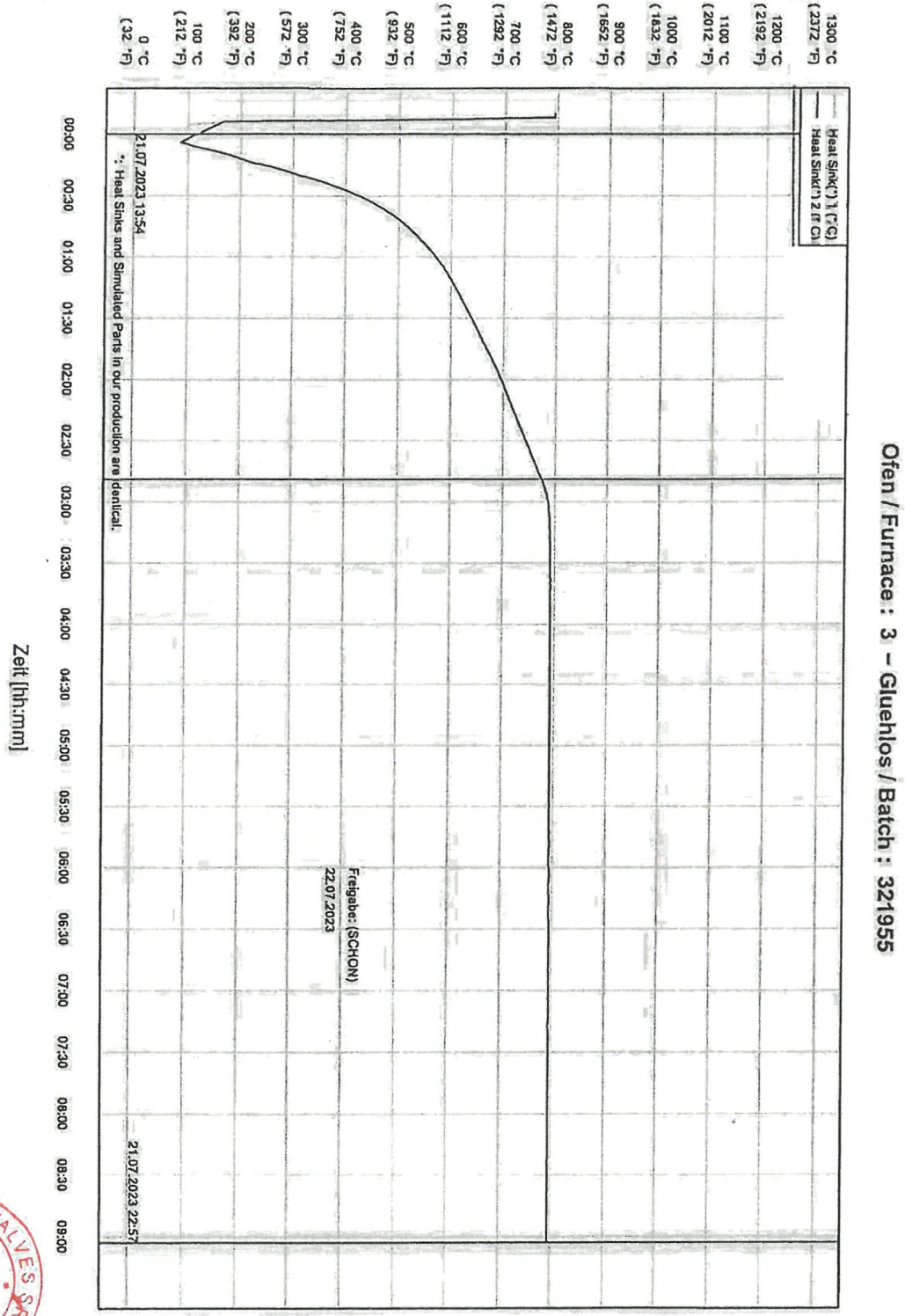
21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321955

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman)
Holger Arnold, Daniel Apitante Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

21 FEB. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

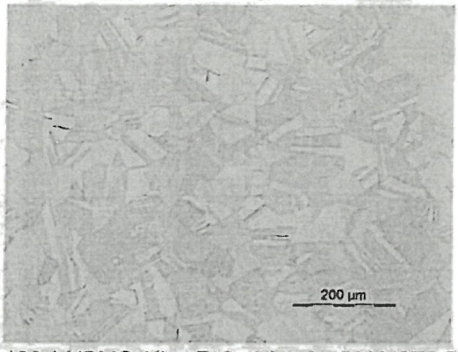
VDM Metals

VDM Metals GmbH

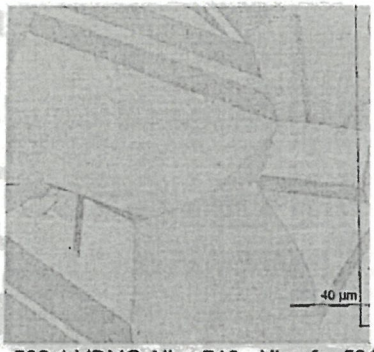
Microstructure Examination

Metallography Job No.:	194936
Lot No.:	105403101
Heat:	422416

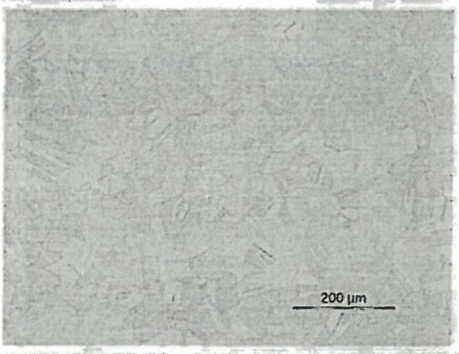
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Enclosure:	4
Page:	~~1 of 1~~



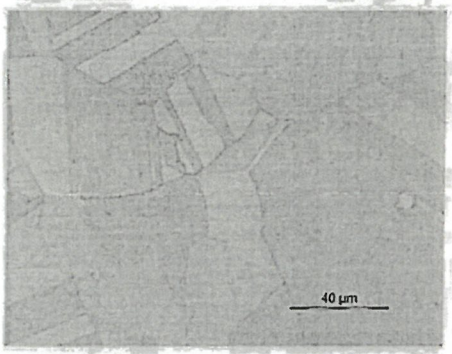
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



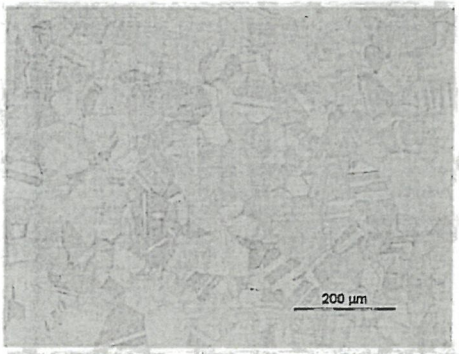
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102T001A02 surface
26.07.2023 Kallings No.2



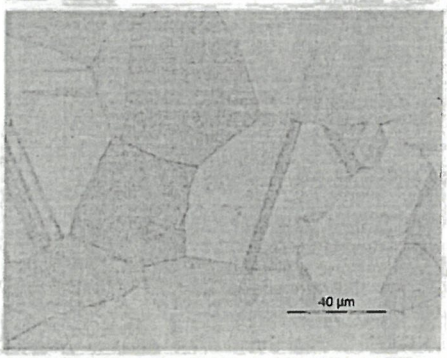
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

FLOWSERVE ITALIA VALVES S.R.L. Q.C.

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpilarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE **ORDER NUMBER:** 715430-1 **STEP:** 721719

PRODUCT CODE: 718 1.25 SAAH **HARDNESS RANGE (HBW):** 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
☐ A0-30	☐ 6403-4 R92033	☐ R984063	☑ 0510014	☐	☐ F68332/139	☐ 814574
☑ UC-71	☐ 6403_16897	☐	☐ 0907068	☐	☐	☐
☐ UC-72	☐ E50152/15(6503-1)	☐	☐ 1112032	☐	☐	☐
☐	☐ HMV1(6403-3)	☐	☐ 1112037	☐	☐	☐
☐	☐ R335(HMM1)	☐	☐	☐	☐	☐

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

									T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

21 AGO. 2024
FRANCO CORBELLINI
CBT
CROSSWIND

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
L	316	316.5	37591 30AW	P	21/8/24

3 - 071474.PDF C 240062-022/01

4 - 061238.PDF C 240062-022/01

MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller* FLUITEK ORSENIGO VALVES SRL	**Descrizione** Vite TER - Bolt TER *Description / Prüfgegenstand* M10x25	**Certificato N°** *Certificate N° / Prüf Nr* 153954 R. 0
VIA DEI LIVELLI DI SOPRA 5/7		
COSTA DI MEZZATE BG	**Disegno Cliente** *Customer drawing / Kunden-design* 144356	**Classe materiale** *Material Class /W.n* B8M cl.2 (<=M20) S31600
	N° pezzi *Quantity / Stückzahl* 2000	ASTM A193/A193M-19; ASTM A320/A320M-18
N° DDT 222434 **data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr* 220638 POS. 003	**Colata** *Heat N° / Schmelze Nr* 174374

Analisi chimica

Chemical Analysis /Chemische Analyse

Valori richiesti %

		C	Mn	Si	Cr	Ni	Mo	S	P
Required values /	min.				16,000	10,000	2,000		
Sollwerte	max	0,080	2,000	1,000	18,000	14,000	3,000	0,030	0,045
Analisi colata		0,016	1,830	0,380	16,680	10,280	2,050	0,001	0,027

**Heat analysis / Schmelzanalyse*

* As reported on steel work or supplier certificate

Balance Fe

Caratteristiche meccaniche

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* **Rm [N/mm2]**		Snervamento *Yield strength Streck-grenze* **Rs [N/mm2]**	Allungamento *Elongation Bruch-dehnung* **A%**		Strizione *Reduction of area Bruch-einschn.* **Z%**	Durezza *Hardness Härteprüfung* **HB**		Resilienza *Impact test Schlagarbeit* **[J]**		Temperat. resilienza *Temp* **[°C]**
Valori richiesti *Required values/ Anforderungen*	min 760	max	min 655	4D min 15,00%	5D min	min 45,00%	min	max 321	media	min	
Valori ottenuti *Actual values / Ergebnisse*	1033		889	24,00%		66,20%		315			

Note

Trattamento termico *Heat treatment*	**Esame decarburazione-carburazione** *Decarburization and carburization test*	**Esame macroscopico** *Macroetch examination result*
Carbide solution treated and strain hardened	Non applicabile - Not applicable	Non applicabile - Not applicable

Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*	Positive	**P.M.I.**	Positive	**Marcature** *Marking / Kennzeichnung*	B8MSH MM	**Rivestimento** *Coating / Oberflächenbeschichtung*	

Informazioni aggiuntive

Further information / Zusätzliche angaben

21 AGO. 2014
FRANCO CORBELLINI
CB1
(RÜSSWIN)

The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612 /

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta n. 27
21015 LONATE PO...

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-023/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**023**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
230	**1**

TAG
25-XV-024

SERIAL NUMBER
From 2400620230001 to 2400620230001

DESCRIPTION
ball valve fl 2 pz-fb2.1".300 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718////vit.glt_aed+g

fb2.0101.2.lvfd-hyd.att_pneu_fc.rf Rev0

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L	0,022	1,580	0,420	0,028	0,033	16,800	2,040	10,130		0,370		068194
			0,166	0,051						24,348			
	291737	575,00	258,00	62,00	73,00	188,00	190,00	195,00	196°C (L)	162 HBW			
SCREW	A193 B8M CL2	0,016	1,830	0,380	0,001	0,027	16,680	2,050	10,280				061238
	174374	1033,00	889,00	24,00	66,20					315 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORBELLINI 080 CROSSWIND R DATE	FLUITEK ORSENIGO VALVES SRL QC DATE 06/08/2024

60194

1 - 068194.PDF C 240062-023/01

Acciaierie Valbruna S.p.A.

Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

SPECIFICHE :	Note:
Anforderungen / Requirements / Exigences	Aufzeichnungen / Notes / Notes
VAL STOCK W2 A/1 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
MDS S17 1 316 A (1)	(1)Norsok-standard M-630: 2020 (2020-09-30)
AD 2000-M. W 2 2022 1.4401 A (2)	(2)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AD 2000-M. W 2 2022 1.4404 A (3)	(3)AD 2000-MERKBLATT W 2 edition 01.2020 AD 2000-MERKBLATT W 10 edition 01.2020
AISI . 316/316L	
AMS-QQ-S-763 D 316/316L A	
ASME SA182 2021 S31600/03 A (4)	(4)Section II Part A 2021 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2021 B8M CLASS 1 (5)	(5)Section II Part A 2021 EDITION
ASME SA276 2021 S31600/03 A (6)	(6)Section II Part A 2021 EDITION
ASME SA320 2021 B8M CLASS 1 (7)	(7)Section II Part A 2021 EDITION
ASME SA479 2021 S31600/03 A (8)	(8)Section II Part A 2021 EDITION
ASTM A182 2023 S31600/03 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2023 B8M CLASS 1	
ASTM A262 PR. E 2015 316/316L (A)	(A)Reapproved 2021
ASTM A276 2023 S31600/03 A	
ASTM A320 2022 B8M CLASS 1 CLASS1	
ASTM A370 2022 .	
ASTM A479 2023A S31600/03 A	
ASTM E10 2023 .	
ASTM E8 2022 .	
EN 10088 PART 3 2014 1.4401 A	
EN 10088 PART 3 2014 1.4404 A	
EN 10272 2016. 1.4401 A	
EN 10272 2016. 1.4404 A	
ISO 148-1 2016 .	
ISO 3651-2 98 METHOD A T1	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600/03 A (B)	(B)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 4 S31600/03 A (C)	(C)ANSI/NACE MR0175/ISO 15156-3:2020 Fourth edition, approved 21 Sep 2022.
QQ-S-763 F 316/316L A	
ACH CO . .	
KV L -196C . ISO 148-1	
KV T -196C . ISO 148-1	

FLUITEK ORSENIGO QMC

21 AGO. 2024
FRANCO CORBELLINI
QBA
CROSSWIND R

		Tolleranza: k12 Toleranz/Allowance/Tolerance					
Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Lange Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0060	Tondo	135,000	5324/ 5533	291737	1	630,0	320205030

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 1 di 5

Acciaierie Valbruna S.p.A.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.240068

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI24000623

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI24000573

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüfung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance á traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %		Strizione Einschnürung Reduction of area Striction Z %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		200	235	500	40	-	-	-	-			-		
		max				700								215		
A	10	20	L	270	309	562	59		69					161		
I	10	20	L	278	311	575	57		67					162		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüfung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			3

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		-	-	-	-	-	-	-	-	-
		max										
B	10X10	-196	L	188	190	195	1,855	1,492	1,910	73	71	65

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance á traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées		min		210	-	520	-	40	-	50	-			-		
		max				790								223		
C	12,5	20	L	258		552		62		73				158		

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO QVC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 29/01/2024 VCQ008 - MEST012686	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 2 di 5

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.240068

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI24000623

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI24000573

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmetzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'asssayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/1.4404

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %		Strizione Einschnürung Reduction of area Striction RA %		Resilienza Kerbschlagarbeit Impact Value Resilience			Durezza Haerte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		205	-	515	-	40	-	50	-			-		
D	12,5	20	T	267		561		50		64						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion Lateral ex mm			Shear Shear % Shear %		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		-	-	-	-	-	-	-	-	-
E	10X10	-196	T	89	94	91	1,258	1,325	1,005	27	20	31

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		100	100	100	-	-	-	-	-	-
H	10X10	20	L	258	258	260						
J	10X10	20	L	253	247	255						

Tensile testing according to ISO 6892-1
Impact testing according to ISO 148-1
Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Brinnell hardness according to ISO 6506-1

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

FLUITEK ORSENIGO QC

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. Prüfung/Test/Essai: MEST012686 / 2024 /

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell / Your order / Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung / Marking / Marquage

Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %
min - max	- 0,030	- 1,00	- 2,00	16,50 - 18,00	2,00 - 2,50	- 1,00	10,00 - 13,00	-	- 0,045	- 0,030	- 0,100
291737	0,022	0,42	1,58	16,80	2,04	0,37	10,13	0,166	0,033	0,028	0,051

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 3,2 : 1
Solution annealed 1080°C for 180'(total time)/ water cooled
ET ACC. TO EN 10088-3 TAB.1
UT ACC. TO ASTM A388
"Issued in agreement with TÜV SÜD Industrie Service GMBH (07/1972)"
"Qs approved according to PED, Annex I, Para. 4.3 by Notified Body 0036"
"(Certification no. DGR-0036-QS-W 23/2002/MUC)"

21 NOV. 2024
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Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät,geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

FLUITEK ORSENIGO QC

Acciaierie Valbruna S.p.A.
36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST012686 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240068
Bestell
Your order
Commande

Conferma ordine nr: MI24000623
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000573
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

Punzonatura: 1.4401/1.4404
Kennzeichnung
Marking
Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSPB21EC9E30D9E0DA63AA9882E0C9E30C

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

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Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A MDS S01 5 316 A (0) AISI 316	(0)Norsok-standard M-630 Edition 6, October 2013
AISI 316L ASME SA182 2019 S31600 A (1) ASME SA182 2019 S31603 A (2)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479. (2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3) ASME SA276 2019 S31600 A (4) ASME SA276 2019 S31603 A (5)	(3)Section II Part A 2019 EDITION (4)Section II Part A 2019 EDITION (5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6) ASME SA479 2019 S31600 A (7) ASME SA479 2019 S31603 A (8)	(6)Section II Part A 2019 EDITION (7)Section II Part A 2019 EDITION (8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9) ASTM A182 2020 S31603 (A) ASTM A193 2019 B8M CLASS 1 ASTM A262 2015 PRACTICE E ASTM A276 2017 S31600 A ASTM A276 2017 S31603 A ASTM A314 2019 S31600 ASTM A320 2018 B8M CLASS 1 CLASS1 ASTM A370 2019 . (B)	(9)For products machined directly from bar refer also to ASTM A479. (A)For products machined directly from bar refer also to ASTM A479. (B)2019E1
ASTM A479 2019 S31600 A ASTM A479 2019 S31603 A ASTM E10 2018 . ASTM E8 2016A . DIN 17440 96 1.4401 A DIN 17440 96 1.4404 A EN 10088-3 2014 1.4401 A EN 10088-3 2014 1.4404 A EN 10272 2007 1.4401 A EN 10272 2007 1.4404 A ISO 148-1 2016 . ISO 6506-1 2014 . ISO 6892-1 2019 .	
NACE MR0103 2015 S31600 A (C) NACE MR0103 2015 S31603 A (D)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015 (D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E) NACE MR0175 2015 S31603 A (F)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015 (F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

21 AGO. 2024
FRANCO CORBELLINI
RBT
CROSSWIND

FLUITEK ORSENIGO VALVES Q.C.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande: ORD.N.210025

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI21000217

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI21000250

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/4/316/L

Pos. nr.	Oggetto	Tolleranza: k12 Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
		Tolleranza/Allowance/Tolerance					
Pos. nr. / Item nr. / Nr. de poste	Gegenstand / Product description / Descrip. du produit	Abmessungen / Dimension / Dimension	Länge / Length / Longueur	Schmelze / Heat / Coulée	Stückzahl / Pieces / Pieces	Gewicht / Weight / Poids	Losnr. / Lot nr. / Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, O=Tangenziale/tangential

TEST	Provetta / Probestab / Specimen/Eprouvette: Larg diam Spess. / Breite Diam. Dicke / Width Diam Thickness / Larg. diam. epais. mm	°C	Posiz. Saggio / Probenlage / Location / Emplacement 1)	Snervamento / Streckgrenze / Yield Stress / Limite elastique: Rp 0,2% N/mm2	Snervamento / Streckgrenze / Yield Stress / Limite elastique: Rp 1% N/mm2	Resistenza / Zugfestigkeit / Tensile strength / Resistance à traction: Rm N/mm2	Allungamento / Bruchdehnung / Elongation / Allongement: A5 %	Allungamento: E 4d %	Strizione / Einschnürung / Reduction of area / Striction: Z %	Strizione: RA %	Resilienza / Kerbschlagarbeit / Impact Value / Resilience: KV J			Durezza / Haerte / Hardness / Durete: HB		
Valori richiesti / Anforderungen/Required values / Valeurs demandées		min		205	240	515	40	40	-	50	100			-		
		max				690								215		
A	10	20	L	295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

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Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat / Schmelze/Coulée	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %						
min -	-	-	-	16,50	2,00	10,00	-	-	-	-	-	-	-	-	-
max 0,030	1,00	2,00	18,00	2,50	13,00	0,045	0,030	0,100	-	-	-	-	-	-	-
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055						

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST662721 / 2021 /

Cliente / Besteller/Purchaser/Client:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell/Your order/Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison: Laminato - Solubilizzato Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration: E+AOD

Qualità / Werkstoff/Grade/Nuance: 1.4401/1.4404/316/316L

Marca / Markenbezeichnung / Brand / Nuance: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur: MR

Punzonatura / Kennzeichnung / Marking / Marquage: 1.4401/4/316/L

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel ê eté trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svi technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

W9P4F28E3AD15BE26AE37B54048D159E28C

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MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-
General remarks	1: This test report cannot be partially reproduced without our written approval 2: Test results are relevant only to the specimens belonging to the indicated samples 3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy 4: Tests are performed on the material in as-received conditions, unless otherwise specified 5: Sampling has been performed by customer 6: If not otherwise agreed, tested specimens are kept for 30 days from the test date 7: The uncertainty value, when expressed, does not affect the conformity declaration 8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA 9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

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Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by

MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 TRS-23-2166-001 Rev. 0

21 NOV. 2023 FRANCO CORBELLINI QBQ CROSSWIND R

Notched bar impact test

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration

Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

21 AGO. 2023
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Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668

Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

Specification
718 Rev. 13 03.02.2020 (Straightness 2:1000)
Yield Strength: min 120 KSI
temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718
UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1934-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straightness 2:1000); API 6 A CRA First Edition 08.2015,+ Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Meth	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Meth	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Meth	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5.5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Ünal Üçüncü, authorized inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

FLUITEKKORSENIGO VALVES S.R.L. Q.C.

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Apillaris Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

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Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

printed: 14. AUG 2023

Sample Condition solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates
1 718 Rev. 13 03.02.2020 (Straightness 2:1000)

		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling(start 27°C - end 28°C - max. 29°C) + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.

For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.

MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.

No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.

All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.

SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.

The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.

Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

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FLUITEK ORSENIGO VALVES S.R.L. Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Agatario Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

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Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
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Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 : 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

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LUITEK ORSENIGO VALVES S.R.L. Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apilanz Zemp, Frank Moers
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

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Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

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DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KV₂ 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

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FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
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Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch l=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of inspection 22.07.2023

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

2 1 AGO. 2023
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of inspection 22.07.2023

The material is in compliance with the test specification

Supervisor

Hirzbruch, Level II

21 -D. 2023
FRANCO CORBELLINI
GB1
CROSSWIND R

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

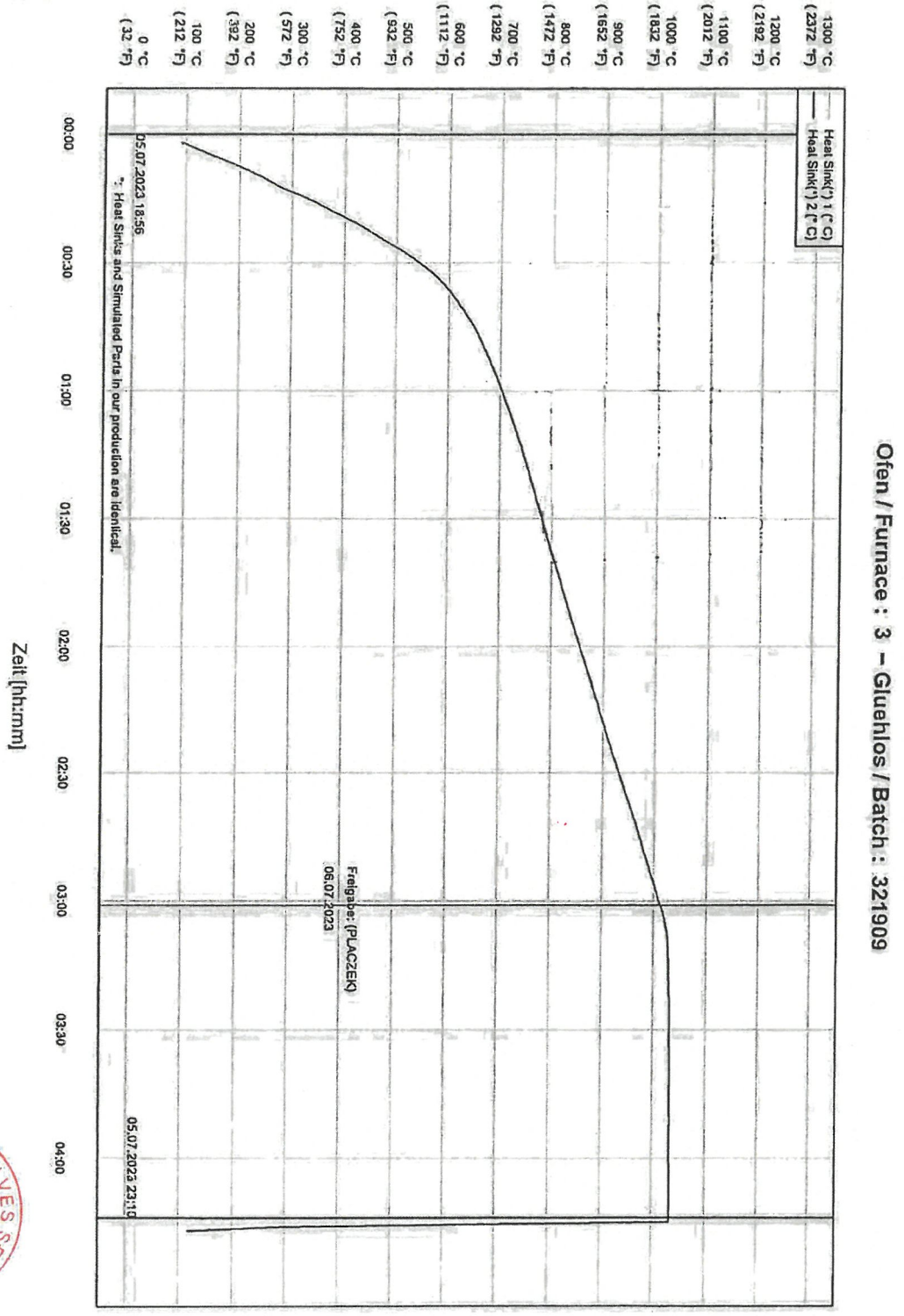
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zamp, Frank Monis
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Mirko Muller (Chairman)
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

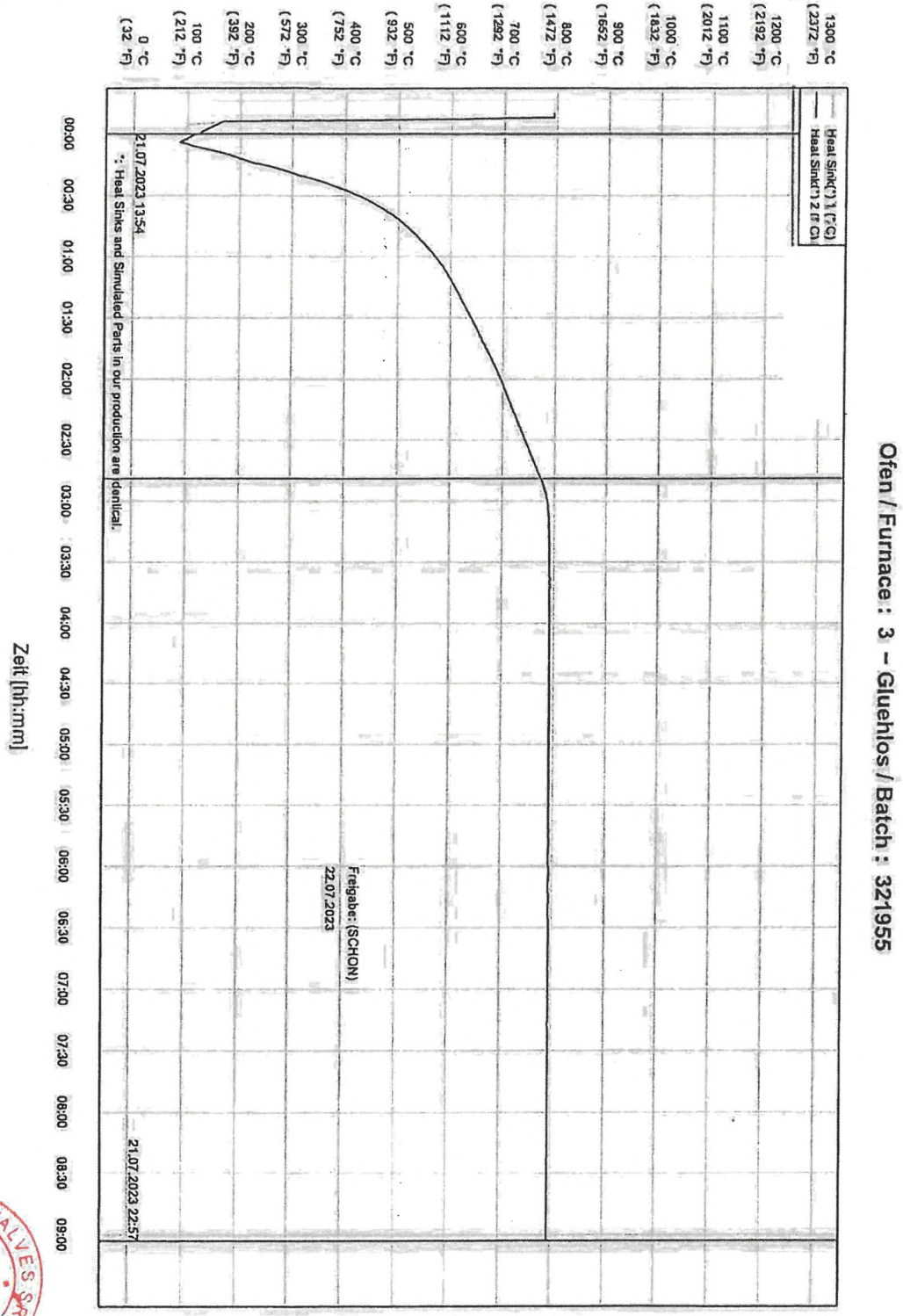
21 AGO. 2023
FRANCO CORBELLINI
QC1
CROSSWIND

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321955

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicias Müller (Chairman)
Holger Arnold, Daniel Arpitano Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

21 AGO. 2023
FRANCO CORBELLINI
BBQ
CROSSWIND

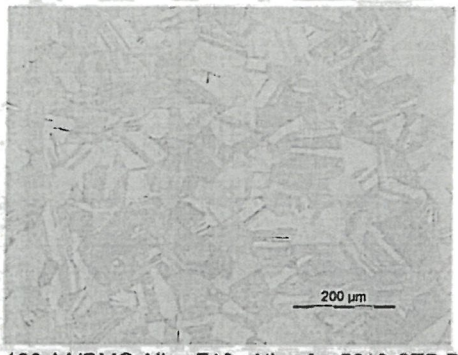
VDM Metals GmbH

VDM Metals

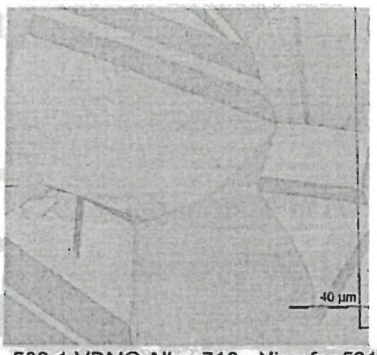
Microstructure Examination

Metallography Job No.:	**194936**
Lot No.:	**105403101**
Heat:	**422416**

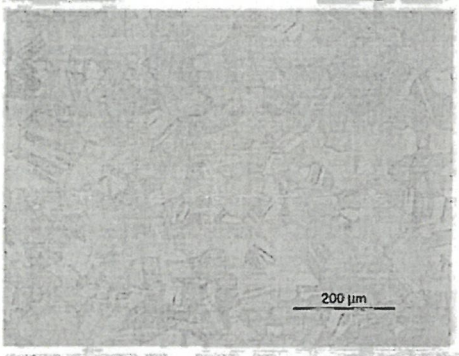
Inspection Certificate No.:	**253749/1**
Enclosure:	**4**
Page:	~~1 of 1~~



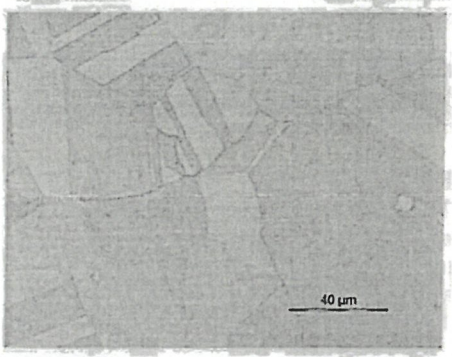
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



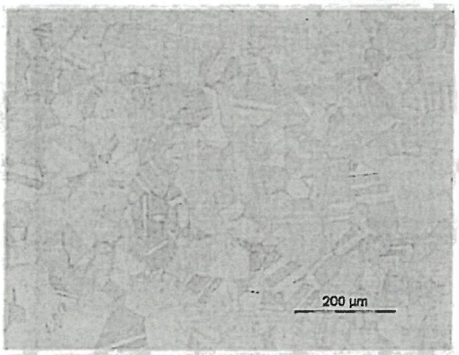
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



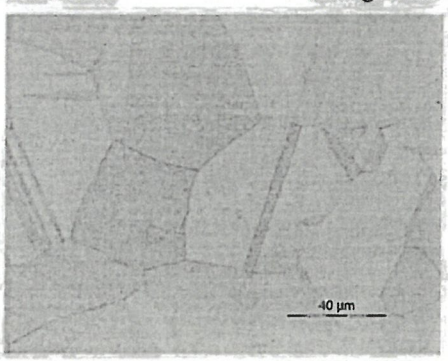
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpilarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

FRANCO CORBELLINI
QC
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE **ORDER NUMBER:** 715430-1 **STEP:** 721719

PRODUCT CODE: 718 1.25 SAAH **HARDNESS RANGE (HBW):** 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
☐ A0-30	☐ 6403-4 R92033	☐ R984063	☑ 0510014	☐	☐ F68332/139	☐ 814574
☑ UC-71	☐ 6403_16897	☐	☐ 0907068	☐	☐	☐
☐ UC-72	☐ E50152/15(6503-1)	☐	☐ 1112032	☐	☐	☐
☐	☐ HMV1(6403-3)	☐	☐ 1112037	☐	☐	☐
☐	☐ R335(HMM1)	☐	☐	☐	☐	☐

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

								T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
L	316	316.5	27591/30AW	P	21/5/24

3 - 071474.PDF C 240062-023/01

4 - 061238.PDF C 240062-023/01

MECCANICHE MORANDI

CERTIFICATO DI COLLAUDO

Inspection certificate / Abnahme prüfzeugnis

EN 10204 – 3.1

MECCANICHE MORANDI s.r.l.
Via Magenta, 27. Lonate Pozzolo – (VA) – Italia

Cliente *Customer / Besteller*	FLUITEK ORSENIGO VALVES SRL	**Descrizione** *Description / Prüfgegenstand*	Vite TER - Bolt TER M10x25	**Certificato N°** *Certificate N° / Prüf Nr*	153954 R. 0
VIA DEI LIVELLI DI SOPRA	5/7				
COSTA DI MEZZATE	BG	**Disegno Cliente** *Customer drawing / Kunden-design*	144356	**Classe materiale** *Material Class /W.n*	B8M cl.2 (<=M20) S31600
		N° pezzi *Quantity / Stückzahl*	2000		ASTM A193/A193M-19; ASTM A320/A320M-18
N° DDT 222434	**data** *date / datum* 04/08/2022	**N° Ordine Cliente** *Order N° / Besteller Nr*	220638 POS. 003	**Colata** *Heat N° / Schmelze Nr*	174374

Analisi chimica

Chemical Analysis /Chemische Analyse

Valori richiesti %

		C	Mn	Si	Cr	Ni	Mo	S	P
Required values /	min.				16,000	10,000	2,000		
Sollwerte	max	0,080	2,000	1,000	18,000	14,000	3,000	0,030	0,045
Analisi colata		0,016	1,830	0,380	16,680	10,280	2,050	0,001	0,027

**Heat analysis / Schmelzanalyse*

* As reported on steel work or supplier certificate

Balance Fe

Caratteristiche meccaniche

Mechanical requirements / Mechanische Prüfungen

	Rottura *Tensile strength Zugfestigkeit* **Rm [N/mm2]**		Snervamento *Yield strength Streck-grenze* **Rs [N/mm2]**	Allungamento *Elongation Bruch-dehnung* **A%**		Strizione *Reduction of area Bruch-einschn.* **Z%**	Durezza *Hardness Härteprüfung* **HB**		Resilienza *Impact test Schlagarbeit* **[J]**		Temperat. resilienza *Temp* **[°C]**
	min	max	min	4D min	5D min	min	min	max	media	min	
Valori richiesti *Required values/ Anforderungen*	760		655	15,00%		45,00%		321			
Valori ottenuti *Actual values / Ergebnisse*	1033		889	24,00%		66,20%		315			

Note

Trattamento termico Heat treatment	**Esame decarburazione-carburazione** Decarburization and carburization test	**Esame macroscopico** Macroetch examination result
Carbide solution treated and strain hardened	Non applicabile - Not applicable	Non applicabile - Not applicable

Controllo dimensionale e visivo *Visual and dimensional test / Besichtigung und maßkontrolle*	Positive	**P.M.I.**	Positive	**Marcature** *Marking / Kennzeichnung*	B8MSH MM	**Rivestimento** *Coating Oberflächenbeschichtung*	

Informazioni aggiuntive

Further information / Zusätzliche angaben

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

The materials indicated on this document are in accordance with the specification included in your order.

Rif. interno 72612 /

Company with quality system certified by DNV
= UNI EN ISO 9001 =

CONTROLLO QUALITA'
Quality Control Dept.

MECCANICHE MORANDI
Via Magenta n. 27
21015 LONATE POZZOLO (VA)

Fluitek Valves

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE
N° **C 240062-024/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**024**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
240	**1**

TAG
50-XV-001

SERIAL NUMBER
From 2400620240001 to 2400620240001

DESCRIPTION
ball valve fl 2 pz-fb2.1-1/2".150 lbs.att. pneumatico fail pos. close.rf.l a182_f53/rptfe//a182_f53/a182_f53///vit.glt_aed+grf/a193_b7+hdg/a194_2h

fb2.1m1m.1.lvfd.att_pneu_fc.rf Rev0 1F02 040_VL

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F53	0,011	0,510	0,210	<0,001	0,031	25,550	3,700	6,650		0,200		071313
				0,295						42,480			
	60840	820,00	640,00	39,00	63,00	149,00	168,00	221,00	-50°C (L)	253 HBW			
BALL	A182 F53	0,016	0,770	0,310	<0,001	0,026	25,500	3,840	6,940		0,140		071887
				0,271						42,508			
	397872	813,00	577,00	43,00	79,00	283,00	279,00	288,00	-46°C (L)	248 HBW			
STEM	A182 F53	0,016	0,770	0,310	<0,001	0,026	25,500	3,840	6,940		0,140		071887
				0,271						42,508			
	397872	813,00	577,00	43,00	79,00	283,00	279,00	288,00	-46°C (L)	248 HBW			
FLANGE	A182 F53	0,011	0,510	0,210	<0,001	0,031	25,550	3,700	6,650		0,200		071313
				0,295						42,480			
	60840	820,00	640,00	39,00	63,00	149,00	168,00	221,00	-50°C (L)	253 HBW			
SCREW	A193 B7	0,435	0,820	0,210	0,022	0,010	1,090	0,160					061096
	BC5744	954,00	763,00	22,00	59,40					296 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU and was subjected to the conformity assessment procedure H
The monitoring is performed by BV Notified Body 1370
PED Manager Mr. Belotti Pierpaolo

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORBELLINI RBT CROSSWIND R DATE	FLUITEK ORSENIGO VALVES SRL DATE 06/08/2024

ACERALAVA
TUBACEX GROUP

INSPECTION CERTIFICATE
EN 10204:2004 / 3.1

Number: 750875 Page: 1 / 5	Rev: 00
Created on: Date: 21.02.2024	Modified on:

ACERÍA DE ALAVA S.A.U.

Registro Mercantil de Álava Tomo 414,Folio 131, Hoja VI-325. NIF A-01.010.958

Poligono Industrial Saracho
01470 Amurrio(Álava)
Spain

TL: +34 946719300
FAX: +34 946725062
E-MAIL: qualityaceralava@tubacex.es

CUSTOMER DESCRIPTION

CLIENT SOLD TO	CLIENT SHIP TO
SPECIAL STEEL STOCK-C.S.C. S.p.A. VIA LAGO MAGGIORE 7 36015 SCHIO VI ITALY	SPECIAL STEEL STOCK-C.S.C. S.p.A. VIA LAGO MAGGIORE 7 36015 SCHIO VI ITALY

CLIENT ORDER: A20231254SSS
SALES ORDER: 393407

STAINLESS STEEL ROUND BAR
RANDOM LENGTHS: 4.000/7.000 MM ,
GRADE: F53,S32750,1.4410
STANDARD: ASTM A479/A479M-23a
EN 10088-5:2009
ASTM A182/A182M-22
ASTM A276/A276M-17
ASME SECT.II PART.A SA182/SA182M-2021 ED.
ASME SECT.II PART.A SA479/SA479M-2021 ED.
EN 10272:2016-10
EN 10088-5:2009
ANSI/NACE MR0103/ISO 17945:2015
AD 2000 W0/05.2016
HEAT TREAT EQUIPMENT QUALIFICATION PER API 6D (24TH EDITION) ANNEX F
ASTM A923-14
MANUFACTURER APPROVED TO NORSOK M-650 EDITION 4
NORSOK M630:2020 MDS D57 REV.6 QTR NO.3
Impact test in conformance with ASTM A370
US acc. to EN 10228-4 (Up to diameter 400 mm.)
ANSI/NACE MR0175/ISO15156-3:2020
TOLERANCES: ASTM A182/A182M-23
DIMENSIONS: 155 MM RD
PRODUCTION TYPE: ROLLING

21 AGO. 2024
FRANCO CORBELLINI
OBJ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. QMC

Sales Item	Client Item	Delivery No	Lot No.	Heat No	Pieces	Weight	Un Lgth
20		8120070075	200299382	60840	2	1.652 KG	4000-7000 MM

LOT No	BAR No
200299382	171, 172

AENOR ER Empresa Registrada ER-0158/1996 · IQNet · AENOR Gestión Ambiental GCM-0223/1

We hereby certify that the material herein described has been manufactured, sampled, tested, and inspected in accordance with above standards and specifications and satisfies orders requirements. This certificate is issued by a computerized system and it is valid without original signature. In case the owner of the certificate would release as a copy of it, he must attest its conformity to the issued, assuming the responsibility for any unlawful or TUBACEX, not allowed use. Any forgery or falsification of this certificate shall legally prosecuted.

CE
0036
Certificate NR.:
0036-CPR-M-83-2015
15
EN 10088-5
Performance as shown in DOP

ACERIA DE ALAVA, S.A.U.
ACERALAVA
Quality & Environmental Director

Aitor González Arco

ACERALAVA
TUBACEX GROUP

INSPECTION CERTIFICATE
EN 10204:2004 / 3.1

Number: 750875 Page: 2 / 5	Rev: 00
Created on: Date: 21.02.2024	Modified on:

RAW MATERIAL

Heat Nr:	Supplier	Method
60840	ACERALAVA (SPAIN)	Electric furnace+AOD

CHEMICAL COMPOSITION (%) *L: Ladle C:Products

*	Heat	Seq	C	Mn	Si	P	S	Ni	Cr	Mo	Cu	W
L	60840	1	0,011	0,51	0,210	0,031	0,0006	6,65	25,55	3,70	0,20	0,060

*	Heat	Seq	N	Pren
L	60840	1	0,2950	42,4800

SURFACE FINISH
ROUND MACHINED BARS

INGOT REDUCTION

Item	Reduction
20	10,15

HEAT TREATMENT
SOLUTION ANNEALED AT 1080 °C , 5 h , WATER

TENSILE TEST

Lot No.	Sample	T	Rp0.2	Rm	A2"	A4	A5	Z	Type	Sam Cond
		°C	MPa	MPa	%	%	%	%		
200299382	1	20	640	820	39	39	40	63	T	S

HARDNESS TEST

Lot No.	Sample	HBW1	HBW2	HRC1	HRC2	Sam Cond
200299382	1	253	247			S
	1			24,5	23,7	S

IMPACT TEST

Lot No.	Sample	T	Wspec	Ecv 1	Ecv 2	Ecv 3	Ecv AVG	Type	Le1	Le2	Le3	Shear 1	Shear 2	Shear 3
		°C	mm	J	J	J	J		mm	mm	mm	%	%	%
200299382	1	-50	10,0	149	168	221	179	L	1,23	1,36	1,83	60	60	80

Lot No.	Sample	Sam Cond
200299382	1	S

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL QNC.

AENOR ER Empresa Registrada ER-0150/1996 · IQNet · AENOR Gestión Ambiental CGM-0233

We hereby certify that the material herein described has been manufactured, sampled, tested, and inspected in accordance with above standards and specifications and satisfies order#s requirements. This certificate is issued by a computerized system and it is valid without original signature. In case the owner of the certificate would release as a copy of it, he must attest its conformity to the issued, assuming the responsibility for any unlawful or TUBACEX, not allowed use. Any forgery or falsification of this certificate shall legally prosecuted.

CE
0036
Certificate NR.: 0036-CPR-M-83-2015
15
EN 10088-5
Performance as shown in DOP

ACERIA DE ALAVA, S.A.U.
ACERALAVA
Quality & Environmental Director
Aitor González Arco

ACERALAVA
TUBACEX GROUP

INSPECTION CERTIFICATE
EN 10204:2004 / 3.1

Number: 750875 Page: 3 / 5	Rev: 00
Created on: Date: 21.02.2024	Modified on:

Corrosion test ASTM G48"A" at T/2 location.

Lot No.	Sample	T	Pits-20x	W.loss	time
		ºC		g/m2	Horas
200299382	1	50	N	0,0906	24,0

Corrosion test ASTM G48 practice A

Lot No.	Sample	T	Pits-20x	W.loss	time
		ºC		g/m2	Horas
200299382	1	50	N	0,2392	24,0

Corrosion test ASTM G48 A near to the surface in transversal.

Lot No.	Sample	T	Pits-20x	W.loss	time
		ºC		g/m2	Horas
200299382	1	50	N	0,2789	24,0

FERRITE ACCORDING TO ASTM E 562

Lot No.	Sample	%Fer	Dev.Ferr	MAGN
		%	%	
200299382	1	44,38	1,64	200

Ferrite content ASTM E562 near to the surface

Lot No.	Sample	%Fer	Dev.Ferr	MAGN
		%	%	
200299382	1	44,58	1,71	200

FERRITE ACCORDING TO ASTM E562 AT T/2 LOCATION

Lot No.	Sample	%Fer	Dev.Ferr	MAGN
		%	%	
200299382	1	44,97	2,20	200

NON METALIC INCLUSIONS STANDARD DIN 50602

Lot No.	Sample	K4
200299382	1	24

METALURGICAL TESTS

ETCH STRUCTURE ACC. ASTM A923 MET.A: UNAFFECTED STRUCTURE. MATERIAL FREE FROM INTERMETALLIC PHASES AND PRECIPITATES. UNIFORM STRUCTURE ACROSS FULL WALL THICKNESS

21 AGO. 2024

INTERGRANULAR CORROSION TEST ACC.TO DIN EN ISO 3651-2 METHOD

SATISFACTORY

FRANCO CORBELLINI

QBJ

CROSSWIND

FLUITEK ORSENIGO VALVES SRL QC

NON-DESTRUCTIVE TESTS

AENOR ER Empresa Registrada ER-0158/1996 · IQNet · AENOR Gestión Ambiental GCM-0323/23

We hereby certify that the material herein described has been manufactured, sampled, tested, and inspected in accordance with above standards and specifications and satisfies orderís requirements. This certificate is issued by a computerized system and it is valid without original signature. In case the owner of the certificate would release as a copy of it, he must attest its conformity to the issued, assuming the responsibility for any unlawful or TUBACEX, not allowed use. Any forgery or falsification of this certificate shall legally prosecuted.

CE 0036
Certificate NR.: 0036-CPR-M-83-2015
15
EN 10088-5
Performance as shown in DOP

ACERIA DE ALAVA, S.A.U.
ACERALAVA
Quality & Environmental Director

Aitor González Arco

ACERALAVA
TUBACEX GROUP

INSPECTION CERTIFICATE
EN 10204:2004 / 3.1

Number: 750875 Page: 4 / 5	Rev: 00
Created on: Date: 21.02.2024	Modified on:

ULTRASONIC TEST ACCORDING TO EN 10308/EN 10228-4 QL3: SATISFACTORY
STEEL GRADE ASSESMENT BY LASER ANALIZER: WITHOUT OBJECTIONS

Micrographic exam. near to the surface.

REMARKS
100% DIMENSIONAL CHECKING: SATISFACTORY
100% VISUAL INSPECTION: SATISFACTORY

STAMP OF THE INSPECTION REPRESENTATIVE: AC1
THIS MATERIAL AND THE ELEMENTS USED ALONG MANUFACTURING ARE MERCURY FREE
NO WELDING WAS PERFORMED ON THE MATERIAL
MATERIAL MANUFACTURER APPROVED BY TÜV SÜD Industrie Service GmbH (NOTIFIED BODY 036)TO ISSUE CERTIFICATES OF SPECIFIC PRODUCT CONTROL IN ACCORDING TO PRESSURE EQUIPMENT DIRECTIVE 2014/68/EU ANNEX 1 POINT 4.3.
RADIATION CONTAMINATION TEST: OK

21 AGO. 2024
FRANCO CORBELLINI
OB1
CROSSWIND

FLUITEK ORSENIGO S.A. QMC.

AENOR ER Empresa Registrada ER-0158/1996 · IQNet · AENOR Gestion Ambiental CGM-021234

We hereby certify that the material herein described has been manufactured, sampled, tested, and inspected in accordance with above standards and specifications and satisfies order#s requirements. This certificate is issued by a computerized system and it is valid without original signature. In case the owner of the certificate would release as a copy of it, he must attest its conformity to the issued, assuming the responsibility for any unlawful or TUBACEX, not allowed use. Any forgery or falsification of this certificate shall legally prosecuted.

CE
0036
Certificate NR.:
0036-CPR-M-83-2015
15
EN 10088-5
Performance as shown in DOP

ACERIA DE ALAVA, S.A.U.
ACERALAVA
Quality & Environmental Director
Aitor González Arco

ACERALAVA TUBACEX GROUP

INSPECTION CERTIFICATE
EN 10204:2004 / 3.1

Number: 750875 Page: 5 / 5	Rev: 00
Created on: Date: 21.02.2024	Modified on:

DECLARATION OF PERFORMANCE NO.: ACERALAVA - 007
DATE: 22/06/2015

1. Unique identification code of the product type:
ROLLING steel bar acc. To EN 10088-5:2009

2. Type, batch or serial no. or any element allowing identification of the construction product as required pursuant to Article 11(4):

AS INDICATED ON THE REFERRING CERTIFICATE

3. Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer:

USE IN METALLIC STRUCTURES OR IN COMPOSITE METAL AND CONCRETE STRUCTURES

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required acc. To Article 11(5):

ACERÁLAVA Poligono Industrial Saracho 01470 Amurrio (Alava) España

5. Where applicable, name and contact address of the authorized representative whose mandate covers the task acc. To Article 12(2)

N/A

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:

SYSTEM 2 +

7. In case of the declaration of performance concerning of construction product covered by a harmonized standard:
The Notified Body- TÜV SÜD Industrie Service GMbH, Westendstr, 199, D -80686 Munich, no, 0036 - has performed the initial inspection of the manufacturing plant and of factory production control as well as the continuous surveillance, assessment and evaluation of factory production control under system 2+ and issued certificate of conformity of the factory production control with no 0036-CPR-M-83-2015 .

8. In case of the declaration of performance concerning a construction to which an European Technical Assessment has been issued:

N/A

9. Declared performance:

Essential characteristics EN 10088-5:2009, Annex ZA	Performance		Harmonized technical specifications
Tolerances and dimensions	Passed		EN 10088-5:2009 EN 10060:2004
	<= 160 mm	160 <= t <= 250 mm	EN 10088-5:2009
Elongation	>= 25% (long.)	N/A	EN 10088-5:2009
Tensile strength	730 Mpa - 930 Mpa	N/A	EN 10088-5:2009
Yield strength Rp0,2	530 Mpa	N/A	EN 10088-5:2009
Yield strength Rp1,0		N/A	EN 10088-5:2009
Impact strength	>= 100 J (long.)	N/A	EN 10088-5:2009
Weldability	Covered by chemical composition: passed		EN 10088-5:2009
Durability	Covered by chemical composition: passed		EN 10088-5:2009
Fracture toughness/brittle strength	Covered by impact strength: passed		EN 10088-5:2009
Cold formability	Covered by elongation: passed		EN 10088-5:2009

10. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.
Signedfor and behalf of the manufacturer by:

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSEAL PSO VALVES S.R.L. Q.M.C.

AENOR ER Empresa Registrada ER-0150/1996 · IQNet · AENOR Gestión Ambiental GCM-83/23

We hereby certify that the material herein described has been manufactured, sampled, tested, and inspected in accordance with above standards and specifications and satisfies orders requirements. This certificate is issued by a computerized system and it is valid without original signature. In case the owner of the certificate would release as a copy of it, he must attest its conformity to the issued, assuming the responsibility for any unlawful or TUBACEX, not allowed use. Any forgery or falsification of this certificate shall legally prosecuted.

CE
0036
Certificate NR.:
0036-CPR-M-83-2015
15
EN 10088-5
Performance as shown in DOP

ACERIA DE ALAVA, S.A.U.
ACERALAVA
Quality & Environmental Director
Aitor González Arco

ACERALAVA
TUBACEX GROUP

STRUCTURE EXAMINATION

MTC / Certificate
750875

MATERIAL IDENTIFICATION / IDENTIFICACIÓN DEL MATERIAL

Lot No. / Num Lote	**2402EU / 200299382**	**Dimension** / Dimensión	RD 155 mm
Heat / Colada	60840	**Grado de acero** / Steel grade	S32750, F53, 1.4410

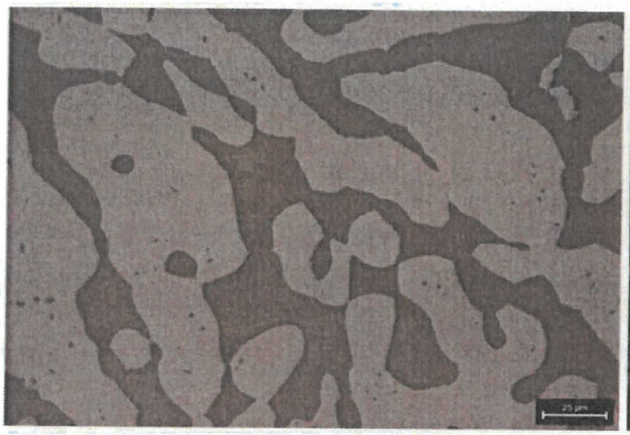
Type Of test / Tipo de Ensayo:	**MICROSTRUCTURE EVALUATION**

RESULTS / RESULTADO

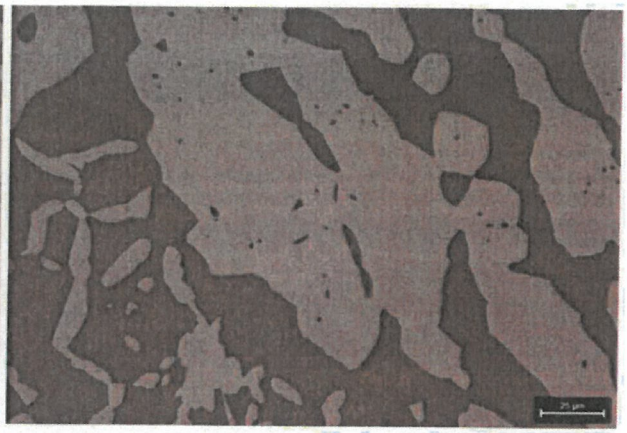
ETCH STRUCTURE ACC. ASTM A923 MET.A: UNAFFECTED STRUCTURE. MATERIAL FREE FROM INTERMETALLIC PHASES AND PRECIPITATES. UNIFORM STRUCTURE ACROSS FULL WALL THICKNESS

EXAMEN DE MICROESTRUCUTRA DE ACUERDO A ASTM A923 MET.A: ESTRUCTURA NO AFECTADA. MATERIAL LIBRE DE FASES INTERMETALICAS Y PRECIPITADOS.ESTRUCTURA UNIFORME A TRAVES DEL ESPESOR.

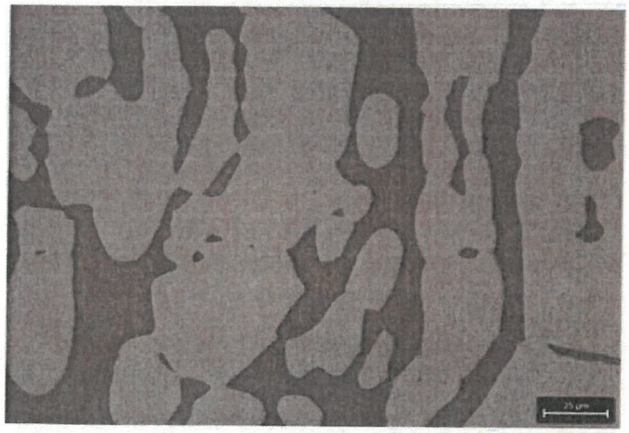
GRAPHICS RECORDS / REGISTROS FOTOGRÁFICOS:



MAG: 500X / Location: NEAR SURFACE



MAG: 500X / Location: T/4



MAG: 500X / Location: T/2

FLUITEK ORSENIGO QC

21.10.24
FRANCO CORBELLINI
QA
CROSSWIND

Irene Castro
Responsable del Laboratorio
Laboratory Manager

ACERALAVA
TUBACEX GROUP

HEAT TREATMENT

1 - 071313.PDF C 240062-024/01

MTC : 750875

Date : 21/02/2024

ACERIA DE ALAVA S.A.U.

Registro Mercantil de Alava, Tomo 414, Folio 131, Hoja VI-325 N.I.F. A-01010958

Polígono Industrial Saracho

01470 Amurrio (Álava)

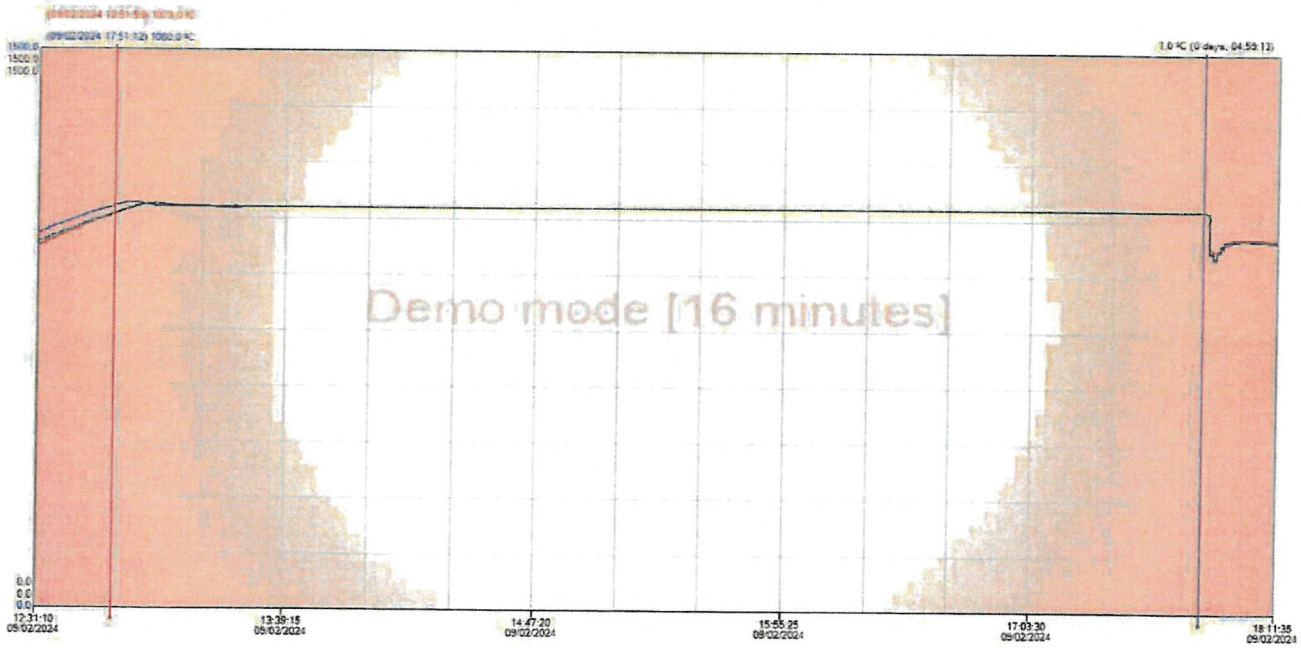
SPAIN

Customer: SPECIAL STEEL STOCK-C S.C. S.p.A.
Client Order : A20231254SSS
Client Item
Sales Order : 393407
Sales Item: 20
Heat: 60840

Instrument Type/ID: SOLUTION ANNEALING FURNACE (HCR-G-E type)
Last calibration date June 2023
Expiration date: June 2024

Standard : ASTM A479
Grade : UNS S32750
Dimensions : RD 155 MM
Lot No.: 200299382

Treatment Type: SOLUTION ANNEALED AT 1080 °C , 5 h , WATER COOLING



21 FEB. 2024
FRANCO CORBELLINI
QC1
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. QC

71887

2 - 071887.PDF C 240062-024/01

BGH

BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01705 Freital

CHUN & VOLLERIN SRL
VIA A. EINSTEIN 15
20090 CUSAGO MI

Zeugnis-Nr. 476744
Certificate no.
No. de certificat

Bescheinigung über Werkstoffprüfung nach DIN EN 10204
Certificate of material tests according to DIN EN 10204 3.1
Certificat des essais des matériaux selon DIN EN 10204

Die Lieferung entspricht den vereinbarten Lieferbedingungen.
Delivery in accordance with the agreed terms of delivery.
La livraison correspond aux conditions de livraison convenues.

Zeichen des Lieferwerkes
Trade mark
Signe du fournisseur

Stempel des Werkssachverständigen
Inspector's stamp
Poinçon de l'inspecteur

BGH Q406

Kunden-Bestell-Nr. 243862003
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 04989202/243862
BGH works no.
BGH référence

Erzeugnisform / Product	Stab, rund, gewalzt, geschält round bars, rolled, peeled
Werkstoff / Quality	UNS S32750
Anforderungen / Requirements	UNS S32750 ASTM A 276 /A276M -17 UNS S32750 ASTM A 479 /A479M -18 UNS S32750 - F53 ASTM A182/A182M-18a (chemistry and mechanicals only) UNS S32750 NORSOK M 630 Edition 6 10/13 UNS S32750 NORSOK MDS - D 57 Rev. 5 10/13 UNS S32750 ANSI/NACE MR 0103 /ISO17945: 2015 UNS S32750 ANSI/NACE MR 0175/ISO15156-3 2015 1.4410 X2CrNiMoN25-7-4 DIN EN 10088 -3 12/14 Gefertigt nach QTR_F_B_32750 nach Norsok M-650 Edition 4 Manufactured acc. to QTR_F_B_32750 acc. to Norsok M-650 Edition 4

CERTIFIED COPY
CHUN & VOLLERIN SRL

Besichtigung und Maßnachprüfung Inspection and dimensional control Inspection et contrôle de dimension	Erschmelzung/Nachbehandlung Melting process/secondary refining Mode d'élaboration/traitement ultérieur	Verwechslungsprüfung (spectroanalytisch) Identification test (spectral-analysis) examination d' identification(analyse spectrale)
ohne Beanstandung without objection	E- VOD	ohne Beanstandung without objection

Pos. Item Poste	Anzahl Quantity Quantité	Abmessung Dimension Dimensions	Gewicht Weight Poids	Schmelz-Nr. Heat-No. No. de coulée
1	3	76,20 RD	628 kg	397872

Schmelze Heat	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	N	PRE
397872	0,016	0,31	0,77	0,026	0,0006	25,50	3,84	6,94	0,14	0,2710	42,508

Wärmebehandlungszustand lösungsgeglüht / solution annealed

Probe-Nr. Test-No.	Lage loc.	Temp. °C	Rp0,2 N/mm²	Rm N/mm²	A5/A4 %	Z %	Kerbschlagarbeit Impact value J	Probenform Shape of test piece Charpy-V °C	Härte Hardness HBW/HRC
Soll/Req. +	L	RT	>=530	>=730	>=25		>=100	RT	
+	L	RT		<=930					<=310/<=32
*	L	RT	>=550	>=760	>=25		>=45	-46	
001GR1 +	L	RT	580	813	38/--	79	258 269 270	RT	248/--(1)
001GR1 +									---/22(2)
022EM1 *	L	RT	577	802	--/43	76	283 279 288	-46	248/--(2)

Prob-Nr Test-No	Temp °C	later.Breitung mm later.expansion	Scherbruchant. % shear fracture
022EM1	-46	2,2 2,2 2,2	100 100 100 (längs/longitudinal)

\+ Erprobung nach/testing acc. to DIN EN ISO 6892-1 / DIN EN ISO 148-1
Prüfort/test location: 12,5 mm
* Erprobung nach/testing acc. to ASTM/ASME A 370
Prüfort/test location: D/4 - mid radius

Anlagen / Encl. / Annexe	Freital,den Place and date Lieu et date	Abnahmebeauftragter Inspector representative Inspecteur de réception
US-Protokoll/UT report Glühbesch./Heat treatment cer. Gefügeaufnahme/micrograph	06.08.2019	Kunz

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.
This certificate was generated by data system and it is valid without signature as well.
Ce certificat a été établi sur système informatique et est valable sans signature aussi.

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

BGH

BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01705 Freital

CHUN & VOLLERIN SRL
VIA A. EINSTEIN 15
20090 CUSAGO MI

Zeugnis-Nr. 476744
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Zeichen des Lieferwerkes
Trade mark
Signe du fournisseur

Stempel des Werkssachverständigen
Inspector's stamp
Poinçon de l'inspecteur

BGH Q406

Kunden-Bestell-Nr. 243862003
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 04989202/243862
BGH works no.
BGH référence

Härteprüfung-Prüfort/Hardness test-test location:
(1) 12,5 mm ; (2) D/4 - mid radius

Proben wurden gemäß ASTM A 370 von der Stabverlängerung entnommen./
Test pieces taken from actual bar prolongation in according to ASTM A 370.

Korros.-Test ASTM G48 Meth.A: 50°C/24h: kein Lochfraß/no pitting is observed
corrosion test Meth.A: Gewichtsverlust/weight loss: 0,150 g/m²
Proben gebeizt/Samples pickles (20% HNO3 + 5% HF, 60 °C, 5 Minuten/minutes)
Beurteilung bei 20-facher Vergrößerung./
Samples were assessed for pitting at 20x magnification.

Deltaferrit/ferrite delta ASTM E 562 ; Ätzmittel/Etchant: V2A + 30 % NaOH
022EM1: Rand - near surface: 50% ; relative Genauigkeit/relative accuracy: 10%
022EM1: D/4 - mid radius : 52% ; relative Genauigkeit/relative accuracy: 10%
Prüfung/testing: 30 Felder/16 Punkt (30 fields of 16 points)

Umformgrad/reduction ratio: 24:1

Material wurde nicht reparaturgeschweißt.
Gefüge frei von intermetallischen und anderen schädlichen Phasen.
Material ist frei von Quecksilber.
Material frei von Sigma- und anderen schädlichen Phasen.
Gefüge frei von Korngrenzenkarbiden,
-nitriden und anderen intermetallischen/schädlichen Phasen
Stahlhersteller des Ausgangsmaterials: BGH Edelstahl Freital GmbH.

Material no weld repaired.
Microstructure free from intermetallic or other detrimental phases.
Material is free from mercury.
Material free from sigma and other harmful phases.
Microstructure free from grain boundary carbides
nitrides or any intermetallic or other detrimental phases.
Steel manufacturer of starting material: BGH Edelstahl Freital GmbH.

Fertigung nach QM-System ISO 9001: 2015/ QM system in effect is ISO 9001: 2015
Zertifiziert nach / certificated AD2000 W0.

Anlagen / Encl. / Annexe	Freital,den / Place and date / Lieu et date	Abnahmebeauftragter / Inspector representativo / Inspecteur de réception
US-Protokoll/UT report Glühbesch./Heat treatment cer. Gefügeaufnahme/micrograph	06.08.2019	Kunz

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.
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21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

BGH

BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01705 Freital

CHUN & VOLLERIN SRL
VIA A. EINSTEIN 15
20090 CUSAGO MI

Zeugnis-Nr. 476744
Certificate no.
No. de certificat

Bescheinigung über Werkstoffprüfung nach DIN EN 10204
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Zeichen des Lieferwerkes
Trade mark
Signe du fournisseur

Stempel des Werkssachverständigen
Inspector's stamp
Poincon de l'inspecteur

BGH Q406

Kunden-Bestell-Nr. 243862003
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 04989202/243862
BGH works no.
BGH référence

Kontrolle auf Radioaktivität ohne Befund, der Messwert liegt unter der Nachweisgrenze von 0,1 Bq/g.
Radioactivity inspection without objection, the measured value is below the detection limit of 0.1 Bq/g.

FLUITEK ORSENIGO VALVES SRL Q.C.

Anlagen Encl. Annexe	Freital,den Place and date Lieu et date	Abnahmebeauftragter Inspector representative Inspecteur de réception
US-Protokoll/UT report Glühbesch./Heat treatment cer. Gefügeaufnahme/micrograph	06.08.2019	Kunz

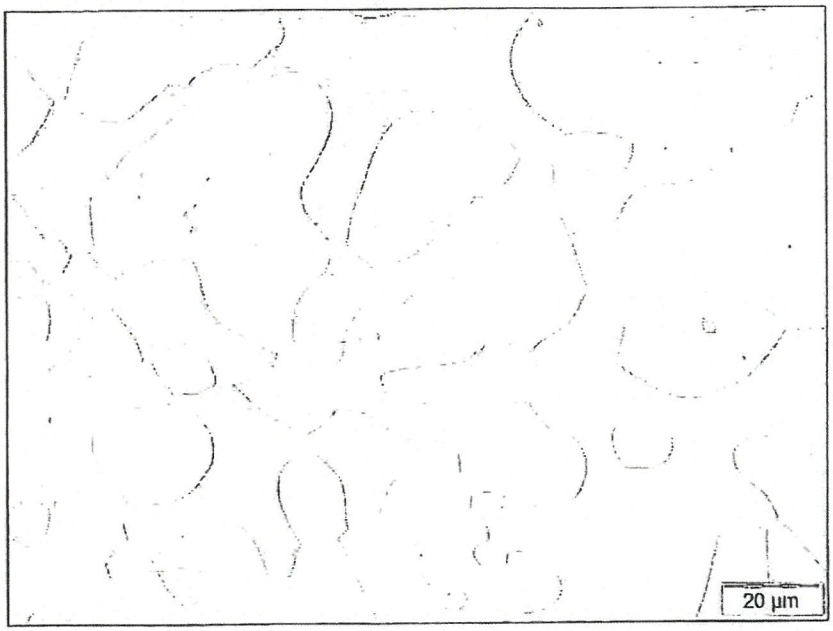
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21 AGO. 2024
FRANCO CORBELLINI
QSQ
CROSSWIND R

Gefügeaufnahmen zum Zertifikat Nr. / Microstructure to certificate No.: 476744

Besteller/Purchaser:	CHUN & VOLLERIN SRL
Bestell-nr./Order-No.:	243862003
Werkstoff/Quality:	UNS S32750
Chargen-nr./Cast-No.:	397872
Erzeugnisform/Product:	Stab, rund, gewalzt, geschält / round bars, rolled, peeled
Abmessung/Dimension:	76,20 RD
Komm.-nr./Work-No.:	04989202

Proben-nr./Test-No.: 022EM1



500:1 mid radius

21 AGO. 2024
FRANCO CORBELLINI
CQ1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL
Q.C.

Wärmebehandlungsbescheinigung
Heat treatment certificate
Attestation de traitement thermique

BGH Edelstahl Freital GmbH

Kunden-Bestell-Nr. / Customer order no. / Cde. no. du client: 243862003
BGH-Auftrags-Nr. / BGH works no. / BGH référence: 04989202
Zeugnis-Nr. / Certificate no. / No. de certificat: 476744

Wärmebehandlungszustand: / Condition of heat treatment: / État de traitement thermique:	**lösungsgeglüht / solution annealed / recuit de mise en solution**
Datum: / Date: / Date:	**14.05.2019**
Ofen-Nr.: / Furnace no.: / No. du four:	**722**
Aufheizzeit: / Heating up time: / Temps de montée en température:	**3 h**
Haltetemperatur: / Holding temperature: / Température de maintien:	**1100 °C**
Haltezeit: / Holding time: / Temps de maintien	**2,5 h**
Abkühlmedium: / Quenching medium: / Moyen de refroidissement:	**Wasser / water / eau (< 260 °C)**
Datum: / Date: / Date:	
Ofen-Nr.: / Furnace no.: / No. du four:	
Haltezeit: / Holding time: / Temps de maintien:	
Abkühlmedium: / Quenching medium: / Moyen de refroidissement:	
Wärmebehandlungs-Nr.: / Heat treatment lot no.: / No. du lot de traitement thermique:	**722/6530**

Acc. ASTM A182. Water temp. start: 18 °C Water temp. end: 22 °C, below 49 °C at any time during quenching.
Furnace Method of monitoring: Funace Set point Thermocouples

FLUITEK ORSENIGO VALVES SRL Q.A.C.

Diagramm: / Diagram: / Diagramme: X	Datum: / Date: / Date: 06.08.2019	Abnahmebeauftragter / Inspector representative / Inspecteur de réception: KUNZ — BGH Q413

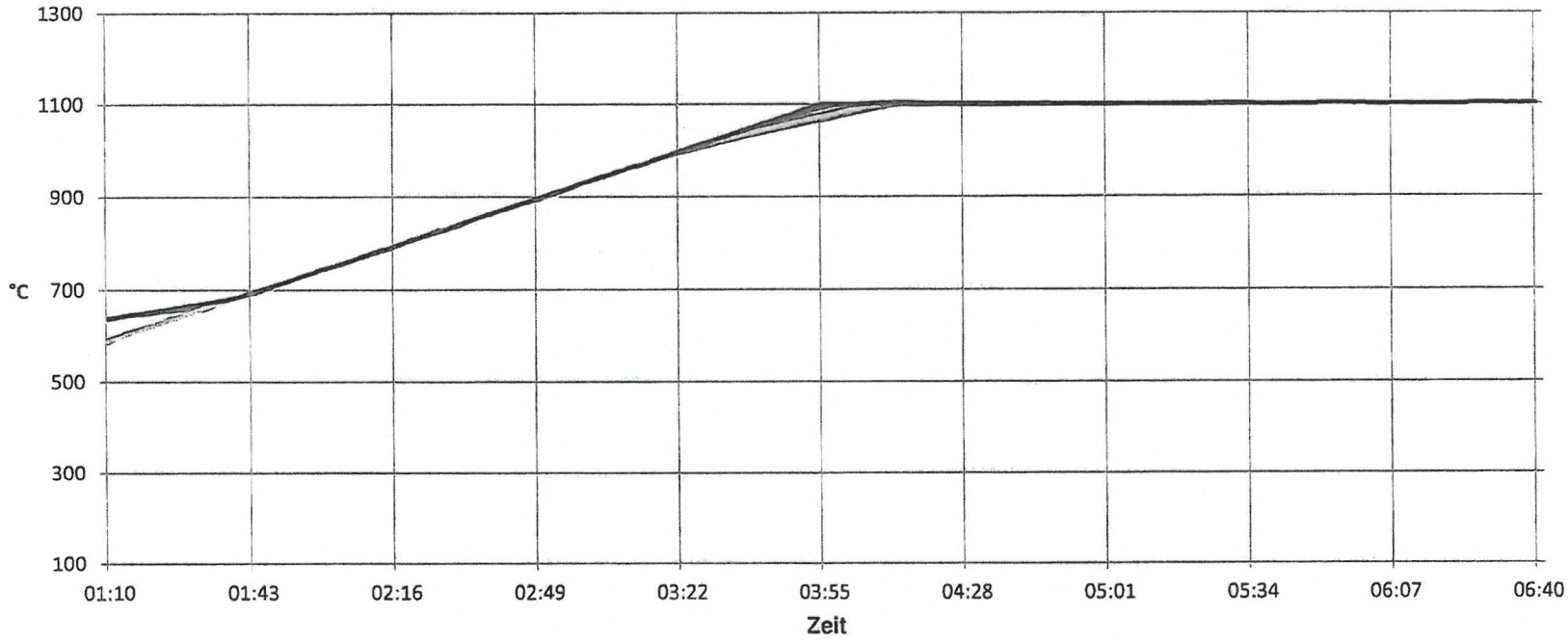
Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.
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FRANCO CROSSWIND
21 AGO. 2024

Diagramm Aggregat 722

BGH Edelstahl
Freital GmbH

BGH-Auftragsnummer: 04989202
Start: 14.05.2019 01:10 Uhr
Ende: 14.05.2019 06:40 Uhr
Gesamtzeit: 0 Tage 05:30 Stunden
Los-Nr.: 722/125/6530
Wst-Nr.: 1.4410



Zeugnis-Nr.: 476744

FLUITEK ORSENIGO VALVES SRL

2 - 071887.PDF C 240062-024/01

Ultraschallprüfung
Ultrasonic testing

DIN EN 10204-01/05 3.1

BGH

BGH Edelstahl Freital GmbH

Kunden-Bestell-Nr. 243862003
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 049892-02
BGH works no.
BGH référence

Zeugnis-Nr. 476744
Certificate no.
No. de certificat

Erzeugnisform : Stab, rund, gewalzt, geschält
Product : round bars, rolled, peeled

Werkstoff/Quality : UNS S32750 Schmelze: 397872

Abmessung/Dimension: 76,20 RD

Anzahl/Quantity : 3 Gewicht /Weight : 628 kg

Wärmebehandlungszustand : lösungsgeglüht / solution annealed
Condition of heat treat : solution annealed

Prüfrichtlinie
Specification

A388/A 388 M (latest Revision)
(KSR/FBH max. 3 mm)

Bearbeitungszustand Machining condition	:	geschält peeled
Prüfgerät Test equipment	:	Deutsch-RPTS-Echograph 1155
Prüfkopf Probe	:	24x STS10WB4C
Kopplungsmittel Coupling medium	:	Wasser water
Prüfumfang Extent of examination	:	vollständig completely
Einschallrichtung Direction of incidence	:	senkrecht und in Winkeleinschallung 40° perpendicular and angle beam 40°
Registriergrenze Registration level	:	Prüfung und Justierung erfolgten gemäß obiger Spezifikation. Test and adjustment according to above mentioned specification.
Befund Result	:	keine registrierpflichtigen Anzeigen no reportable indications
Prüfdatum Examination date	:	02.08.2019

01 AGO. 2019
FRANCO CORBELLINI
061
CROSSWIND

Freital,den Place and date Lieu et date 06.08.19	Prüfer Testing operator Opérateur Beer, B. Stufe 2 ISO 9712	Abnahmebeauftragter Inspector representative Inspecteur de réception Kunz Stufe 2 ISO 9712	BGH Q413	Überwacher Supervisor Surveilleur

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FLUITEC ORSENIGO VALVES SRL Q.C.

061096

3 - 061096.PDF C 240062-024/01

LVF Ref.Nr 1 - 105710.PDF C 220053-106/01

PRESSBOLT

Pressbolt s.r.l. con unico socio
Partita Iva 03231770136
Via dell'Artigianato, 12 - 22078 - Turate (CO)
Tel. +39 02 96.97.98.50 - Fax +39 02 96.97.98.29
email qualita@pressbolt.com

Messrs. LVF SPA
VIA BARACCA, 24
24060 - SAN PAOLO D'ARGON(BG)

Inspection Certificate EN 10204:2004 3.1

Number	Rev.	Date
3134396	0	04 November 2021

Client Reference Order		Reference Order	
Number	212947 of 07 September 2021	Number	3104728
Reference			
Item	015 - 532508	Item	150
Job		Shipping ref.	3111350 of 04 November 2021

Standard

ASTM A193(M)-20 / ASME SA193(M) BPVC-IIA-2021 - B7

PED 2014/68/EU A% according to 5.65 SQR (Specimen Area)

Item Description	Heat Treatment
HEX BOLT EN ISO 4017 A/SA 193 B7 M12X0026 HOT DIP GALVANIZED ASTM A153 / F2329	QUENCHED Min 830 C AND TEMPERED Min 593 C

Heat	Quantity	Lot	Job PB
BC5744	400	P1546698	0000965470

Chemical Analysis %

	C	Mn	Si	P	S	Cr	Mo	
Required	0.38-0.48	0.75 - 1	0.15-0.35	max 0.035	max 0.04	0.8 - 1.1	0.15-0.25	
Actual	0.435	0.820	0.210	0.010	0.022	1.090	0.160	

Tensile Test

	Rm "Mpa"	Rp02 "Mpa"	A "%"	Z "%"
Required	Min 860	Min 720	min 16	min 50
Actual	954	763	22	59.4

	Elongation % 5D
Required	Min 14
Actual	19.4

	Hardness "HB"
Required	max 321
Actual	293;296;291

Mechanical tests are longitudinal performed at t/2 or t/4 as a function of specimen dimension

Macroetch Examination	Positive	Visual and dimensional Test	Positive

Manufacturer has a quality-assurance system with specific assessment for materials 2014/68/EU-Annex I-Sect.4.3 certified by TUV Rheinland for materials according to the directive

The material was manufactured, tested and checked in accordance with the specifications and additional requirements of the Purchase Order or the Agreement
No weld repair has been performed on the material

21 AGO. 2014
FRANCO CORBELLINI
081
CROSSWIND R

Duilio Piras
Quality control manager

105710

Pressbolt s.r.l. con unico socio - Certificate N 0000003134396 Rev. 000 of 04 November 2021 -

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-025/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**025**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
250	**1**

TAG
50-XV-002

SERIAL NUMBER
From 2400620250001 to 2400620250001

DESCRIPTION
ball valve fl 2 pz-fb2.1".150 lbs.att. pneumatico fail pos. close.rf.l a182_f53/rptfe//a182_f53/api_6acra_uns_n07718///vit.glt_aed+grf/a193_b7-

fb2.0101.1.lvfd.att_pneu_fc.rf Rev0 1F02 025 "VL" LKa

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F53	0,020	0,820	0,380	<0,001	0,019	24,930	3,770	6,900		0,150		056260
				0,250									
	901258	774,00	555,00	44,40	75,50	157,00	138,00	150,00	-50°C (L)	21 HRC			
BALL	A182 F53	0,017	0,900	0,340	<0,001	0,024	25,110	3,760	6,890		0,150		064170
				0,250						41,518			
	101007	786,00	564,00	45,50	84,40					239 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F53	0,020	0,820	0,380	<0,001	0,019	24,930	3,770	6,900		0,150		056260
				0,250									
	901258	774,00	555,00	44,40	75,50	157,00	138,00	150,00	-50°C (L)	21 HRC			
STUD	A193 B7	0,430	0,830	0,260	0,028	0,007	1,030	0,160					073266
	BH1988	994,00	765,00	22,00	56,00					302 HBW			
NUT	A194 2H	0,460	0,770	0,200	0,020	0,010							072272
	631016									277 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORBELLINI 081 CROSSWIND R DATE	FLUITEK ORSENIGO VALVES SRL Q.M. DATE 06/08/2024

56260

COGNE ACCIAI SPECIALI S.p.a.
ITALY - 11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 115.000.000 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, IATF 16949, EN 9100 and ISO 14001.

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)
DOCUMENT NUMBER 2019067687

CUSTOMER:	C.S.C. SPA		
CUSTOMER'S ORDER:	A2019510SSS		
MANUFACTURER'S WORKS:	AOSTA, VIA PARAVERA 16 - ITALY		
PRODUCER OF THE DOC:	QUALITY DEPARTMENT		
MANUFACTURER'S WORKS ORDER NO:	25256358 /110	MARK OF THE MANUFACTURER:	**COGNE**
DISPATCH NOTE:	81314183 /10	WEIGHT:	2012 KG

THE CERTIFIED PRODUCTS ARE COMPLYING TO THE PURCHASE ORDER, EXCEPT FOR EXEMPTIONS AGREED WITH THE CUSTOMER, IF ANY.

21 AGO. 2019
FRANCO CORBELLINI
QQQ
CROSSWIND

INTERNAL SPEC:	NORSOKREV5		
PRODUCT:	SPE ROUGHPEELED ROUND BARS	TOLERANCE:	+ 1,500 - 0,0000
SURFACE FINISH:	1X Hot Finished		
PRODUCT DELIVERY CONDITION:	RS SOLUTION ANNEALED		
PRODUCT DIMENSIONS (mm):	125,000	LENGTH (mm)	04000 /06000
GRADE:	F53 UNSS32750 1.4410	INTERNAL GRADE:	329S 1
IDENTIFICATION HEAT NO:	901258	IDENTIFICATION LOT NO:	629590
MARKING OF THE PRODUCT:	1.4410	TEST PIECE N:	959

ASTM G48 A/ASTM A923 C TESTING CONDITIONS: Sample surface 120 GRIT, Solution 100g FeCl3.6H2O+900ml H20, T 50°C, 24h, no pitting at 20X.
REFERENCE NORMS: EN 10088-3, EN 10272, ASTM A276/ASME SA276, ASTM A479/ASME SA479, ISO15156-3/NACE MR0175, NACE MR0103, API 6A-PSL3, NORSOK M-650 REV.4/M-630 MDS D57 REV.5 QTR06. NORME DI RIFERIMENTO SOLO PER ANALISI CHIMICA: EN 10222-5, ASTM A182/ASME SA182, ASTM A484
HEAT TREATMENT: SOLUBILIZATION 1080 ° C 1.5 min / mm COOLING WATER TEMPERATURE BELOW 260 °C (FURNACE THERMOCOUPLES)
MELTING PROCESS UHP + AOD + INGOT CASTING
STEELMAKING EAF + AOD
HOT FORGED
REDUCTION RATIO 25,6

CHEMICAL LADLE ANALYSIS ACCORDING TO ASTM A751 - EN ISO 14284
Control lot No. - Weight :020000797839 - 87.180 KG

ELEMENTS	C	Si	Mn	P	S	N	Cr	Mo	Ni	Cu
OBTAINED	0,020	0,38	0,82	0,019	0,0005	0,25	24,93	3,77	6,90	0,15

ELEMENTS	CV_F8
OBTAINED	41

CV_F8 = CR+(3.3*MO)+(16*N2)

HARDNESS TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ENISO6506 HARDNESS TEST HB TESTING METHOD: 10/3000
OBTAINED 221

IMPACT TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION EN ISO 148-1-KV2 DIRECTION OF THE TEST PIECE: L

TYPE OF TEST PIECE	KV		
TEST TEMPERATURE °C	20		
MEASUREMENT UNIT	J		
OBTAINED	433	436	439

Q.C.

DATE 24.10.2019

BARBARA VIETTI MV(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE -Cogne

1 - 056260.PDF C 240062-025/01

COGNE ACCIAI SPECIALI S.p.a.
ITALY - 11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 115.000.000 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, IATF 16949, EN 9100 and ISO 14001.

TENSILE TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTMA370-E8-0.5"SPEC DIRECTION OF THE TEST PIECE: L

	Rm	Rp02%	Z	A12
MEASUREMENT UNIT	MPA	MPA	%	%
OBTAINED	774	555	75,5	4,0 D 44,4

CORROSION
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTM G48 A
OBTAINED 0,0062

FERRITE %
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTME562 --
OBTAINED 48,13

21 NOV. 2019
FRANCO CORBELLINI
QBQ
CROSSWIND R

MICROSTRUCTURE
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION -- --
OBTAINED SATISFACTORY -

LATERAL EXPANSION
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTMA370 --
OBTAINED 0,8 0,9 0,5

SHEAR %
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTMA370 --
OBTAINED 30 50 50

HARDNESS TEST
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTMA370-E18 HARDNESS TEST HRC TESTING METHOD:
OBTAINED 21

DATE 24.10.2019

BARBARA VIETTI MV(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE -Cogne

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Company with Management Systems certified according to ISO 9001, IATF 16949, EN 9100 and ISO 14001.

IMPACT TEST
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTM A370-E23 TYPE A DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 50-
MEASUREMENT UNIT J
OBTAINED 157 138 150

IMPACT TEST
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTM A370-E23 TYPE A DIRECTION OF THE TEST PIECE: T
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 50-
MEASUREMENT UNIT J
OBTAINED 93 70 50

TENSILE TEST
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTMA370-E8-0.5"SPEC DIRECTION OF THE TEST PIECE: T

	TS	YS02	EL	RA	A12 B
MEASUREMENT UNIT	KSI	KSI	%	%	%
			5.0 D		4,0 D
OBTAINED	114	80	33,0	70,0	40,0

21 AGO. 2020
FRANCO CORBELLINI
QBQ
CROSSWIND

TENSILE TEST
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION EN-ISO6892-1 DIRECTION OF THE TEST PIECE: L

	Rm_C	Rp02_C	A	Z_C
MEASUREMENT UNIT	MPA	MPA	%	%
			5.0 D	
OBTAINED	782	555	38,4	75,1

METALLOGRAPHIC INSPECTION ACCORDING TO ASTM A923 METHOD A: SATISFACTORY.
IMPACT TEST VALUES AT -46°C ARE NOT LESS THAN THOSE AT -50°C HERE STATED.
QTC ON PROLONGATION OF BARS TESTS AT MID RADIUS (CENTER POS. FOR SIZES <2 INCHES).
ASTM A484 DOES NOT APPLY FOR SIZE AND LENGTH TOLERANCES.
MARKING: PRODUCER LOGO, MATERIAL NO, HEAT NO, LOT NR.
ALL THE NORMS MENTIONED ARE INTENDED IN THEIR LAST REVISION AT THE DATE OF ISSUE OF THIS DOCUMENT.
COUNTRY OF ORIGIN: ITALY, THE MATERIAL COMPLIES WITH FAR DFARS
252.225-7009 ALT 1.
THE PRODUCT SATISFIES CE DIRECTIVES EU: 2015/863 (ROHS3) - 2011/65 (ROHS2) - 2000/53 - 2002/95(RoHS) - 2003/11 - 2005/618 AND PED 2014/68.
THE MATERIAL IS FREE OF ANY MERCURY, MERCURY COMPOUNDS AND OR RADIUM CONTAMINATION AT TIME OF SHIPMENT AND WAS PRODUCED WITHOUT USING OZONE DEPLETING SUBSTANCES OF CLASS I AND II.
ULTRASONIC TEST ACCORDING TO EN 10308 CLASS 3, EQUIVALENT TO ASTM A388 FBH 5 : SATISFACTORY
VISUAL INSPECTION OF SURFACE AND DIMENSIONAL CONTROL ACCORDING TO EN 10221 CLASS C AND EN 10060: SATISFACTORY.

DATE 24.10.2019 BARBARA VIETTI MV(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE -Cogne

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COGNE ACCIAI SPECIALI S.p.a.
ITALY - 11100 AOSTA - VIA PARAVERA, 16
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CAP. SOC. 115.000.000 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, IATF 16949, EN 9100 and ISO 14001.

CORROSION TEST ACCORDING TO ASTM A262 Method E EN ISO 3651-2: SATISFACTORY. NO CRACKS AT 20X MAGNIFICATION

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

DATE 24.10.2019

BARBARA VIETTI MV(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE

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ITALY - 11100 AOSTA - VIA PARAVERA, 16
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C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Azienda con Sistemi di Gestione certificati secondo ISO 9001, IATF 16949, EN 9100 e ISO 14001

CERTIFICATO DI COLLAUDO 3.1 (EN 10204:2004)

NUMERO DEL DOCUMENTO 2019067687

21 AGO. 2019
FRANCO CORBELLINI
QSQ
CROSSWIND

COMMITTENTE:	C.S.C. SPA		
ORDINE DEL CLIENTE:	A2019510SSS		
STABILIMENTO PRODUTTORE:	AOSTA, VIA PARAVERA 16 - ITALIA		
REDATTORE DEL DOCUMENTO:	SERVIZIO QUALITA'		
CONFERMA D'ORDINE DEL PRODUTTORE:	25256358 /110	SIGLA STABILIMENTO PRODUTTORE:	**COGNE**
AVVISO DI SPEDIZIONE:	81314183 /10	PESO: 2012 KG	
I PRODOTTI CERTIFICATI SONO CONFORMI ALL'ORDINE DI ACQUISTO AD ECCEZIONE DELLE EVENTUALI DEROGHE CONCORDATE.			
SPECIFICA INTERNA:	NORSOKREV5		
PRODOTTO:	64959 SPE Sgrossati di pelatura	TONDI TOLLERANZA:	+ 1,500 - 0,0000
FINITURA SUPERFICIALE:	1X		
STATO DI FORNITURA:	RS Ricotto Solubilizzato		
DIMENSIONI DEL PRODOTTO (MM):	125,000	LUNGH. DEL PRODOTTO (MM):	04000 /06000
QUALITA' ACCIAIO:	F53 UNSS32750 1.4410	MARCA INTERNA:	329S 1
IDENTIFICAZIONE N. DI COLATA:	901258	IDENTIFICAZIONE N. DI SCHEDA:	629590
MARCATURA DEL PRODOTTO:	1.4410	MARCATURA PROVINI:	959

CONDIZIONI DI PROVA ASTM G48 A/ASTM A923 C: Superficie del campione 120 GRIT, Soluzione 100g FeCl3.6H2O+900ml H20, T 50°C, 24h, NO PITTING A 20X.
NORME DI RIFERIMENTO: EN 10088-3, EN 10272, ASTM A276/ASME SA276, ASTM A479/ASME SA479, ISO15156-3/NACE MR0175, NACE MR0103, API 6A-PSL3, NORSOK M-650 REV.4/M-630 MDS D57 REV.5 QTR06. NORME DI RIFERIMENTO SOLO PER ANALISI CHIMICA: EN 10222-5, ASTM A182/ASME SA182, ASTM A484
TRATTAMENTO TERMICO: SOLUBILIZZAZIONE 1080°C 1min/mm, RAFFREDDAMENTO IN ACQUA A T INFERIORE A 260°C (CONTROLLO MEDIANTE TERMOCOPPIE DEL FORNO)
PRODOTTO IN FORNO ELETTRICO + AOD + COLAGGIO IN LINGOTTI
FABBRICAZIONE AL FORNO ELETTRICO + AOD
FORGIATO
RAPPORTO DI RIDUZIONE 25,6

ANALISI CHIMICA DI COLATA SECONDO ASTM A751 - EN ISO 14284
Lotto controllo - Peso:020000797839 - 87.180 KG

ELEMENTI	C	Si	Mn	P	S	N	Cr	Mo	Ni	Cu
OTTENUTO	0,020	0,38	0,82	0,019	0,0005	0,25	24,93	3,77	6,90	0,15

ELEMENTI	CV_F8
OTTENUTO	41

CV_F8 = CR+(3.3*MO)+(16*N2)

PROVA DI DUREZZA ALLO STATO DI FORNITURA
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ENISO6506 PROVA DI DUREZZA HB METODO DI PROVA: 10/3000
OTTENUTO 221

PROVA DI RESILIENZA ALLO STATO DI FORNITURA
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA EN ISO 148-1-KV2 ORIENTAMENTO DELLE PROVETTE: L
TIPO DI PROVETTA KV
TEMPERATURA DI PROVA °C 20
UNITA' DI MISURA J
OTTENUTO 433 436 439

DATA 24.10.2019

BARBARA VIETTI MV(CERTIFICATORE) - CERTIFICATO GENERATO ELETTRONICAMENTE

-Cogne

1 - 056260.PDF C 240062-025/01

COGNE ACCIAI SPECIALI S.p.a.
ITALY - 11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165.3021 - FAX +39.0165.302296
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C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Azienda con Sistemi di Gestione certificati secondo ISO 9001, IATF 16949, EN 9100 e ISO 14001

CERTIFICATO DI COLLAUDO 3.1 (EN 10204:2004)
NUMERO DEL DOCUMENTO 2019067687

21 NOV. 2019
FRANCO CORBELLINI
QB1
CROSSWIND

PROVA DI TRAZIONE ALLO STATO DI FORNITURA
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTMA370-E8-0.5"SPEC ORIENTAMENTO DELLE PROVETTE: L

UNITA' DI MISURA	Rm MPA	Rp02% MPA	Z %	A12 %
				4,0 D
OTTENUTO	774	555	75,5	44,4

CORROSIONE
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTM G48 A
OTTENUTO 0,0062

FERRITE %
--
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTME562 --
OTTENUTO 48,13

STRUTTURA
FASE SIGMA
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA -- --
OTTENUTO CONFORME
-

ESPANSIONE LATERALE
--
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTMA370 --

OTTENUTO	0,8	0,9	0,5

FRATTURA CRISTALLINA %
SHEAR%
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTMA370 --

OTTENUTO	30	50	50

PROVA DI DUREZZA
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTMA370-E18 PROVA DI DUREZZA HRC METODO DI PROVA:
OTTENUTO 21

DATA 24.10.2019 BARBARA VIETTI MV(CERTIFICATORE) - CERTIFICATO GENERATO ELETTRONICAMENTE -Cogne

1 - 056260.PDF C 240062-025/01

COGNE ACCIAI SPECIALI S.p.a.
ITALY - 11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 115.000.000 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Azienda con Sistemi di Gestione certificati secondo ISO 9001, IATF 16949, EN 9100 e ISO 14001

CERTIFICATO DI COLLAUDO 3.1 (EN 10204:2004)
NUMERO DEL DOCUMENTO: 2020067687

FRANCO CORBELLINI
QB9
CROSSWIND

PROVA DI RESILIENZA
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTM A370-E23 TYPE A ORIENTAMENTO DELLE PROVETTE: L
TIPO DI PROVETTA KV
TEMPERATURA DI PROVA °C 50-
UNITA' DI MISURA J
OTTENUTO 157 138 150

PROVA DI RESILIENZA
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTM A370-E23 TYPE A ORIENTAMENTO DELLE PROVETTE: T
TIPO DI PROVETTA KV
TEMPERATURA DI PROVA °C 50-
UNITA' DI MISURA J
OTTENUTO 93 70 50

PROVA DI TRAZIONE
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTMA370-E8-0.5"SPEC ORIENTAMENTO DELLE PROVETTE: T

	TS	YS02	EL	RA	A12 B
UNITA' DI MISURA	KSI	KSI	%	%	%
			5.0 D		4,0 D
OTTENUTO	114	80	33,0	70,0	40,0

PROVA DI TRAZIONE
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA EN-ISO6892-1 ORIENTAMENTO DELLE PROVETTE: L

	Rm_C	Rp02_C	A	Z_C
UNITA' DI MISURA	MPA	MPA	%	%
			5.0 D	
OTTENUTO	782	555	38,4	75,1

Controllo metallografico secondo ASTM A923 metodo A: conforme
I VALORI DEI TEST DI RESILIENZA A -46°C NON SONO INFERIORI AGLI STESSI, QUI DICHIARATI, OTTENUTI A -50°C.
QTC SUL PROLUNGAMENTO DELLA BARRA, TEST A META'RAGGIO (CENTRO PER LE DIMENSIONI < 2 POLLICI).
ASTM A484 NON SI APPLICA PER TOLLERANZE SUL DIAMETRO E LUNGHEZZA.
MARCATURA: MARCHIO PRODUTTORE, N. WERKSTOFF, N. COLATA, N. LOTTO
TUTTE LE NORME CITATE SI INTENDONO NELLA LORO ULTIMA REVISIONE IN VIGORE.
Paese di origine: Italia, il materiale è conforme alle normative FAR DFARS 252.225-7009 ALT 1.
IL MATERIALE è CONFORME ALLE DIRETTIVE EU: 2015/863(ROHS3) - 2011/65 (ROHS2) - 2000/53 - 2002/95(RoHS) - 2003/11 - 2005/618 e PED 2014/68.
IL MATERIALE E' PRIVO DI MERCURIO E SUOI COMPOSTI ED ESENTE DA CONTAMINAZIONE DA SOSTANZE RADIOATTIVE AL MOMENTO DELLA SPEDIZIONE ED E' STATO PRODOTTO SENZA L'UTILIZZO DI SOSTANZE LESIVE DELL'OZONO DI CLASSE I E II.
PROVA ULTRASUONI SECONDO EN10308 Classe 3, equivalente a ASTM A388 FBH 5 : CONFORME.
Controllo visivo della superficie e controllo dimensionale secondo EN 10221 classe C e EN 10060: conforme
PROVA DI CORROSIONE SECONDO ASTM A262 METODO E EN ISO 3651-2: CONFORME. NESSUNA CREPA AD INGRANDIMENTO 20X

DATA 24.10.2019 BARBARA VIETTI MV(CERTIFICATORE) - CERTIFICATO GENERATO ELETTRONICAMENTE -Cogne

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COGNE ACCIAI SPECIALI S.p.a.

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Azienda con Sistemi di Gestione certificati secondo ISO 9001, IATF 16949, EN 9100 e ISO 14001

21 AGO. 2019
FRANCO CORBELLINI
QB1
CROSSWIND R

DATA 24.10.2019

BARBARA VIETTI MV(CERTIFICATORE) - CERTIFICATO GENERATO ELETTRONICAMENTE

-Cogne

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COGNE ACCIAI SPECIALI S.p.a.
Via Paravera, 16
I-11100 AOSTA

MICROPHOTO
МИКРОСЪЁМКА

All.N 1

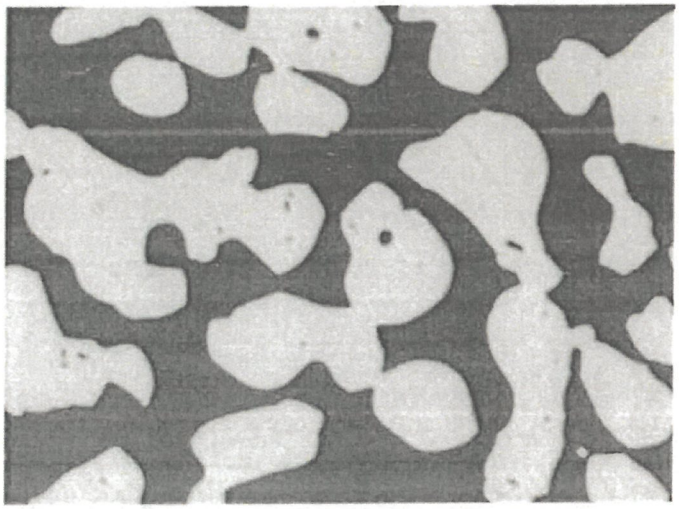
MARCA *NUANCES* *WERKESTOFF* *GRADE* *МАРКА*	329S 1	*LOTTO DI CONTROLLO* *LOT DE CONTRÔLE* *LAUFKARTE* *CONTROL LOT* *ПАРТИЯ КОНТРОЛЯ*	020000798551
COLATA *COULEE* *SCHMELZE* *HEAT* *ПЛАВКА*	901258	*REAGENTE* *RÉACTIF* *REAGENS* *ETCHANT* *РЕАГЕНТ*	20 % NaOH electrolyte
TIPO DI APPARECCHIO *TIPE D'APPAREIL* *PRUEFGERAT TYP* *INSTRUMENT TYPE* *ТИП АППАРАТА*		**MICROSCOPE – LEICA** **MEF4M МИКРОСКОП**	
INGRANDIMENTO *AGRANDISSEMENT* *VERGRÖSSERUNG* *ENLARGEMENT* *УВЕЛИЧЕНИЕ*		**400 X**	

DIREZIONE D'ESAME
DIRECTION D'EXAMEN
PRUEFRICHTUNG
SCANNING DIRECTION
НАПРАВЛЕНИЕ
ПРИ ИССЛЕДОВАНИИ

☐ **LONGITUDINALE - LONGITUDINAL - ПРОДОЛЬНОЕ**

☒ **TRASVERSALE – TRANSVERSAL – KREUZEND-ПОПЕРЕЧНОЕ**

PHOTO (ELECTRONIC IMAGE) – ФОТОСНИМКИ (ЭЛЕКТРОННОЕ ИЗОБРАЖЕНИЕ)



NOTE:
ПРИМЕЧАНИЯ:
"Free from Intermetallic Phases"

FIRMA / SIGNATURE / ПОДПИСЬ	UNTERSCHRIFT / SIGNATURE	DATA / DATE / ДАТА	DATUM / DATE
Christian Del Guerra		03/10/19	

Mod.Micro Rev.4

21 AGO. 2019

FRANCO CORBELLINI

QBJ

CROSSWIND R

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COGNE ACCIAI SPECIALI S.p.a.
Via Paravera, 16
I-11100 AOSTA

MICROPHOTO **All.N 2**
МИКРОСЪЁМКА

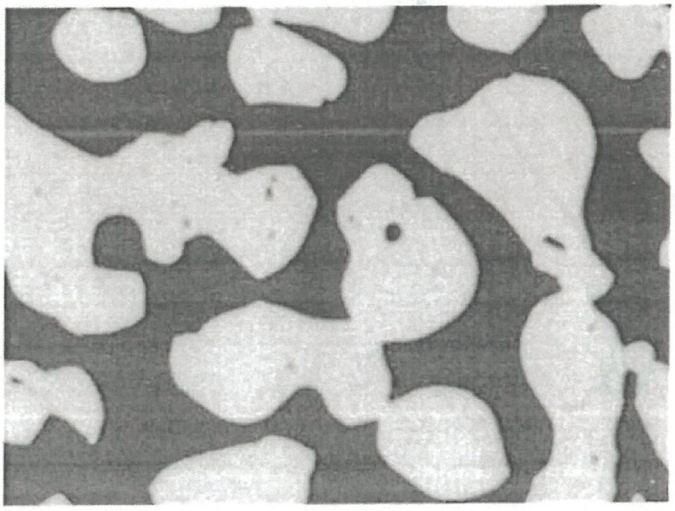
MARCA *NUANCES* *WERKESTOFF* *GRADE* *МАРКА*	329S 1	*LOTTO DI CONTROLLO* *LOT DE CONTRÔLE* *LAUFKARTE* *CONTROL LOT* *ПАРТИЯ КОНТРОЛЯ*	020000798551
COLATA *COULEE* *SCHMELZE* *HEAT* *ПЛАВКА*	901258	*REAGENTE* *RÉACTIF* *REAGENS* *ETCHANT* *РЕАГЕНТ*	20 % NaOH electrolyte
TIPO DI APPARECCHIO *TIPE D'APPAREIL* *PRUEFGERAT TYP* *INSTRUMENT TYPE* *ТИП АППАРАТА*		**MICROSCOPE – LEICA** **MEF4M МИКРОСКОП**	
INGRANDIMENTO *AGRANDISSEMENT* *VERGRÖSSERUNG* *ENLARGEMENT* *УВЕЛИЧЕНИЕ*		**500 X**	

DIREZIONE D'ESAME
DIRECTION D'EXAMEN
PRUEFRICHTUNG
SCANNING DIRECTION
НАПРАВЛЕНИЕ
ПРИ ИССЛЕДОВАНИИ

☐ **LONGITUDINALE - LONGITUDINAL - ПРОДОЛЬНОЕ**

☒ **TRASVERSALE – TRANSVERSAL – KREUZEND-ПОПЕРЕЧНОЕ**

PHOTO (ELECTRONIC IMAGE) – ФОТОСНИМКИ (ЭЛЕКТРОННОЕ ИЗОБРАЖЕНИЕ)

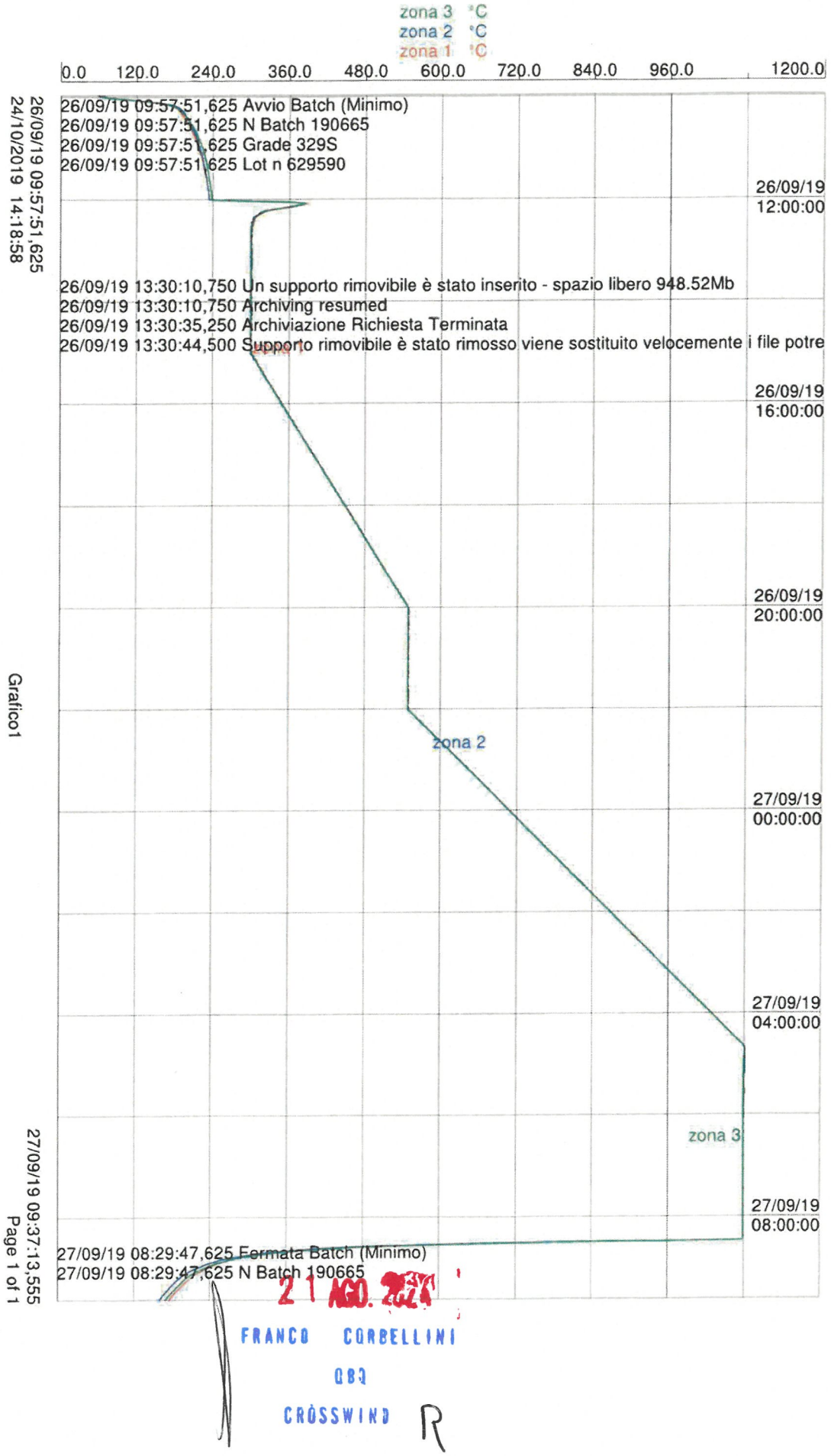


NOTE:
ПРИМЕЧАНИЯ:
"Free from Intermetallic Phases"

FIRMA UNTERSCHRIFT SIGNATURE SIGNATURE ПОДПИСЬ	DATA DATUM DATE DATE ДАТА
Christian Del Guerra	03/10/19

21 AGO. 2019
FRANCO CORBELLINI
QB3
CROSSWIND

Mod.Micro Rev.4



21 AGO. 2024

FRANCO CORBELLINI

OBJ

CROSSWIND

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COGNE ACCIAI SPECIALI S.P.A.

CERTIFICATO DI COLLAUDO ULTRASUONI
CERTIFICAT DE CONTROLE PAR ULTRASONS
ULTRASCHALL PRUEFZEUGNIS
REPORT OF ULTRASONIC INSPECTION
ОТЧЕТ ОБ УЛЬТРАЗВУКОВОМ КОНТРОЛЕ

N. US.
2422/19

CLIENTE *CLIENTSGG* *BESTELLER* *CUSTOMER* ЗАКАЗЧИК		*CONFERMA* *CONFIRMATION* *AUFTRAGSBESTRAKTIGUNG* *CONFIRMATION* ПОДТВЕРЖД. ЗАКАЗА	
MARCA *NUANCES* *WERKESTOFF* *GRADE* МАРКА	329S 1 W.No 1.4410	*ORDINE* *COMMANDE* *AUFTRAG* *ORDER* ЗАКАЗ	
SPECIFICA *SPECIFICATION* *PRUKEVORSCHRIFT* *SPECIFICATION* ТЕХ. ТРЕБОВАНИЯ	EN10308 prospetto3 cl3	*COLATA* *COULEE* *SCHMELZE* *HEAT* ПЛАВКА	901258
		SCHEDA *LOT* *LAUFKARTE* *LOT* ПАРТИЯ	629590
PRODOTTO *PRODUIT* *ERZEUGNISFORM* *PRODUCT* ИЗДЕЛИЕ	ROUND BARS 125 mm	*STATO DI LAVORAZIONE* *STADE DU PRODUIT* *LIEFERZUSTAND* *WORKING STEP* ОБРАБОТКА	PEELED
TIPO DI APPARECCHIO *TIPE D'APPAREILPARUS* *PRUEFGERAT TYP* *INSTRUMENT TYPE* ТИП АППАРАТА	USN60 L SW 16L021RC	*COSTRUTTORE* *CONSTRUCTEUR* *BAUART* *MAKE* ИЗГОТОВИТЕЛЬ	KRAUTKRAMER
TIPO DI SONDA *TIPE DE PALPEUR* *PRUFKOPT* *PROBETYPE* ТИП ЗОНДА	B2S-E	*FREQUENZA* *FREQUENCE* *FREQUENZ* *FREQUENCY* ЧАСТОТА	2 MHz

DIREZIONE D'ESAME
DIRECTION D'EXAMEN
PRUEFRICHTUNG
SCANNING DIRECTION
НАПРАВЛЕНИЕ ПРИ

- [X] *RADIALE - RADIAL*
- [ ] *ASSIALE - AXIAL*
- [ ] *SONDE ANGOLATE - ANGLE BEAMS*

- [ ] *MATRICOLA BLOCCO CAMPIONE*
DENTIFICATION BLOC DE REFERENCE MUSTER BLOCK
MUSTER BLOCK
TEST BLOCK NR
№ ОБРАЗЦА ДЛЯ ИСПЫТАНИЯ

- [ ] *AVG SCALE*
ECRANS ABAQUES AVG
AVG SKALEN
AVG SCALE
ШКАЛА *AVG*

- [X] *AVG DIAGRAMMI*
DIAGRAMMES AVG
AVG DIAGRAMM
AVG DIAGRAM
ДИАГРАММЫ *AVG*

- [ ] V1
- [ ] V2

RISULTATODELL'ESAME
RESULTAT DE L' ESSAI
PRUEFERGERBNISSE
RESULT OF THE TEST
РЕЗУЛЬТАТ

EXAM DATA : 22/10/2019
INSPECTED N. BARS 6

THE MATERIAL IS IN ACCORDANCE TO THE FOLLOWING SPECIFICATIONS:

EN10308 prospetto3 cl3

L'ISPETTORE CND ZUSTANDER CND L'INSPECTEUR CND CND INSPECTOR ИНСПЕКТОР НРК BAISOTTI MARCO Liv.II - ISO9712 N° Cert.20741/PND/C	**III LIV.CND** III УРОВЕНЬ НРК OLIVERO DIMITRI Liv.III - ISO9712 N° Cert.24100/PND/C	21 AGO. 2024 FRANCO CORBELLINI	DATA DATUM DATE DATE ДАТА 24/10/2019

(Mod. Certus Rev. 6)

GB1
CROSSWIND R

LE2C LOMBARDY ENERGY CLEANTECH CLUSTER

Laboratorio T.O.S.I. s.r.l.
Tecnici Organizzati al Servizio delle Imprese
Sede Legale e Unità Operativa: 20025 Legnano (MI) - Via Pisacane, 46
Tel. 0331.549631 / 0331.456119 - Fax 0331.470141 / 0331.451616
Internet: www.laboratoriotosi.it - E-mail: info@labtosi.it - P.IVA e C.F. 12805730152

ilac-MRA ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1504

RAPPORTO DI PROVA / TEST REPORT	DATA / DATE
20P1245 Rev. **0**	28/05/20

CLIENTE / CUSTOMER	**Fluitek Orsenigo Valves S.r.l.**		
	Via Lodovico Mancini, 5	20129 Milano (MI)	Italy

DESCRIZIONE CAMPIONE / SAMPLE DESCRIPTION #	Round bar Ø125mm
RIFERIMENTI DEL CLIENTE / CUSTOMER REFERENCES #	DDT no. 200030 date 12/05/20

RICEVUTO IL / RECEIVED ON	CAMPIONAMENTO / SAMPLING	LUOGO ESECUZIONE PROVE / TESTING PLACE
13/05/20	By customer	Laboratorio T.O.S.I.

MATERIALE / MATERIAL #	COLATA / HEAT #
ASTM A182 F53	901258

ID. CLIENTE / CUSTOMER ID #	ID. LABORATORIO / LABORATORY ID.
test no. 004-2020	**S1258**

I risultati di prova si riferiscono solo ai campioni sottoposti a prova, come ricevuti. / Test report results relate to the tested specimens only, as received.

Il presente rapporto di prova non può essere riprodotto parzialmente. / The present test report cannot been partially reproduced.

I testimoni di prova sono conservati per 3 mesi, salvo diversa richiesta scritta del cliente. / Copons after test shall be kept for 3 months, unless otherwise written request of the customer.

Ove presente l'incertezza di misura viene espressa come incertezza estesa ottenuta moltiplicando l'incertezza tipo per il fattore di copertura k corrispondente ad un intervallo di fiducia di circa il 95%. Normalmente tale fattore k vale 2, tranne per analisi chimica (k=4,3) e per la determinazione di una seconda fase (k=2,05). / Where present the reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k = 2, which for a normal distribution provides a level of confidence of approximately 95%, except for chemical analysis (k=4,3) and for determination of a second phase (k=2,05).

Informazioni fornite dal cliente, per le quali il laboratorio declina ogni reponsabilità. / Information provided by the customer, for which the laboratory refuses all responsibility.

Redattore / Editor	Responsabile laboratorio / Laboratory manager
Roberto Baratella	*Roberto Stella*

Ispettore esterno / External inspector	Ispettore esterno / External inspector	Ispettore esterno / External inspector
	21 AGO. 20	

FRANCO CORBELLINI

QBQ

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Laboratorio T.O.S.I. s.r.l.
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Internet: www.laboratoriotosi.it - E-mail: info@labtosi.it - P.IVA e C.F. 12805730152

LAB N° 1504

TEST REPORT: **20P1245** Rev. **0** LABORATORY ID. **S1258**

PROVA RICHIESTA / TEST REQUIRED:

Prova di resilienza / impact test

NORMA DI PROVA / TEST STANDARD	APPARECCHIATURE / APPARATOUS:
ASTM E23-18	Machine **T075** Caliper **T103** Thermometer - Cryostat **T122**
DATA PROVA / TEST DATE: 27/05/2020	

Prova n° test n°	Orientamento orientation	Posizione position	T °C	Dimensione dimension mm	KV J			KV medio avg J	Esp. Laterale lateral exp. mm	Shear Area %
1258-1	longitudinal	T/2	-50	10,0 x 10,0	283	205	209	232	1,73 - 1,69 - 1,71	

I valori superiori all' 80% della capacità della macchina di prova si devono considerare approssimativi. Per le prove a temperatura ambiente, la temperatura è quella presente in laboratorio.
Absorbed energy values above 80% of the scale range are approximate. For tests at room temperature, the temperature is equal to that present in the laboratory

Fine rapporto di prova / End of test report

21 AGO. 2020
FRANCO CORBELLINI
CROSSWIND

C 240062-025/01

2 - 064170.PDF

64170

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C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, IATF 16949, EN 9100 and ISO 14001.

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)

USTOMER:	C.S.C. SPA		
USTOMER'S ORDER:	A2021912SSS		
ANUFACTURER'S WORKS:	AOSTA, VIA PARAVERA 16 - ITALY		
RODUCER OF THE DOC:	QUALITY DEPARTMENT		
ANUFACTURER'S WORKS ORDER NO:	0025285696 / 000040		
ARK OF THE MANUFACTURER:	**COGNE**		
ISPATCH NOTE:	81468194 / 10 WEIGHT: 712 KG / 1570 LB		
HE CERTIFIED PRODUCTS ARE COMPLYING TO THE PURCHASE ORDER, EXCEPT FOR EXEMPTIONS AGREED WITH THE CUSTOMER, IF ANY.			
NTERNAL SPEC:	NORSOKREV5		
RODUCT:	PEL PEELED ROUND BARS TOLERANCE: ISOK11		
URFACE FINISH:	2B Cold Finished		
RODUCT DELIVERY CONDITION:	RS SOLUTION ANNEALED		
RODUCT DIMENSIONS (mm):	70,000 (2,756 in)	LENGTH (mm)	06000 06200 (00236 00244 in)
RADE:	F53 UNSS32750 1.4410	INTERNAL GRADE:	329S 1
DENTIFICATION HEAT NO:	101007	IDENTIFICATION LOT NO:	388920
ARKING OF THE PRODUCT:	1.4410	TEST PIECE N:	892

TEELMAKING EAF + AOD
OT ROLLED
EDUCTION RATIO 87,5

CHEMICAL LADLE ANALYSIS ACCORDING TO ASTM A751 - EN ISO 14284
Control lot No. - Weight :020000877431 - 90.868 KG - 200.326 LB

ELEMENTS	C	Si	Mn	P	S	N	Cr	Mo	Ni	Cu
OBTAINED	0,017	0,34	0,90	0,024	0,0005	0,25	25,11	3,76	6,89	0,15

ELEMENTS	CV_F8
OBTAINED	42

CV_F8 = CR+(3.3*MO)+(16*N2)

HARDNESS TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
SPECIFICATION ENISO6506 HARDNESS TEST HB TESTING METHOD: 10/3000
OBTAINED 239

IMPACT TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
SPECIFICATION EN ISO 148-1-KV2 DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 20
MEASUREMENT UNIT J
OBTAINED 438 433 435

21 AGO. 2022
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

DATE 28.02.2022

MORABITO ROSA CF(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE

C 240062-025/01

2 - 064170.PDF

COGNE ACCIAI SPECIALI S.p.a.

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C.F. 02187360967
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Company with Management Systems certified according to ISO 9001, IATF 16949, EN 9100 and ISO 14001.

FLUITEK ORSENIGO VALVES SRL

NSILE TEST IN AS DELIVERY CONDITION
ntrol lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
ECIFICATION ASTMA370-E8-0.5"SPEC DIRECTION OF THE TEST PIECE: L

ASUREMENT UNIT	Rm MPA	Rp02% MPA	Z %	A12 %
				4,0 D
TAINED	786	564	84,4	45,5

RROSION
ntrol lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
ECIFICATION ASTM G48 A
TAINED 0,0831

RRITE %
ntrol lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
ECIFICATION ASTME562 --
TAINED 47,3

MICROSTRUCTURE
Control lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
SPECIFICATION -- --
OBTAINED SATISFACTORY

LATERAL EXPANSION
Control lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
SPECIFICATION ASTMA370 --

OBTAINED	1,7	1,9	1,5

SHEAR %
Control lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
SPECIFICATION ASTMA370 --

OBTAINED	80	80	50

EAF+AOD+INGOT CASTING
HOT ROLLED
HARDNESS TEST
Control lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
SPECIFICATION ASTMA370-E18 HARDNESS TEST HRC TESTING METHOD:
OBTAINED 20

21 FEB 2022
FRANCO CORBELLINI
QBJ
CROSSWIND

DATE 28.02.2022

MORABITO ROSA CF(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE

C 240062-025/01

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Company with Management Systems certified according to ISO 9001, IATF 16949, EN 9100 and ISO 14001.

PACT TEST
ntrol lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
ECIFICATION ASTM A370-E23 TYPE A DIRECTION OF THE TEST PIECE: L
PE OF TEST PIECE KV
ST TEMPERATURE °C 50-
ASUREMENT UNIT J
TAINED 237 243 163

NSILE TEST
ntrol lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
ECIFICATION EN-ISO6892-1 DIRECTION OF THE TEST PIECE: L

	Rm_C	Rp02_C	A	Z_C
ASUREMENT UNIT	MPA	MPA	%	%
			5.0 D	
TAINED	781	560	43,5	85,2

REFERENCE NORMS:EN 10088-3, EN 10272, ASTM A276/ASME SA276, ASTM A479/ASME SA479, ISO 15156-3/NACE MR0175, ISO 17945/NACE MR0103, NORSOK M-650 REV.4/M-630, MDS D57 REV.5.
REFERENCE NORMS FOR CHEMICAL ANALYSIS, MECHANICAL PROPERTIES, HEAT TREATMENT: ASTM A182/ASME SA182, API 6A-PSL3
REFERENCE NORMS ONLY FOR CHEMICAL COMPOSITION: EN 10222-5, ASTM A484
CORROSION TEST ACCORDING TO ASTM A262 Method E EN ISO 3651-2 A: SATISFACTORY. NO CRACKS AT 20X MAGNIFICATION
ASTM G48 A/ASTM A923 C TESTING CONDITIONS: Sample surface 120 GRIT, Solution 100g FeCl3.6H2O+900ml H20, T 50°C, 24h, no pitting at 20X.
METALLOGRAPHIC INSPECTION ACCORDING TO ASTM A923 METHOD A: SATISFACTORY.
HEAT TREATMENT: SOLUBILIZATION 1100 ° C 1.5 min / mm COOLING WATER TEMPERATURE BELOW 260 °C (FURNACE THERMOCOUPLES)
VISUAL SURFACE INSPECTION AND EDDY CURRENT WITH ROTATING HEAD ACCORDING TO EN 10277 Class 4 : SATISFACTORY . DIMENSIONAL TEST ACCORDING TO EN 10278 : SATISFACTORY . ULTRASONIC TEST IN ACCORDING TO EN 10308 , Class 3 : SATISFACTORY . ANTIMIX SPECTROMETER CONTROL WITH PORTABLE PRODUCT : SATISFACTORY . NOT BEEN MADE BY ANY REPAIR MATERIAL WELDING
ASTM A484 DOES NOT APPLY FOR SIZE AND LENGTH TOLERANCES.
QTC ON PROLONGATION OF BARS TESTS AT MID RADIUS (CENTER POS. FOR SIZES <2 INCHES).
IMPACT TEST VALUES AT -40°C AND -46°CARE NOT LESS THAN THOSE AT -50°C HERE STATED.
THE PRODUCT SATISFIES THE DIRECTIVES: 2015/863/EU (ROHS3) - 2011/65/EU (ROHS2) - 2000/53/EU - 2002/95/EU(RoHS) - 2003/11/EU-2005/618/EU AND PED 2014/68/EU.
THE MATERIAL IS FREE OF ANY MERCURY, MERCURY COMPOUNDS AND OR RADIUM CONTAMINATION AT TIME OF SHIPMENT AND WAS PRODUCED WITHOUT USING OZONE DEPLETING SUBSTANCES OF CLASS I AND II.
COUNTRY OF MELTING AND ORIGIN: ITALY, THE MATERIAL COMPLIES WITH FAR DFARS 252.225-7009 ALT 1.
ALL THE NORMS MENTIONED ARE INTENDED IN THEIR LAST REVISION AT THE DATE OF ISSUE OF THIS DOCUMENT.
MARKING: PRODUCER LOGO, MATERIAL NO, HEAT NO, LOT NR.
QUALITY SYSTEM CERTIFIED BY KIWA CERMET ACCORDING TO UNI EN ISO 9001:2015 - IATF 16949:2016 (THE LAST ONE ONLY FOR WIRE ROD AND HOT ROLLED-PEELED-GROUND STAINLESS STEEL BARS).

21 MAR. 2022
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

DATE 28.02.2022

MORABITO ROSA CF(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE

2 - 064170.PDF C 240062-025/01

COGNE ACCIAI SPECIALI S.P.A.

CERTIFICATO DI COLLAUDO ULTRASUONI
CERTIFICAT DE CONTROLE PAR ULTRASONS
ULTRASCHALL PRUEFZEUGNIS
REPORT OF ULTRASONIC INSPECTION
ОТЧЕТ ОБ УЛЬТРАЗВУКОВОМ КОНТРОЛЕ

N. US. 284/2022

CLIENTE *CLIENTSGG BESTELLER CUSTOMER* ЗАКАЗЧИК	***CONFERMA*** *CONFIRMATION AUFTRAGSBESTRAKTIGUNG CONFIRMATION* ПОДТВЕРЖД. ЗАКАЗА
MARCA *NUANCES WERKESTOFF GRADE* МАРКА: 329S 1 W.No 1.4410	***ORDINE*** *COMMANDE AUFTRAG ORDER* ЗАКАЗ
SPECIFICA *SPECIFICATION PRUKEVORSCHRIFT SPECIFICATION* ТЕХ. ТРЕБОВАНИЯ: EN10308 prospetto3 cl3	***COLATA*** *COULEE SCHMELZE HEAT* ПЛАВКА: 101007 — ***SCHEDA*** *LOT LAUFKARTE LOT* ПАРТИЯ: 388920
PRODOTTO *PRODUIT ERZEUGNISFORM PRODUCT* ИЗДЕЛИЕ: ROUND BARS 70 mm	***STATO DI LAVORAZIONE*** *STADE DU PRODUIT LIEFERZUSTAND WORKING STEP* ОБРАБОТКА: PEELED
TIPO DI APPARECCHIO *TIPE D'APPAREILPARUS PRUEFGERAT TYP INSTRUMENT TYPE* ТИП АППАРАТА: USM36 18107589	***COSTRUTTORE*** *CONSTRUCTEUR BAUART MAKE* ИЗГОТОВИТЕЛЬ: KRAUTKRAMER
TIPO DI SONDA *TIPE DE PALPEUR PRUFKOPT PROBETYPE* ТИП ЗОНДА: SEB4-S	***FREQUENZA*** *FREQUENCE FREQUENZ FREQUENCY* ЧАСТОТА: 4 MHz S/N 67257 50316
DIREZIONE D'ESAME *DIRECTION D'EXAMEN PRUEFRICHTUNG SCANNING DIRECTION* НАПРАВЛЕНИЕ ПРИ	[X] *RADIALE - RADIAL* [ ] *ASSIALE - AXIAL* [ ] *SONDE ANGOLATE - ANGLE BEAMS*

21 NOV. 2021
FRANCO CORBELLINI
OBJ
CROSSWIND R

[ ] ***MATRICOLA BLOCCO CAMPIONE*** *DENTIFICATION BLOC DE REFERENCE MUSTER BLOCK MUSTER BLOCK TEST BLOCK NR* № ОБРАЗЦА ДЛЯ ИСПЫТАНИЯ

[ ] ***AVG SCALE*** *ECRANS ABAQUES AVG AVG SKALEN AVG SCALE* ШКАЛА *AVG*

[X] ***AVG DIAGRAMMI*** *DIAGRAMMES AVG AVG DIAGRAMM AVG DIAGRAM* ДИАГРАММЫ *AVG*

[ ] V1 [ ] V2

RISULTATODELL'ESAME
RESULTAT DE L' ESSAI
PRUEFERGERBNISSE
RESULT OF THE TEST
РЕЗУЛЬТАТ

EXAM DATA : 22/02/2022
INSPECTED N. BARS 4

THE MATERIAL IS IN ACCORDANCE TO THE FOLLOWING SPECIFICATIONS:

EN10308 prospetto3 cl3

L'ISPETTORE CND ZUSTANDER CND L'INSPECTEUR CND CND INSPECTOR ИНСПЕКТОР НРК NADALIN SIMONE Liv.II - ISO 9712 N° Cert.32040/PND/C	**III LIV.CND** **III УРОВЕНЬ НРК** BAISOTTI MARCO Liv.III - ISO 9712 N° Cert.34194/PND/C	FLUITEK ORSENIGO VALVES SRL Q.C.	**DATA DATUM** **DATE DATE** **ДАТА** 23/02/2022

(Mod. Certus Rev. 6)

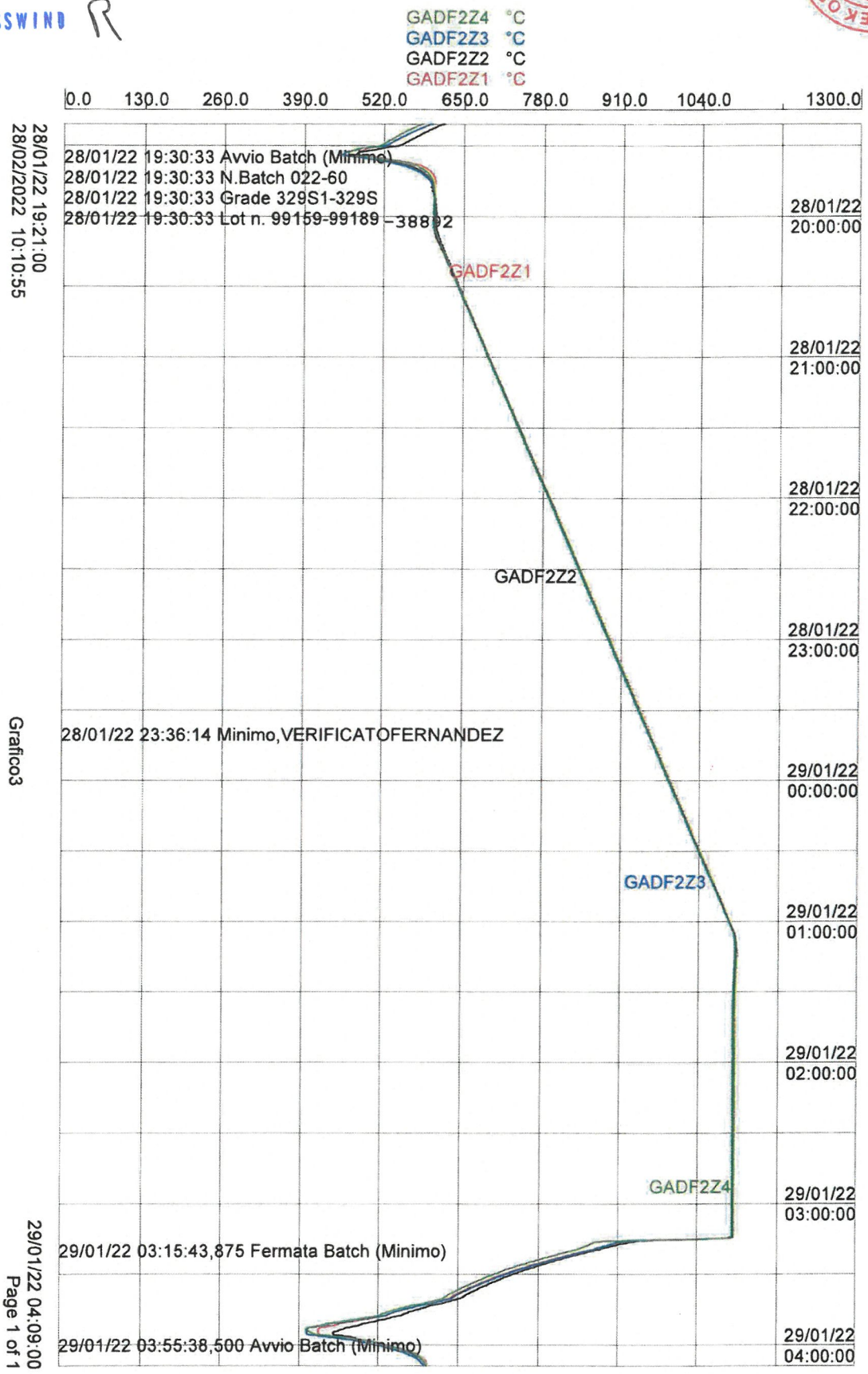
21 AGO. 2024

FRANCO CORBELLINI

QB3

CROSSWIND R

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COGNE ACCIAI SPECIALI S.p.a.
Via Paravera, 16
I-11100 AOSTA

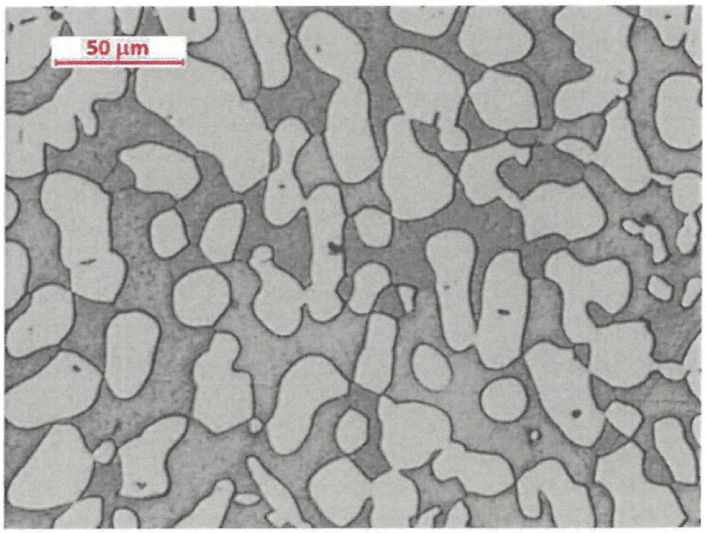
MICROPHOTO **All.N 1**
МИКРОСЪЁМКА

MARCA *NUANCES* *WERKESTOFF* *GRADE* *МАРКА*	329S 1	*LOTTO DI CONTROLLO* *LOT DE CONTRÔLE* *LAUFKARTE* *CONTROL LOT* *ПАРТИЯ КОНТРОЛЯ*	020000902936
COLATA *COULEE* *SCHMELZE* *HEAT* *ПЛАВКА*	101007	*REAGENTE* *RÉACTIF* *REAGENS* *ETCHANT* *РЕАГЕНТ*	20 % NaOH electrolyte
TIPO DI APPARECCHIO *TIPE D'APPAREIL* *PRUEFGERAT TYP* *INSTRUMENT TYPE* *ТИП АППАРАТА*		**MICROSCOPE – LEICA** **MEF4M МИКРОСКОП**	
INGRANDIMENTO *AGRANDISSEMENT* *VERGRÖSSERUNG* *ENLARGEMENT* *УВЕЛИЧЕНИЕ*		**400 X**	

DIREZIONE D'ESAME
DIRECTION D'EXAMEN
PRUEFRICHTUNG
SCANNING DIRECTION
НАПРАВЛЕНИЕ
ПРИ ИССЛЕДОВАНИИ

☐ **LONGITUDINALE - LONGITUDINAL - ПРОДОЛЬНОЕ**
☒ **TRASVERSALE – TRANSVERSAL – KREUZEND-ПОПЕРЕЧНОЕ**

PHOTO (ELECTRONIC IMAGE) – ФОТОСНИМКИ (ЭЛЕКТРОННОЕ ИЗОБРАЖЕНИЕ)



NOTE:
ПРИМЕЧАНИЯ:
"Free from Intermetallic Phases"

FIRMA / UNTERSCHRIFT / SIGNATURE / ПОДПИСЬ	DATA / DATUM / DATE / ДАТА
C. Del Guerra	07/02/22

21 AGO. 2024
FRANCO CORBELLINI
QBJ
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Mod.Micro Rev.4

FLUITEK ORSENIGO VALVES SRL Q.C.

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COGNE ACCIAI SPECIALI S.p.a.
Via Paravera, 16
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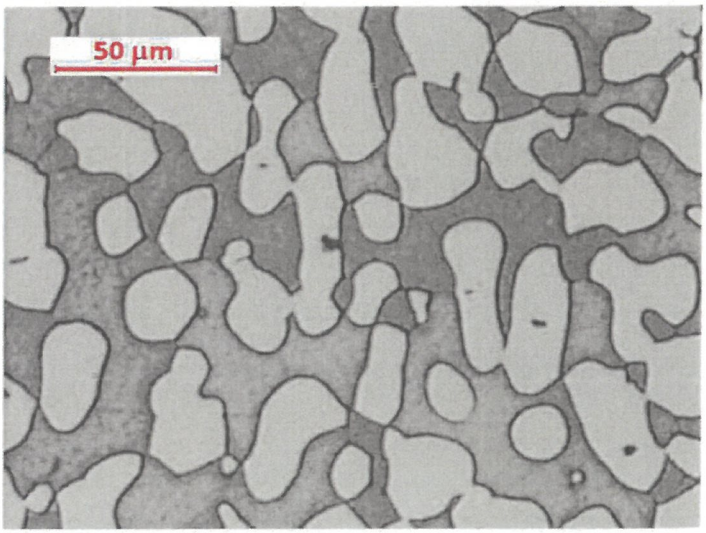
MICROPHOTO **All.N 2**
МИКРОСЪЁМКА

MARCA *NUANCES* *WERKESTOFF* *GRADE* *МАРКА*	329S 1	*LOTTO DI CONTROLLO* *LOT DE CONTRÔLE* *LAUFKARTE* *CONTROL LOT* *ПАРТИЯ КОНТРОЛЯ*	020000902936
COLATA *COULEE* *SCHMELZE* *HEAT* *ПЛАВКА*	101007	*REAGENTE* *RÉACTIF* *REAGENS* *ETCHANT* *РЕАГЕНТ*	20 % NaOH electrolyte
TIPO DI APPARECCHIO *TIPE D'APPAREIL* *PRUEFGERAT TYP* *INSTRUMENT TYPE* *ТИП АППАРАТА*		**MICROSCOPE – LEICA** **MEF4M МИКРОСКОП**	
INGRANDIMENTO *AGRANDISSEMENT* *VERGRÖSSERUNG* *ENLARGEMENT* *УВЕЛИЧЕНИЕ*		**500 X**	

DIREZIONE D'ESAME
DIRECTION D'EXAMEN
PRUEFRICHTUNG
SCANNING DIRECTION
НАПРАВЛЕНИЕ
ПРИ ИССЛЕДОВАНИИ

☐ **LONGITUDINALE - LONGITUDINAL - ПРОДОЛЬНОЕ**
☒ **TRASVERSALE – TRANSVERSAL – KREUZEND-ПОПЕРЕЧНОЕ**

PHOTO (ELECTRONIC IMAGE) – ФОТОСНИМКИ (ЭЛЕКТРОННОЕ ИЗОБРАЖЕНИЕ)



NOTE:
ПРИМЕЧАНИЯ:
"Free from Intermetallic Phases"

FIRMA / SIGNATURE / ПОДПИСЬ	UNTERSCHRIFT / SIGNATURE	DATA / DATE / ДАТА	DATUM / DATE
C. Del Guerra		07/02/22	

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

Mod.Micro Rev.4

FLUITEK ORSENIGO VALVES SRL Q.C.

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668

Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

Specification
718 Rev. 13 03.02.2020 (Straigthness 2:1000)
Yield Strength: min 120 KSI
temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718
UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1834-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straigthness 2:1000); API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Meth	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Meth	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Meth	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5.5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Ünal Ücüncü, authorized Inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velazquez Herrera
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Arpitaria Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

FLUITEKORSENIGO VALVES SRL Q.C.

21 AGO. 2023
FRANCO CORBELLINI
QBJ
CROSSWIND

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates			
1	718 Rev. 13 03.02.2020 (Straightness 2:1000)		
			Test Location
1	Complying with delivery specification.		surface
1	Complying with delivery specification.		1/4 thickness
1	Complying with delivery specification.		center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling[start 27°C - end 28°C - max. 29°C] + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.

For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.

MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.

No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.

All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.

SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.

The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.

Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2024
FRANCO CORBELLINI
QB3
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Apitario Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 : 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

FUJITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2023
FRANCO CORBELLINI
QBQ
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apilarte Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KV₂ 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

21 AGO. 2024
FRANCO CORBELLINI
QBJ
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FLUITEK ORSENIGO VALVES SRL Q.C.

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Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Reportable Indications

count	Inspector	level
0	Plaza-Wacker	Level II

Cast - Product-ID	422416 - 102
Date of inspection	22.07.2023

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

21 AGO. 2024
FRANCO CORBELLINI
081
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection 22.07.2023

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

21 AGO. 2023
FRANCO CORBELLINI
QC
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
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Internet: www.vdm-metals.com

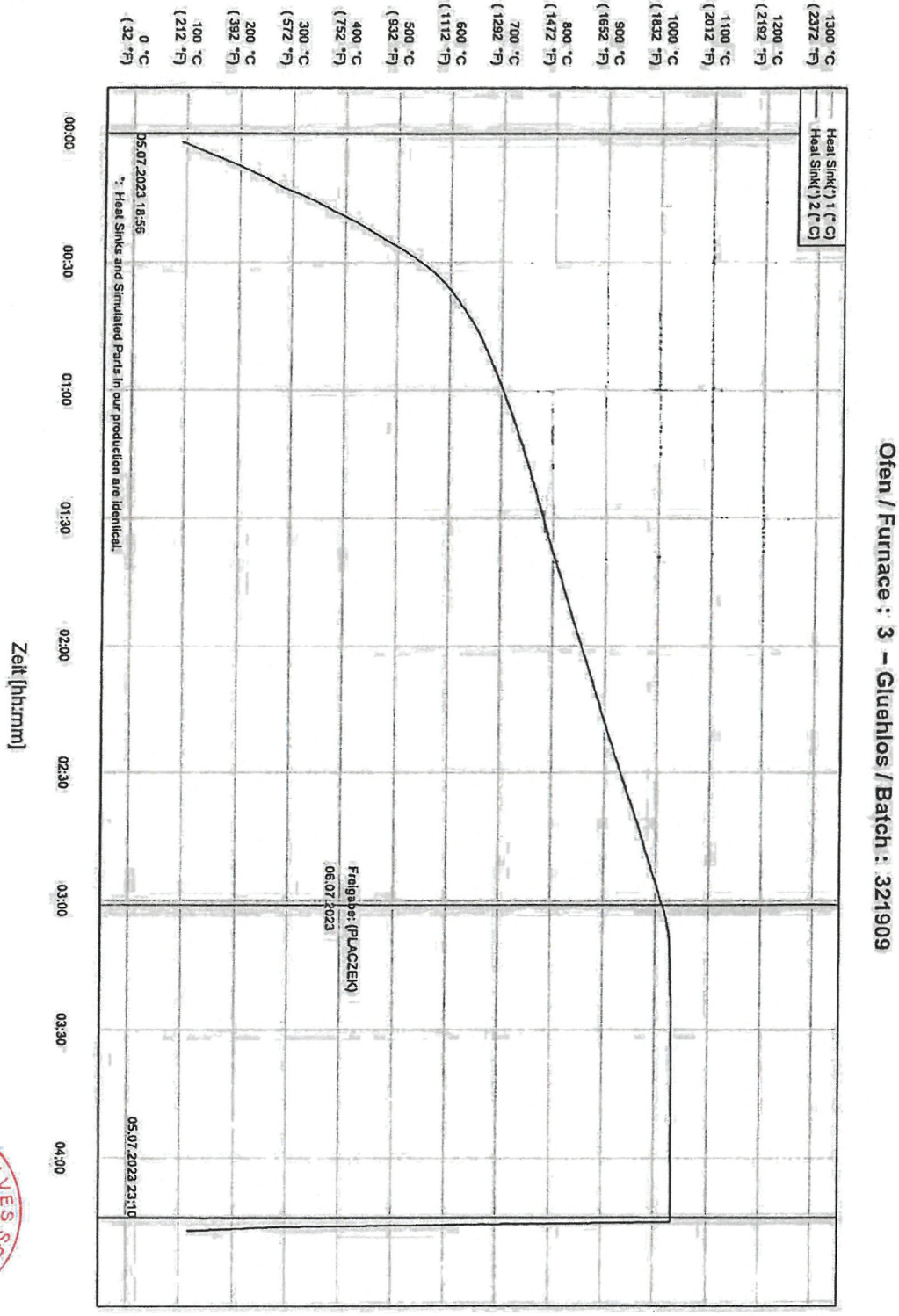
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman)
Holger Arnold, Daniel Apitzsch Zamp, Frank Monis
Commercial register: Iserlohn local court, HRB 5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 263749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Matias Maier (Chairman)
Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

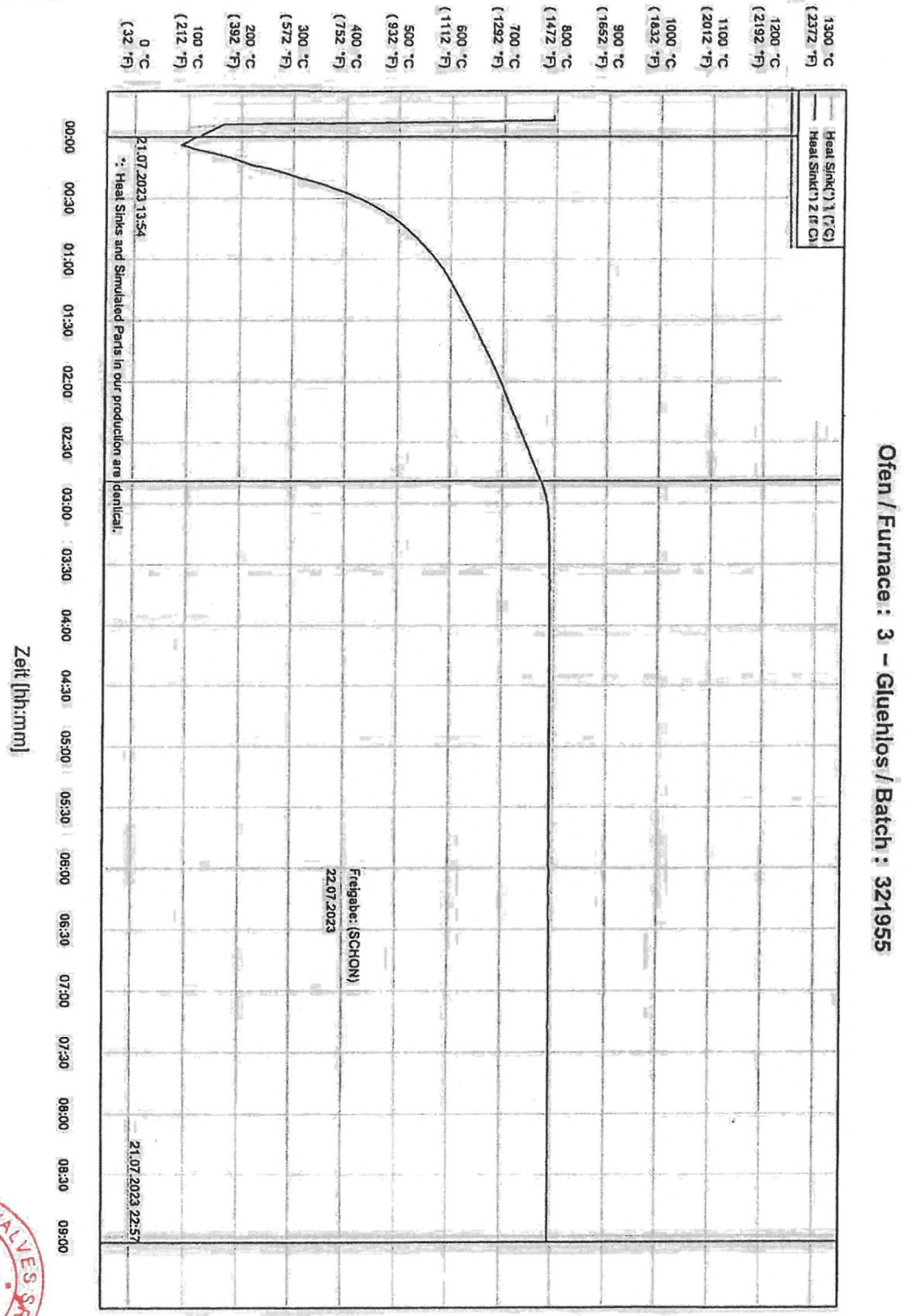
21 AGO. 2023
FRANCO CORBELLINI
OB1
CROSSWIND

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace: 3 - Gluehlos / Batch: 321955

FUJITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicas Müller (Chairman)
Holger Arnold, Daniel Apitzsch, Zemp, Frank Moris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

21 AGO. 2023
FRANCO CORBELLINI
QBQ
CROSSWIND

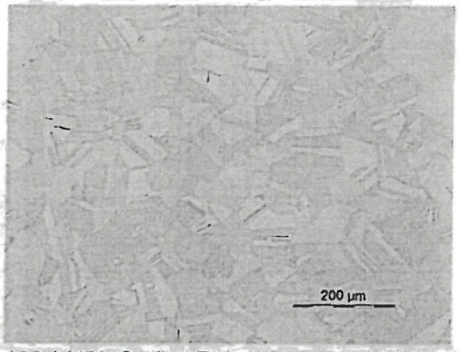
VDM Metals GmbH

VDM Metals

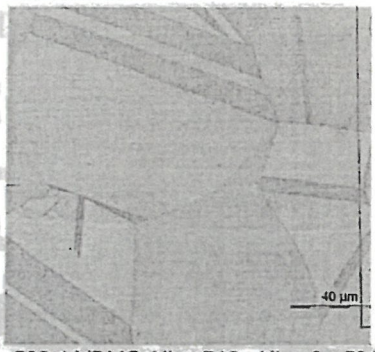
Microstructure Examination

Metallography Job No.:	194936
Lot No.:	105403101
Heat:	422416

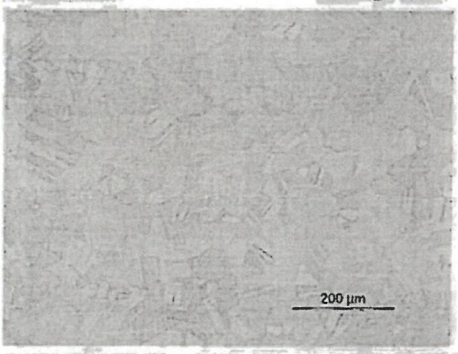
Inspection Certificate No.:	253749/1
Enclosure:	4
Page:	~~1 of 1~~



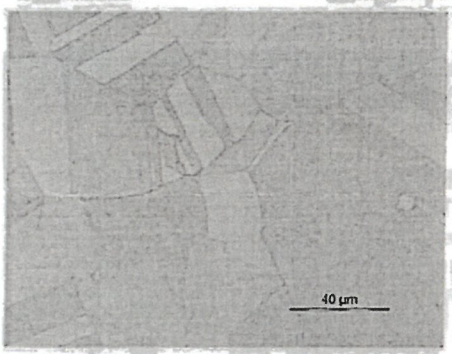
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



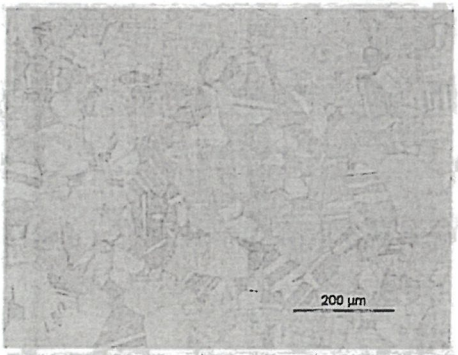
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102T001A02 surface
26.07.2023 Kallings No.2



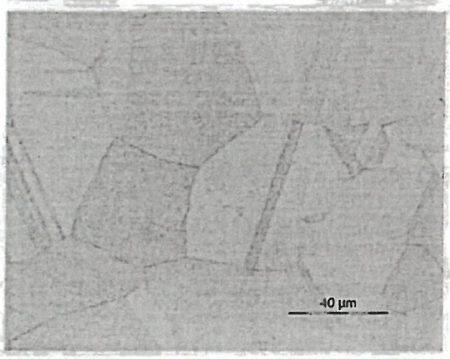
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

FLOWSERVE ORSENIGO VALVES S.R.L. Q.C.

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpilarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 AGO. 2024
FRANCO CORBELLINI
OBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE
ORDER NUMBER: 715430-1 **STEP:** 721719
PRODUCT CODE: 718 1.25 SAAH
HARDNESS RANGE (HBW): 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
☐ A0-30	☐ 6403-4 R92033	☐ R984063	☑ 0510014	☐	☐ F68332/139	☐ 814574
☑ UC-71	☐ 6403_16897	☐	☐ 0907068	☐	☐	☐
☐ UC-72	☐ E50152/15(6503-1)	☐	☐ 1112032	☐	☐	☐
☐	☐ HMV1(6403-3)	☐	☐ 1112037	☐	☐	☐
☐	☐ R335(HMM1)	☐	☐	☐	☐	☐

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

									T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
[signature]	316	316.5	375911 30AW	P	21/5/24

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

3 - 071474.PDF C 240062-025/01

4 - 073266.PDF C 240062-025/01

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

73266

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024001013982
DATE 22/07/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **2385**
Ordine N°/Order N° **240436**
Row Ref. **2**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: QT MT 615°C

Fully Threaded Stud-bolt UNI 6610/DIN 976B
ASTM A193 B7
M10x1,5 L:35 mm
H.D.G. ASTM A153 tolerance after coating ISO 261

Q.ty[pcs]: 16 pcs.

Batch C0C1F2E1

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
UTS Mpa	860		994	YS0,2% Mpa	720		765
Z %	50		56	HBW		321	302
A 4D	16		22				

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: BH1988

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C	0,38	0,48	0,43	Mn	0,75	1	0,83
P		0,035	0,007	S		0,04	0,028
Cr	0,8	1,1	1,03	Mo	0,15	0,25	0,16
Si	0,15	0,35	0,26				

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2024
FRANCO CORBELLINI
QC1
CROSSWIND

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Matteo Bernardi
Quality Dept.

T.M.V. MOLINARI
Q.A. MANAGER
APPROVATO

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

72272

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024000543914
DATE 04/06/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **1383**
Ordine N°/Order N° **240152 R1**
Row Ref. **25**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: QT MT 560°C

Hex Nut UNI 5587/DIN 934 H=D
ASTM A194 2H
M10x1,5 H.D.G. ASTM A153

Q.ty[pcs]: 16 pcs.

Batch Code: 5AA94B75

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
HBW	248	327	277	PROOF LOAD			POSIT
HBW 24h 540°C	179		260				

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 631016

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C	0,4		0,46	Mn		1	0,77
P		0,04	0,01	S		0,05	0,02
Si		0,4	0,2				

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2024

FRANCO CORBELLINI
QB1
CROSSWIND

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Matteo Bernardi
Quality Dept.

T.M.V. MOLINARI
Q.A. MANAGER
APPROVATO

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-026/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**026**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
260	**1**

TAG
50-XV-003

SERIAL NUMBER
From 2400620260001 to 2400620260001

DESCRIPTION
ball valve fl 2 pz-fb2.1-1/2".150 lbs.att. pneumatico fail pos. close.rf.l a182_f53/rptfe//a182_f53/a182_f53///vit.glt_aed+grf/a193_b7+hdg/a194_2h+

fb2.1m1m.1.lvfd.att_pneu_fc.rf Rev0 1F02 040_VL

NOTES

COMPONENT

CHEMICAL ANALYSIS

PART NAME	MATERIAL	C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
		Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
MECHANICAL PROPERTIES. IMPACT TESTS													
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F53	0,011	0,510	0,210	<0,001	0,031	25,550	3,700	6,650		0,200		071313
				0,295						42,480			
	60840	820,00	640,00	39,00	63,00	149,00	168,00	221,00	-50°C (L)	253 HBW			
BALL	A182 F53	0,016	0,770	0,310	<0,001	0,026	25,500	3,840	6,940		0,140		071887
				0,271						42,508			
	397872	813,00	577,00	43,00	79,00	283,00	279,00	288,00	-46°C (L)	248 HBW			
STEM	A182 F53	0,016	0,770	0,310	<0,001	0,026	25,500	3,840	6,940		0,140		071887
				0,271						42,508			
	397872	813,00	577,00	43,00	79,00	283,00	279,00	288,00	-46°C (L)	248 HBW			
FLANGE	A182 F53	0,011	0,510	0,210	<0,001	0,031	25,550	3,700	6,650		0,200		071313
				0,295						42,480			
	60840	820,00	640,00	39,00	63,00	149,00	168,00	221,00	-50°C (L)	253 HBW			
SCREW	A193 B7	0,435	0,820	0,210	0,022	0,010	1,090	0,160					061096
	BC5744	954,00	763,00	22,00	59,40					296 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU and was subjected to the conformity assessment procedure H
The monitoring is performed by BV Notified Body 1370
PED Manager Mr. Belotti Pierpaolo

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORBELLINI QBQ CROSSWIND R DATE	FLUITEK ORSENIGO VALVES SRL DATE 06/08/2024

INSPECTION CERTIFICATE
EN 10204:2004 / 3.1

Number: 750875 Page: 1 / 5	Rev: 00
Created on: Date: 21.02.2024	Modified on:

ACERÍA DE ALAVA S.A.U.

Registro Mercantil de Álava Tomo 414,Folio 131, Hoja VI-325. NIF A-01.010.958

Poligono Industrial Saracho
01470 Amurrio(Álava)
Spain

TL: +34 946719300
FAX: +34 946725062
E-MAIL: qualityaceralava@tubacex.es

CUSTOMER DESCRIPTION

CLIENT SOLD TO	CLIENT SHIP TO
SPECIAL STEEL STOCK-C.S.C. S.p.A. VIA LAGO MAGGIORE 7 36015 SCHIO VI ITALY	SPECIAL STEEL STOCK-C.S.C. S.p.A. VIA LAGO MAGGIORE 7 36015 SCHIO VI ITALY

CLIENT ORDER: A20231254SSS
SALES ORDER: 393407

STAINLESS STEEL ROUND BAR
RANDOM LENGTHS: 4.000/7.000 MM ,
GRADE: F53,S32750,1.4410
STANDARD: ASTM A479/A479M-23a
EN 10088-5:2009
ASTM A182/A182M-22
ASTM A276/A276M-17
ASME SECT.II PART.A SA182/SA182M-2021 ED.
ASME SECT.II PART.A SA479/SA479M-2021 ED.
EN 10272:2016-10
EN 10088-5:2009
ANSI/NACE MR0103/ISO 17945:2015
AD 2000 W0/05.2016
HEAT TREAT EQUIPMENT QUALIFICATION PER API 6D (24TH EDITION) ANNEX F
ASTM A923-14
MANUFACTURER APPROVED TO NORSOK M-650 EDITION 4
NORSOK M630:2020 MDS D57 REV.6 QTR NO.3
Impact test in conformance with ASTM A370
US acc. to EN 10228-4 (Up to diameter 400 mm.)
ANSI/NACE MR0175/ISO15156-3:2020
TOLERANCES: ASTM A182/A182M-23
DIMENSIONS: 155 MM RD
PRODUCTION TYPE: ROLLING

21 AGO. 2024
FRANCO CORBELLINI
QBT
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. QVC.

Sales Item	Client Item	Delivery No	Lot No.	Heat No	Pieces	Weight	Un Lgth
20		8120070075	200299382	60840	2	1.652 KG	4000-7000 MM

LOT No	BAR No
200299382	171, 172

AENOR ER Empresa Registrada ER-0158/1996 — IQNet — AENOR Gestión Ambiental CGNL-02/223

We hereby certify that the material herein described has been manufactured, sampled, tested, and inspected in accordance with above standards and specifications and satisfies orders requirements. This certificate is issued by a computerized system and it is valid without original signature. In case the owner of the certificate would release as a copy of it, he must attest its conformity to the issued, assuming the responsibility for any unlawful or TUBACEX, not allowed use. Any forgery or falsification of this certificate shall legally prosecuted.

CE
0036
Certificate NR.: 0036-CPR-M-83-2016
15
EN 10088-5
Performance as shown in DOP

ACERIA DE ALAVA, S.A.U.
ACERALAVA
Quality & Environmental Director
Aitor González Arco

ACERALAVA
TUBACEX GROUP

INSPECTION CERTIFICATE
EN 10204:2004 / 3.1

Number: 750875 Page: 2 / 5	Rev: 00
Created on: Date: 21.02.2024	Modified on:

RAW MATERIAL

Heat Nr:	Supplier	Method
60840	ACERALAVA (SPAIN)	Electric furnace+AOD

CHEMICAL COMPOSITION (%) *L: Ladle C:Products

*	Heat	Seq	C	Mn	Si	P	S	Ni	Cr	Mo	Cu	W
L	60840	1	0,011	0,51	0,210	0,031	0,0006	6,65	25,55	3,70	0,20	0,060

*	Heat	Seq	N	Pren
L	60840	1	0,2950	42,4800

SURFACE FINISH
ROUND MACHINED BARS

INGOT REDUCTION

Item	Reduction
20	10,15

HEAT TREATMENT
SOLUTION ANNEALED AT 1080 °C , 5 h , WATER

TENSILE TEST

Lot No.	Sample	T	Rp0.2	Rm	A2"	A4	A5	Z	Type	Sam Cond
		°C	MPa	MPa	%	%	%	%		
200299382	1	20	640	820	39	39	40	63	T	S

HARDNESS TEST

Lot No.	Sample	HBW1	HBW2	HRC1	HRC2	Sam Cond
200299382	1	253	247			S
	1			24,5	23,7	S

IMPACT TEST

Lot No.	Sample	T	Wspec	Ecv 1	Ecv 2	Ecv 3	Ecv AVG	Type	Le1	Le2	Le3	Shear 1	Shear 2	Shear 3
		°C	mm	J	J	J	J		mm	mm	mm	%	%	%
200299382	1	-50	10,0	149	168	221	179	L	1,23	1,36	1,83	60	60	80

Lot No.	Sample	Sam Cond
200299382	1	S

21 AGO. 2024

FRANCO CORBELLINI
GBT
CROSSWIND

FLUITEK ORSENIGO VALVES SRL QVC

AENOR ER Empresa Registrada ER-0150/1996 · IQNet · AENOR GA Gestión Ambiental CGM-021231

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CE
0036
Certificate NR.:
0036-CPR-M-83-2015
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EN 10088-5
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ACERIA DE ALAVA, S.A.U.
ACERALAVA
Quality & Environmental Director

Aitor González Arco

ACERALAVA
TUBACEX GROUP

INSPECTION CERTIFICATE
EN 10204:2004 / 3.1

Number: 750875 Page: 3 / 5	Rev: 00
Created on: Date: 21.02.2024	Modified on:

Corrosion test ASTM G48"A" at T/2 location.

Lot No.	Sample	T	Pits-20x	W.loss	time
		°C		*g/m2*	*Horas*
200299382	1	50	N	0,0906	24,0

Corrosion test ASTM G48 practice A

Lot No.	Sample	T	Pits-20x	W.loss	time
		°C		*g/m2*	*Horas*
200299382	1	50	N	0,2392	24,0

Corrosion test ASTM G48 A near to the surface in transversal.

Lot No.	Sample	T	Pits-20x	W.loss	time
		°C		*g/m2*	*Horas*
200299382	1	50	N	0,2789	24,0

FERRITE ACCORDING TO ASTM E 562

Lot No.	Sample	%Fer	Dev.Ferr	MAGN
		%	%	
200299382	1	44,38	1,64	200

Ferrite content ASTM E562 near to the surface

Lot No.	Sample	%Fer	Dev.Ferr	MAGN
		%	%	
200299382	1	44,58	1,71	200

FERRITE ACCORDING TO ASTM E562 AT T/2 LOCATION

Lot No.	Sample	%Fer	Dev.Ferr	MAGN
		%	%	
200299382	1	44,97	2,20	200

NON METALIC INCLUSIONS STANDARD DIN 50602

Lot No.	Sample	K4
200299382	1	24

METALURGICAL TESTS

ETCH STRUCTURE ACC. ASTM A923 MET.A: UNAFFECTED STRUCTURE. MATERIAL FREE FROM INTERMETALLIC PHASES AND PRECIPITATES. UNIFORM STRUCTURE ACROSS FULL WALL THICKNESS

INTERGRANULAR CORROSION TEST ACC.TO DIN EN ISO 3651-2 MET.A: SATISFACTORY

NON-DESTRUCTIVE TESTS

21 MAR. 2024
FRANCO CORBELLINI
QBJ
CROSSWIND R

FLUITEK ORSENIGO VALVES SRL QC

AENOR ER Empresa Registrada ER-0158/1996 · IQNet · AENOR Gestión Ambiental CGM-0322

We hereby certify that the material herein described has been manufactured, sampled, tested, and inspected in accordance with above standards and specifications and satisfies orders requirements. This certificate is issued by a computerized system and it is valid without original signature. In case the owner of the certificate would release as a copy of it, he must attest its conformity to the issued, assuming the responsibility for any unlawful or TUBACEX, not allowed use. Any forgery or falsification of this certificate shall legally prosecuted.

CE
0036
Certificate NR.: 0036-CPR-M-83-2015
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EN 10088-5
Performance as shown in DOP

ACERIA DE ALAVA, S.A.U.
ACERALAVA
Quality & Environmental Director
Aitor González Arco

ACERALAVA
TUBACEX GROUP

INSPECTION CERTIFICATE
EN 10204:2004 / 3.1

Number: 750875 Page: 4 / 5	Rev: 00
Created on: Date: 21.02.2024	Modified on:

ULTRASONIC TEST ACCORDING TO EN 10308/EN 10228-4 QL3: SATISFACTORY
STEEL GRADE ASSESMENT BY LASER ANALIZER: WITHOUT OBJECTIONS

Micrographic exam. near to the surface.

REMARKS
100% DIMENSIONAL CHECKING: SATISFACTORY
100% VISUAL INSPECTION: SATISFACTORY

STAMP OF THE INSPECTION REPRESENTATIVE: AC1
THIS MATERIAL AND THE ELEMENTS USED ALONG MANUFACTURING ARE MERCURY FREE
NO WELDING WAS PERFORMED ON THE MATERIAL
MATERIAL MANUFACTURER APPROVED BY TÜV SÜD Industrie Service GmbH (NOTIFIED BODY 036)TO ISSUE CERTIFICATES OF SPECIFIC PRODUCT CONTROL IN ACCORDING TO PRESSURE EQUIPMENT DIRECTIVE 2014/68/EU ANNEX 1 POINT 4.3.
RADIATION CONTAMINATION TEST: OK

21 AGO. 2024
FRANCO CORBELLINI
QC1
CROSSWIND

FLUITEK ORSENIGO (MI) QC

AENOR ER Empresa Registrada ER-0158/1996
IQNet CERTIFIED MANAGEMENT SYSTEM
AENOR GA Gestión Ambiental CGM-021231

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CE
0036
Certificate NR.:
0036-CPR-M-83-2015
1S
EN 10088-5
Performance as shown in DOP

ACERIA DE ALAVA, S.A.U.
ACERALAVA
Quality & Environmental Director

Aitor González Arco

ACERALAVA
TUBACEX GROUP

INSPECTION CERTIFICATE
EN 10204:2004 / 3.1

Number: 750875 Page: 5 / 5	Rev: 00
Created on: Date: 21.02.2024	Modified on:

DECLARATION OF PERFORMANCE NO.: ACERALAVA - 007
DATE: 22/06/2015

1. Unique identification code of the product type:
ROLLING steel bar acc. To EN 10088-5:2009

2. Type, batch or serial no. or any element allowing identification of the construction product as required pursuant to Article 11(4):

AS INDICATED ON THE REFERRING CERTIFICATE

3. Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer:

USE IN METALLIC STRUCTURES OR IN COMPOSITE METAL AND CONCRETE STRUCTURES

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required acc. To Article 11(5):

ACERÁLAVA Poligono Industrial Saracho 01470 Amurrio (Alava) España

5. Where applicable, name and contact address of the authorized representative whose mandate covers the task acc. To Article 12(2)

N/A

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:

SYSTEM 2 +

7. In case of the declaration of performance concerning of construction product covered by a harmonized standard:
The Notified Body- TÜV SÜD Industrie Service GMbH, Westendstr, 199, D -80686 Munich, no, 0036 - has performed the initial inspection of the manufacturing plant and of factory production control as well as the continuous surveillance, assessment and evaluation of factory production control under system 2+ and issued certificate of conformity of the factory production control with no 0036-CPR-M-83-2015 .

8. In case of the declaration of performance concerning a construction to which an European Technical Assessment has been issued:

N/A

9. Declared performance:

Essential characteristics EN 10088-5:2009, Annex ZA	Performance		Harmonized technical specifications
Tolerances and dimensions	Passed		EN 10088-5:2009 EN 10060:2004
	<= 160 mm	160 <= t <= 250 mm	EN 10088-5:2009
Elongation	>= 25% (long.)	N/A	EN 10088-5:2009
Tensile strength	730 Mpa - 930 Mpa	N/A	EN 10088-5:2009
Yield strength Rp0,2	530 Mpa	N/A	EN 10088-5:2009
Yield strength Rp1,0		N/A	EN 10088-5:2009
Impact strength	>= 100 J (long.)	N/A	EN 10088-5:2009
Weldability	Covered by chemical composition: passed		EN 10088-5:2009
Durability	Covered by chemical composition: passed		EN 10088-5:2009
Fracture toughness/brittle strength	Covered by impact strength: passed		EN 10088-5:2009
Cold formability	Covered by elongation: passed		EN 10088-5:2009

10. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.
Signedfor and behalf of the manufacturer by:

21 AGO. 2024
FRANCO CORBELLINI
QP1
CROSSWIND

FLUITEK ORSEGO VALVES S.R.L. QC

AENOR ER Empresa Registrada ER-0150/1996 · IQNet · AENOR Gestión Ambiental GA-2003/0233

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CE
0036
Certificate NR.:
0036-CPR-M-83-2015
15
EN 10088-5
Performance as shown in DOP

ACERIA DE ALAVA, S.A.U.
ACERALAVA
Quality & Environmental Director

Aitor González Arco

ACERALAVA
TUBACEX GROUP

STRUCTURE EXAMINATION

MTC / Certificate
750875

MATERIAL IDENTIFICATION / IDENTIFICACIÓN DEL MATERIAL

Lot No. / Num Lote	**2402EU / 200299382**	**Dimension** / Dimensión	RD 155 mm
Heat / Colada	60840	**Grado de acero** / Steel grade	S32750, F53, 1.4410

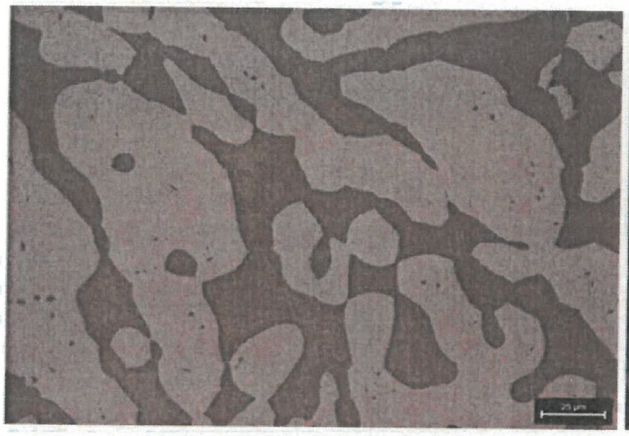
Type Of test / Tipo de Ensayo:	**MICROSTRUCTURE EVALUATION**

RESULTS / RESULTADO

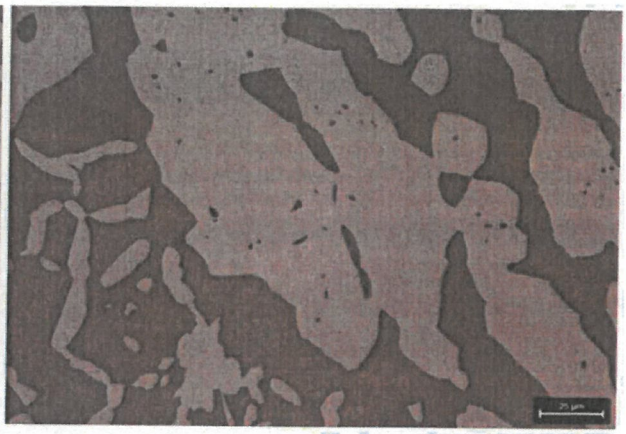
ETCH STRUCTURE ACC. ASTM A923 MET.A: UNAFFECTED STRUCTURE. MATERIAL FREE FROM INTERMETALLIC PHASES AND PRECIPITATES. UNIFORM STRUCTURE ACROSS FULL WALL THICKNESS

EXAMEN DE MICROESTRUCUTRA DE ACUERDO A ASTM A923 MET.A: ESTRUCTURA NO AFECTADA. MATERIAL LIBRE DE FASES INTERMETALICAS Y PRECIPITADOS.ESTRUCTURA UNIFORME A TRAVES DEL ESPESOR.

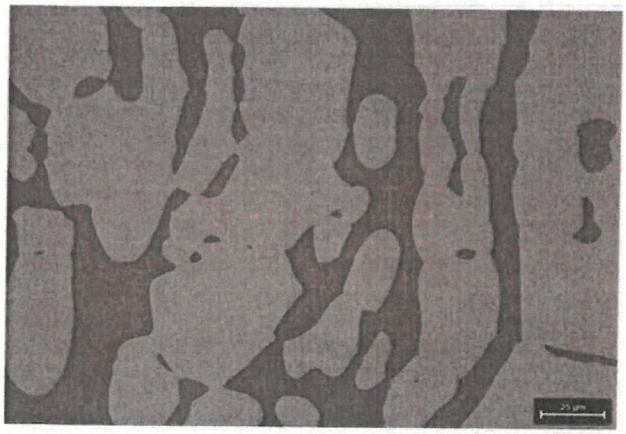
GRAPHICS RECORDS / REGISTROS FOTOGRÁFICOS:



MAG: 500X / Location: NEAR SURFACE



MAG: 500X / Location: T/4



MAG: 500X / Location: T/2

FLUITEK ORSENIGO QC

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

Irene Castro
Responsable del Laboratorio
Laboratory Manager

ACERALAVA
TUBACEX GROUP

1 - 071313.PDF	C 240062-026/01
HEAT TREATMENT	MTC : 750875
	Date : 21/02/2024

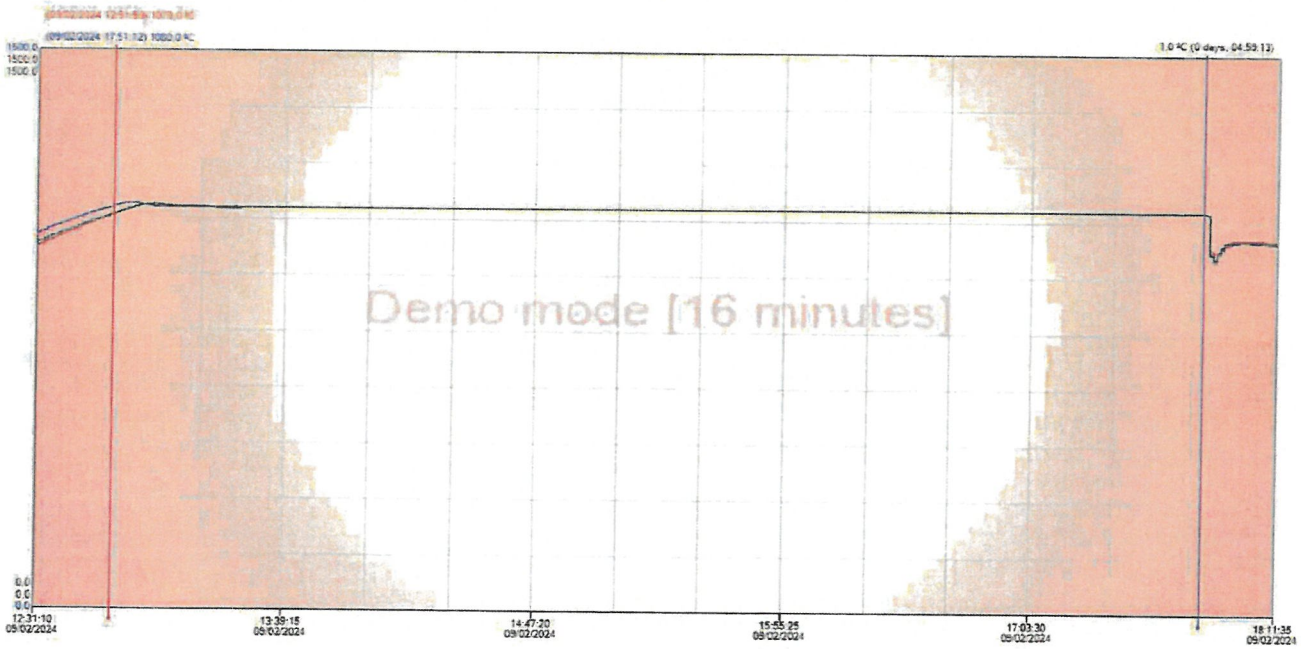
ACERIA DE ALAVA S.A.U.
Registro Mercantil de Alava, Tomo 414, Folio 131, Hoja VI-325 N.I.F. A-01010958
Poligono Industrial Saracho
01470 Amurrio (Álava)
SPAIN

Customer: SPECIAL STEEL STOCK-C S.C. S.p.A.
Client Order : A20231254SSS
Client Item
Sales Order : 393407
Sales Item: 20
Heat: 60840

Instrument Type/ID: SOLUTION ANNEALING FURNACE (HCR-G-E type)
Last calibration date June 2023
Expiration date: June 2024

Standard : ASTM A479
Grade : UNS S32750
Dimensions : RD 155 MM
Lot No.: 200299382

Treatment Type: SOLUTION ANNEALED AT 1080 °C , 5 h , WATER COOLING



21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L.
QC

71887

2 - 071887.PDF C 240062-026/01

BGH

BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01705 Freital

CHUN & VOLLERIN SRL
VIA A. EINSTEIN 15
20090 CUSAGO MI

Zeugnis-Nr. 476744
Certificate no.
No. de certificat

Bescheinigung über Werkstoffprüfung nach DIN EN 10204
Certificate of material tests according to DIN EN 10204 3.1
Certificat des essais des matériaux selon DIN EN 10204

Die Lieferung entspricht den vereinbarten Lieferbedingungen.
Delivery in accordance with the agreed terms of delivery.
La livraison correspond aux conditions de livraison convenues.

Zeichen des Lieferwerkes / Trade mark / Signe du fournisseur
Stempel des Werkssachverständigen / Inspector's stamp / Poinçon de l'inspecteur

Kunden-Bestell-Nr. 243862003
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 04989202/243862
BGH works no.
BGH référence

BGH Q406

Erzeugnisform / Product	Stab, rund, gewalzt, geschält round bars, rolled, peeled
Werkstoff / Quality	UNS S32750
Anforderungen / Requirements	UNS S32750 ASTM A 276 /A276M -17 UNS S32750 ASTM A 479 /A479M -18 UNS S32750 - F53 ASTM A182/A182M-18a (chemistry and mechanicals only) UNS S32750 NORSOK M 630 Edition 6 10/13 UNS S32750 NORSOK MDS - D 57 Rev. 5 10/13 UNS S32750 ANSI/NACE MR 0103 /ISO17945: 2015 UNS S32750 ANSI/NACE MR 0175/ISO15156-3 2015 1.4410 X2CrNiMoN25-7-4 DIN EN 10088 -3 12/14 Gefertigt nach QTR_F_B_32750 nach Norsok M-650 Edition 4 Manufactured acc. to QTR_F_B_32750 acc. to Norsok M-650 Edition 4

CERTIFIED COPY
CHUN & VOLLERIN SRL

Besichtigung und Maßnachprüfung Inspection and dimensional control Inspection et contrôle de dimension	Erschmelzung/Nachbehandlung Melting process/secondary refining Mode d'élaboration/traitement ultérieur	Verwechslungsprüfung (spectroanalytisch) Identification test (spectral-analysis) examination d' identification(analyse spectrale)
ohne Beanstandung without objection	E- VOD	ohne Beanstandung without objection

Pos. Item Poste	Anzahl Quantity Quantité	Abmessung Dimension Dimensions	Gewicht Weight Poids	Schmelz-Nr. Heat-No. No. de coulée
1	3	76,20 RD	628 kg	397872

Schmelze Heat	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	N	PRE
397872	0,016	0,31	0,77	0,026	0,0006	25,50	3,84	6,94	0,14	0,2710	42,508

Wärmebehandlungszustand: lösungsgeglüht / solution annealed

Probe-Nr. / Test-No.	Lage / loc.	Temp. °C	Rp0,2 N/mm²		Rm N/mm²	A5/A4 %	Z %	Kerbschlagarbeit Impact value J			Probenform Shape of test piece Charpy-V °C	Härte Hardness HBW/HRC
Soll/Req. +	L	RT	>=530		>=730	>=25		>=100			RT	
+	L	RT			<=930							<=310/<=32
*	L	RT	>=550		>=760	>=25		>=45			-46	
001GR1 +	L	RT	580		813	38/--	79	258	269	270	RT	248/--(1)
001GR1 +												---/22(2)
022EM1 *	L	RT	577		802	--/43	76	283	279	288	-46	248/--(2)

Prob-Nr / Test-No	Temp °C	later.Breitung mm / later.expansion			Scherbruchant. % / shear fracture			
022EM1	-46	2,2	2,2	2,2	100	100	100	(längs/longitudinal)

\+ Erprobung nach/testing acc. to DIN EN ISO 6892-1 / DIN EN ISO 148-1
Prüfort/test location: 12,5 mm
* Erprobung nach/testing acc. to ASTM/ASME A 370
Prüfort/test location: D/4 - mid radius

Anlagen / Encl. / Annexe	Freital,den / Place and date / Lieu et date	Abnahmebeauftragter / Inspector representative / Inspecteur de réception
US-Protokoll/UT report Glühbesch./Heat treatment cer. Gefügeaufnahme/micrograph	06.08.2019	Kunz

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.
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Ce certificat a été établi sur système informatique et est valable sans signature aussi.

21 AGO. 2019
FRANCO CORBELLINI
QB9
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

BGH

BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01705 Freital

CHUN & VOLLERIN SRL
VIA A. EINSTEIN 15
20090 CUSAGO MI

Zeugnis-Nr. 476744
Certificate no.
No. de certificat

Bescheinigung über Werkstoffprüfung nach DIN EN 10204
Certificate of material tests according to DIN EN 10204 3.1
Certificat des essais des matériaux selon DIN EN 10204

Die Lieferung entspricht den vereinbarten Lieferbedingungen.
Delivery in accordance with the agreed terms of delivery.
La livraison correspond aux conditions de livraison convenues.

Zeichen des Lieferwerkes / Trade mark / Signe du fournisseur

Stempel des Werkssachverständigen / Inspector's stamp / Poinçon de l'inspecteur

BGH Q406

Kunden-Bestell-Nr. 243862003
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 04989202/243862
BGH works no.
BGH référence

Härteprüfung-Prüfort/Hardness test-test location:
(1) 12,5 mm ; (2) D/4 - mid radius

Proben wurden gemäß ASTM A 370 von der Stabverlängerung entnommen./
Test pieces taken from actual bar prolongation in according to ASTM A 370.

Korros.-Test ASTM G48 Meth.A: 50°C/24h: kein Lochfraß/no pitting is observed
corrosion test Meth.A: Gewichtsverlust/weight loss: 0,150 g/m²
Proben gebeizt/Samples pickles (20% HNO3 + 5% HF, 60 °C, 5 Minuten/minutes)
Beurteilung bei 20-facher Vergrößerung./
Samples were assessed for pitting at 20x magnification.

Deltaferrit/ferrite delta ASTM E 562 ; Ätzmittel/Etchant: V2A + 30 % NaOH
022EM1: Rand - near surface: 50% ; relative Genauigkeit/relative accuracy: 10%
022EM1: D/4 - mid radius : 52% ; relative Genauigkeit/relative accuracy: 10%
Prüfung/testing: 30 Felder/16 Punkt (30 fields of 16 points)

Umformgrad/reduction ratio: 24:1

Material wurde nicht reparaturgeschweißt.
Gefüge frei von intermetallischen und anderen schädlichen Phasen.
Material ist frei von Quecksilber.
Material frei von Sigma- und anderen schädlichen Phasen.
Gefüge frei von Korngrenzenkarbiden,
-nitriden und anderen intermetallischen/schädlichen Phasen
Stahlhersteller des Ausgangsmaterials: BGH Edelstahl Freital GmbH.

Material no weld repaired.
Microstructure free from intermetallic or other detrimental phases.
Material is free from mercury.
Material free from sigma and other harmful phases.
Microstructure free from grain boundary carbides
nitrides or any intermetallic or other detrimental phases.
Steel manufacturer of starting material: BGH Edelstahl Freital GmbH.

Fertigung nach QM-System ISO 9001: 2015/ QM system in effect is ISO 9001: 2015
Zertifiziert nach / certificated AD2000 W0.

Anlagen / Encl. / Annexe	Freital,den / Place and date / Lieu et date	Abnahmebeauftragter / Inspector representativo / Inspecteur de réception
US-Protokoll/UT report Glühbesch./Heat treatment cer. Gefügeaufnahme/micrograph	06.08.2019	Kunz

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.
This certificate was generated by data system and it is valid without signature as well.
Ce certificat a été établi sur système informatique et est valable sans signature aussi.

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

FLUITEK ORSENIGO VALVES SRL
QC

BGH

BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01705 Freital

CHUN & VOLLERIN SRL
VIA A. EINSTEIN 15
20090 CUSAGO MI

Zeugnis-Nr. 476744
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Zeichen des Lieferwerkes
Trade mark
Signe du fournisseur

Stempel des Werkssachverständigen
Inspector's stamp
Poinçon de l'inspecteur

Kunden-Bestell-Nr. 243862003
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 04989202/243862
BGH works no.
BGH référence

BGH Q406

Kontrolle auf Radioaktivität ohne Befund, der Messwert liegt unter der Nachweisgrenze von 0,1 Bq/g.
Radioactivity inspection without objection, the measured value is below the detection limit of 0.1 Bq/g.

21 AGO. 2019
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

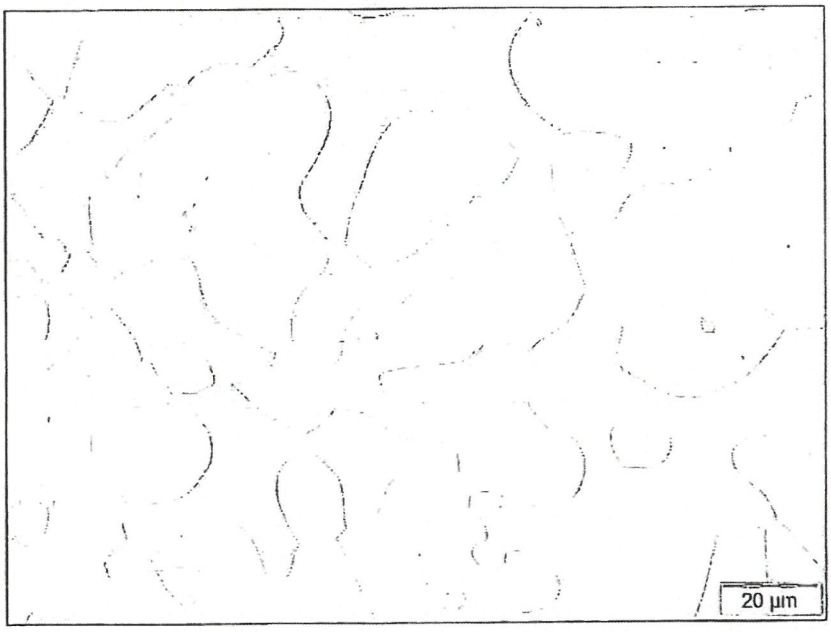
Anlagen Encl. Annexe: US-Protokoll/UT report; Glühbesch./Heat treatment cer.; Gefügeaufnahme/micrograph	Freital,den Place and date Lieu et date: 06.08.2019	Abnahmebeauftragter Inspector representative Inspecteur de réception: Kunz

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Gefügeaufnahmen zum Zertifikat Nr. / Microstructure to certificate No.: 476744

Besteller/Purchaser:	CHUN & VOLLERIN SRL
Bestell-nr./Order-No.:	243862003
Werkstoff/Quality:	UNS S32750
Chargen-nr./Cast-No.:	397872
Erzeugnisform/Product:	Stab, rund, gewalzt, geschält / round bars, rolled, peeled
Abmessung/Dimension:	76,20 RD
Komm.-nr./Work-No.:	04988202

Proben-nr./Test-No.: 022EM1



500:1 mid radius

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES SRL
Q.A.C.

Wärmebehandlungsbescheinigung
Heat treatment certificate
Attestation de traitement thermique

BGH

BGH Edelstahl Freital GmbH

Kunden-Bestell-Nr. / Customer order no. / Cde. no. du client: 243862003
BGH-Auftrags-Nr. / BGH works no. / BGH référence: 04989202
Zeugnis-Nr. / Certificate no. / No. de certificat: 476744

Wärmebehandlungszustand: Condition of heat treatment: État de traitement thermique:	**lösungsgeglüht / solution annealed / recuit de mise en solution**
Datum: Date: Date:	**14.05.2019**
Ofen-Nr.: Furnace no.: No. du four:	**722**
Aufheizzeit: Heating up time: Temps de montée en température:	**3 h**
Haltetemperatur: Holding temperature: Température de maintien:	**1100 °C**
Haltezeit: Holding time: Temps de maintien	**2,5 h**
Abkühlmedium: Quenching medium: Moyen de refroidissement:	**Wasser / water / eau (< 260 °C)**
Datum: Date: Date:	21 AGO. 2019
Ofen-Nr.: Furnace no.: No. du four:	FRANCO CORBELLINI OBQ CROSSWIND
Haltezeit: Holding time: Temps de maintien:	
Abkühlmedium: Quenching medium: Moyen de refroidissement:	
Wärmebehandlungs-Nr.: Heat treatment lot no.: No. du lot de traitement thermique:	**722/6530**

FLUITEK ORSENIGO VALVES SRL Q.A.

Acc. ASTM A182. Water temp. start: 18 °C Water temp. end: 22 °C, below 49 °C at any time during quenching.
Furnace Method of monitoring: Funace Set point Thermocouples

Diagramm: Diagram: Diagramme: X	Datum: Date: 06.08.2019 Date:	Abnahmebeauftragter Inspector representative Inspecteur de réception: KUNZ — BGH Q413

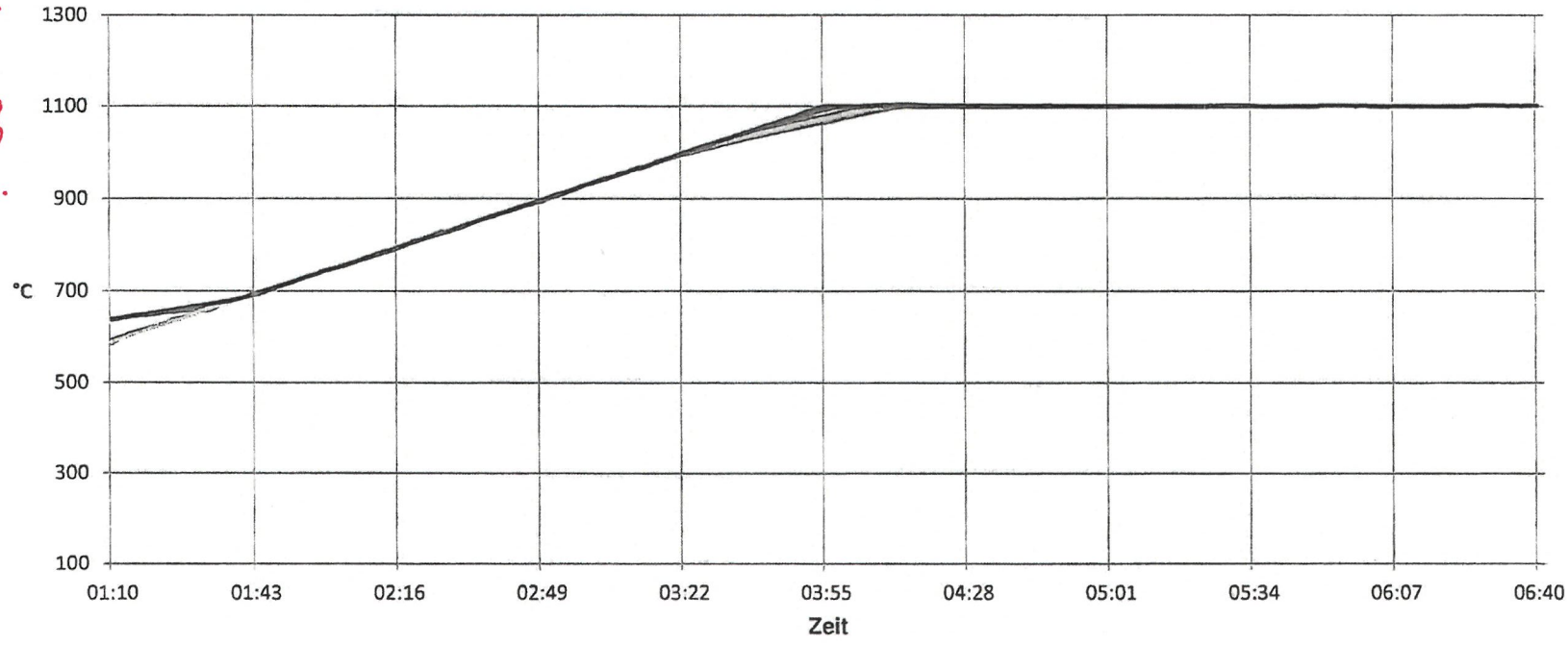
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Diagramm Aggregat 722

BGH Edelstahl
Freital GmbH

BGH-Auftragsnummer: 04989202
Start: 14.05.2019 01:10 Uhr
Ende: 14.05.2019 06:40 Uhr
Gesamtzeit: 0 Tage 05:30 Stunden
Los-Nr.: 722/125/6530
Wst-Nr.: 1.4410



Zeugnis-Nr.: 476744

FRANCO CORBELLINI
CROSSWIND
EBL
21 AGO. 2019

FLUITEK ORSENIGO VALVES SRL

2 - 071887.PDF
C 240062-026/01

Ultraschallprüfung
Ultrasonic testing

DIN EN 10204-01/05 3.1

BGH

BGH Edelstahl Freital GmbH

Kunden-Bestell-Nr. 243862003
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 049892-02
BGH works no.
BGH référence

Zeugnis-Nr. 476744
Certificate no.
No. de certificat

Erzeugnisform : Stab, rund, gewalzt, geschält
Product : round bars, rolled, peeled

Werkstoff/Quality : UNS S32750 Schmelze: 397872
Abmessung/Dimension: 76,20 RD
Anzahl/Quantity : 3 Gewicht /Weight : 628 kg
Wärmebehandlungszustand : lösungsgeglüht / solution annealed
Condition of heat treat : solution annealed

Prüfrichtlinie
Specification
A388/A 388 M (latest Revision)
(KSR/FBH max. 3 mm)

Bearbeitungszustand Machining condition	: geschält peeled
Prüfgerät Test equipment	: Deutsch-RPTS-Echograph 1155
Prüfkopf Probe	: 24x STS10WB4C
Kopplungsmittel Coupling medium	: Wasser water
Prüfumfang Extent of examination	: vollständig completely
Einschallrichtung Direction of incidence	: senkrecht und in Winkeleinschallung 40° perpendicular and angle beam 40°
Registriergrenze Registration level	: Prüfung und Justierung erfolgten gemäß obiger Spezifikation. Test and adjustment according to above mentioned specification.
Befund Result	: keine registrierpflichtigen Anzeigen no reportable indications
Prüfdatum Examination date	: 02.08.2019

21 AGO. 2019
FRANCO CORBELLINI
QBQ
CROSSWIND

Freital,den Place and date Lieu et date 06.08.19	Prüfer Testing operator Opérateur Beer, B. Stufe 2 ISO 9712	Abnahmebeauftragter Inspector representative Inspecteur de réception Kunz Stufe 2 ISO 9712	BGH Q413	Überwacher Supervisor Surveilleur

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.
This certificate was generated by data system and it is valid without signature as well.
Ce certifical a été établi sur système informatique et est valable sans signature aussi.

FLUITER ORSENIGO VALVES S.R.L. Q.Q.

061096

3 - 061096.PDF C 240062-026/01

LVF Ref.Nr 1 - 105710.PDF C 220053-106/01

PRESSBOLT

Pressbolt s.r.l. con unico socio
Partita Iva 03231770136
Via dell'Artigianato, 12 - 22078 - Turate (CO)
Tel. +39 02 96.97.98.50 - Fax +39 02 96.97.98.29
email qualita@pressbolt.com

Messrs LVF SPA
VIA BARACCA, 24
24060 - SAN PAOLO D'ARGON(BG)

Inspection Certificate EN 10204:2004 3.1

Number	Rev.	Date
3134396	0	04 November 2021

Client Reference Order		Reference Order	
Number	212947 of 07 September 2021	Number	3104728
Reference			
Item	015 - 532508	Item	150
Job		Shipping ref.	3111350 of 04 November 2021

Standard

ASTM A193(M)-20 / ASME SA193(M) BPVC-IIA-2021 - B7

PED 2014/68/EU A% according to 5.65 SQR (Specimen Area)

Item Description	Heat Treatment
HEX BOLT EN ISO 4017 A/SA 193 B7 M12X0026 HOT DIP GALVANIZED ASTM A153 / F2329	QUENCHED Min 830 C AND TEMPERED Min 593 C

Heat	Quantity	Lot	Job PB
BC5744	400	P1546698	0000965470

Chemical Analysis %

	C	Mn	Si	P	S	Cr	Mo	
Required	0.38-0.48	0.75 - 1	0.15-0.35	max 0.035	max 0.04	0.8 - 1.1	0.15-0.25	
Actual	0.435	0.820	0.210	0.010	0.022	1.090	0.160	

Tensile Test

	Rm "Mpa"	Rp02 "Mpa"	A "%"	Z "%"
Required	Min 860	Min 720	min 16	min 50
Actual	954	763	22	59.4

	Elongation % 5D
Required	Min 14
Actual	19.4

	Hardness "HB"
Required	max 321
Actual	293;296;291

Mechanical tests are longitudinal performed at t/2 or t/4 as a function of specimen dimension

Macroetch Examination	Positive	Visual and dimensional Test	Positive

Manufacturer has a quality-assurance system with specific assessment for materials 2014/68/EU-Annex I-Sect.4.3 certified by TUV Rheinland for materials according to the directive

The material was manufactured, tested and checked in accordance with the specifications and additional requirements of the Purchase Order or the Agreement
No weld repair has been performed on the material

21 10 2021

FRANCO CORBELLINI
681
CROSSWIND

Duilio Piras
Quality control manager

105710

Pressbolt s.r.l. con unico socio - Certificate N 0000003134396 Rev. 000 of 04 November 2021 -

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240062-027/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**027**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
270	**1**

TAG
50-XV-004

SERIAL NUMBER
From 2400620270001 to 2400620270001

DESCRIPTION
ball valve fl 2 pz-fb2.1".150 lbs.att. pneumatico fail pos. close.rf.l a182_f53/rptfe/a182_f53/api_6acra_uns_n07718///vit.glt_aed+grf/a193_b7-

fb2.0101.1.lvfd.att_pneu_fc.rf Rev0 1F02 025 "VL" LKa

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F53	0,020	0,820	0,380	<0,001	0,019	24,930	3,770	6,900		0,150		056260
				0,250									
	901258	774,00	555,00	44,40	75,50	157,00	138,00	150,00	-50°C (L)	21 HRC			
BALL	A182 F53	0,017	0,900	0,340	<0,001	0,024	25,110	3,760	6,890		0,150		064170
				0,250						41,518			
	101007	786,00	564,00	45,50	84,40					239 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F53	0,020	0,820	0,380	<0,001	0,019	24,930	3,770	6,900		0,150		056260
				0,250									
	901258	774,00	555,00	44,40	75,50	157,00	138,00	150,00	-50°C (L)	21 HRC			
STUD	A193 B7	0,430	0,830	0,260	0,028	0,007	1,030	0,160					073266
	BH1988	994,00	765,00	22,00	56,00					302 HBW			
NUT	A194 2H	0,460	0,770	0,200	0,020	0,010							072272
	631016									277 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CORBELLINI QBQ CROSSWIND R DATE	FLUITEK ORSENIGO VALVES S.R.L. DATE 06/08/2024

56260

COGNE ACCIAI SPECIALI S.p.a.

ITALY - 11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 115.000.000 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, IATF 16949, EN 9100 and ISO 14001.

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)
DOCUMENT NUMBER 2019067687

CUSTOMER:	C.S.C. SPA		
CUSTOMER'S ORDER:	A2019510SSS		
MANUFACTURER'S WORKS:	AOSTA, VIA PARAVERA 16 - ITALY		
PRODUCER OF THE DOC:	QUALITY DEPARTMENT		
MANUFACTURER'S WORKS ORDER NO:	25256358 /110	MARK OF THE MANUFACTURER:	**COGNE**
DISPATCH NOTE:	81314183 /10	WEIGHT:	2012 KG
INTERNAL SPEC:	NORSOKREV5		
PRODUCT:	SPE ROUGHPEELED	ROUND BARS TOLERANCE:	+ 1,500 - 0,0000
SURFACE FINISH:	1X Hot Finished		
PRODUCT DELIVERY CONDITION:	RS SOLUTION ANNEALED		
PRODUCT DIMENSIONS (mm):	125,000	LENGTH (mm)	04000 /06000
GRADE:	F53 UNSS32750 1.4410	INTERNAL GRADE:	329S 1
IDENTIFICATION HEAT NO:	901258	IDENTIFICATION LOT NO:	629590
MARKING OF THE PRODUCT:	1.4410	TEST PIECE N:	959

THE CERTIFIED PRODUCTS ARE COMPLYING TO THE PURCHASE ORDER, EXCEPT FOR EXEMPTIONS AGREED WITH THE CUSTOMER, IF ANY.

21 NOV. 2019
FRANCO CORBELLINI
QBQ
CROSSWIND

ASTM G48 A/ASTM A923 C TESTING CONDITIONS: Sample surface 120 GRIT, Solution 100g FeCl3.6H2O+900ml H20, T 50°C, 24h, no pitting at 20X.
REFERENCE NORMS: EN 10088-3, EN 10272, ASTM A276/ASME SA276, ASTM A479/ASME SA479, ISO15156-3/NACE MR0175, NACE MR0103, API 6A-PSL3, NORSOK M-650 REV.4/M-630 MDS D57 REV.5 QTR06. NORME DI RIFERIMENTO SOLO PER ANALISI CHIMICA: EN 10222-5, ASTM A182/ASME SA182, ASTM A484
HEAT TREATMENT: SOLUBILIZATION 1080 ° C 1.5 min / mm COOLING WATER TEMPERATURE BELOW 260 °C (FURNACE THERMOCOUPLES)
MELTING PROCESS UHP + AOD + INGOT CASTING
STEELMAKING EAF + AOD
HOT FORGED
REDUCTION RATIO 25,6

CHEMICAL LADLE ANALYSIS ACCORDING TO ASTM A751 - EN ISO 14284
Control lot No. - Weight :020000797839 - 87.180 KG

ELEMENTS	C	Si	Mn	P	S	N	Cr	Mo	Ni	Cu
OBTAINED	0,020	0,38	0,82	0,019	0,0005	0,25	24,93	3,77	6,90	0,15

ELEMENTS	CV_F8
OBTAINED	41

CV_F8 = CR+(3.3*MO)+(16*N2)

HARDNESS TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ENISO6506 HARDNESS TEST HB TESTING METHOD: 10/3000
OBTAINED 221

IMPACT TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION EN ISO 148-1-KV2 DIRECTION OF THE TEST PIECE: L

TYPE OF TEST PIECE	KV		
TEST TEMPERATURE °C	20		
MEASUREMENT UNIT	J		
OBTAINED	433	436	439

Q.C.

DATE 24.10.2019

BARBARA VIETTI MV(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE -Cogne

1 - 056260.PDF C 240062-027/01

COGNE ACCIAI SPECIALI S.p.a.

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Company with Management Systems certified according to ISO 9001, IATF 16949, EN 9100 and ISO 14001.

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)
DOCUMENT NUMBER 2019067687

21 AGO. 2019
FRANCO CORBELLINI
QB1
CROSSWIND R

TENSILE TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTMA370-E8-0.5"SPEC DIRECTION OF THE TEST PIECE: L

MEASUREMENT UNIT	Rm MPA	Rp02% MPA	Z %	A12 %
OBTAINED	774	555	75,5	4,0 D 44,4

CORROSION
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTM G48 A
OBTAINED 0,0062

FERRITE %
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTME562 --
OBTAINED 48,13

MICROSTRUCTURE
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION -- --
OBTAINED SATISFACTORY -

LATERAL EXPANSION
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTMA370 --
OBTAINED 0,8 0,9 0,5

SHEAR %
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTMA370 --
OBTAINED 30 50 50

HARDNESS TEST
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTMA370-E18 HARDNESS TEST HRC TESTING METHOD:
OBTAINED 21

DATE 24.10.2019

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Company with Management Systems certified according to ISO 9001, IATF 16949, EN 9100 and ISO 14001.

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)
DOCUMENT NUMBER 2019067687

21 NOV. 2024
FRANCO CORBELLINI
QB1
CROSSWIND R

IMPACT TEST
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTM A370-E23 TYPE A DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 50-
MEASUREMENT UNIT J
OBTAINED 157 138 150

IMPACT TEST
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTM A370-E23 TYPE A DIRECTION OF THE TEST PIECE: T
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 50-
MEASUREMENT UNIT J
OBTAINED 93 70 50

TENSILE TEST
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION ASTMA370-E8-0.5"SPEC DIRECTION OF THE TEST PIECE: T

	TS	YS02	EL	RA	A12 B
MEASUREMENT UNIT	KSI	KSI	%	%	%
			5.0 D		4,0 D
OBTAINED	114	80	33,0	70,0	40,0

TENSILE TEST
Control lot No. - Weight :020000798551 - 3.484 KG
SPECIFICATION EN-ISO6892-1 DIRECTION OF THE TEST PIECE: L

	Rm_C	Rp02_C	A	Z_C
MEASUREMENT UNIT	MPA	MPA	%	%
			5.0 D	
OBTAINED	782	555	38,4	75,1

METALLOGRAPHIC INSPECTION ACCORDING TO ASTM A923 METHOD A: SATISFACTORY.
IMPACT TEST VALUES AT -46°C ARE NOT LESS THAN THOSE AT -50°C HERE STATED.
QTC ON PROLONGATION OF BARS TESTS AT MID RADIUS (CENTER POS. FOR SIZES <2 INCHES).
ASTM A484 DOES NOT APPLY FOR SIZE AND LENGTH TOLERANCES.
MARKING: PRODUCER LOGO, MATERIAL NO, HEAT NO, LOT NR.
ALL THE NORMS MENTIONED ARE INTENDED IN THEIR LAST REVISION AT THE DATE OF ISSUE OF THIS DOCUMENT.
COUNTRY OF ORIGIN: ITALY, THE MATERIAL COMPLIES WITH FAR DFARS
252.225-7009 ALT 1.
THE PRODUCT SATISFIES CE DIRECTIVES EU: 2015/863 (ROHS3) - 2011/65 (ROHS2) - 2000/53 - 2002/95(RoHS) - 2003/11 - 2005/618 AND PED 2014/68.
THE MATERIAL IS FREE OF ANY MERCURY, MERCURY COMPOUNDS AND OR RADIUM CONTAMINATION AT TIME OF SHIPMENT AND WAS PRODUCED WITHOUT USING OZONE DEPLETING SUBSTANCES OF CLASS I AND II.
ULTRASONIC TEST ACCORDING TO EN 10308 CLASS 3, EQUIVALENT TO ASTM A388 FBH 5 : SATISFACTORY
VISUAL INSPECTION OF SURFACE AND DIMENSIONAL CONTROL ACCORDING TO EN 10221 CLASS C AND EN 10060: SATISFACTORY.

DATE 24.10.2019 BARBARA VIETTI MV(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE -Cogne

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COGNE ACCIAI SPECIALI S.p.a.

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TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 115.000.000 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, IATF 16949, EN 9100 and ISO 14001.

CORROSION TEST ACCORDING TO ASTM A262 Method E EN ISO 3651-2: SATISFACTORY. NO CRACKS AT 20X MAGNIFICATION

21 AGO. 2021
FRANCO CORBELLINI
QSQ
CROSSWIND

DATE 24.10.2019

BARBARA VIETTI MV(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE

-Cogne

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COGNE ACCIAI SPECIALI S.p.a.
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CAP. SOC. 115.000.000 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Azienda con Sistemi di Gestione certificati secondo ISO 9001, IATF 16949, EN 9100 e ISO 14001

CERTIFICATO DI COLLAUDO 3.1 (EN 10204:2004)

NUMERO DEL DOCUMENTO 2019067687

COMMITTENTE:	C.S.C. SPA		
ORDINE DEL CLIENTE:	A2019510SSS		
STABILIMENTO PRODUTTORE:	AOSTA, VIA PARAVERA 16 - ITALIA		
REDATTORE DEL DOCUMENTO:	SERVIZIO QUALITA'		
CONFERMA D'ORDINE DEL PRODUTTORE:	25256358 /110	SIGLA STABILIMENTO PRODUTTORE:	**COGNE**
AVVISO DI SPEDIZIONE:	81314183 /10	PESO: 2012 KG	

I PRODOTTI CERTIFICATI SONO CONFORMI ALL'ORDINE DI ACQUISTO AD ECCEZIONE DELLE EVENTUALI DEROGHE CONCORDATE.

SPECIFICA INTERNA:	NORSOKREV5		
PRODOTTO:	64959 SPE Sgrossati di pelatura	TONDI TOLLERANZA:	+ 1,500 - 0,0000
FINITURA SUPERFICIALE:	1X		
STATO DI FORNITURA:	RS Ricotto Solubilizzato		
DIMENSIONI DEL PRODOTTO (MM):	125,000	LUNGH. DEL PRODOTTO (MM):	04000 /06000
QUALITA' ACCIAIO:	F53 UNSS32750 1.4410	MARCA INTERNA:	329S 1
IDENTIFICAZIONE N. DI COLATA:	901258	IDENTIFICAZIONE N. DI SCHEDA:	629590
MARCATURA DEL PRODOTTO:	1.4410	MARCATURA PROVINI:	959

CONDIZIONI DI PROVA ASTM G48 A/ASTM A923 C: Superficie del campione 120 GRIT, Soluzione 100g FeCl3.6H2O+900ml H20, T 50°C, 24h, NO PITTING A 20X.
NORME DI RIFERIMENTO: EN 10088-3, EN 10272, ASTM A276/ASME SA276, ASTM A479/ASME SA479, ISO15156-3/NACE MR0175, NACE MR0103, API 6A-PSL3, NORSOK M-650 REV.4/M-630 MDS D57 REV.5 QTR06. NORME DI RIFERIMENTO SOLO PER ANALISI CHIMICA: EN 10222-5, ASTM A182/ASME SA182, ASTM A484
TRATTAMENTO TERMICO: SOLUBILIZZAZIONE 1080°C 1min/mm, RAFFREDDAMENTO IN ACQUA A T INFERIORE A 260°C CONTROLLO MEDIANTE TERMOCOPPIE DEL FORNO)
PRODOTTO IN FORNO ELETTRICO + AOD + COLAGGIO IN LINGOTTI
FABBRICAZIONE AL FORNO ELETTRICO + AOD
FORGIATO
RAPPORTO DI RIDUZIONE 25,6

21 AGO. 2024
FRANCO CROSSWIND
083
CROSSWIND

ANALISI CHIMICA DI COLATA SECONDO ASTM A751 - EN ISO 14284
Lotto controllo - Peso:020000797839 - 87.180 KG

ELEMENTI	C	Si	Mn	P	S	N	Cr	Mo	Ni	Cu
OTTENUTO	0,020	0,38	0,82	0,019	0,0005	0,25	24,93	3,77	6,90	0,15
ELEMENTI	CV_F8									
OTTENUTO	41									

CV_F8 = CR+(3.3*MO)+(16*N2)

PROVA DI DUREZZA ALLO STATO DI FORNITURA
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ENISO6506 PROVA DI DUREZZA HB METODO DI PROVA: 10/3000
OTTENUTO 221

PROVA DI RESILIENZA ALLO STATO DI FORNITURA
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA EN ISO 148-1-KV2 ORIENTAMENTO DELLE PROVETTE: L
TIPO DI PROVETTA KV
TEMPERATURA DI PROVA °C 20
UNITA' DI MISURA J

OTTENUTO			
	433	436	439

DATA 24.10.2019

BARBARA VIETTI MV(CERTIFICATORE) - CERTIFICATO GENERATO ELETTRONICAMENTE

-Cogne

1 - 056260.PDF C 240062-027/01

COGNE ACCIAI SPECIALI S.p.a.

ITALY - 11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 115.000.000 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Azienda con Sistemi di Gestione certificati secondo ISO 9001, IATF 16949, EN 9100 e ISO 14001

CERTIFICATO DI COLLAUDO 3.1 (EN 10204:2004)
NUMERO DEL DOCUMENTO 2019067687

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

PROVA DI TRAZIONE ALLO STATO DI FORNITURA
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTMA370-E8-0.5"SPEC ORIENTAMENTO DELLE PROVETTE: L

UNITA' DI MISURA	Rm MPA	Rp02% MPA	Z %	A12 %
				4,0 D
OTTENUTO	774	555	75,5	44,4

CORROSIONE
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTM G48 A
OTTENUTO 0,0062

FERRITE %
--
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTME562 --
OTTENUTO 48,13

STRUTTURA
FASE SIGMA
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA -- --
CONFORME
OTTENUTO -

ESPANSIONE LATERALE
--
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTMA370 --

OTTENUTO	0,8	0,9	0,5

FRATTURA CRISTALLINA %
SHEAR%
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTMA370 --

OTTENUTO	30	50	50

PROVA DI DUREZZA
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTMA370-E18 PROVA DI DUREZZA HRC METODO DI PROVA:
OTTENUTO 21

DATA 24.10.2019 BARBARA VIETTI MV(CERTIFICATORE) - CERTIFICATO GENERATO ELETTRONICAMENTE -Cogne

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21 AGO. 2024
FRANCO CORBELLINI
BBQ
CROSSWIND

PROVA DI RESILIENZA
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTM A370-E23 TYPE A ORIENTAMENTO DELLE PROVETTE: L
TIPO DI PROVETTA KV
TEMPERATURA DI PROVA °C 50-
UNITA' DI MISURA J
OTTENUTO 157 138 150

PROVA DI RESILIENZA
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTM A370-E23 TYPE A ORIENTAMENTO DELLE PROVETTE: T
TIPO DI PROVETTA KV
TEMPERATURA DI PROVA °C 50-
UNITA' DI MISURA J
OTTENUTO 93 70 50

PROVA DI TRAZIONE
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA ASTMA370-E8-0.5"SPEC ORIENTAMENTO DELLE PROVETTE: T

	TS	YS02	EL	RA	A12 B
UNITA' DI MISURA	KSI	KSI	%	%	%
			5.0 D		4,0 D
OTTENUTO	114	80	33,0	70,0	40,0

PROVA DI TRAZIONE
Lotto controllo - Peso:020000798551 - 3.484 KG
NORMA EN-ISO6892-1 ORIENTAMENTO DELLE PROVETTE: L

	Rm_C	Rp02_C	A	Z_C
UNITA' DI MISURA	MPA	MPA	%	%
			5.0 D	
OTTENUTO	782	555	38,4	75,1

Controllo metallografico secondo ASTM A923 metodo A: conforme
I VALORI DEI TEST DI RESILIENZA A -46°C NON SONO INFERIORI AGLI STESSI, QUI DICHIARATI, OTTENUTI A -50°C.
QTC SUL PROLUNGAMENTO DELLA BARRA, TEST A META'RAGGIO (CENTRO PER LE DIMENSIONI < 2 POLLICI).
ASTM A484 NON SI APPLICA PER TOLLERANZE SUL DIAMETRO E LUNGHEZZA.
MARCATURA: MARCHIO PRODUTTORE, N. WERKSTOFF, N. COLATA, N. LOTTO
TUTTE LE NORME CITATE SI INTENDONO NELLA LORO ULTIMA REVISIONE IN VIGORE.
Paese di origine: Italia, il materiale è conforme alle normative FAR DFARS 252.225-7009 ALT 1.
IL MATERIALE è CONFORME ALLE DIRETTIVE EU: 2015/863(ROHS3) - 2011/65 (ROHS2) - 2000/53 - 2002/95(RoHS) - 2003/11 - 2005/618 e PED 2014/68.
IL MATERIALE E' PRIVO DI MERCURIO E SUOI COMPOSTI ED ESENTE DA CONTAMINAZIONE DA SOSTANZE RADIOATTIVE AL MOMENTO DELLA SPEDIZIONE ED E' STATO PRODOTTO SENZA L'UTILIZZO DI SOSTANZE LESIVE DELL'OZONO DI CLASSE I E II.
PROVA ULTRASUONI SECONDO EN10308 Classe 3, equivalente a ASTM A388 FBH 5 : CONFORME.
Controllo visivo della superficie e controllo dimensionale secondo EN 10221 classe C e EN 10060: conforme
PROVA DI CORROSIONE SECONDO ASTM A262 METODO E EN ISO 3651-2: CONFORME. NESSUNA CREPA AD INGRANDIMENTO 20X

DATA 24.10.2019 BARBARA VIETTI MV(CERTIFICATORE) - CERTIFICATO GENERATO ELETTRONICAMENTE -Cogne

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Azienda con Sistemi di Gestione certificati secondo ISO 9001, IATF 16949, EN 9100 e ISO 14001

21 AGO. 2019
FRANCO CORBELLINI
QB1
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DATA 24.10.2019

BARBARA VIETTI MV(CERTIFICATORE) - CERTIFICATO GENERATO ELETTRONICAMENTE

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I-11100 AOSTA

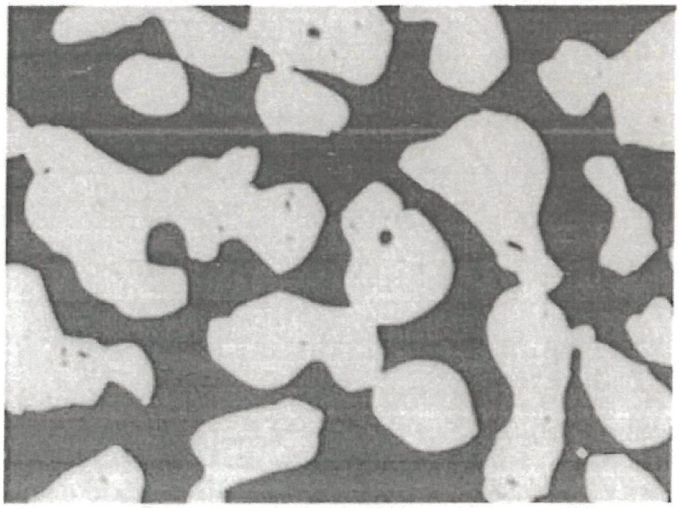
MICROPHOTO All.N 1
МИКРОСЪЁМКА

MARCA *NUANCES* *WERKESTOFF* *GRADE* *МАРКА*	329S 1	*LOTTO DI CONTROLLO* *LOT DE CONTRÔLE* *LAUFKARTE* *CONTROL LOT* *ПАРТИЯ КОНТРОЛЯ*	020000798551
COLATA *COULEE* *SCHMELZE* *HEAT* *ПЛАВКА*	901258	*REAGENTE* *RÉACTIF* *REAGENS* *ETCHANT* *РЕАГЕНТ*	20 % NaOH electrolyte
TIPO DI APPARECCHIO *TIPE D'APPAREIL* *PRUEFGERAT TYP* *INSTRUMENT TYPE* *ТИП АППАРАТА*		**MICROSCOPE – LEICA** **MEF4M МИКРОСКОП**	
INGRANDIMENTO *AGRANDISSEMENT* *VERGRÖSSERUNG* *ENLARGEMENT* *УВЕЛИЧЕНИЕ*		**400 X**	

DIREZIONE D'ESAME
DIRECTION D'EXAMEN
PRUEFRICHTUNG
SCANNING DIRECTION
НАПРАВЛЕНИЕ
ПРИ ИССЛЕДОВАНИИ

☐ **LONGITUDINALE - LONGITUDINAL - ПРОДОЛЬНОЕ**
☒ **TRASVERSALE – TRANSVERSAL – KREUZEND-ПОПЕРЕЧНОЕ**

PHOTO (ELECTRONIC IMAGE) – ФОТОСНИМКИ (ЭЛЕКТРОННОЕ ИЗОБРАЖЕНИЕ)



NOTE:
ПРИМЕЧАНИЯ:
"Free from Intermetallic Phases"

FIRMA / UNTERSCHRIFT / SIGNATURE / ПОДПИСЬ	DATA / DATUM / DATE / ДАТА
Christian Del Guerra	03/10/19

21 AGO. 2024
FRANCO CORBELLINI
089
CROSSWIND R

Mod.Micro Rev.4

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COGNE ACCIAI SPECIALI S.p.a.
Via Paravera, 16
I-11100 AOSTA

MICROPHOTO
МИКРОСЪЁМКА

All.N 2

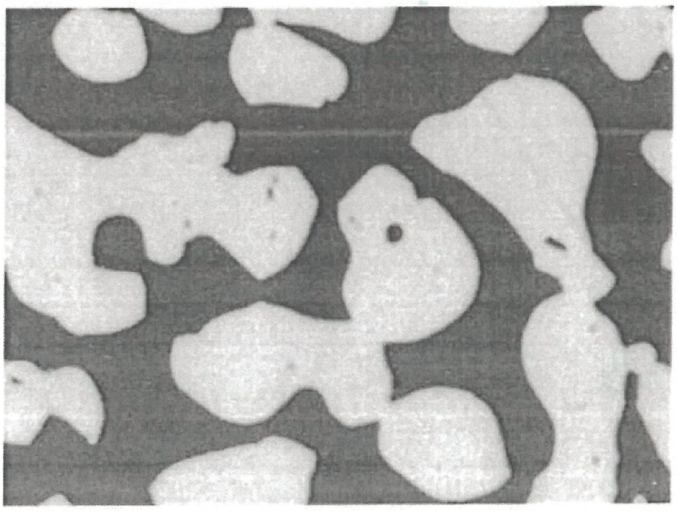
MARCA *NUANCES* *WERKESTOFF* *GRADE* *МАРКА*	329S 1	*LOTTO DI CONTROLLO* *LOT DE CONTRÔLE* *LAUFKARTE* *CONTROL LOT* *ПАРТИЯ КОНТРОЛЯ*	020000798551
COLATA *COULEE* *SCHMELZE* *HEAT* *ПЛАВКА*	901258	*REAGENTE* *RÉACTIF* *REAGENS* *ETCHANT* *РЕАГЕНТ*	20 % NaOH electrolyte
TIPO DI APPARECCHIO *TIPE D'APPAREIL* *PRUEFGERAT TYP* *INSTRUMENT TYPE* *ТИП АППАРАТА*		**MICROSCOPE – LEICA** **MEF4M МИКРОСКОП**	
INGRANDIMENTO *AGRANDISSEMENT* *VERGRÖSSERUNG* *ENLARGEMENT* *УВЕЛИЧЕНИЕ*		**500 X**	

DIREZIONE D'ESAME
DIRECTION D'EXAMEN
PRUEFRICHTUNG
SCANNING DIRECTION
НАПРАВЛЕНИЕ
ПРИ ИССЛЕДОВАНИИ

☐ **LONGITUDINALE - LONGITUDINAL - ПРОДОЛЬНОЕ**

☒ **TRASVERSALE – TRANSVERSAL – KREUZEND-ПОПЕРЕЧНОЕ**

PHOTO (ELECTRONIC IMAGE) – ФОТОСНИМКИ (ЭЛЕКТРОННОЕ ИЗОБРАЖЕНИЕ)



NOTE:
ПРИМЕЧАНИЯ:
"Free from Intermetallic Phases"

FIRMA / SIGNATURE / ПОДПИСЬ	UNTERSCHRIFT / SIGNATURE	DATA / DATE / ДАТА	DATUM / DATE
Christian Del Guerra		03/10/19	

Mod.Micro Rev.4

21 AGO. 2024
FRANCO CORBELLINI
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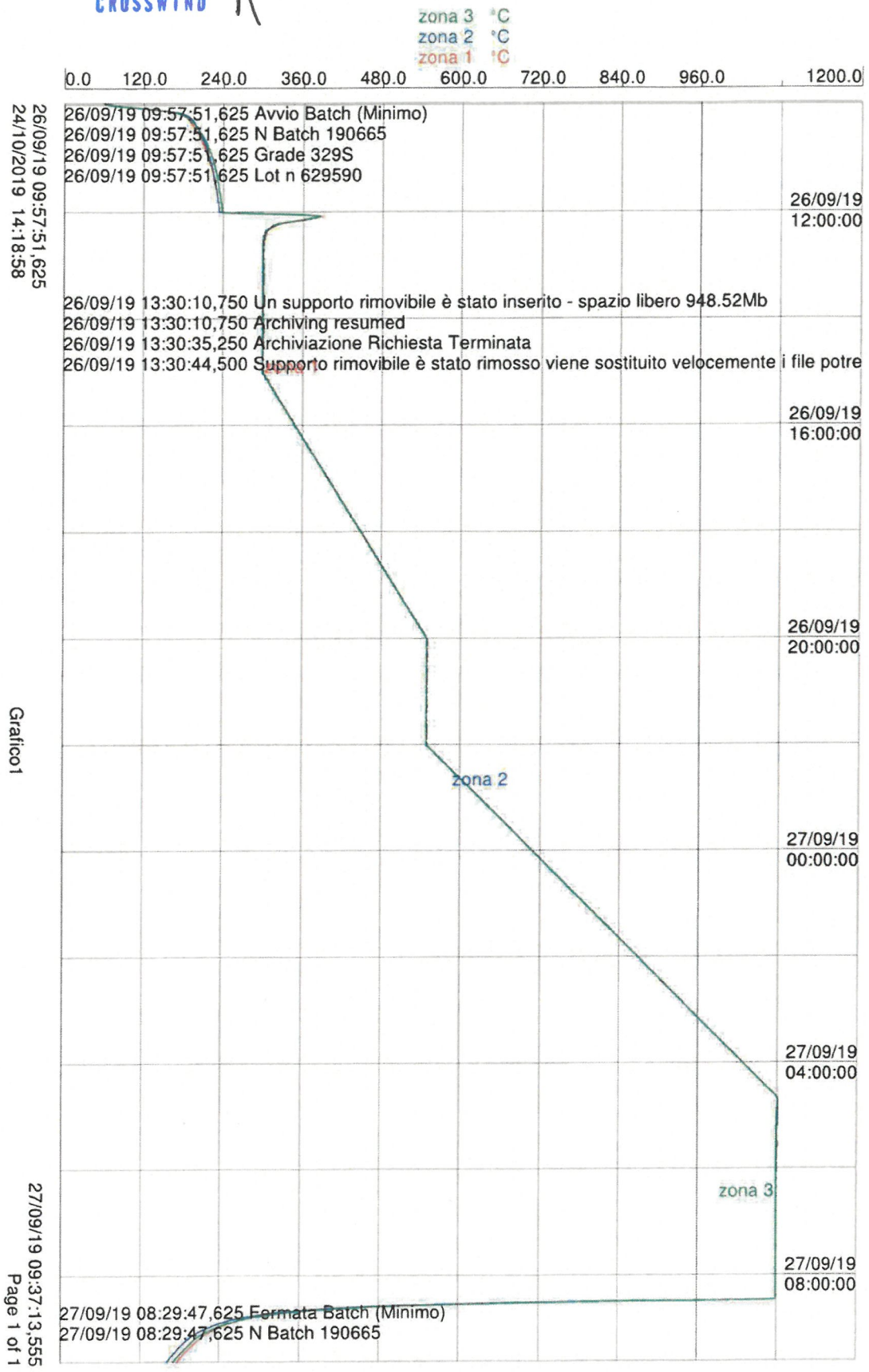
21 AGO. 2021

FRANCO CORDELLINI

QBQ

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26/09/19 09:57:51,625
24/10/2019 14:18:58

Grafico1

27/09/19 09:37:13,555
Page 1 of 1

FRANCO CORBELLINI
21 AGO. 2019
CROSSWIND

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COGNE ACCIAI SPECIALI S.P.A.

CERTIFICATO DI COLLAUDO ULTRASUONI
CERTIFICAT DE CONTROLE PAR ULTRASONS
ULTRASCHALL PRUEFZEUGNIS
REPORT OF ULTRASONIC INSPECTION
ОТЧЕТ ОБ УЛЬТРАЗВУКОВОМ КОНТРОЛЕ

N. US. 2422/19

CLIENTE *CLIENTSGG BESTELLER CUSTOMER* ЗАКАЗЧИК			***CONFERMA*** *CONFIRMATION AUFTRAGSBESTRAKTIGUNG CONFIRMATION* ПОДТВЕРЖД. ЗАКАЗА	
MARCA *NUANCES WERKESTOFF GRADE* МАРКА	329S 1 W.No 1.4410		***ORDINE*** *COMMANDE AUFTRAG ORDER* ЗАКАЗ	
SPECIFICA *SPECIFICATION PRUKEVORSCHRIFT SPECIFICATION* ТЕХ. ТРЕБОВАНИЯ	EN10308 prospetto3 cl3	***COLATA*** *COULEE SCHMELZE HEAT* ПЛАВКА	901258	***SCHEDA*** *LOT LAUFKARTE LOT* ПАРТИЯ 629590
PRODOTTO *PRODUIT ERZEUGNISFORM PRODUCT* ИЗДЕЛИЕ	ROUND BARS 125 mm	***STATO DI LAVORAZIONE*** *STADE DU PRODUIT LIEFERZUSTAND WORKING STEP* ОБРАБОТКА	PEELED	
TIPO DI APPARECCHIO *TIPE D'APPAREILPARUS PRUEFGERAT TYP INSTRUMENT TYPE* ТИП АППАРАТА	USN60 L SW 16L021RC	***COSTRUTTORE*** *CONSTRUCTEUR BAUART MAKE* ИЗГОТОВИТЕЛЬ	KRAUTKRAMER	
TIPO DI SONDA *TIPE DE PALPEUR PRUFKOPT PROBETYPE* ТИП ЗОНДА	B2S-E	***FREQUENZA*** *FREQUENCE FREQUENZ FREQUENCY* ЧАСТОТА	2 MHz	

DIREZIONE D'ESAME *DIRECTION D'EXAMEN PRUEFRICHTUNG SCANNING DIRECTION* НАПРАВЛЕНИЕ ПРИ

- [X] *RADIALE - RADIAL*
- [ ] *ASSIALE - AXIAL*
- [ ] *SONDE ANGOLATE - ANGLE BEAMS*

- [ ] ***MATRICOLA BLOCCO CAMPIONE*** ***DENTIFICATION BLOC DE REFERENCE MUSTER BLOCK*** ***MUSTER BLOCK*** ***TEST BLOCK NR*** № ОБРАЗЦА ДЛЯ ИСПЫТАНИЯ

- [ ] ***AVG SCALE*** *ECRANS ABAQUES AVG AVG SKALEN AVG SCALE* ШКАЛА *AVG*
- [X] ***AVG DIAGRAMMI*** ***DIAGRAMMES AVG*** ***AVG DIAGRAMM*** ***AVG DIAGRAM*** ДИАГРАММЫ *AVG*
- [ ] V1
- [ ] V2

RISULTATODELL'ESAME RESULTAT DE L' ESSAI PRUEFERGERBNISSE RESULT OF THE TEST РЕЗУЛЬТАТ

EXAM DATA : 22/10/2019

INSPECTED N. BARS 6

THE MATERIAL IS IN ACCORDANCE TO THE FOLLOWING SPECIFICATIONS:

EN10308 prospetto3 cl3

L'ISPETTORE CND ZUSTANDER CND L'INSPECTEUR CND CND INSPECTOR ИНСПЕКТОР НРК	**III LIV.CND** III УРОВЕНЬ НРК		**DATA** DATUM DATE DATE ДАТА
BAISOTTI MARCO Liv.II - ISO9712 N° Cert.20741/PND/C	OLIVERO DIMITRI Liv.III - ISO9712 N° Cert.24100/PND/C		24/10/2019

(Mod. Certus Rev. 6)

Laboratorio T.O.S.I. s.r.l.
Tecnici Organizzati al Servizio delle Imprese
Sede Legale e Unità Operativa: 20025 Legnano (MI) - Via Pisacane, 46
Tel. 0331.549631 / 0331.456119 - Fax 0331.470141 / 0331.451616
Internet: www.laboratoriotosi.it - E-mail: info@labtosi.it - P.IVA e C.F. 12805730152

LAB N° 1504

RAPPORTO DI PROVA / TEST REPORT	DATA / DATE
20P1245 Rev. **0**	28/05/20

CLIENTE / CUSTOMER	**Fluitek Orsenigo Valves S.r.l.**		
	Via Lodovico Mancini, 5	20129 Milano (MI)	Italy

DESCRIZIONE CAMPIONE / SAMPLE DESCRIPTION #	Round bar Ø125mm
RIFERIMENTI DEL CLIENTE / CUSTOMER REFERENCES #	DDT no. 200030 date 12/05/20

RICEVUTO IL / RECEIVED ON	CAMPIONAMENTO / SAMPLING	LUOGO ESECUZIONE PROVE / TESTING PLACE
13/05/20	By customer	Laboratorio T.O.S.I.

MATERIALE / MATERIAL #	COLATA / HEAT #
ASTM A182 F53	901258

ID. CLIENTE / CUSTOMER ID #	ID. LABORATORIO / LABORATORY ID.
test no. 004-2020	**S1258**

I risultati di prova si riferiscono solo ai campioni sottoposti a prova, come ricevuti. / Test report results relate to the tested specimens only, as received.

Il presente rapporto di prova non può essere riprodotto parzialmente. / The present test report cannot been partially reproduced.

I testimoni di prova sono conservati per 3 mesi, salvo diversa richiesta scritta del cliente. / Copons after test shall be kept for 3 months, unless otherwise written request of the customer.

Ove presente l'incertezza di misura viene espressa come incertezza estesa ottenuta moltiplicando l'incertezza tipo per il fattore di copertura k corrispondente ad un intervallo di fiducia di circa il 95%. Normalmente tale fattore k vale 2, tranne per analisi chimica (k=4,3) e per la determinazione di una seconda fase (k=2,05). / Where present the reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k = 2, which for a normal distribution provides a level of confidence of approximately 95%, except for chemical analysis (k=4,3) and for determination of a second phase (k=2,05).

Informazioni fornite dal cliente, per le quali il laboratorio declina ogni reponsabilità. / Information provided by the customer, for which the laboratory refuses all responsibility.

Redattore / Editor	Responsabile laboratorio / Laboratory manager
Roberto Baratella	*Roberto Stella*

Ispettore esterno / External inspector	Ispettore esterno / External inspector	Ispettore esterno / External inspector
	21 AGO. 2014 FRANCO CORBELLINI QBQ CROSSWIND	

Laboratorio T.O.S.I. s.r.l.
Tecnici Organizzati al Servizio delle Imprese
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Internet: www.laboratoriotosi.it - E-mail: info@labtosi.it - P.IVA e C.F. 12805730152

LAB N° 1504

TEST REPORT: **20P1245** Rev. **0** LABORATORY ID. **S1258**

PROVA RICHIESTA / TEST REQUIRED:

Prova di resilienza / impact test

NORMA DI PROVA / TEST STANDARD: **ASTM E23-18**

DATA PROVA / TEST DATE: 27/05/2020

APPARECCHIATURE / APPARATOUS: Machine **T075**, Caliper **T103**, Thermometer -, Cryostat **T122**

Prova n° test n°	Orientamento orientation	Posizione position	T °C	Dimensione dimension mm	KV J			KV medio avg J	Esp. Laterale lateral exp. mm	Shear Area %
1258-1	longitudinal	T/2	-50	10,0 x 10,0	283	205	209	232	1,73 - 1,69 - 1,71	

I valori superiori all' 80% della capacità della macchina di prova si devono considerare approssimativi. Per le prove a temperatura ambiente, la temperatura è quella presente in laboratorio.
Absorbed energy values above 80% of the scale range are approximate. For tests at room temperature, the temperature is equal to that present in the laboratory

Fine rapporto di prova / End of test report

21 AGO. 2020
FRANCO CORBELLINI
QBQ
CROSSWIND

C 240062-027/01

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COGNE ACCIAI SPECIALI S.p.a.

ITALY - 11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 200.000.000 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, IATF 16949, EN 9100 and ISO 14001.

64170

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)
DOCUMENT NUMBER 2022010814

21 AGO 2022
FRANCO CERSELLINI
CROSSWIND

USTOMER:	C.S.C. SPA		
USTOMER'S ORDER:	A2021912SSS		
ANUFACTURER'S WORKS:	AOSTA, VIA PARAVERA 16 - ITALY		
RODUCER OF THE DOC:	QUALITY DEPARTMENT		
ANUFACTURER'S WORKS ORDER NO:	0025285696 / 000040		
ARK OF THE MANUFACTURER:	COGNE		
ISPATCH NOTE:	81468194 / 10 WEIGHT: 712 KG / 1570 LB		
HE CERTIFIED PRODUCTS ARE COMPLYING TO THE PURCHASE ORDER, EXCEPT FOR EXEMPTIONS AGREED WITH THE CUSTOMER, IF ANY.			
NTERNAL SPEC:	NORSOKREV5		
RODUCT:	PEL PEELED ROUND BARS TOLERANCE: ISOK11		
URFACE FINISH:	2B Cold Finished		
RODUCT DELIVERY CONDITION:	RS SOLUTION ANNEALED		
RODUCT DIMENSIONS (mm):	70,000 (2,756 in)	LENGTH (mm)	06000 06200 (00236 00244 in)
RADE:	F53 UNSS32750 1.4410	INTERNAL GRADE:	329S 1
DENTIFICATION HEAT NO:	101007	IDENTIFICATION LOT NO:	388920
ARKING OF THE PRODUCT:	1.4410	TEST PIECE N:	892

TEELMAKING EAF + AOD
OT ROLLED
EDUCTION RATIO 87,5

CHEMICAL LADLE ANALYSIS ACCORDING TO ASTM A751 - EN ISO 14284
Control lot No. - Weight :020000877431 - 90.868 KG - 200.326 LB

ELEMENTS	C	Si	Mn	P	S	N	Cr	Mo	Ni	Cu
OBTAINED	0,017	0,34	0,90	0,024	0,0005	0,25	25,11	3,76	6,89	0,15

ELEMENTS	CV_F8
OBTAINED	42

CV_F8 = CR+(3.3*MO)+(16*N2)

HARDNESS TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
SPECIFICATION ENISO6506 HARDNESS TEST HB TESTING METHOD: 10/3000
OBTAINED 239

IMPACT TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
SPECIFICATION EN ISO 148-1-KV2 DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 20
MEASUREMENT UNIT J
OBTAINED 438 433 435

FLUITEK ORSENIGO VALVES SRL Q.C.

DATE 28.02.2022

MORABITO ROSA CF(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE

C 240062-027/01

2 - 064170.PDF

COGNE ACCIAI SPECIALI S.p.a.

ITALY - 11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 200.000.000 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, IATF 16949, EN 9100 and ISO 14001.

FLUITEK ORSENIGO VALVES SRL Q.C.

NSILE TEST IN AS DELIVERY CONDITION
ntrol lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
ECIFICATION ASTMA370-E8-0.5"SPEC DIRECTION OF THE TEST PIECE: L

ASUREMENT UNIT	Rm MPA	Rp02% MPA	Z %	A12 % 4,0 D
TAINED	786	564	84,4	45,5

RROSION
ntrol lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
ECIFICATION ASTM G48 A
TAINED 0,0831

RRITE %
ntrol lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
ECIFICATION ASTME562 --
BTAINED 47,3

MICROSTRUCTURE
Control lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
SPECIFICATION -- --
OBTAINED SATISFACTORY -

LATERAL EXPANSION
Control lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
SPECIFICATION ASTMA370 --
OBTAINED 1,7 1,9 1,5

SHEAR %
Control lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
SPECIFICATION ASTMA370 --
OBTAINED 80 80 50

EAF+AOD+INGOT CASTING
HOT ROLLED
HARDNESS TEST
Control lot No. - Weight :020000902936 - 2.715 KG - 5.985 LB
SPECIFICATION ASTMA370-E18 HARDNESS TEST HRC TESTING METHOD:
OBTAINED 20

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

DATE 28.02.2022

MORABITO ROSA CF(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE

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TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 200.000.000 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, IATF 16949, EN 9100 and ISO 14001.

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)
DOCUMENT NUMBER 2022010814

PACT TEST

ntrol lot No. - Weight	:020000902936	-	2.715 KG	-	5.985 LB
ECIFICATION		ASTM A370-E23 TYPE A		DIRECTION OF THE TEST PIECE: L	
PE OF TEST PIECE		KV			
ST TEMPERATURE °C			50-		
ASUREMENT UNIT		J			
TAINED	237	243	163		

NSILE TEST

ntrol lot No. - Weight	:020000902936	-	2.715 KG	-	5.985 LB
ECIFICATION		EN-ISO6892-1		DIRECTION OF THE TEST PIECE: L	

	Rm_C	Rp02_C	A	Z_C
ASUREMENT UNIT	MPA	MPA	% 5.0 D	%
TAINED	781	560	43,5	85,2

REFERENCE NORMS:EN 10088-3, EN 10272, ASTM A276/ASME SA276, ASTM A479/ASME SA479, ISO 15156-3/NACE MR0175, ISO 17945/NACE MR0103, NORSOK M-650 REV.4/M-630, MDS D57 REV.5.
REFERENCE NORMS FOR CHEMICAL ANALYSIS, MECHANICAL PROPERTIES, HEAT TREATMENT: ASTM A182/ASME SA182, API 6A-PSL3
REFERENCE NORMS ONLY FOR CHEMICAL COMPOSITION: EN 10222-5, ASTM A484
CORROSION TEST ACCORDING TO ASTM A262 Method E EN ISO 3651-2 A: SATISFACTORY. NO CRACKS AT 20X MAGNIFICATION
ASTM G48 A/ASTM A923 C TESTING CONDITIONS: Sample surface 120 GRIT, Solution 100g FeCl3.6H2O+900ml H20, T 50°C, 24h, no pitting at 20X.
METALLOGRAPHIC INSPECTION ACCORDING TO ASTM A923 METHOD A: SATISFACTORY.
HEAT TREATMENT: SOLUBILIZATION 1100 ° C 1.5 min / mm COOLING WATER TEMPERATURE BELOW 260 °C (FURNACE THERMOCOUPLES)
VISUAL SURFACE INSPECTION AND EDDY CURRENT WITH ROTATING HEAD ACCORDING TO EN 10277 Class 4 : SATISFACTORY . DIMENSIONAL TEST ACCORDING TO EN 10278 : SATISFACTORY . ULTRASONIC TEST IN ACCORDING TO EN 10308 , Class 3 : SATISFACTORY . ANTIMIX SPECTROMETER CONTROL WITH PORTABLE PRODUCT : SATISFACTORY . NOT BEEN MADE BY ANY REPAIR MATERIAL WELDING
ASTM A484 DOES NOT APPLY FOR SIZE AND LENGTH TOLERANCES.
QTC ON PROLONGATION OF BARS TESTS AT MID RADIUS (CENTER POS. FOR SIZES <2 INCHES).
IMPACT TEST VALUES AT -40°C AND -46°CARE NOT LESS THAN THOSE AT -50°C HERE STATED.
THE PRODUCT SATISFIES THE DIRECTIVES: 2015/863/EU (ROHS3) - 2011/65/EU (ROHS2) - 2000/53/EU - 2002/95/EU(RoHS) - 2003/11/EU-2005/618/EU AND PED 2014/68/EU.
THE MATERIAL IS FREE OF ANY MERCURY, MERCURY COMPOUNDS AND OR RADIUM CONTAMINATION AT TIME OF SHIPMENT AND WAS PRODUCED WITHOUT USING OZONE DEPLETING SUBSTANCES OF CLASS I AND II.
COUNTRY OF MELTING AND ORIGIN: ITALY, THE MATERIAL COMPLIES WITH FAR DFARS 252.225-7009 ALT 1.
ALL THE NORMS MENTIONED ARE INTENDED IN THEIR LAST REVISION AT THE DATE OF ISSUE OF THIS DOCUMENT.
MARKING: PRODUCER LOGO, MATERIAL NO, HEAT NO, LOT NR.
QUALITY SYSTEM CERTIFIED BY KIWA CERMET ACCORDING TO UNI EN ISO 9001:2015 -IATF 16949:2016 (THE LAST ONE ONLY FOR WIRE ROD AND HOT ROLLED-PEELED-GROUND STAINLESS STEEL BARS).

21 FEB. 22
FRANCO CORBELLINI
881
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

DATE 28.02.2022

MORABITO ROSA CF(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE

2 - 064170.PDF C 240062-027/01

COGNE ACCIAI SPECIALI S.P.A.

CERTIFICATO DI COLLAUDO ULTRASUONI
CERTIFICAT DE CONTROLE PAR ULTRASONS
ULTRASCHALL PRUEFZEUGNIS
REPORT OF ULTRASONIC INSPECTION
ОТЧЕТ ОБ УЛЬТРАЗВУКОВОМ КОНТРОЛЕ

N. US.
284/2022

CLIENTE *CLIENTSGG* *BESTELLER* *CUSTOMER* ЗАКАЗЧИК	*CONFERMA* *CONFIRMATION* *AUFTRAGSBESTRAKTIGUNG* *CONFIRMATION* ПОДТВЕРЖД. ЗАКАЗА
MARCA *NUANCES* *WERKESTOFF* *GRADE* МАРКА: 329S 1 W.No 1.4410	*ORDINE* *COMMANDE* *AUFTRAG* *ORDER* ЗАКАЗ
SPECIFICA *SPECIFICATION* *PRUKEVORSCHRIFT* *SPECIFICATION* ТЕХ. ТРЕБОВАНИЯ: EN10308 prospetto3 cl3	*COLATA* *COULEE* *SCHMELZE* *HEAT* ПЛАВКА: 101007
SCHEDA *LOT* *LAUFKARTE* *LOT* ПАРТИЯ: 388920	
PRODOTTO *PRODUIT* *ERZEUGNISFORM* *PRODUCT* ИЗДЕЛИЕ: ROUND BARS 70 mm	*STATO DI LAVORAZIONE* *STADE DU PRODUIT* *LIEFERZUSTAND* *WORKING STEP* ОБРАБОТКА: PEELED
TIPO DI APPARECCHIO *TIPE D'APPAREILPARUS* *PRUEFGERAT TYP* *INSTRUMENT TYPE* ТИП АППАРАТА: USM36 18107589	*COSTRUTTORE* *CONSTRUCTEUR* *BAUART* *MAKE* ИЗГОТОВИТЕЛЬ: KRAUTKRAMER
TIPO DI SONDA *TIPE DE PALPEUR* *PRUFKOPT* *PROBETYPE* ТИП ЗОНДА: SEB4-S	*FREQUENZA* *FREQUENCE* *FREQUENZ* *FREQUENCY* ЧАСТОТА: 4 MHz S/N 67257 50316
DIREZIONE D'ESAME *DIRECTION D'EXAMEN* *PRUEFRICHTUNG* *SCANNING DIRECTION* НАПРАВЛЕНИЕ ПРИ	[X] *RADIALE - RADIAL* [ ] *ASSIALE - AXIAL* [ ] *SONDE ANGOLATE - ANGLE BEAMS*

21 NOV. 2022

FRANCO CORBELLINI
QB1
CROSSWIND

[ ] *MATRICOLA BLOCCO CAMPIONE*
DENTIFICATION BLOC DE REFERENCE MUSTER BLOCK
MUSTER BLOCK
TEST BLOCK NR
№ ОБРАЗЦА ДЛЯ ИСПЫТАНИЯ

[ ] *AVG SCALE*
ECRANS ABAQUES AVG
AVG SKALEN
AVG SCALE
ШКАЛА *AVG*

[X] *AVG DIAGRAMMI*
DIAGRAMMES AVG
AVG DIAGRAMM
AVG DIAGRAM
ДИАГРАММЫ *AVG*

[ ] V1 [ ] V2

RISULTATODELL'ESAME
RESULTAT DE L' ESSAI
PRUEFERGERBNISSE
RESULT OF THE TEST
РЕЗУЛЬТАТ

EXAM DATA : 22/02/2022
INSPECTED N. BARS 4

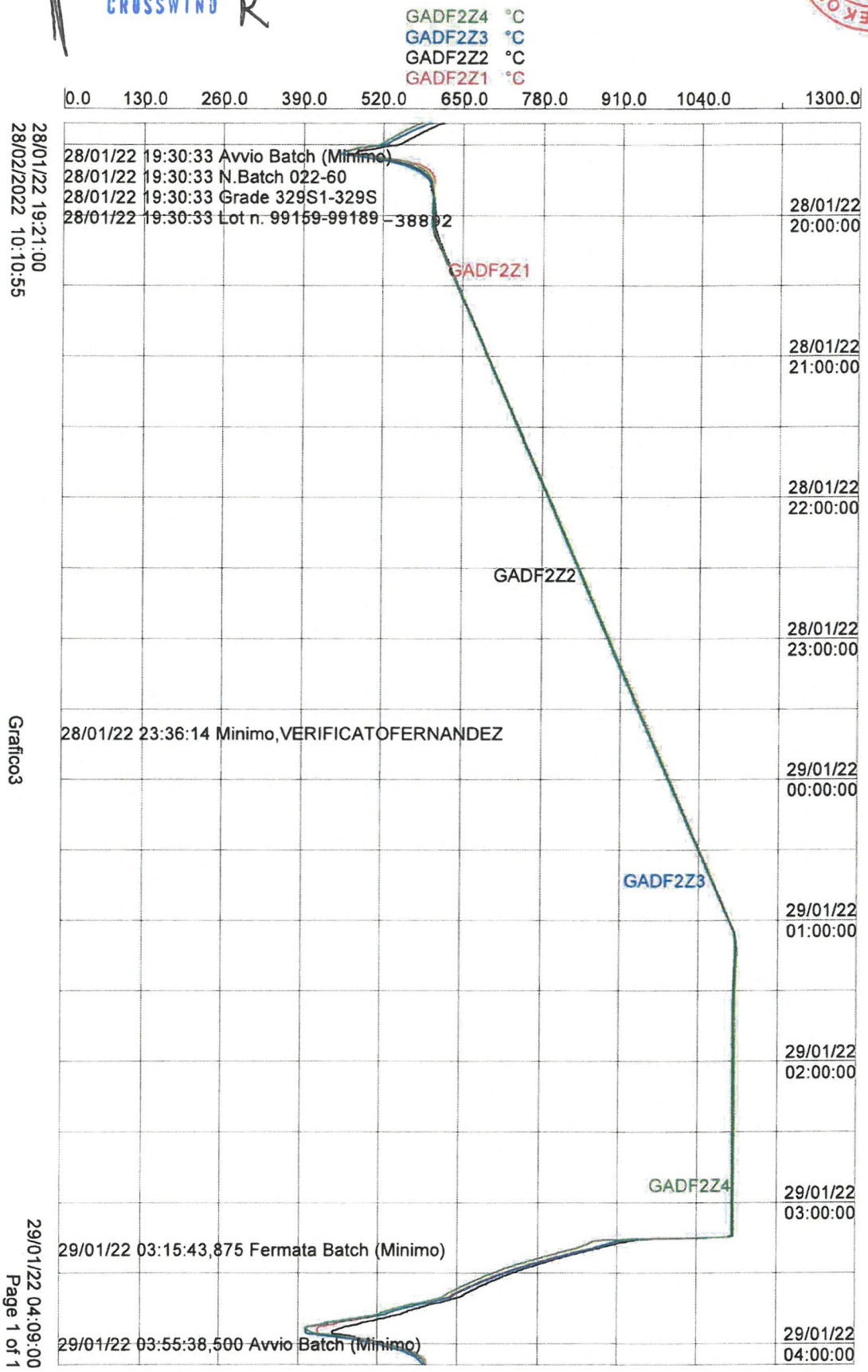
THE MATERIAL IS IN ACCORDANCE TO THE FOLLOWING SPECIFICATIONS:

EN10308 prospetto3 cl3

L'ISPETTORE CND ZUSTANDER CND L'INSPECTEUR CND CND INSPECTOR ИНСПЕКТОР НРК NADALIN SIMONE Liv.II - ISO 9712 N° Cert.32040/PND/C	**III LIV.CND** **III УРОВЕНЬ НРК** BAISOTTI MARCO Liv.III - ISO 9712 N° Cert.34194/PND/C	FLUITEK ORSENIGO VALVES SRL Q.A.C.	**DATA DATUM** **DATE DATE** **ДАТА** 23/02/2022

(Mod. Certus Rev. 6)

21 MAR 2022
FRANCO CORBELLINI
QBQ
CROSSWIND R



28/01/22 19:21:00
28/02/2022 10:10:55

Grafico3

29/01/22 04:09:00
Page 1 of 1

2 - 064170.PDF C 240062-027/01

COGNE ACCIAI SPECIALI S.p.a.
Via Paravera, 16
I-11100 AOSTA

MICROPHOTO **All.N 1**
МИКРОСЪЁМКА

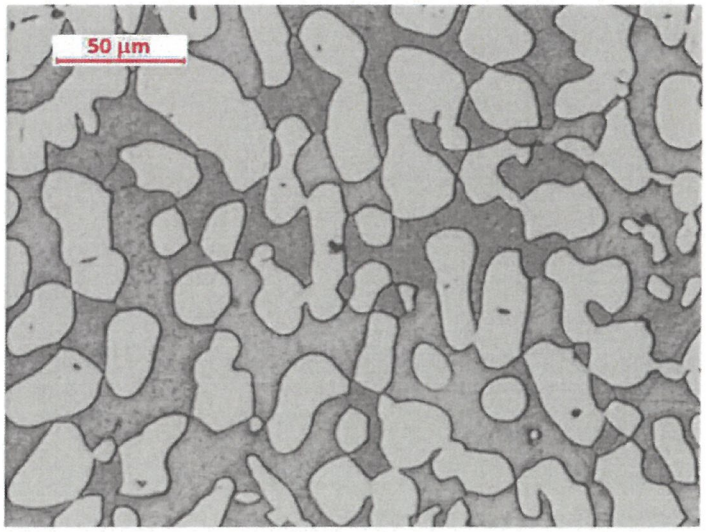
MARCA *NUANCES* *WERKESTOFF* *GRADE* *МАРКА*	329S 1	*LOTTO DI CONTROLLO* *LOT DE CONTRÔLE* *LAUFKARTE* *CONTROL LOT* *ПАРТИЯ КОНТРОЛЯ*	020000902936
COLATA *COULEE* *SCHMELZE* *HEAT* *ПЛАВКА*	101007	*REAGENTE* *RÉACTIF* *REAGENS* *ETCHANT* *РЕАГЕНТ*	20 % NaOH electrolyte
TIPO DI APPARECCHIO *TIPE D'APPAREIL* *PRUEFGERAT TYP* *INSTRUMENT TYPE* *ТИП АППАРАТА*		**MICROSCOPE – LEICA** **MEF4M МИКРОСКОП**	
INGRANDIMENTO *AGRANDISSEMENT* *VERGRÖSSERUNG* *ENLARGEMENT* *УВЕЛИЧЕНИЕ*		**400 X**	

DIREZIONE D'ESAME
DIRECTION D'EXAMEN
PRUEFRICHTUNG
SCANNING DIRECTION
НАПРАВЛЕНИЕ
ПРИ ИССЛЕДОВАНИИ

☐ **LONGITUDINALE - LONGITUDINAL - ПРОДОЛЬНОЕ**

☒ **TRASVERSALE – TRANSVERSAL – KREUZEND-ПОПЕРЕЧНОЕ**

PHOTO (ELECTRONIC IMAGE) – ФОТОСНИМКИ (ЭЛЕКТРОННОЕ ИЗОБРАЖЕНИЕ)



NOTE:
ПРИМЕЧАНИЯ:
"Free from Intermetallic Phases"

FIRMA / SIGNATURE / ПОДПИСЬ / UNTERSCHRIFT	DATA / DATE / ДАТА / DATUM
C. Del Guerra	07/02/22

21 FEB. 2022
FRANCO CORBELLINI
QBJ
CROSSWIND R

Mod.Micro Rev.4

FLUITEK ORSENIGO VALVES SRL QAC

COGNE ACCIAI SPECIALI S.p.a.
Via Paravera, 16
I-11100 AOSTA

MICROPHOTO **All.N 2**
МИКРОСЪЁМКА

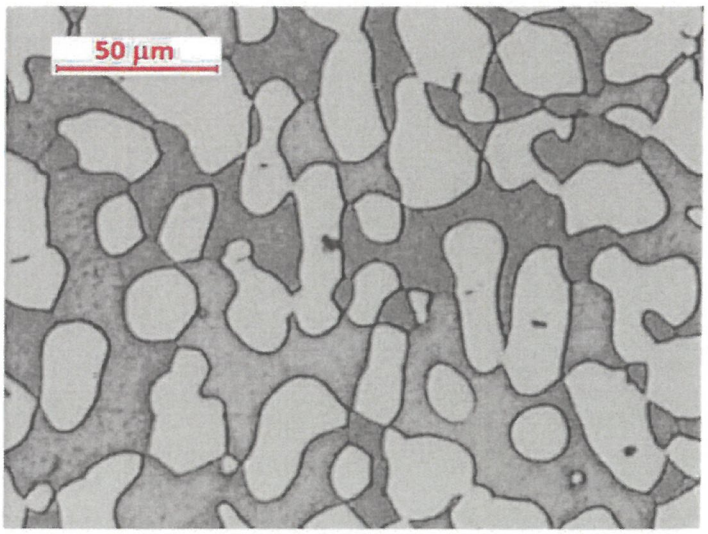
MARCA *NUANCES* *WERKESTOFF* *GRADE* *МАРКА*	329S 1	*LOTTO DI CONTROLLO* *LOT DE CONTRÔLE* *LAUFKARTE* *CONTROL LOT* *ПАРТИЯ КОНТРОЛЯ*	020000902936
COLATA *COULEE* *SCHMELZE* *HEAT* *ПЛАВКА*	101007	*REAGENTE* *RÉACTIF* *REAGENS* *ETCHANT* *РЕАГЕНТ*	20 % NaOH electrolyte
TIPO DI APPARECCHIO *TIPE D'APPAREIL* *PRUEFGERAT TYP* *INSTRUMENT TYPE* *ТИП АППАРАТА*	**MICROSCOPE – LEICA** **MEF4M МИКРОСКОП**		
INGRANDIMENTO *AGRANDISSEMENT* *VERGRÖSSERUNG* *ENLARGEMENT* *УВЕЛИЧЕНИЕ*	**500 X**		

DIREZIONE D'ESAME
DIRECTION D'EXAMEN
PRUEFRICHTUNG
SCANNING DIRECTION
НАПРАВЛЕНИЕ
ПРИ ИССЛЕДОВАНИИ

☐ **LONGITUDINALE - LONGITUDINAL - ПРОДОЛЬНОЕ**

☒ **TRASVERSALE – TRANSVERSAL – KREUZEND-ПОПЕРЕЧНОЕ**

PHOTO (ELECTRONIC IMAGE) – ФОТОСНИМКИ (ЭЛЕКТРОННОЕ ИЗОБРАЖЕНИЕ)



NOTE:
ПРИМЕЧАНИЯ:
"Free from Intermetallic Phases"

FIRMA UNTERSCHRIFT SIGNATURE SIGNATURE ПОДПИСЬ	DATA DATUM DATE DATE ДАТА
C. Del Guerra	07/02/22

21 FEB. 2022
FRANCO CORBELLINI
OBJ
CROSSWIND R

Mod.Micro Rev.4

FLUITEK ORSENIGO VALVES SRL Q.C.

3 - 071474.PDF C 240062-027/01

71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1/2
printed: 14. AUG 2023

VDM
Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668
Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

Specification
718 Rev. 13 03.02.2020 (Straigthness 2:1000)
Yield Strength: min 120 KSI
temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718
UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1834-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straigthness 2:1000); API 6 A CRA First Edition 08.2015, + Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Melt	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Melt	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Melt	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5.5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Ünal Üçüncü, authorized inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velazquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Aparicio Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

FLUITEK CORSENIGO VALVES S.R.L. Q.C.

21 NOV. 2023
FRANCO CORBELLINI
QB1
CROSSWIND

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

printed: 14. AUG 2023

Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates
1 718 Rev. 13 03.02.2020 (Straighness 2:1000)

		Test Location
1	Complying with delivery specification.	surface
1	Complying with delivery specification.	1/4 thickness
1	Complying with delivery specification.	center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling[start 27°C - end 28°C - max. 29°C] + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.
For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.
MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.
No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.
All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.
SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.
The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straighening is still permitted after ageing if this is considered necessary after this processing step.
Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

21 AGO 2023
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL
Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Aspiazu Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 : 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apilarte Zemp, Frank Moers
Commercial register: berlahn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure: 1
Page: 2 / 4
printed: 14. AUG 2023

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KV_8 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1,11	0,93	1,14	70	70	70

21 NOV. 2024
FRANCO CORBELLINI
QSQ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicolas Mößer (Chairman)
Holger Arnold, Daniel Arpiarte Zamp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 3 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straightness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

21 AGO. 23.
FRANCO CORBELLINI
QBJ
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of inspection 22.07.2023

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

21 AGO. 2023
FRANCO CORBELLINI
QBJ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
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Internet: www.vdm-metals.com

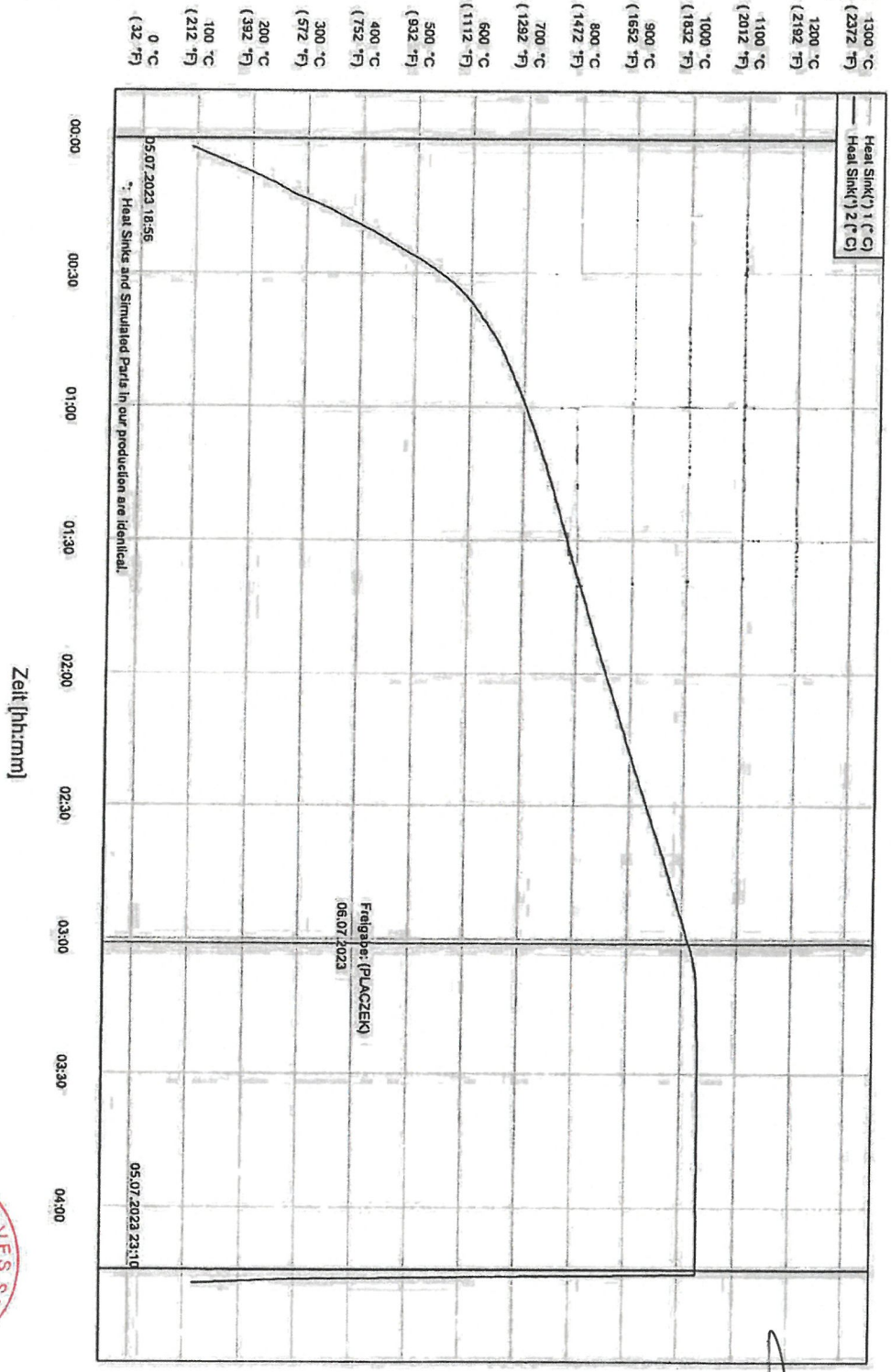
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicias Müller (Chairman)
Holger Arnold, Daniel Aspitarte Zemp, Frank Monis
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Mirko Muller (Chairman)
Holger Arnold, Daniel Arpiarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

21 AGO. 2024
FRANCO CORBELLINI
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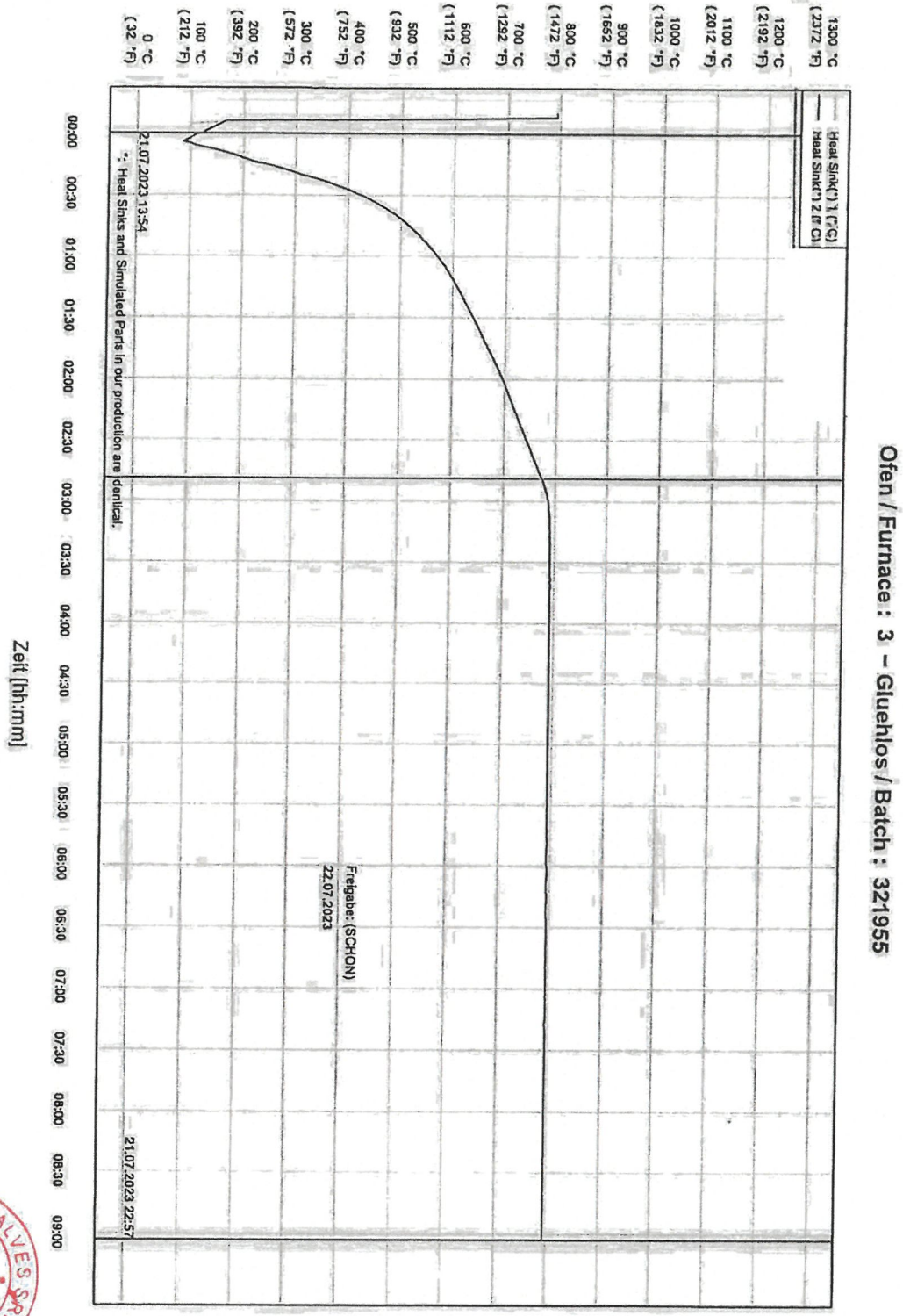
3 - 071474.PDF C 240062-027/01

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
printed: 14. AUG 2023



Ofen / Furnace : 3 - Gluehlos / Batch : 321955

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman)
Holger Arnold, Daniel Apitante Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

21 FRANCO CORBELLINI QBQ CROSSWIND

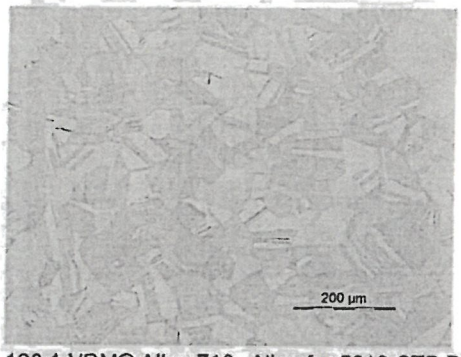
VDM Metals GmbH

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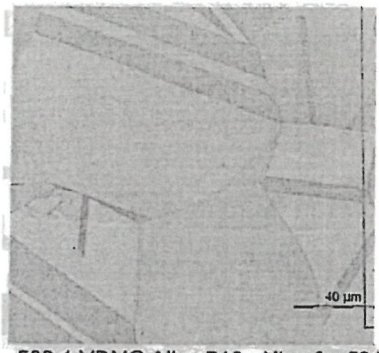
Microstructure Examination

Metallography Job No.: 194936
Lot No.: 105403101
Heat: 422416

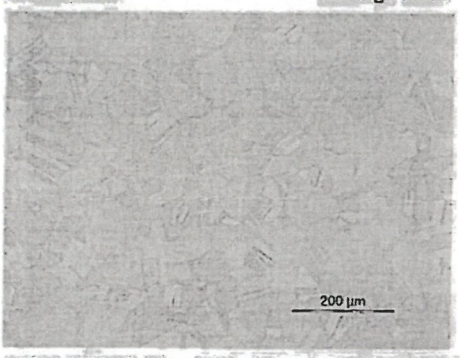
Inspection Certificate No.: 253749/1
Enclosure: 4
Page: ~~1 of 1~~



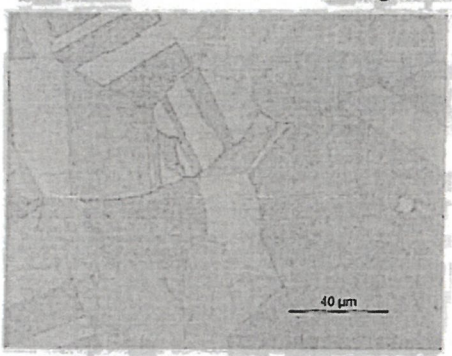
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102T001A02 surface
26.07.2023 Kallings No.2



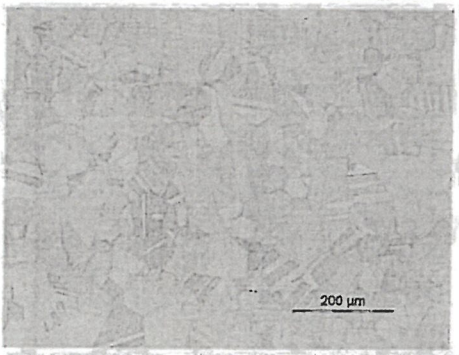
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



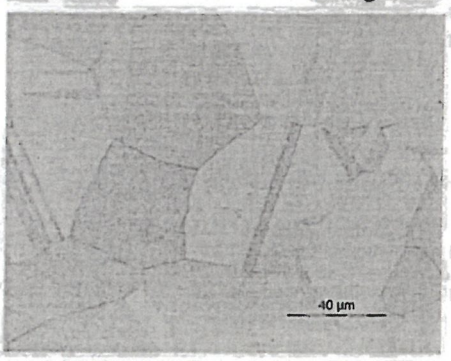
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

FLOWSERVE ITALY VALVES SRL Q.C.

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpilarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 AGO 2024

FRANCO CORBELLINI
QSQ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE
PRODUCT CODE: 718 1.25 SAAH
ORDER NUMBER: 715430-1 **STEP:** 721719
HARDNESS RANGE (HBW): 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
☐ A0-30	☐ 6403-4 R92033	☐ R984063	☑ 0510014	☐	☐ F68332/139	☐ 814574
☑ UC-71	☐ 6403_16897	☐	☐ 0907068	☐	☐	☐
☐ UC-72	☐ E50152/15(6503-1)	☐	☐ 1112032	☐	☐	☐
☐	☐ HMV1(6403-3)	☐	☐ 1112037	☐	☐	☐
☐	☐ R335(HMM1)	☐	☐	☐	☐	☐

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

								T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
L	316	316.5	375911 30AW	P	2/5/24

01 March 2024

21 AGO 2024
FRANCO CORBELLINI
QB1
CROSSWIND

3 - 071474.PDF C 240062-027/01

4 - 073266.PDF C 240062-027/01

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

73266

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024001013982
DATE 22/07/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **2385**
Ordine N°/Order N° **240436**
Row Ref. **2**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: QT MT 615°C

Fully Threaded Stud-bolt UNI 6610/DIN 976B
ASTM A193 B7
M10x1,5 L:35 mm
H.D.G. ASTM A153 tolerance after coating ISO 261

Q.ty[pcs]: 16 pcs.

Batch C0C1F2E1

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
UTS Mpa	860		994	YS0,2% Mpa	720		765
Z %	50		56	HBW		321	302
A 4D	16		22				

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: BH1988

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C	0,38	0,48	0,43	Mn	0,75	1	0,83
P		0,035	0,007	S		0,04	0,028
Cr	0,8	1,1	1,03	Mo	0,15	0,25	0,16
Si	0,15	0,35	0,26				

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Matteo Bernardi
Quality Dept.

T.M.V. MOLINARI
Q.A. MANAGER
APPROVATO

5 - 072272.PDF C 240062-027/01

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

72272

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
EN 10204 - 2004 L.E.3.1
N°2024000543914
DATE 04/06/2024

Cliente/Purchaser **FLUITEK ORSENIGO VALVES srl**
Commessa N°/Job N° **1383**
Ordine N°/Order N° **240152 R1**
Row Ref. **25**

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

Heat Treatment details: QT MT 560°C

Hex Nut UNI 5587/DIN 934 H=D
ASTM A194 2H
M10x1,5 H.D.G. ASTM A153

Q.ty[pcs]: 16 pcs.

Batch Code: 5AA94B75

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES IN FINISHED CONDITIONS

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
HBW	248	327	277	PROOF LOAD			POSIT
HBW 24h 540°C	179		260				

ANALISI CHIMICA - CHEMICAL COMPOSITION [X]BY LADLE ANALYSIS [ ]BY CHECK ANALYSIS

HEAT N°: 631016

Test	Req. min	Req. MAX	Value	Test	Req. min	Req. MAX	Value
C	0,4		0,46	Mn		1	0,77
P		0,04	0,01	S		0,05	0,02
Si		0,4	0,2				

RICHIESTE AGGIUNTIVE - ADDITIONAL REQUIREMENTS

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

Note/Remarks

MFR AUTHORIZED INSPECTOR AND STAMP

Matteo Bernardi
Quality Dept.

T.M.V. MOLINARI
Q.A. MANAGER
APPROVATO

Fluitek Valves

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE
N° **C 240062-028/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240062	**028**

YOUR P.O. N°
1724000204 123A90A/REV.1

ITEM	Q.TY
280	**1**

TAG
80-XV-001

SERIAL NUMBER
From 2400620280001 to 2400620280001

DESCRIPTION
ball valve fl 2 pz-fb2.1".150 lbs.att. pneumatico fail pos. close.rf.l-hydroger a182_316_316l/rptfe//a182_316_316l/api_6acra_uns_n07718////vit.glt_aed+g

fb2.0101.1.lvfd-hyd.att_pneu_fc.rf Rev0 1F02 025 "VL" LKa

NOTES

COMPONENT		CHEMICAL ANALYSIS											
		C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
PART NAME	MATERIAL	Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
		MECHANICAL PROPERTIES. IMPACT TESTS											
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F316/316L	0,020	1,830	0,350	0,023	0,027	17,000	2,100	10,360		0,410		066431
			0,140	0,080						25,210			
	376729	570,00	225,00	56,50	79,70	173,00	188,00	175,00	-196°C (L)	166 HBW			
BALL	A182 F316/316L	0,016	1,470	0,420	0,027	0,031	16,590	2,020	10,060				057606
				0,055						24,136			
	283122	586,00	295,00	57,00	72,00	250,00	253,00	256,00	20°C (L)	171 HBW			
STEM	API 6ACRA UNS N07718	0,012	0,020	0,060	0,001	0,004	18,500	3,050	54,200	0,950	0,020	17,650	071474
		0,470	0,060			4,980	0,001		4,990				
	422416	1227,00	876,00	31,20	49,00	112,00	110,00	113,00	-60°C (L)	39 HBW			
FLANGE	A182 F316/316L	0,020	1,830	0,350	0,023	0,027	17,000	2,100	10,360		0,410		066431
			0,140	0,080						25,210			
	376729	570,00	225,00	56,50	79,70	173,00	188,00	175,00	-196°C (L)	166 HBW			
STUD	A193 B8M	0,022	1,780	0,640	0,026	0,031	16,740	2,020	10,130				063484
	012333	726,00	611,00	32,95	72,00					220 HBW			
NUT	A194 G8M	0,010	1,520	0,540	0,022	0,032	16,530	2,060	10,130				067517
	281154									188 HBW			

DECLARATION OF CONFORMITY
We declare that this product is in compliance with the directive 2014/68/EU

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	21 AGO. 2024 FRANCO CERBELLINI QBQ CROSSWIND DATE	FLUITEK ORSENIGO VALVES SRL Q.C. DATE 06/08/2024

COGNE ACCIAI SPECIALI S.p.a.
ITALY - 11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 250.000.000 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

66431

21 AGO. 2023

FRANCO CORBELLINI
QBA
CROSSWIND R

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)

DOCUMENT NUMBER 2023041711

CUSTOMER:	FLUITEK ORSENIGO VALVES SRL		
CUSTOMER'S ORDER:	231521		
MANUFACTURER'S WORKS:	AOSTA, VIA PARAVERA 16 - ITALY		
PRODUCER OF THE DOC:	QUALITY DEPARTMENT		
MANUFACTURER'S WORKS ORDER NO:	0001136561 / 000010		
MARK OF THE MANUFACTURER:	COGNE		
DISPATCH NOTE:	0081567097 / 000010 WEIGHT:	416 KG / 917 LB	
INTERNAL SPEC:	AD2000MERKBLATTW10	TECHNICAL RULE:	AD2000
PRODUCT:	SPE ROUGHPEELED ROUND BARS	TOLERANCE:	+ 1,500 - 0,0000 (+ 0,0591 - 0 in)
SURFACE FINISH:	1X Hot Finished		
PRODUCT DELIVERY CONDITION:	RS SOLUTION ANNEALED		
PRODUCT DIMENSIONS (mm):	115,000 (4,528 in)	LENGTH (mm)	04000 06000 (00157 00236 in)
GRADE:	316L-S31600/31603-1.4404/4401	INTERNAL GRADE:	F316L IMCO
IDENTIFICATION HEAT NO:	376729	IDENTIFICATION LOT NO:	728130
MARKING OF THE PRODUCT:	1.4404	TEST PIECE N:	813

Melting process UHP + AOD + Continuous - Ingot Casting.
AISI 316/316L - UNS S31600/S31603 - 1.4404/1.4401
DOCUMENT ISSUED IN AGREEMENT WITH TUEV BAYERN(11.1972) WAVING OF COUNTERSIGNING (SEE TUEV BAYERN LETTER DATED 17.01.80).
REFERENCE NORMS: EN 10088-3 (14), EN 10272 (16), ASTM A276-r17/ASME SA276-21, ASTM A479-r21/ASME SA479-21, ASTM A193-23 B8M CLASSE 1D, ISO15156-3/NACE MR0175 (15), NACE MR0103/ISO 17945 (15).
REFERENCE NORMS FOR CHEMICAL COMPOSITION AND MECHANICAL PROPERTIES: ASTM A182-23/ ASME SA182-21.
REFERENCE NORMS FOR CHEMICAL COMPOSITION ONLY: EN 10222-5 (17), ASTM A484-22, ASTM A403-22b, ASTM A314-23.
REFERENCE NORMS: EN 10088-3 (14), EN 10272 (16), ASTM A276-r17/ASME SA276-21, ASTM A479/A479M-r21, ASTM A193-23 B8MCLASSE 1D, ASME SA276/SA276M-21,ASME SA479/SA479M-21, AMS 5653J, AMS 5648N, ISO15156-3/NACE MR0175 (15), NACE MR0103/ISO 17945 (15), NORSOK M630 MDSS01 REV5.
REFERENCE NORMS FOR CHEMICAL COMPOSITION AND MECHANICAL PROPERTIES: ASTM A182-23/ ASME SA182-21.
REFERENCE NORMS ONLY FOR CHEMICAL COMPOSITION: EN 10222-5 (17),ASTM A403-22b, ASTM A484-22, ASTM A314-23, AMS-QQ-S-763D.
ASME SECT.II PART A EDITION 2015-2017-2019-2021.
STEELMAKING EAF + AOD + CONTINUOUS CASTING
THE MATERIAL IS PRODUCED ACCORDING TO SPECIFICATION AD2000-MERKBLATT W2/W10
REFERENCE FOR APPLICABLE ASME STANDARD: SECTION II PART A ED. 2015-2017-2019-2021
HOT ROLLED
REDUCTION RATIO 5,0

FLUITEK ORSENIGO (VA) QMC

CHEMICAL LADLE ANALYSIS ACCORDING TO ASTM A751 - EN ISO 14284
Control lot No. - Weight :020000965129 - 86.014 KG - 189.625 LB

ELEMENTS	C	Si	Mn	P	S	N	Cr	Mo	Ni	Cu
MEASUREMENT UNIT	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w
OBTAINED	0,020	0,35	1,83	0,027	0,023	0,080	17,00	2,10	10,36	0,41

ELEMENTS	Co
MEASUREMENT UNIT	% w/w
OBTAINED	0,14

HARDNESS TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000965917 - 9.216 KG - 20.317 LB
SPECIFICATION ENISO6506 HARDNESS TEST HB TESTING METHOD: 10/3000
OBTAINED 166

DATE 07.06.2023

BARBARA VIETTI MV(WORKS INSPECTOR) - ELECTRONICALLY GENERATED CERTIFICATE

-Cogne

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COGNE ACCIAI SPECIALI S.p.a.
ITALY - 11100 AOSTA - VIA PARAVERA, 16
TEL +39.0165.3021 - FAX +39.0165.302296
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C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

IMPACT TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000965917 - 9.216 KG - 20.317 LB
SPECIFICATION EN ISO 148-1-KV2 DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 20
MEASUREMENT UNIT J

OBTAINED	440	434	432	437	433	435	435	437	438	436
	435	430								

TENSILE TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000965917 - 9.216 KG - 20.317 LB
SPECIFICATION EN-ISO6892-1 DIRECTION OF THE TEST PIECE: L

	RM	RP02	A5	Z	RP1
MEASUREMENT UNIT	MPA	MPA	%	%	MPA
			5.0 D		
OBTAINED	570	225	53,1	79,7	278
	567	227	56,5	78,9	281
	557	227	53,5	73,1	277
	557	230	54,7	73,7	273

21 AGO. 2023
FRANCO CORBELLINI
QA1
CROSSWIND

GRAIN SIZE
Control lot No. - Weight :020000965917 - 9.216 KG - 20.317 LB
SPECIFICATION ASTME112 --
OBTAINED 5

CORROSION TEST ACCORDING TO ASTM A262 PRACTICE E EN ISO 3651-2 PRACTICE A: SATISFACTORY.
MATERIAL ACCORDING TO ASME SEC. II Ed. 2015
IMPACT TEST
Control lot No. - Weight :020000965917 - 9.216 KG - 20.317 LB
SPECIFICATION EN ISO 148-1 DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 196-
MEASUREMENT UNIT J

OBTAINED	173	188	175	172	192	186	172	200	196	174
	188	189								

FLUITEK ORSENIGO Q.C.

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DATE 07.06.2023

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Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

TENSILE TEST
Control lot No. - Weight :020000965917 - 9.216 KG - 20.317 LB
SPECIFICATION ASTMA370-E8-0.5"SPEC DIRECTION OF THE TEST PIECE: L

MEASUREMENT UNIT	TS KSI	YS KSI	RA %	EL % 4,0 D
OBTAINED	83	32	77,9	59,4
	82	34	79,9	59,6
	82	33	76,1	57,9
	83	32	73,6	58,9

MATERIAL ACCORDING TO NACE MR0103/ISO 17945
ULTRASONIC TEST ACCORDING TO EN 10308 Class.3, EN 10228 Class.3, ASTM A388 FBH 5 (diam. 102-250), FBH 8 (diam. 250,01-400).
VISUAL INSPECTION OF SURFACE AND DIMENSIONAL CONTROL ACCORDING TO EN10221 CLASS C AND EN10060: SATISFACTORY.
ANTIMIX TEST BY PORTABLE SPECTROMETRE: SATISFACTORY.
NO WELDING REPAIR ON THE MATERIAL.
FREE FROM RADIOCTIVITY CONTAMINATION.
MARKING: SYMBOL OF THE MANUF. WORK, MATERIAL N. , CAST N., LOT N., RECEIVING AGENT STAMP
COUNTRY OF MELTING AND ORIGIN: ITALY, THE MATERIAL COMPLIES WITH FAR DFARS
252.225-7009 ALT 1.
THE PRODUCT SATISFIES THE DIRECTIVES: 2015/863/EU (ROHS3) - 2011/65/EU (ROHS2) - 2000/53/EU - 2002/95/EU(RoHS) - 2003/11/EU-2005/618/EU AND PED 2014/68/EU.
ALL THE NORMS MENTIONED ARE INTENDED IN THEIR LAST REVISION AT THE DATE OF ISSUE OF THIS DOCUMENT.
QUALITY SYSTEM CERTIFIED BY KIWA CERMET ACCORDING TO UNI EN ISO 9001:2015 -IATF 16949:2016 (THE LAST ONE ONLY FOR WIRE ROD AND HOT ROLLED-PEELED-GROUND STAINLESS STEEL BARS).
INSPECTOR'S STAMP LF
THE MATERIAL IS FREE OF ANY MERCURY, MERCURY COMPOUNDS AND OR RADIUM CONTAMINATION AT TIME OF SHIPMENT AND WAS PRODUCED WITHOUT USING OZONE DEPLETING SUBSTANCES OF CLASS I AND II.
RADIOACTIVITY CONTROL PERFORMED WITH A GAMMA SPECTROMETER: ASTM E181.
GAMMA ACTIVITY ON THE PRODUCTS BELOW 0.1 BQ/G ACCORDING TO EU RESOLUTION 2013/59/EURATOM , IAEA RS-G-1.7 AND IAEA SSG-17.

21 NOV 2023
FRANCO CORBELLINI
QB3
CROSSWIND R

FLUITEK ORSENIGO S.R.L. QC

DATE 07.06.2023

BARBARA VIETTI MV(WORKS INSPECTOR) - ELECTRONICALLY GENERATED CERTIFICATE

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Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV MR
Zeichen des Lieferwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

SPECIFICHE : Anforderungen / Requirements / Exigences	Note: Aufzeichnungen / Notes / Notes
VAL STOCK 2020 1.4404/316L A	
MDS S01 5 316 A (0)	(0)Norsok-standard M-630 Edition 6, October 2013
AISI 316	
AISI 316L	
ASME SA182 2019 S31600 A (1)	(1)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA182 2019 S31603 A (2)	(2)Section II Part A 2019EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (3)	(3)Section II Part A 2019 EDITION
ASME SA276 2019 S31600 A (4)	(4)Section II Part A 2019 EDITION
ASME SA276 2019 S31603 A (5)	(5)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS1 (6)	(6)Section II Part A 2019 EDITION
ASME SA479 2019 S31600 A (7)	(7)Section II Part A 2019 EDITION
ASME SA479 2019 S31603 A (8)	(8)Section II Part A 2019 EDITION
ASTM A182 2020 S31600 A (9)	(9)For products machined directly from bar refer also to ASTM A479.
ASTM A182 2020 S31603 (A)	(A)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2019 B8M CLASS 1	
ASTM A262 2015 PRACTICE E	
ASTM A276 2017 S31600 A	
ASTM A276 2017 S31603 A	
ASTM A314 2019 S31600	
ASTM A320 2018 B8M CLASS 1 CLASS1	
ASTM A370 2019 . (B)	(B)2019E1
ASTM A479 2019 S31600 A	
ASTM A479 2019 S31603 A	
ASTM E10 2018 .	
ASTM E8 2016A .	
DIN 17440 96 1.4401 A	
DIN 17440 96 1.4404 A	
EN 10088-3 2014 1.4401 A	
EN 10088-3 2014 1.4404 A	
EN 10272 2007 1.4401 A	
EN 10272 2007 1.4404 A	
ISO 148-1 2016 .	
ISO 6506-1 2014 .	
ISO 6892-1 2019 .	
NACE MR0103 2015 S31600 A (C)	(C)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0103 2015 S31603 A (D)	(D)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600 A (E)	(E)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015
NACE MR0175 2015 S31603 A (F)	(F)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

FLUITEK ORSENIGO VALVES Q.C.

21 GEN. 2021

FRANCO CORBELLINI
QBJ
CROSSWIND

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand / Delivery state / Etat de livraison

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Marchi di Fabbrica:
Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice
AV

Ordine nr: ORD.N.210025
Bestell / Your order / Commande

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Punzone del Collaudatore:
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur
MR

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI21000250
Lieferanzeige/Packing list/B.L.

Marca: MVAPML (MAXIVAL)
Markenbezeichnung / Brand / Nuance

Punzonatura: 1.4401/4/316/L
Kennzeichnung / Marking / Marquage

Tolleranza: k12
Tolleranza/Allowance/Tolerance

Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0020	Tondo	50,000	5820/ 5860	283122		1100,0	112706010

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probenlage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 %	Allungamento E 4d %	Strizione Einschnürung Reduction of area Striction Z %	Strizione RA %	Resilienza Kerbschlagarbeit Impact Value Resilience KV J			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs demendées		min max		205	240	515 690	40	40	-	50	100			- 215		
A	10	20	L	295	343	586	55	57	72	72	250	253	256	171		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
B	Dimensioni grano x ASTM E112			6

Mechanical properties according to ASTM A370.
Brinnell hardness according to ASTM E10
Tensile testing according to ASTM E8
Impact testing according to ISO 148-1
Brinnell hardness according to ISO 6506-1
Tensile testing according to ISO 6892-1

21 GEN. 2021
FRANCO CORBELLINI
Q8.1
CROSSWIND R

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée																
	min - max 0,030	1,00	2,00	16,50 18,00	2,00 2,50	10,00 13,00	0,045	0,030	0,100	-	-	-	-	-	-	-
	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %							
283122	0,016	0,42	1,47	16,59	2,02	10,06	0,031	0,027	0,055							

Acciaierie Valbruna S.p.A.

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In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST662721 / 2021 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.210025
Bestell
Your order
Commande

Conferma ordine nr: MI21000217
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-Mi21000250
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Pelato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 1.4401/4/316/L
Kennzeichnung
Marking
Marquage

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	**SATISFACTORY**

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 15,3 : 1
Solution annealing by process annealing 1040°C min /
/ cooling water

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel ß été trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt.
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

W3P4F29E3AD159EE8AE37954046D159E28C

21 GEN 2021
FRANCO GORDELLINI
QC1
CROSSWIND

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 14/01/2021 VCQ052 - MEST662721	**Direzione Qualità** Qualitätsmanagement/Quality Management/Gestion Qualité **R.BERTELLI**	**Direzione Prodotto** Produktmanagement/Product Management/Direction Produit **P.MESSORI**	Pagina 3 di 3

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

TEST REPORT

Customer	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order #	231901 dated 2023/11/15
Customer's job #	230110
Object #	ROUND BAR Ø 50 mm
Customer's identification #	075-2023
Heat n. #	283122
Declared material #	ASTM A479-23 UNS S31600/S31603
Material received on	15 Nov 2023
Laboratory test number	11868
Test witnessed by	-
Reference documents	TEST SAMPLING LABORATORY
Test remarks	-

21 NOV. 2023
FRANCO CORBELLINI
089
CROSSWIND

General remarks

1: This test report cannot be partially reproduced without our written approval
2: Test results are relevant only to the specimens belonging to the indicated samples
3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy
4: Tests are performed on the material in as-received conditions, unless otherwise specified
5: Sampling has been performed by customer
6: If not otherwise agreed, tested specimens are kept for 30 days from the test date
7: The uncertainty value, when expressed, does not affect the conformity declaration
8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA
9: The measurement uncertainties stated in this document are determined according to ISO/IEC Guide 98 and to EA-4/02. Tipically they are expressed as expanded uncertainty, obtained by multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of 95%. Normally this factor k is 2

Page	Title
2	Charpy pendulum impact test

FLUITEK ORSENIGO VALVES SRL Q.C.

Approved by
MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA LAB

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
LAB N° 1574 L

QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001:2015 =

Date: 24 Nov 2023 | TRS-23-2166-001 | Rev. 0

Notched bar impact test

Test standard	ASTM E23-23a		
Additional requirements	TEST SAMPLING LABORATORY		
Test machine	Cermac JB-750-53	**Execution date**	23 Nov 2023
Test number	11868	**Temperature [°C]**	-196

Sp. N°			Direction	Position	Type of strik.	Dimension [mm]	Minimum [J]			Aver. [J]	U [J]	U [%]	K	Shear area [%]			Av. [%]	Lat. Exp. [mm]		
Requirements							40			50	-	-	-	-			-	-		
1a	1b	1c	LONG	1/4 T	KV8	10X10X55	174	162	154	163	19	12	2,78							

Remarks ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration

Unbroken specimen: /

Conformity declaration Test conforming to TEST SAMPLING LABORATORY

FLUITEK ORSENIGO VALVES SRL Q.C.

21 NOV. 2023

Performed by Technician	Approved by	Witnessed by
MEGA-LAB s.r.l. Colazzo Luca Mechanical Test Dept	MEGA-LAB s.r.l. Arrigoni Marco LABORATORY MANAGER	FRANCO CORBELLINI QBQ CROSSWIND

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

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71474

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Page: 1 / 2
printed: 14. AUG 2023

VDM
Trademark
VDM® Alloy 718 CTP
NICROFER 5219 CTP
2.4668
Product
Bar, round, hot rolled, solution ann. / age hardened, machined slighly oxidized

Specification
718 Rev. 13 03.02.2020 (Straightness 2:1000)
Yield Strength: min 120 KSI
temper coloured surface for diam. < 120 mm
exklusiv Pkt. 9.1, 12.1 Subcontractors
API 6 A CRA First Edition 08.2015,+ Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K
NACE MR0175 / ISO 15156-3 2015

Material
UNS N07718

UNS N07718

Item	Pcs	Weight [kg]	Dimension [mm]	Heat	Lot	Delivery No.	
1	18	898	31,75 Ø x 5000-8000	422416	105403101	8682108281	1.1/4" dia.

Analysis (weight %)

Heat	country of melt
422416	Germany

GFAAS=graphite furnace AAS analysed corresponding to ASTM E1184-21, ASTM E1834-18
LE=combustion analysis analysed corresponding to ASTM E1019-18
OE=optical emission analysis analysed corresponding to ASTM E1086-14, ASTM E3047-16
RF=X-ray fluorescence spectroscopy analysed corresponding to ASTM E572-21, ASTM E1085-16, ASTM E1621-22, ASTM E2465-19
718 Rev. 13 03.02.2020 (Straightness 2:1000): API 6 A CRA First Edition 08.2015,+ Add 1 + 2 + 3 + Errata 1 + 2 + 3, Material designation 120K

Heat	Melting Pr.		C	S	Cr	Ni	Mn	Si	Mo	Ti	Nb	Cu	Fe
422416	VIM/VAR	top	0,012	<0,001	18,5	54,2	0,02	0,06	3,05	0,95	4,98	0,02	R17,65
		Melt	LE	LE	RF	RF	RF	RF	RF	RF	RF	RF	

Heat	Melting Pr.		P	Al	Mg	Pb	Sn	Ca	Co	B	Ta	Se	Bi
422416	VIM/VAR	top	0,004	0,47	0,0010	<0,0002	0,001	<0,0010	0,06	0,0040	<0,01	<0,0003	<0,00003
		Melt	OE	RF	OE	GFAAS	OE	OE	RF	OE	RF	GFAAS	GFAAS

Heat	Melting Pr.		Nb+Ta
422416	VIM/VAR	top	4,990
		Melt	

Subcontractor	Street	location	practice
voestalpine Böhler Edelstahl GmbH	Mariazellerstraße 25	8605 Kapfenberg / Austria	hot rolling

Sample Condition
solution ann. / age hardened

Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Tensile Test
1 ASTM E8/E8M - 22 / longitudinal specimen

	Temp [°C]	Yield0.2% [MPa]	Yield1.0% [MPa]	Tensile [MPa]	Elongation A	[%]	A	[%]	RoA [%]
1	RT	876		1227	4D	31,2			49

Grain size
1 ASTM E112 - 13 (Reappr. 2021)

		Test Location
1	No 5	surface
1	No 5.5	1/4 thickness
1	No 5	center

We herewith certify, that the material is in conformance with the above mentioned specifications

Enclosures: 4

Ünal Üçüncü, authorized inspection representative
EMail uenal.uecuencue@vdm-metals.com
Date of release: 14.08.2023

253749-1-E

This certified test report shall not be reproduced except in full, without the written approval of VDM Metals. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

FLUITEKNORSENIGO VALVES SRL Q.C.

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman), Holger Arnold, Daniel Applarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

21 AGO. 2024
FRANCO CORBELLINI
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VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Purchase Order No.

Sample Condition	
solution ann. / age hardened	
Lot	Sample No.
105403101	102T001-A02
105403101	102T001-A02
105403101	102T001-A02

Microstructure/Precipitates			
1	718 Rev. 13 03.02.2020 (Straighness 2:1000)		
			Test Location
1	Complying with delivery specification.		surface
1	Complying with delivery specification.		1/4 thickness
1	Complying with delivery specification.		center

Values final control	
cast	Part(s) ID
422416	102

Item	Lot	
1	105403101	Ultrasonic Examination: see enclosure

Heat Treatment	Lot
1032°C/01:08h/water-cooling(start 27°C - end 28°C - max. 29°C) + 792°C/06:09h/air cooling	105403101

reduction ratio	Lot
209,91:1	105403101

Spectrographic analytical mixup test/PMI check: without objection
Dimensional and visual inspection performed: without objection

No mercury contamination; no Radium, Luminous or Alpha source materials were used in the manufacture or testing of the items furnished.

No weld repairs performed.

Material is in accordance to the requirements of the requested specification.

Confirming minimum & maximum bar diameters in heat treatment load are within 1.5".

For dimensions greater 20mmØ we use samples for tensile testing, that are standard ASTM specimens with 12.5 mm diameter, taken from a prolongation of the bars.
For dimensions greater 16mmØ, we use samples for notched-bar impact testing, which are standard ASTM specimens with 10 mm x 10 mm square, taken from a prolongation of the bars.
MACROETCHING: conducted as per ASTM A 604, etchant 'Aqua Regia', sample taken from top and bottom of ingot after hot forming.
Rating: better or equal severity A, in all 4 classes.
No topological duplex-microstructure acc. to ASTM E 1181, representative microstructure is free of Laves phases and continuous grain boundary secondary phases.
Assessment of Delta phase in the representative microstructures conform to the specification, with no acicular delta phase present, other than individual, isolated grains that are not representative of the bulk of the microstructure.
All tests have been carried out by VDM Metals, Kleffstraße 23, D-58762 Altena and Formerstraße 17, D-59425 Unna / Germany.
SAMPLE LOCATION:
all samples for mechanical tests (without hardness) were taken from ¼ T for >Ø 50 mm;
all samples for mechanical tests (without hardness) were taken from ½ T for </=Ø 50 mm.
The pyrometry of heat treatment is in accordance with AMS 2750 latest revision.

Temperature controlled / monitored by heat sink.

If water quench is used after solution annealing, material should be fully straightened at this point in processing.
Minor straightening is still permitted after ageing if this is considered necessary after this processing step.
Melting location: VDM Metals, Formerstraße 17, D-59425 Unna / Germany

Material was heat treated in furnaces to comply with API6A 21. Ed. Appendix M

Modification history		
Rev.: 1 14.08.2023	VDM Metals error:	correction heat treatment parameters
Rev.: 0 01.08.2023		

21 AGO. 2023
FRANCO CORBELLINI
QBI
CROSSWIND

FLUITEK ORSENIGO VALVES SRL
Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postfach 18 20, D-58778 Werdohl
Telephon: +49 2392 550
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller (Chairman),
Holger Arnold, Daniel Aptario Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for inspection certificate 253749/1
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Enclosure: 1
Page: 1 / 4
printed: 14. AUG 2023

Hardness Test

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	R / 2 ; 0° 120° 240°	HRC	38,17	38,63	38,04	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	near surf:0°120°240°	HRC	38,29	38,85	39,36	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	center	HRC	38,02	38,12	38,29	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	1/2 radius	HRC	38,17	38,04	38,02	38

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39

solution ann. / age hardened ASTM E18 - 22

Lot	Sample No.	Location	Method		Values		Mean
105403101	102T001 -A01	cross sec. edge	HRC	38,29	39,23	38,80	39
105403101	102T002 -A01	cross sec. edge	HRC	37,07	38,12	37,64	38
105403101	102T003 -A01	cross sec. edge	HRC	37,95	37,43	37,99	38
105403101	102T004 -A01	cross sec. edge	HRC	38,09	37,33	37,16	38
105403101	102T005 -A01	cross sec. edge	HRC	38,26	37,11	37,60	38
105403101	102T006 -A01	cross sec. edge	HRC	38,19	38,79	38,34	38
105403101	102T007 -A01	cross sec. edge	HRC	38,14	37,33	37,63	38
105403101	102T008 -A01	cross sec. edge	HRC	37,92	37,14	37,77	38
105403101	102T009 -A01	cross sec. edge	HRC	38,48	38,56	38,48	38
105403101	102T010 -A01	cross sec. edge	HRC	38,26	38,26	38,58	38
105403101	102T011 -A01	cross sec. edge	HRC	38,41	38,83	38,02	38
105403101	102T012 -A01	cross sec. edge	HRC	37,58	36,11	37,20	37
105403101	102T013 -A01	cross sec. edge	HRC	38,02	38,14	37,87	38
105403101	102T014 -A01	cross sec. edge	HRC	39,34	39,10	38,75	39
105403101	102T015 -A01	cross sec. edge	HRC	38,31	38,21	38,21	38
105403101	102T016 -A01	cross sec. edge	HRC	39,46	39,24	38,90	39
105403101	102T017 -A01	cross sec. edge	HRC	39,38	39,63	39,43	39
105403101	102T018 -A01	cross sec. edge	HRC	38,43	38,75	39,10	39

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2023
FRANCO CORBELLINI
QBQ
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Apilarte Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

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Enclosure: 1
Page: 2 / 4
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Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Notched Bar Impact Testing

solution ann. / age hardened — ASTM E23 - 18 Charpy-V sample / longitudinal / L-C / KVa 450/10

Lot	Sample No.	Temp. [°C]	KV [J]			aK [J/cm²]	Lateral Expansion [mm]			Shear Fracture [%]		
105403101	102T002 -A02	-60	112	110	113		1.11	0.93	1,14	70	70	70

21 AGO. 2024
FRANCO CORBELLINI
Q.B.
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
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Page: 3 / 4
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Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Ultrasonic Examination Report

Specification
Schlumberger NDE-31 Rev. AM 12.06.2009
718 Rev. 13 03.02.2020 (Straigthness 2:1000)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	50,00 %
Acceptance Level	80,00 %

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II

Date of Inspection: 22.07.2023

The material is in compliance with the test specification

Supervisor
Harzbruch, Level II

21 NOV. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

EQUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Muller (Chairman)
Holger Arnold, Daniel Arpitarte Zemp, Frank Morris
Commercial register: Iserlohn local court, #5327
Company domicile: Werdohl

VDM Metals GmbH
on behalf of VDM Metals International GmbH

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Enclosure for inspection certificate 253749/1
DIN EN 10204/01.05 3.1
Order No. Delivery No. Purchase Order No.

Enclosure: 1
Page: 4 / 4
printed: 14. AUG 2023

Ultrasonic Examination Report

Specification
ASTM A388/A388M - 19
US-test acc. to API 6A 21st Edition PSL 3 & PSL 4 (10.4.2.12.2 & 10.4.2.12.3)
circumferential 360° / 15% overlap

Inspection Technique	shear wave in two directions circumferential (cw and ccw) 45°
Surface Condition	machined, slightly oxidized
Inspection Scope	circumferential 360° / 15% overlap
Test Apparatus	ROWA B60 PAT SN: 773192
Couplant	water
Type of Probe / Frequency / Dim.	ROWA R35 T90 10 B1 Z / 10,00 MHz
Calibration Block/sound path	TB 38: 38: Rectangular Notch t=0,3mm; b=0,5mm; l=5mm
Recording Level	1,13 mm
Acceptance Level	1,13 mm

Cast - Product-ID	Reportable Indications		
	count	Inspector	level
422416 - 102	0	Plaza-Wacker	Level II
Date of Inspection	22.07.2023		

The material is in compliance with the test specification

Supervisor
Hirzbruch, Level II

21 AGO 24
FRANCO CORBELLINI
081
CROSSWIND

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

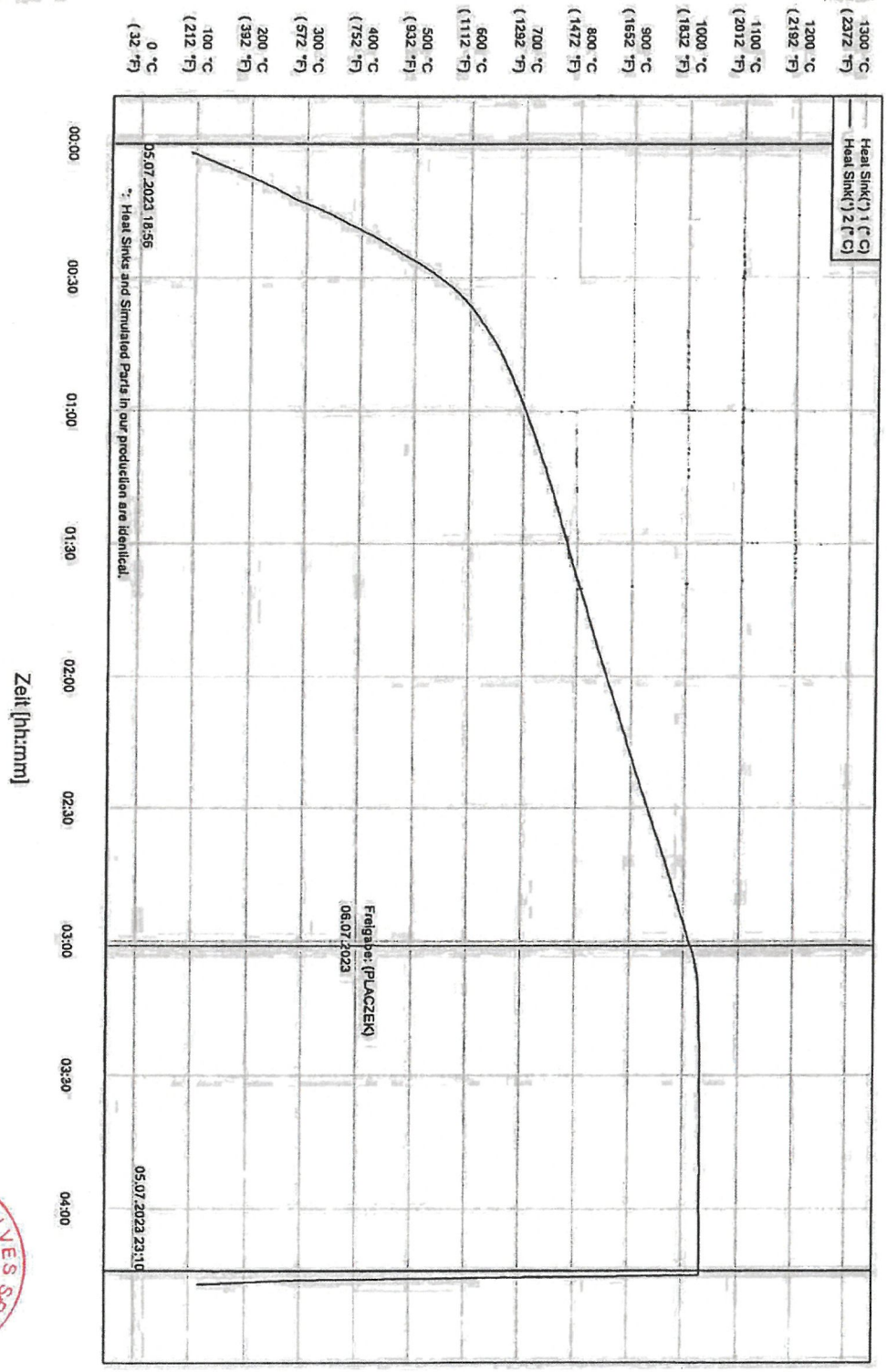
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Holger Arnold, Daniel Arpitarie Zemp, Frank Monis
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

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Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 2
Page: 1 / 1
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Ofen / Furnace : 3 - Gluehlos / Batch : 321909

FLUITEK ORSENIGO VALVES SRL Q.C.

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

Chairman of the Supervisory Board: Bernardo Velázquez Herreros
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Holger Arnold, Daniel Apitzsch Zemp, Frank Morris
Commercial register: Berdohn local court, 15327
Company domicile: Werdohl

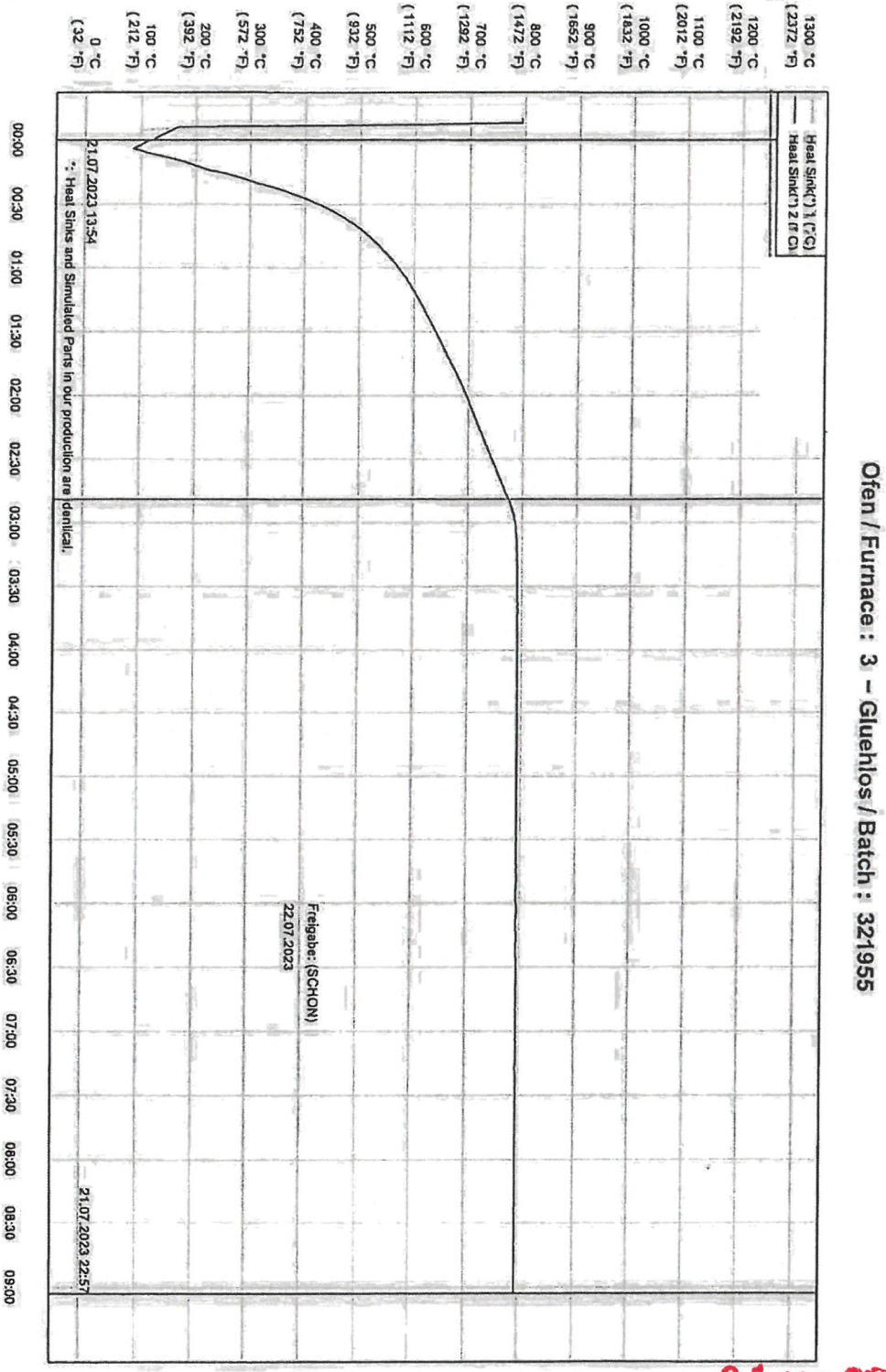
21/07 FRANCO [illegible] OZZOLINI
QBA
CROSSWIND

VDM Metals GmbH
on behalf of VDM Metals International GmbH

VDM Metals

Enclosure for Inspection certificate 253749/1
DIN EN 10204/01.05 3.1

Enclosure: 3
Page: 1 / 1
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Ofen / Furnace: 3 - Gluehlos / Batch: 321955

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2023

FRANCO CORBELLINI
QC
CROSSWIND

VDM Metals GmbH
Division Bar and Forgings
Plettenberger Straße 2, D-58791 Werdohl
Postbox 1820, D-58778 Werdohl
Telephon: 02392 55-0, Fax: 02392 55-2217
Internet: www.vdm-metals.com

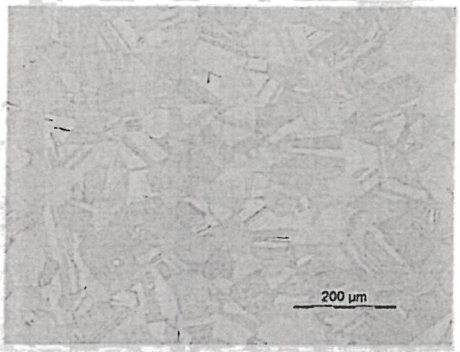
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Nicks Müller (Chairman)
Holger Arnold, Daniel Arpitante Zemp, Frank Morris
Commercial register: Iserlohn local court, HR327
Company domicile: Werdohl

VDM Metals GmbH

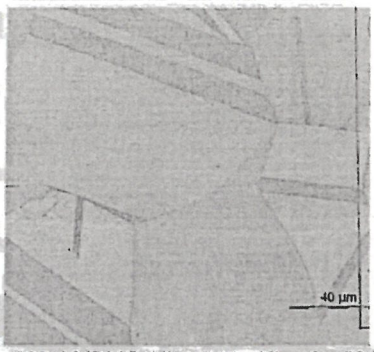
VDM Metals

Microstructure Examination

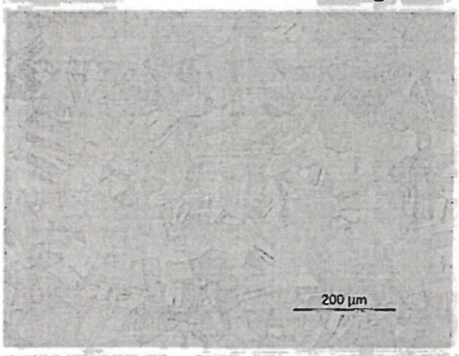
Metallography Job No.:	**194936**	**Inspection Certificate No.:**	**253749/1**
Lot No.:	**105403101**	**Enclosure:**	**4**
Heat:	**422416**	**Page:**	~~1 of 1~~



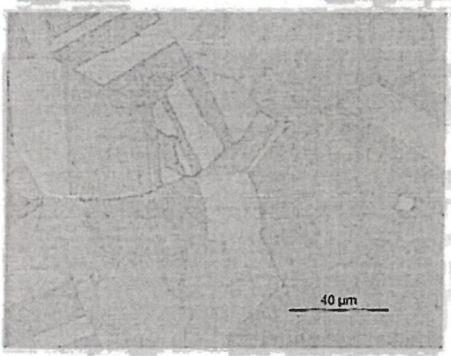
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



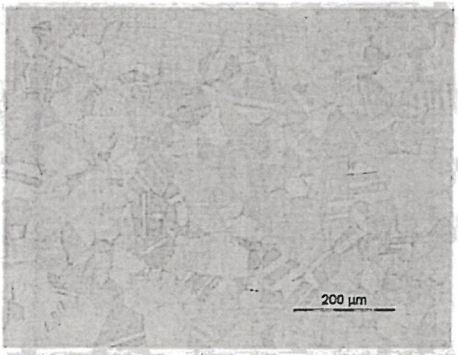
500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 surface
26.07.2023 Kallings No.2



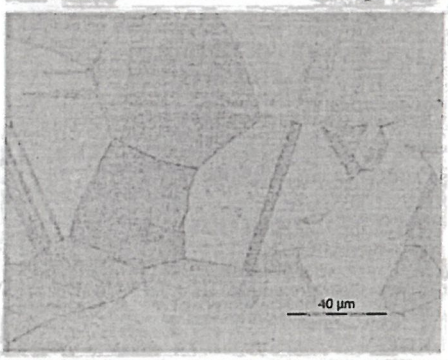
100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 1/4 thickness
26.07.2023 Kallings No.2



100:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2



500:1 VDM® Alloy 718 - Nicrofer 5219 CTP DIN
102T001A02 center
26.07.2023 Kallings No.2

FORGIATURE ARSENIGO VALVES SRL Q.C.

Adress: VDM Metals GmbH, Kleffstrasse 23, D-58762 Altena, P.O. Box 12 51, D-58742 Altena
Telephone: +49 2392 55-0 Fax: +49 2392 55-2217 Internet: www.vdm-metals.com
Chairman of the Supervisory Board: Bernardo Velázquez Herreros
Management Board: Dr. Niclas Müller, Chairman; Daniel Azpilarte Zemp, Frank Morris, Holger Arnold
Company domicile: Werdohl Commercial register: Iserlohn local court, HRB 5327

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Brinell Hardness Test Report

CUSTOMER: C.S.C. S.P.A. UNIPERSONALE
ORDER NUMBER: 715430-1 **STEP:** 721719
PRODUCT CODE: 718 1.25 SAAH
HARDNESS RANGE (HBW): 298.0 - 363.0

EQUIPMENT TYPE / SERIAL NO.

King	Avery	Microscope	Brintronic	Another (Equotip)	Rockwell HRC	Foundrax Static
A0-30	6403-4 R92033	R984063	0510014		F68332/139	814574
☑ UC-71	6403_16897		0907068			
UC-72	E50152/15(6503-1)		1112032			
	HMV1(6403-3)		1112037			
	R335(HMM1)					

Nature of Test Piece: Integral

CAST NUMBERS

Cast: 422416 **Min:** 356 **Max:** 363

TAGS

1309204 QTY: 1, 1309214 QTY: 1, 1309288C QTY: 1, 1326205 QTY: 1, 1326206 QTY: 1, 1326207 QTY: 1

Material Hardness Check Results (see drawing to reference the numbers)

Result (HBW) / (HBW/P) - * Delete as applicable

									T/P Results (HBW)
1	356	11	21	31	41	51	61	71	TP1
2	355	12	22	32	42	52	62	72	TP2
3	363	13	23	33	43	53	63	73	TP3
4		14	24	34	44	54	64	74	TP4
5		15	25	35	45	55	65	75	TP5
6		16	26	36	46	56	66	76	TP6
7		17	27	37	47	57	67	77	TP7
8		18	28	38	48	58	68	78	TP8
9		19	29	39	49	59	69	79	TP9
10		20	30	40	50	60	70	80	TP10

Avery Brinell machines calibrated by Denison Mayes Group. King Brinell machines calibrated and test blocks supplied by Foundrax Eng Products Ltd. Denison Mayes Group, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0066. Foundrax Engineering Products Ltd, accredited for calibration by UKAS to ISO/IEC 17025, approval/schedule number 0231. Material tested to specific customer hardness specification and to general requirements of ASTM E10 and BS EN ISO 6506-1/2 and NACE MR0175. Latest revisions are applicable. Hardness load/penetration depth - HBW 10 diameter (mm)/3000 kgf test force per ASTM E10. Hardness test performed at ambient temperature (18° to 35° Celsius). Hardness checks performed using a portable hardness test machine have been performed in accordance with ASTM E110.

Operator Signature	Test Block Standard (HBW)	Day of Use Value (HBW)	Test Block/Serial	Pass/Fail	Date
	318	316.5	375911 30AW	P	21/5/24

21 AGO. 24

FRANCO CORBELLINI

GBJ

CROSSWIND R

3 - 071474.PDF C 240062-028/01

4 - 063484.PDF C 240062-028/01

PRESSBOLT
Pressbolt s.r.l. con unico socio
Partita Iva 03231770136
Via dell'Artigianato, 12 - 22078 - Turate (CO)
Tel. +39 02 96.97.98.50 - Fax +39 02 96.97.98.29
email qualita@pressbolt.com

Messrs. FLUITEK ORSENIGO VALVES S.r.l. 63484
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE(BG)

Inspection Certificate EN 10204:2004 3.1

Number	Rev.	Date
3148517	0	28 February 2023

Client Reference Order		Reference Order	
Number	230075 of 26 January 2023	Number	3300405
Reference			
Item	011 - 018492	Item	100
Job		Shipping ref.	3301941 of 24 February 2023

Standard
ASTM A193(M)-22 / ASME SA193(M) BPVC-IIA-2021 / ASTM A320(M)-22 / ASME SA320(M) BPVC-IIA-2021 - B8M Cl.1

Item Description	Heat Treatment
STUDBOLT DIN 976 A/SA 193 B8M - A/SA 320 B8M M10X0035	Carbide solution treated

Heat	Quantity	Lot	Job PB
012333	60	P1613365	0001077282

Chemical Analysis '%'

	C	Mn	Si	P	S	Cr	Ni	Mo	
Required	max 0.08	max 2	max 1	max 0.045	max 0.03	16 - 18	10 - 14	2 - 3	
Actual	0.022	1.78	0.64	0.031	0.026	16.74	10.13	2.02	

Tensile Test

	Rm "Mpa"	Rp02 "Mpa"	A "%"	Z "%"
Required	min 515	min 205	min 30	min 50
Actual	726	611	32.95	72

	Hardness "HB"
Required	Max 241
Actual	211;220;208

Mechanical tests are longitudinal performed at t/2 or t/4 as a function of specimen dimension

Visual and dimensional Test Positive

The material was manufactured, tested and checked in accordance with the specifications and additional requirements of the Purchase Order or the Agreement
No weld repair has been performed on the material

21 AGO. 2023
FRANCO CORBELLINI
QBQ
CROSSWIND

FLUITEK ORSENIGO VALVES S.R.L.

QUALITY DEPARTMENT PRESSBOLT S.R.L.

Davide Feggi
Laboratory manager

5 - 067517.PDF C 240062-028/01

67517 - 67518

TMV MOLINARI s.r.l.
Via dell'Industria, 13-14 – 29010 GRAGNANO TREBBIENSE (PC), ITALY
Tel. +39 0523 575711 – fax +39 0523 592747
P.IVA – C.F. – Registro Imprese 01104300338
Capitale Sociale €300.000,00 I.V.
REA di PC n. 127630
www.tmvmolinari.it

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE

EN 10204 - 2004 3.1

N° 2023B000024795/2023
DATE 14/12/2023

CLIENTE / PURCHASER **FLUITEK ORSENIGO VALVES srl**
COMMESSA N° / JOB N° **239418** ORDINE N°/ ORDER **231905 16/11/2023**
TRATTAMENTO / COATING
NOTE / REMARKS

DESCRIZIONE DEL MATERIALE - DESCRIPTION OF MATERIAL

HEXAGONAL NUTS UNI 5587 ASTM A194M-L.E. G8M (CST)

01) DM10x1,5 Q.ty[pcs]:50pcs. POS.030
02) DM20x2,5 Q.ty[pcs]:50pcs. POS.032

CARATTERISTICHE MECCANICHE - MECHANICAL PROPERTIES [X] IN FINISHED CONDITIONS

	HBW	PROOF LOAD
REQUIRED MIN	126	
REQUIRED MAX	300	
01)	188	POSIT
02)	177	POSIT

ANALISI CHIMICA - CHEMICAL COMPOSITION [X] BY LADLE ANALYSIS [ ] BY CHECK ANALYSIS

	C	Mn	Si	P	S	Cr	Ni	Mo
REQUIRED MIN						16,00	10,00	2,000
REQUIRED MAX	0,080	2,000	1,000	0,045	0,030	18,00	14,00	3,000
HEAT N°								
01) 281154	0.010	1.520	0.540	0.032	0.022	16.53	10.13	2.060
02) 281685	0.016	1.440	0.530	0.030	0.026	16.65	10.10	2.020

<follows>

THE CHEMICAL ANALYSIS RESULTS ARE TRUE AND CORRECT COPY OF THE RAW MATERIAL SUPPLIER'S CERTIFICATE MANTAINED IN OUR FILE.
(QT):HEAT TREATMENT: QUENCHED TEMPERED (CST):CARBIDE SOLUTION TREAT
(MT):MINIMUM TEMPERING:
(H):HARDENED (N):NORMALLZED (SB):STABILIZED (SH):STRAIN HARDENED
(ST):SOLUTION TREATED (AN):ANNEALED/SOLUTION A
(MI): MACROETCH INSPECTION ACCORDING TO ASTM E 381-01 FOR STEEL BARS
ASTM A 193 / A 194: SATISFACTORY
* HARDNESS TESTS AFTER HEAT TREATMENT AT 540/590 C
WE HEREBY CERTIFY THAT THE FASTENERS WERE MANUFACTURED,SAMPLED,TESTED, INSPECTED IN ACCORDANCE WITH THE SPECIFICATION AND TERMS OF THE ORDER.

MFR AUTHORIZED INSPECTOR AND STAMP

T.M.V. MOLINARI
Q.A. MANAGER
APPROVATO

TMV MOLINARI S.R.L.
Via dell'Industria, 13 - 0523 575711
29010 Gragnano Trebbiense (Pc)
Partita IVA: 01104300338
C.S. € 300.000,00 i.v.

21 NOV. 2024

FRANCO CORBELLINI
QBQ
(ROSSWIND)

FLUITEK ORSENIGO VALVES SRL Q.C.

FLUITEK ORSENIGO VALVES SRL
Registered Offices/Headquarters:
Via Lodovico Mancini, 5 - 20129 - Milano (MI)
C.F./P.IVA 10733930969 | REA Milano N. 2553674 | Cap.Sociale €. 10.000,00
Manufacturing Plant :
Via dei livelli di sopra 5/7 - 24060 Costa di Mezzate (BG) - Italy
Phone +39 035666501 | Fax +39 0356665047 | Web: www.fluitekvalves.com
Email: info@fluitekvalves.com | Pec: valves.srl@legalmail.it

CERTIFICATE N° **C 240396-001/01**

[X] UNI EN 10204 - 3.1

CUSTOMER
ROSETTI MARINO S.P.A. CIG 9931200D7D

via Trieste, 230
48122 RAVENNA (RA)

OUR JOB N°	POSITION
240396	**001**

YOUR P.O. N°
1724000204 123A90A

ITEM	Q.TY
340	**1**

TAG
50-XV-005

SERIAL NUMBER
From 2403960010001 to 2403960010001

DESCRIPTION
ball valve fl 2 pz-fb2.1-1/2".150 lbs.att. pneumatico fail pos. open.rf.l a182_f53/rptfe//a182_f53/a182_f53///vit.glt_aed+grf/a193_b7+hdg/a194_2h+

fb2.1m1m.1.lvfd.att_pneu_fo.rf Rev0 1F02 040_VL

NOTES

COMPONENT		CHEMICAL ANALYSIS / MECHANICAL PROPERTIES. IMPACT TESTS											
PART NAME	MATERIAL	C	Mn	Si	S	P	Cr	Mo	Ni	Ti	Cu	Fe	N.P.
		Al	Co	N	V	Nb	Sn	CE	Nb+Ta				
HEAT CODE	HEAT NR	TENSILE N/mm2	Yeld N/mm2	ELONGATION %	RED. OF AREA %	1 JOULE	2 JOULE	3 JOULE	TEST. TEMP.	HARDNESS			
BODY	A182 F53	0,019	0,680	0,320	0,001	0,025	25,180	3,800	7,030		0,300		071622
				0,300						42,520			
	293808	820,00	554,00	44,00	71,00	187,00	123,00	195,00	-46°C (L)	256 HBW			
BALL	A182 F53	0,016	0,770	0,310	<0,001	0,026	25,500	3,840	6,940		0,140		071887
				0,271						42,508			
	397872	813,00	577,00	43,00	79,00	283,00	279,00	288,00	-46°C (L)	248 HBW			
STEM	A182 F53	0,016	0,770	0,310	<0,001	0,026	25,500	3,840	6,940		0,140		071887
				0,271						42,508			
	397872	813,00	577,00	43,00	79,00	283,00	279,00	288,00	-46°C (L)	248 HBW			
FLANGE	A182 F53	0,019	0,680	0,320	0,001	0,025	25,180	3,800	7,030		0,300		071622
				0,300						42,520			
	293808	820,00	554,00	44,00	71,00	187,00	123,00	195,00	-46°C (L)	256 HBW			
SCREW	A193 B7	0,435	0,820	0,210	0,022	0,010	1,090	0,160					061096
	BC5744	954,00	763,00	22,00	59,40					296 HBW			

EACH SINGLE COMPONENT OF THE VALVE WHICH IS MENTIONED IN THIS CERTIFICATE HAS BEEN MANUFACTURED, HEAT TREATED AND TESTED FULLY IN ACCORDANCE WITH ITS OWN MATERIAL SPECIFICATION AS ABOVE INDICATED

- THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL MILL CERTIFICATES

THIRD AUTHORITY	CLIENT INSPECTION DEPT.	INSPECTION DEPT.
DATE	DATE	DATE 24/02/2025

FLUITEK ORSENIGO VALVES SRL

+1622 | 1 - 071622.PDF | C 240396-001/01

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497
https://www.valbruna-stainless-steel.com/

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION - CERTIFICADO DE INSPECCIÓN

In conformità a / Nach/According to/Selon/De conformidad con: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai/Num. de certificado: MEST073502 / 2024 /

Cliente / Bestellier/Purchaser/Client/Cliente:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande / Num. de pedido: ORD.N.240484

Conferma ordine nr. / Werks/Our Order/Ref nr. / Num. de confirmación de pedido: MI24003004

Avviso di Spedizione / Lieferanzeige/Packing list/B.L. / Aviso de embarque: A-MI24003374

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison / Estado de la entrega: Fucinato Solubilizzato - Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration / Método de fusión: E+AOD

Qualità / Werkstoff/Grade/Nuance / Calidad: 1.4410/S32750/F53

Marca / Markenbezeichnung / Brand / Nuance / Marca: V257M

Produttore / Hersteller/Item/Usine productrice/Productor:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice / Marcas de fábrica: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur / Sello del Comprobador: MR

Punzonatura / Kennzeichnung / Marking / Marquage / Sello: 1.4410/S32750/F53

SPECIFICHE : (Anforderungen / Requirements / Exigences / Especificaciones)	Note: (Aufzeichnungen / Notes / Notes / Notas)
VAL STOCK A 1.4410/F53 A MDS D57 5. S32750 A (0) ASME SA182 2017 S32750 A (1)	(0)Norsok-standard M-630 Edition 6, October 2013 Approval Norsok-standard M-650 Edition 4, September 2011 QTR N°58/A for forged bars and N°57/A for hot rolled bars. (1)Section II Part A 2017 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA479 2023 S32750 A (2) ASTM A182 2021 S32750 A (3) ASTM A276 2024A S32750 A ASTM A370 2022 . ASTM A479 2023A S32750 A ASTM E562 2019 . (4)	(2)Section II Part A 2023 EDITION (3)For products machined directly from bar refer also to ASTM A479. (4)19E01
ASTM G48 2011 METHOD A (5) EN 10088 PART 3 2014 1.4410 EN 10272 2016. 1.4410 ISO 148-1 2016 . ISO 6892-1 2019 .	(5)11R15
NACE MR0103 2015 S32750 A (6) NACE MR0175 2015 S32750 A (7)	(6)ANSI/NACE MR0103/ISO 17945 November 23, 2015 (7)ANSI/NACE MR0175/ISO 15156-3, second edition 2009-10-15 Technical circular 1:2011 Published 2011-06-14

Pos. nr. / Item nr. / Nr. de poste / Número de artículo	Oggetto / Gegenstand / Product description / Descrip. du produit / Descripción del producto	Tolleranza: k12 (Toleranz/Allowance/Tolerance/Tolerancia) Dimensioni - mm (Abmessungen / Dimension / Dimension / Dimensiones)	Lunghezza - mm (Lange / Length / Longueur / Longitud)	Colata (Schmelze / Heat / Coulée / Colada)	Pezzi (Stückzahl / Pieces / Pieces / Piezas)	Peso - KG (Gewicht / Weight / Poids / Peso)	Lotto nr. (Losnr. / Lot nr. / Lot nr. / Lote nro.)
0030	Tondo	140,000	500/ 500	293808	1	61,0	327707350

FLUITEK ORSENIGO VALVES SRL Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 03/06/2024	Direzione Qualità (Qualitätsmanagement/Quality Management/Gestion Qualité/Gerente de calidad)	Direzione Prodotto (Produktmanagement/Product Management/Direction Produit/Gerente de producto)	Pagina
VCQ052 - MEST073502	R.BERTELLI	P.MESSORI	1 di 4

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497
https://www.valbruna-stainless-steel.com/

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION - CERTIFICADO DE INSPECCIÓN

In conformità a / Nach/According to/Selon/De conformidad con: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai/Num. de certificado: MEST073502 / 2024 /

Cliente / Besteller/Purchaser/Client/Cliente:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240484
Bestell / Your order / Commande / Num. de pedido

Conferma ordine nr: MI24003004
Werks/Our Order/Ref nr. / Num. de confirmación de pedido

Avviso di Spedizione: A-MI24003374
Lieferanzeige/Packing list/B.L. / Aviso de embarque

Stato di fornitura: Fucinato Solubilizzato - Pelato
Lieferzustand / Delivery state / Etat de livraison / Estado de la entrega

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration / Método de fusión

Qualità: 1.4410/S32750/F53
Werkstoff/Grade/Nuance / Calidad

Marca: V257M
Markenbezeichnung / Brand / Nuance / Marca

Produttore / Hersteller/Item/Usine productrice/Productor:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Lieferwerkes / Trade marks / Sigles de l'usine productrice / Marcas de fábrica: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur / Sello del Comprobador: MR

Punzonatura / Kennzeichnung / Marking / Marquage / Sello: 1.4410/S32750/F53

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab (Specimen/Eprouvette, Larg.diam Spess. / Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais / mm / Probeta)	°C	Posiz. Saggio (Probenlage / Location / Emplacement / Ubicación 1))	Snervamento (Streckgrenze/Yield Stress / Limite elastique / Limite elástico) Rp 0,2% N/mm2	Snervamento (Streckgrenze/Yield Stress / Limite elastique / Limite elástico)	Resistenza (Zugfestigkeit/Tensile strength / Resistance à traction / Resistencia a la tracción) Rm N/mm2	Allungamento (Bruchdehnung / Elongation / Allongement / Elongación) A5 %		Strizione (Einschnürung / Reduction of area / Striction / Reducción de área) Z %		Resilienza (Kerbschlagarbeit / Impact Value/ Resilience / Prueba de impacto)			Durezza (Haerte / Hardness / Durete / Dureza) HB		
Valori richiesti (Anforderungen/Required values / Valeurs démandées / Valores requeridos)		min max		530	-	730 930	25	-	-	-	-	-	-		- 290		
A	10	20	L	554		793	43		71						253		
I	10	20	L	555		799	41		70						256		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	HRc		32,0	22,8
I	HRc		32,0	22,9

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Ferrite delta %	35,0	55,0	37,0 %

Charpy per ASTM E23

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab (Specimen/Eprouvette, Larg.diam Spess. / Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais / mm / Probeta)	°C	Posiz. Saggio (Probenlage / Location / Emplacement / Ubicación 1))	Resilienza (Kerbschlagarbeit / Impact Value / Resilience / Prueba de impacto) KV2 J			Espansione laterale (Lateral Expansion)			Shear (Shear)		
Valori richiesti (Anforderungen/Required values / Valeurs démandées / Valores requeridos)		min max		45	45	45	-	-	-	-	-	-
B	10X10	-46	L	187	123	195						

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab (Specimen/Eprouvette, Larg.diam Spess. / Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais / mm / Probeta)	°C	Posiz. Saggio (Probenlage / Location / Emplacement / Ubicación 1))	Snervamento (Streckgrenze/Yield Stress / Limite elastique / Limite elástico) Rp 0,2% N/mm2	Snervamento (Streckgrenze/Yield Stress / Limite elastique / Limite elástico)	Resistenza (Zugfestigkeit/Tensile strength / Resistance à traction / Resistencia a la tracción) Rm N/mm2	Allungamento (Bruchdehnung / Elongation / Allongement / Elongación) E 4d %		Strizione (Einschnürung / Reduction of area / Striction / Reducción de área) RA %		Resilienza (Kerbschlagarbeit / Impact Value/ Resilience / Prueba de impacto)			Durezza (Haerte / Hardness / Durete / Dureza) HB		
Valori richiesti (Anforderungen/Required values / Valeurs démandées / Valores requeridos)		min max		550	-	760	-	25	-	-	-			- 310			
C	12,5	20	L	557		789		44		67				251			

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 03/06/2024
VCQ052 - MEST073502

Direzione Qualità
Qualitätsmanagement/Quality Management/Gestion Qualité/Gerente de calidad
R.BERTELLI

Direzione Prodotto
Produktmanagement/Product Management/Direction Produit/Gerente de producto
P.MESSORI

FLUITEK ORSENIGO VALVES SRL Q.C.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della Scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497
https://www.valbruna-stainless-steel.com/

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION - CERTIFICADO DE INSPECCIÓN

In conformità a / Nach/According to/Selon/De conformidad con: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai/Num. de certificado: MEST073502 / 2024 /

Cliente / Besteller/Purchaser/Client/Cliente:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr: ORD.N.240484
Bestell / Your order / Commande / Num. de pedido

Conferma ordine nr: MI24003004
Werks/Our Order/Ref nr. / Num. de confirmación de pedido

Avviso di Spedizione: A-MI24003374
Lieferanzeige/Packing list/B.L. / Aviso de embarque

Stato di fornitura: Fucinato Solubilizzato - Pelato
Lieferzustand / Delivery state / Etat de livraison / Estado de la entrega

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration / Método de fusión

Qualità: 1.4410/S32750/F53
Werkstoff/Grade/Nuance / Calidad

Marca: V257M
Markenbezeichnung / Brand / Nuance / Marca

Produttore / Hersteller/Item/Usine productrice/Productor:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice / Marcas de fábrica: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur / Sello del Comprobador: MR

Punzonatura / Kennzeichnung / Marking / Marquage / Sello: 1.4410/S32750/F53

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm / Probeta	°C	Posiz. Saggio Probenlage Location Emplacement Ubicación 1)	Snervamento Streckgrenze/Yield Stress Limite elastique Límite elástico Rp 0,2% N/mm2	Snervamento Streckgrenze/Yield Stress Limite elastique Límite elástico	Resistenza Zugfestigkeit/Tensile strengt Resistance á traction Resistencia a la tracción Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement / Elongación E 4d %		Strizione Einschnürung Reduction of area Striction / Reducción de área RA %		Resilienza Kerbschlagarbeit Impact Value/ Resilience Prueba de impacto			Durezza Haerte Hardness Durete / Dureza HB		
Valori richiesti Anforderungen/Required values Valeurs démandées / Valores requeridos		min max		550	-	760	-	25	-	-	-			-	310		
D	6.25	20	T	581		820		37		65				252			

Charpy per ASTM E23

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm / Probeta	°C	Posiz. Saggio Probenlage Location Emplacement Ubicación 1)	Resilienza Kerbschlagarbeit Impact Value Resilience / Prueba de impacto KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées / Valores requeridos		min max		45	45	45	-	-	-	-	-	-
E	10X10	-46	T	48	48	50						

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm / Probeta	°C	Posiz. Saggio Probenlage Location Emplacement Ubicación 1)	Resilienza Kerbschlagarbeit Impact Value Resilience / Prueba de impacto KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs démandées / Valores requeridos		min max		100	100	100	-	-	-	-	-	-
H	10X10	20	L	310	308	305						
J	10X10	20	L	319	301	300						

Mechanical properties according to ASTM A370.

Ferrite content tested according to ASTM E562.

Impact testing according to ISO 148-1

Tensile testing according to ISO 6892-1

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique/Análisis químico

Colata/Heat/Coulée / Schmelze/Colada																
	min	41,0	-	-	-	24,00	3,00	-	6,00	-	-	-	0,24	-		-
	max	45,0	0,030	0,80	1,20	26,00	4,50	0,50	8,00	-	0,035	0,015	0,32	-		-
	PRE		C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	W %	P %	S %	N %			
293808	42,5		0,019	0,32	0,68	25,18	3,80	0,30	7,03	0,035	0,025	0,001	0,30			

FLUITEK ORSENIGO VALVES SRL Q.C.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 03/06/2024
VCQ052 - MEST073502

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Certificato nr. / Prüfung/Test/Essai/Num. de certificado: MEST073502 / 2024 /

Cliente / Besteller/Purchaser/Client/Cliente:
FLUITEK ORSENIGO VALVES SRL
VIA DEI LIVELLI DI SOPRA, 5/7
24060 - COSTA DI MEZZATE - BG

Ordine nr. / Bestell / Your order / Commande / Num. de pedido: ORD.N.240484

Conferma ordine nr. / Werks/Our Order/Ref nr. / Num. de confirmación de pedido: MI24003004

Avviso di Spedizione / Lieferanzeige/Packing list/B.L. / Aviso de embarque: A-MI24003374

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison / Estado de la entrega: Fucinato Solubilizzato - Pelato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration / Método de fusión: E+AOD

Qualità / Werkstoff/Grade/Nuance / Calidad: 1.4410/S32750/F53

Marca / Markenbezeichnung / Brand / Nuance / Marca: V257M

Produttore / Hersteller/Item/Usine productrice/Productor:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice / Marcas de fábrica: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur / Sello del Comprobador: MR

Punzonatura / Kennzeichnung / Marking / Marquage / Sello: 1.4410/S32750/F53

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Corrosion test per ASTM G48 PRACTICE A (50°C/24h):
no pitting at 20x magnification.
Material is free from intermetallic phases and precipitates.
Reduction ratio = 19,1 : 1
Solution annealed 1080°C for 210'(total time)/water cooled.
SURFACE QUALITY GUARANTEE BY ET INSPECTION (max defect depth 1% DIAMETER)
UT ACC. TO ASTM A388

Corrosion test in ferric chloride solutions

Test standard: ASTM G48 method A [50C/24h]

Pickling	Test	Length of Period [h]	Test temp [°C]	corrosion rate [g/m²]		
				min	max	
5' at 60°C (20% HNO3 + 5% HF)	Pitting corrosion	24	50		4,0000	0,5022

NOTES

No pitting at 20 x magnification

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à été trouvé conforme aux exigences
El material cumple de acuerdo a los requisitos

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK
Prueba de anti mezcla con técnica XRF/OES portátil: OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant
Inspección visual y dimensional: cumple los requisitos

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

MEGA-LAB S.R.L.

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

Date: 25 Oct 2024 | TRS-24-1976-003 | Rev. 0

Test report
Rapporto di prova

Customer Cliente	FLUITEK ORSENIGO VALVES Via dei livelli di sopra, 5/7 - 24060 Costa di Mezzate (BG)
Customer's order# Ordine cliente#	241894 dated 2024/10/11
Customer's job# Commessa cliente#	230371
Object# Descrizione#	ROUND BAR d. 140 mm
Customer's ID# ID cliente#	054-2024
Heat N.# Colata#	293808
Declared material# Materiale dichiarato#	ASTM A182 F53
Laboratory test ID ID laboratorio	16623
Material received on Materiale ricevuto il	18 Oct 2024
Involvement Parti coinvolte	TUV
Reference documents# Documenti di riferimento#	Test sampling laboratory
Remarks Note	-

General remarks/Note generali

1: This test report cannot be partially reproduced without our written approval

2: Test results are relevant only to the specimens belonging to the indicated samples

3: The informations written on this first page marked with "#" are provided by the customer, and the laboratory takes no responsibility on their accuracy

4: Tests are performed on the material in as-received conditions, unless otherwise specified

5: Sampling has been performed by customer

6: If not otherwise agreed, tested specimens are kept for 30 days from the test date

7: The conformity declaration, when expressed, does not consider the uncertainty of measurement

8: (*) Test not accredited by ACCREDIA - (**) Subcontracted test accredited by ACCREDIA - (***) Subcontracted test not accredited by ACCREDIA

1: Questo rapporto di prova non può essere riprodotto parzialmente senza la nostra approvazione scritta

2: I risultati di prova sono rilevanti solo per i provini appartenenti ai campioni indicati

3: Le informazioni riportate in questa prima pagina contrassegnate con "#" sono fornite dal cliente e il laboratorio non si assume alcuna responsabilità sulla loro

4: Le prove sono eseguite sul materiale come ricevuto, se non diversamente specificato

5: Il campionamento è stato eseguito dal cliente

6: Se non diversamente concordato, i campioni analizzati vengono conservati per 30 giorni dalla data del test

7: La dichiarazione di conformità, quando espressa, non tiene conto dell'incertezza di misura

8: (*) Prova non accreditata da ACCREDIA - (**) Prova subappaltata accreditata da ACCREDIA - (***) Prova subappaltata non accreditata da ACCREDIA

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Review
Witness
25 OTT 2024

Test report approved by
Rapporto di prova approvato da

MEGA-LAB s.r.l.
Arrigoni Marco
LABORATORY MANAGER

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA-LAB S.R.L.

LAB N° 1574 L

Date: 25 Oct 2024 | TRS-24-1976-003 | Rev. 0

Tensile testing at room temperature

Prove di trazione a temperatura ambiente

Test standard / Metodo di prova: ASTM A370 -24

Additional requirements / Requisiti aggiuntivi: Test sampling laboratory

Test equipment / Apparecchiatura di prova: Cermac TM-300E

Extensometer / Estensimetro: MF MFA2 - B639

Test number / ID Laboratorio: 16623

Execution date / Data esecuzione: 25 Oct 2024

Sp. N°	Direction/ Direzione	Position/ Posizione	Sp. Typ.	Thk. [mm]	Diam. [mm]	Area [mm²]	L_0 [mm]	L_c [mm]	L_e [mm]	T [°C]	Ys 0,2% [MPa]	Ts [MPa]	Elon. [%]	RoA [%]	Ys0,2/ Ts	Ys 1% [MPa]	E [GPa]	Loc. fract.
Requirements / Requisiti										Min	550	750	15	-	-	-	-	-
										Max	-	-	-	-	-	-	-	-
1	Long.	1/4 T	R	-	12,40	120,8	50	60	50	RT	552,2	823,0	46,4	76,0				
										U	-	-	-	-				

Remarks / Note

Yield strength calculated using the offset method
Elongation determined after fracture
Specimen type: R = Round, S = Strip

Snervamento calcolato con il metodo offset
Allungamento determinato dopo la frattura
Tipo di provino: R = Tondo, S = Piatto

Performed by / Eseguito da	Involvement / Parti coinvolte
Colazzo Luca Mechanical Test Dept.	FLUITEK ORSENIGO VALVES S.R.L. Q.C. 25 OTT 2024 Review Witness

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165 -
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA-LAB S.R.L.

LAB N° 1574 L

Date: 25 Oct 2024 | TRS-24-1976-003 | Rev. 0

Hardness test

Prova di durezza

Test standard Metodo di prova	ASTM E10 -23		
Additional requirements Requisiti aggiuntivi	Test sampling laboratory		
Test equipment Apparecchiatura di prova	Qness hardness tester - Q1241/12/17	**Hardness method** Tipo di durezza	Brinell HBW 2.5/187.5
Test temperature Temperatura di prova	RT		
Test number ID Laboratorio	16623	**Execution date** Data esecuzione	25 Oct 2024

Sp. N°	Test location Zona di prova	Measured values [HBW 2.5/187.5]										Ave. Media	U
	Requirements Requisiti	Min - Max 301 HBW											
2	1/4 T	263	258	261									

Remarks

Test performed using a Type A device as defined by ASTM E10

Test eseguito con un dispositivo di tipo A secondo la definizione di ASTM E10

FLUITEK ORSENIGO VALVES SRL Q.C.

Performed by Eseguito da	Involvement Parti coinvolte
Colazzo Luca **Mechanical Test Dept.**	Review Witness 25 OTT 2024

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA-LAB S.R.L.

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

Date: 25 Oct 2024 | TRS-24-1976-003 | Rev. 0

Notched bar impact test

Prove di resilienza su provino intagliato

Test standard Metodo di prova	ASTM A370 -24		
Additional requirements Requisiti aggiuntivi	Test sampling laboratory		
Test equipment Apparecchiatura di prova	Cermac JB-750-53	**Capacity of pendulum [J]** Capacità del pendolo	750
Test number ID Laboratorio	16623	**Execution date** Data esecuzione	25 Oct 2024

Sp. N°			Direction/ Direzione	Position/ Posizione	Strik. Coltell.	Dimens. [mm]	Tem. [°C]	Min. [J]			Ave. [J] Med.	U [J]	K	Shear area [%] Area duttile			Av. [%] Med	Lat. Exp. [mm] Espan. Lat.		
Requirements Requisiti							-	40			50	-	-	-			-	-		
3a	3b	3c	Long.	1/4 T	KV8	10X10X55	-50	110	104	110	108									

Remarks/ Note

ASTM E23-2002a ed. requirements are also fulfilled: knife was not changed after last calibration
Unbroken specimen: -

I requisiti di ASTM E23-2002a ed. sono soddisfatti: il coltello non è stato modificato dopo l'ultima taratura
Provini non rotti: -

Performed by Eseguito da	Involvement Parti coinvolte
Colazzo Luca **Mechanical Test Dept.**	Reviewer Witness 25 OTT 2024

FLUITEK ORSENIGO VALLES S.R.L. Q.C.

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
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MEGA-LAB S.R.L.

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

Date: 25 Oct 2024 | TRS-24-1976-003 | Rev. 0

Chemical analysis

Analisi chimica

Test standard / Metodo di prova: ASTM E1086 -22

Additional requirements / Requisiti aggiuntivi: Test sampling laboratory

Test number / ID Laboratorio: 16623 4

Position / Posizione: -

Test equipment / Apparecchiatura di prova: GNR - METALLAB PLUS S/n. 21 215 MLP 06

Execution date / Data esecuzione: 25 Oct 2024

Elemen.	C [%]	Si [%]	Mn [%]	P [%]	S [%]	Cr [%]	Mo [%]	Ni [%]	-	Cu [%]
Min	-	-	-	-	-	24,0	3,0	6,0	-	-
Max	0,030	0,80	1,20	0,035	0,015	26,0	5,0	8,0	-	0,50
Value Valore	0,028	0,33	0,68	0,029	0,0012	24,9	4,0	6,9	-	0,28
U (k=4,3)	-	-	-	-	-	-	-	-	-	-

Elemen.	-	-	-	W [%]	-	-	-	-	-	-
Min	-	-	-	-	-	-	-	-	-	-
Max	-	-	-	-	-	-	-	-	-	-
Value Valore	-	-	-	0,023	-	-	-	-	-	-
U (k=4,3)	-	-	-	-	-	-	-	-	-	-

Elemen.	-	-	-	-	N_2 [%]	-	-	-	-	PREN
Min	-	-	-	-	0,24	-	-	-	-	40,0
Max	-	-	-	-	0,32	-	-	-	-	-
Value Valore	-	-	-	-	0,31	-	-	-	-	42,9
U (k=4,3)	-	-	-	-	-	-	-	-	-	-

Elemen.	-	-	-	-	-	-	-	-	-	-
Min	-	-	-	-	-	-	-	-	-	-
Max	-	-	-	-	-	-	-	-	-	-
Value Valore	-	-	-	-	-	-	-	-	-	-
U (k=4,3)	-	-	-	-	-	-	-	-	-	-

Remarks / Note: -

CRM: EURONORM 298-1

Performed by / Eseguito da	Involvement / Parti coinvolte
Bortolotti Matteo Chemical & Corrosion Dept.	Q.C. FLUITEK ORSENIGO VALVES SRL 25 OTT 2024 Review Witness

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA-LAB S.R.L.

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

Date: 25 Oct 2024 | TRS-24-1976-003 | Rev. 0

Ferric chloride pitting corrosion test

Resistenza alla corrosione da pitting con cloruro ferrico

Test standard Metodo di prova	ASTM G48 -11 (reapproved 2020) Method A
Additional requirements Requisiti aggiuntivi	Test sampling laboratory
Test number ID Laboratorio	16623 5
Specimen size [mm] Dimensioni del campione	50,90 x 24,61 x 12,60 | **Surface (A) [cm2]** Area | 44,08
Specimen location Posizione del campione	1/4T, longitudinal
Specimen preparation Preparazione del campione	Grinding with 180 grit abrasive paper on specimen surfaces, pickling in solution 20% HNO3 + 5% HF at 60°C x 5 minutes. Ultrasonic cleaning, degreasing with alcohol.
Test solution Soluzione di prova	100 g of reagent grade ferric chloride, $FeCl_3 \cdot 6H_2O$, in 900 ml of Type IV reagent water (Specification D1193) - about 6 % $FeCl_3$ by mass
Test started on Inizio prova	24 Oct 2024 h. 14:00 | **Test finished on** Fine prova | 25 Oct 2024 h. 14:00
Test duration (t) [h] Durata della prova	24 | **Test temperature [°C]** Temperatura di prova | 50
Initial weight [g] Peso iniziale	123,0119 | **Final weight [g]** Peso finale | 123,0108
Weight loss [g] (W)	0,0011 | **Density (d) [g/cm3]** Densità | -
Acceptance criteria Criteri di accettabilità	No pitting - Corrosion rate < 0,40 [g/m2]
Examined area [cm2] Area esaminata	25,05 | **Corrosion rate** Velocità di corrosione [g/m2] | 0,25

No. of pits - Side A	0	**No. of pits - Side B**	0	**Pits per cm2**	0,00
Average pits depth [µm]	N/A	**Maximum pits depth [µm]**	N/A		

Remarks Note: No pitting at 20X

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Performed by Eseguito da	Involvement Parti coinvolte
Bortolotti Matteo Chemical & Corrosion Dept.	Review Witness

25 OTT 2024

MEGA-LAB S.R.L.

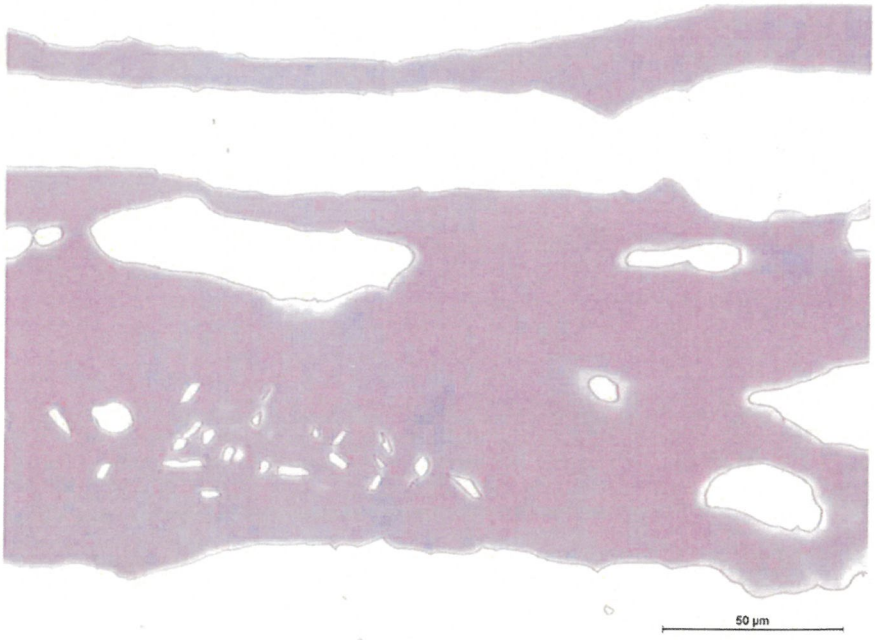
LAB N° 1574 L

Date: 25 Oct 2024 | TRS-24-1976-003 | Rev. 0

Detecting detrimental intermetallic phase: Sodium Hydroxide Etch Test

Determinazione delle fasi intermetalliche dannose: Attacco con sodio

Test standard Metodo di prova	ASTM A923 -23 Met. A
Additional requirements Requisiti aggiuntivi	Test sampling laboratory
Test number ID Laboratorio	16623 -6a
Execution date Data esecuzione	25 Oct 2024
Specimen location Posizione del campione	1/2T - LONGITUDINAL
Specimen preparation Preparazione del campione	ASTM E3-11 (2017)
Etchant Attacco con reagente	ASTM E407-07 (2015) n. 220 : 40 g NaOH + 100 ml H2O (Electrolytic)
Test equipment Apparecchiatura di prova	LEICA DMI8 Microscope



Magnification Ingrandimento	500x
Test result Risultato di prova	Unaffected structure: absence of intermetallic phases and carbides
Metallurgical structure Struttura metallurgica	Austenite + ferrite

Performed by Eseguito da		Involvement Parti coinvolte
Carminati Carlo **Metallurgical Department**	FUJITEK ORSENIGO VALERIO SRL Q.C.	☐ Review ☑ Witness 25 OTT 2024 Form F-002

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA-LAB S.R.L.

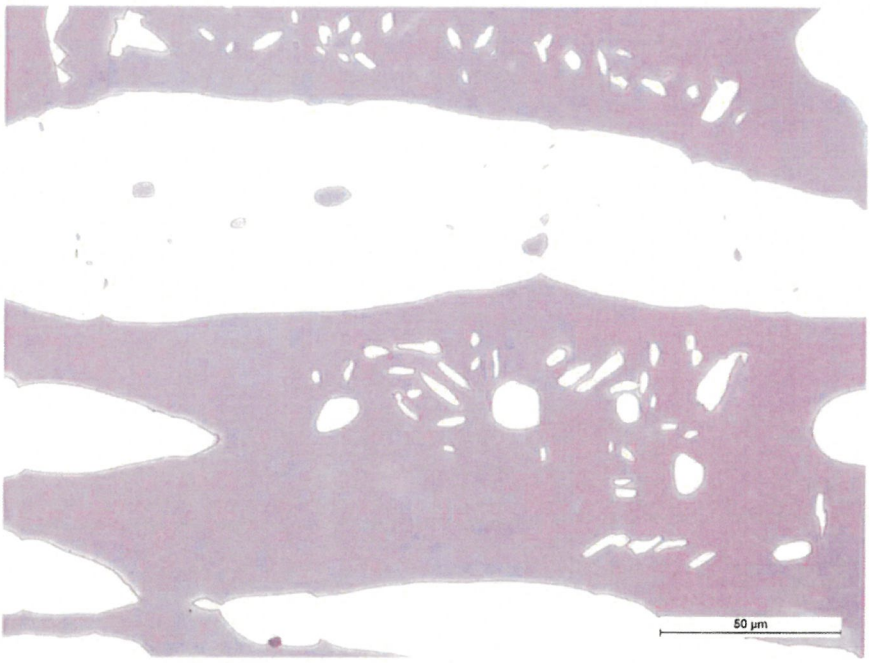
LAB N° 1574 L

Date: 25 Oct 2024 | TRS-24-1976-003 | Rev. 0

Detecting detrimental intermetallic phase: Sodium Hydroxide Etch Test

Determinazione delle fasi intermetalliche dannose: Attacco con sodio

Test standard Metodo di prova	ASTM A923 -23 Met. A
Additional requirements Requisiti aggiuntivi	Test sampling laboratory
Test number ID Laboratorio	16623 -6b
Execution date Data esecuzione	25 Oct 2024
Specimen location Posizione del campione	Near surface - LONGITUDINAL
Specimen preparation Preparazione del campione	ASTM E3-11 (2017)
Etchant Attacco con reagente	ASTM E407-07 (2015) n. 220 : 40 g NaOH + 100 ml H2O (Electrolytic)
Test equipment Apparecchiatura di prova	LEICA DMI8 Microscope



Magnification Ingrandimento	500x
Test result Risultato di prova	Unaffected structure: absence of intermetallic phases and carbides
Metallurgical structure Struttura metallurgica	Austenite + ferrite

Performed by Eseguito da	Involvement Parti coinvolte
Carminati Carlo **Metallurgical Department**	Q.C. FLUITEK ORSENIGO VALVES SRL 25 OTT 2024 ☐ Review ☑ Witness

MEGA-LAB S.R.L. - VIA L. GALVANI 23/A 24061 ALBANO S. ALESSANDRO (BG) - CODICE FISCALE E PARTITA I.V.A. 04172050165
R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

MEGA-LAB S.R.L.

LAB N° 1574 L

Date: 25 Oct 2024 **TRS-24-1976-003** Rev. 0

Second phase content with automatic image analysis method

Contenuto seconda fase con metodo dell'analisi d'immagine automatica

Test standard Metodo di prova	ASTM E1245 -03 (reapproved 2023)
Additional requirements Requisiti aggiuntivi	Test sampling laboratory
Test number ID Laboratorio	16623 -6a **Execution date** Data esecuzione 25 Oct 2024
Specimen location Posizione del campione	1/2T - LONGITUDINAL
Specimen preparation Preparazione del campione	ASTM E3-11 (2017)
Etchant Attacco con reagente	ASTM E407-07 (2015) n. 220 : 40 g NaOH + 100 ml H2O (Electrolytic)
Test equipment Apparecchiatura di prova	LEICA DMi8 Microscope with computerized image analyzer software (Runner LAS V4.13.0)
Acceptance criteria Criteri di accettabilità	Ferrite content within 40% ÷ 60%

Magnification Ingrandimento 500x **Field array :** Random **Number of fields:** 30

Field	Phase	Area %	Area [µm²]	Field	Phase	Area %	Area [µm²]	Field	Phase	Area %	Area [µm²]
1	Ferrite	44,37	18739,39	11	Ferrite	53,59	22633,10	21	Ferrite	41,75	17634,43
	Austenite	55,63	23498,24		Austenite	46,41	19604,54		Austenite	58,25	24603,20
2	Ferrite	61,16	25832,83	12	Ferrite	61,13	25820,77	22	Ferrite	58,45	24685,90
	Austenite	38,84	16404,80		Austenite	38,87	16416,86		Austenite	41,55	17551,74
3	Ferrite	39,51	16688,15	13	Ferrite	48,35	20421,58	23	Ferrite	40,86	17256,83
	Austenite	60,49	25549,48		Austenite	51,65	21816,05		Austenite	59,14	24980,81
4	Ferrite	39,94	16869,97	14	Ferrite	50,23	21214,38	24	Ferrite	48,74	20586,49
	Austenite	60,06	25367,66		Austenite	49,77	21023,26		Austenite	51,26	21651,14
5	Ferrite	43,74	18474,27	15	Ferrite	53,01	22391,90	25	Ferrite	54,18	22885,77
	Austenite	56,26	23763,37		Austenite	46,99	19845,74		Austenite	45,82	19351,87
6	Ferrite	44,25	18688,30	16	Ferrite	59,65	25196,83	26	Ferrite	40,71	17195,12
	Austenite	55,75	23549,33		Austenite	40,35	17040,80		Austenite	59,29	25042,52
7	Ferrite	47,36	20005,33	17	Ferrite	33,69	14228,33	27	Ferrite	54,59	23058,21
	Austenite	52,64	22232,30		Austenite	66,31	28009,30		Austenite	45,41	19179,42
8	Ferrite	52,16	22029,26	18	Ferrite	66,64	28145,75	28	Ferrite	49,29	20817,06
	Austenite	47,84	20208,37		Austenite	33,36	14091,89		Austenite	50,71	21420,57
9	Ferrite	43,25	18267,21	19	Ferrite	35,12	14832,30	29	Ferrite	60,21	25430,41
	Austenite	56,75	23970,43		Austenite	64,88	27405,33		Austenite	39,79	16807,22
10	Ferrite	54,10	22851,69	20	Ferrite	49,47	20896,29	30	Ferrite	56,79	23988,32
	Austenite	45,90	19385,94		Austenite	50,53	21341,34		Austenite	43,21	18249,31

Tot. Area analyzed [µm²]	Mean ferrite %	Mean ferrite [µm²]	Std. Deviation %	CI 95% [%]	Relative accuracy %
1267129,002	49,5	20925,53888	8,3	3,1	6,3

Performed by Eseguito da	Involvement Parti coinvolte
Carminati Carlo **Metallurgical Department**	

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Review Witness

25 OTT 2024

MEGA-LAB S.R.L.

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N° 1574 L

Date: 25 Oct 2024 | TRS-24-1976-003 | Rev. 0

Second phase content with automatic image analysis method

Contenuto seconda fase con metodo dell'analisi d'immagine automatica

Test standard
Metodo di prova: ASTM E1245 -03 (reapproved 2023)

Additional requirements
Requisiti aggiuntivi: Test sampling laboratory

Test number
ID Laboratorio: 16623 -6b

Execution date
Data esecuzione: 25 Oct 2024

Specimen location
Posizione del campione: Near surface - LONGITUDINAL

Specimen preparation
Preparazione del campione: ASTM E3-11 (2017)

Etchant
Attacco con reagente: ASTM E407-07 (2015) n. 220 : 40 g NaOH + 100 ml H2O (Electrolytic)

Test equipment
Apparecchiatura di prova: LEICA DMi8 Microscope with computerized image analyzer software (Runner LAS V4.13.0)

Acceptance criteria
Criteri di accettabilità: Ferrite content within 40% ÷ 60%

Magnification
Ingrandimento: 500x **Field array :** Random **Number of fields:** 30

Field	Phase	Area %	Area [µm²]	Field	Phase	Area %	Area [µm²]	Field	Phase	Area %	Area [µm²]
1	Ferrite	48,94	20673,12	11	Ferrite	57,55	24309,74	21	Ferrite	39,66	16752,28
	Austenite	51,06	21564,51		Austenite	42,45	17927,89		Austenite	60,34	25485,35
2	Ferrite	44,50	18794,58	12	Ferrite	52,01	21966,35	22	Ferrite	46,40	19596,88
	Austenite	55,50	23443,05		Austenite	47,99	20271,28		Austenite	53,60	22640,75
3	Ferrite	46,47	19626,53	13	Ferrite	33,61	14194,47	23	Ferrite	46,86	19790,90
	Austenite	53,53	22611,10		Austenite	66,39	28043,17		Austenite	53,14	22446,73
4	Ferrite	39,75	16790,59	14	Ferrite	47,06	19875,76	24	Ferrite	56,64	23924,01
	Austenite	60,25	25447,04		Austenite	52,94	22361,87		Austenite	43,36	18313,62
5	Ferrite	54,73	23117,14	15	Ferrite	45,62	19266,99	25	Ferrite	34,48	14563,48
	Austenite	45,27	19120,49		Austenite	54,38	22970,64		Austenite	65,52	27674,15
6	Ferrite	60,71	25640,42	16	Ferrite	52,29	22086,57	26	Ferrite	56,37	23811,33
	Austenite	39,29	16597,21		Austenite	47,71	20151,07		Austenite	43,63	18426,30
7	Ferrite	47,16	19918,75	17	Ferrite	42,88	18109,78	27	Ferrite	57,11	24123,63
	Austenite	52,84	22318,88		Austenite	57,12	24127,86		Austenite	42,89	18114,01
8	Ferrite	43,16	18229,36	18	Ferrite	52,93	22354,72	28	Ferrite	37,24	15729,94
	Austenite	56,84	24008,28		Austenite	47,07	19882,92		Austenite	62,76	26507,70
9	Ferrite	59,99	25338,51	19	Ferrite	60,60	25595,32	29	Ferrite	49,50	20909,44
	Austenite	40,01	16899,12		Austenite	39,40	16642,31		Austenite	50,50	21328,20
10	Ferrite	38,71	16349,50	20	Ferrite	36,98	15621,14	30	Ferrite	50,54	21347,14
	Austenite	61,29	25888,13		Austenite	63,02	26616,49		Austenite	49,46	20890,49

Tot. Area analyzed [µm²]	Mean ferrite %	Mean ferrite [µm²]	Std. Deviation %	CI 95% [%]	Relative accuracy %
1267129,002	48,0	20280,27885	7,9	3,0	6,2

Performed by Eseguito da	Involvement Parti coinvolte
Carminati Carlo **Metallurgical Department**	Review Witness 25 OTT 2024

FLUITEK ORSENIGO VALVES SRL Q.C.

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R.E.A. BG-441396 - CAPITALE SOCIALE EURO 10.000 i.v. - P.E.C. mega-lab@legalmail.it

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2 - 071887.PDF **C 240396-001/01**

BGH

BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01705 Freital

CHUN & VOLLERIN SRL
VIA A. EINSTEIN 15
20090 CUSAGO MI

Zeugnis-Nr. 476744
Certificate no.
No. de certificat

Bescheinigung über Werkstoffprüfung nach DIN EN 10204
Certificate of material tests according to DIN EN 10204 3.1
Certificat des essais des matériaux selon DIN EN 10204

Die Lieferung entspricht den vereinbarten Lieferbedingungen.
Delivery in accordance with the agreed terms of delivery.
La livraison correspond aux conditions de livraison convenues.

Zeichen des Lieferwerkes / Trade mark / Signe du fournisseur
Stempel des Werkssachverständigen / Inspector's stamp / Poinçon de l'inspecteur

Kunden-Bestell-Nr. 243862003
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 04989202/243862
BGH works no.
BGH référence

BGH Q406

Erzeugnisform / Product	Stab, rund, gewalzt, geschält round bars, rolled, peeled
Werkstoff / Quality	UNS S32750
Anforderungen / Requirements	UNS S32750 ASTM A 276 /A276M -17 UNS S32750 ASTM A 479 /A479M -18 UNS S32750 - F53 ASTM A182/A182M-18a (chemistry and mechanicals only) UNS S32750 NORSOK M 630 Edition 6 10/13 UNS S32750 NORSOK MDS - D 57 Rev. 5 10/13 UNS S32750 ANSI/NACE MR 0103 /ISO17945: 2015 UNS S32750 ANSI/NACE MR 0175/ISO15156-3 2015 1.4410 X2CrNiMoN25-7-4 DIN EN 10088 -3 12/14 Gefertigt nach QTR_F_B_32750 nach Norsok M-650 Edition 4 Manufactured acc. to QTR_F_B_32750 acc. to Norsok M-650 Edition 4

Besichtigung und Maßnachprüfung Inspection and dimensional control Inspection et contrôle de dimension	Erschmelzung/Nachbehandlung Meltingprocess/secondary refining Mode d'élaboration/traitement ultérieur	Verwechslungsprüfung (spectroanalytisch) Identification test (spectral-analysis) examination d' identification(analyse spectrale)
ohne Beanstandung without objection	E- VOD	ohne Beanstandung without objection

Pos. Item Poste	Anzahl Quantity Quantité	Abmessung Dimension Dimensions	Gewicht Weight Poids	Schmelz-Nr. Heat-No. No. de coulée
1	3	76,20 RD	628 kg	397872

Schmelze Heat	%	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	N	PRE
397872		0,016	0,31	0,77	0,026	0,0006	25,50	3,84	6,94	0,14	0,2710	42,508

Wärmebehandlungszustand: lösungsgeglüht / solution annealed

Probe-Nr. Test-No.		Lage loc.	Temp. °C	Rp0,2 N/mm²		Rm N/mm²	A5/A4 %	Z %	Kerbschlagarbeit Impact value J			Probenform Shape of test piece Charpy-V °C	Härte Hardness HBW/HRC
Soll/Req.	+	L	RT	>=530		>=730	>=25		>=100			RT	
	+	L	RT			<=930							<=310/<=32
	*	L	RT	>=550		>=760	>=25		>=45			-46	
001GR1	+	L	RT	580		813	38/--	79	258	269	270	RT	248/--(1)
001GR1	+												---/22(2)
022EM1	*	L	RT	577		802	--/43	76	283	279	288	-46	248/--(2)

Prob-Nr Test-No	Temp °C	later.Breitung mm later.expansion			Scherbruchant. % shear fracture			
022EM1	-46	2,2	2,2	2,2	100	100	100	(längs/longitudinal)

\+ Erprobung nach/testing acc. to DIN EN ISO 6892-1 / DIN EN ISO 148-1
Prüfort/test location: 12,5 mm
* Erprobung nach/testing acc. to ASTM/ASME A 370
Prüfort/test location: D/4 - mid radius

Anlagen / Encl. / Annexe	Freital,den Place and date Lieu et date	Abnahmebeauftragter Inspector representative Inspecteur de réception
US-Protokoll/UT report Glühbesch./Heat treatment cer. Gefügeaufnahme/micrograph	06.08.2019	Kunz

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.

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Ce certificat a été établi sur système informatique et est valable sans signature aussi.

FLUITEK ORSENIGO VALVES SRL Q.C.

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BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01705 Freital

CHUN & VOLLERIN SRL
VIA A. EINSTEIN 15
20090 CUSAGO MI

Zeugnis-Nr. 476744
Certificate no.
No. de certificat

Bescheinigung über Werkstoffprüfung nach DIN EN 10204
Certificate of material tests according to DIN EN 10204 3.1
Certificat des essais des matériaux selon DIN EN 10204

Die Lieferung entspricht den vereinbarten Lieferbedingungen.
Delivery in accordance with the agreed terms of delivery.
La livraison correspond aux conditions de livraison convenues.

Zeichen des Lieferwerkes
Trade mark
Signe du fournisseur

Stempel des Werkssachverständigen
Inspector's stamp
Poincon de l'inspecteur

BGH Q406

Kunden-Bestell-Nr. 243862003
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 04989202/243862
BGH works no.
BGH référence

Härteprüfung-Prüfort/Hardness test-test location:
(1) 12,5 mm ; (2) D/4 - mid radius

Proben wurden gemäß ASTM A 370 von der Stabverlängerung entnommen./
Test pieces taken from actual bar prolongation in according to ASTM A 370.

Korros.-Test ASTM G48 Meth.A: 50°C/24h: kein Lochfraß/no pitting is observed
corrosion test Meth.A: Gewichtsverlust/weight loss: 0,150 g/m²
Proben gebeizt/Samples pickles (20% HNO3 + 5% HF, 60 °C, 5 Minuten/minutes)
Beurteilung bei 20-facher Vergrößerung./
Samples were assessed for pitting at 20x magnification.

Deltaferrit/ferrite delta ASTM E 562 ; Ätzmittel/Etchant: V2A + 30 % NaOH
022EM1: Rand - near surface: 50% ; relative Genauigkeit/relative accuracy: 10%
022EM1: D/4 - mid radius : 52% ; relative Genauigkeit/relative accuracy: 10%
Prüfung/testing: 30 Felder/16 Punkt (30 fields of 16 points)

Umformgrad/reduction ratio: 24:1

Material wurde nicht reparaturgeschweißt.
Gefüge frei von intermetallischen und anderen schädlichen Phasen.
Material ist frei von Quecksilber.
Material frei von Sigma- und anderen schädlichen Phasen.
Gefüge frei von Korngrenzenkarbiden,
-nitriden und anderen intermetallischen/schädlichen Phasen
Stahlhersteller des Ausgangsmaterials: BGH Edelstahl Freital GmbH.

Material no weld repaired.
Microstructure free from intermetallic or other detrimental phases.
Material is free from mercury.
Material free from sigma and other harmful phases.
Microstructure free from grain boundary carbides
nitrides or any intermetallic or other detrimental phases.
Steel manufacturer of starting material: BGH Edelstahl Freital GmbH.

Fertigung nach QM-System ISO 9001: 2015/ QM system in effect is ISO 9001: 2015
Zertifiziert nach / certificated AD2000 W0.

Anlagen / Encl. / Annexe: US-Protokoll/UT report Glühbesch./Heat treatment cer. Gefügeaufnahme/micrograph	Freital,den Place and date Lieu et date 06.08.2019	Abnahmebeauftragter Inspector representative Inspecteur de réception Kunz
Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.	This certificate was generated by data system and it is valid without signature as well. Ce certificat a été établi sur système informatique et est valable sans signature aussi.	

FLUITEK ORSENIGO VALVES SRL Q.C.

BGH

BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01705 Freital

CHUN & VOLLERIN SRL
VIA A. EINSTEIN 15
20090 CUSAGO MI

Zeugnis-Nr. 476744
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No. de certificat

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Zeichen des Lieferwerkes
Trade mark
Signe du fournisseur

Stempel des Werkssachverständigen
Inspector's stamp
Poincon de l'inspecteur

BGH Q406

Kunden-Bestell-Nr. 243862003
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 04989202/243862
BGH works no.
BGH référence

Kontrolle auf Radioaktivität ohne Befund, der Messwert liegt unter der Nachweisgrenze von 0,1 Bq/g.
Radioactivity inspection without objection, the measured value is below the detection limit of 0.1 Bq/g.

FLUITEK ORSENIGO VALVES SRL Q.C.

Anlagen Encl. Annexe	Freital,den Place and date Lieu et date	Abnahmebeauftragter Inspector representative Inspecteur de réception
US-Protokoll/UT report Glühbesch./Heat treatment cer. Gefügeaufnahme/micrograph	06.08.2019	Kunz

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.
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Ce certificat a été établi sur système informatique et est valable sans signature aussi.

Gefügeaufnahmen zum Zertifikat Nr. / Microstructure to certificate No.: 476744

Besteller/Purchaser:	CHUN & VOLLERIN SRL
Bestell-nr./Order-No.:	243062003
Werkstoff/Quality:	UNS S32750
Chargen-nr./Cast-No.:	397872
Erzeugnisform/Product:	Stab, rund, gewalzt, geschält / round bars, rolled, peeled
Abmessung/Dimension:	76,20 RD
Komm.-nr./Work-No.:	04989202

Proben-nr./Test-No.: 022EM1



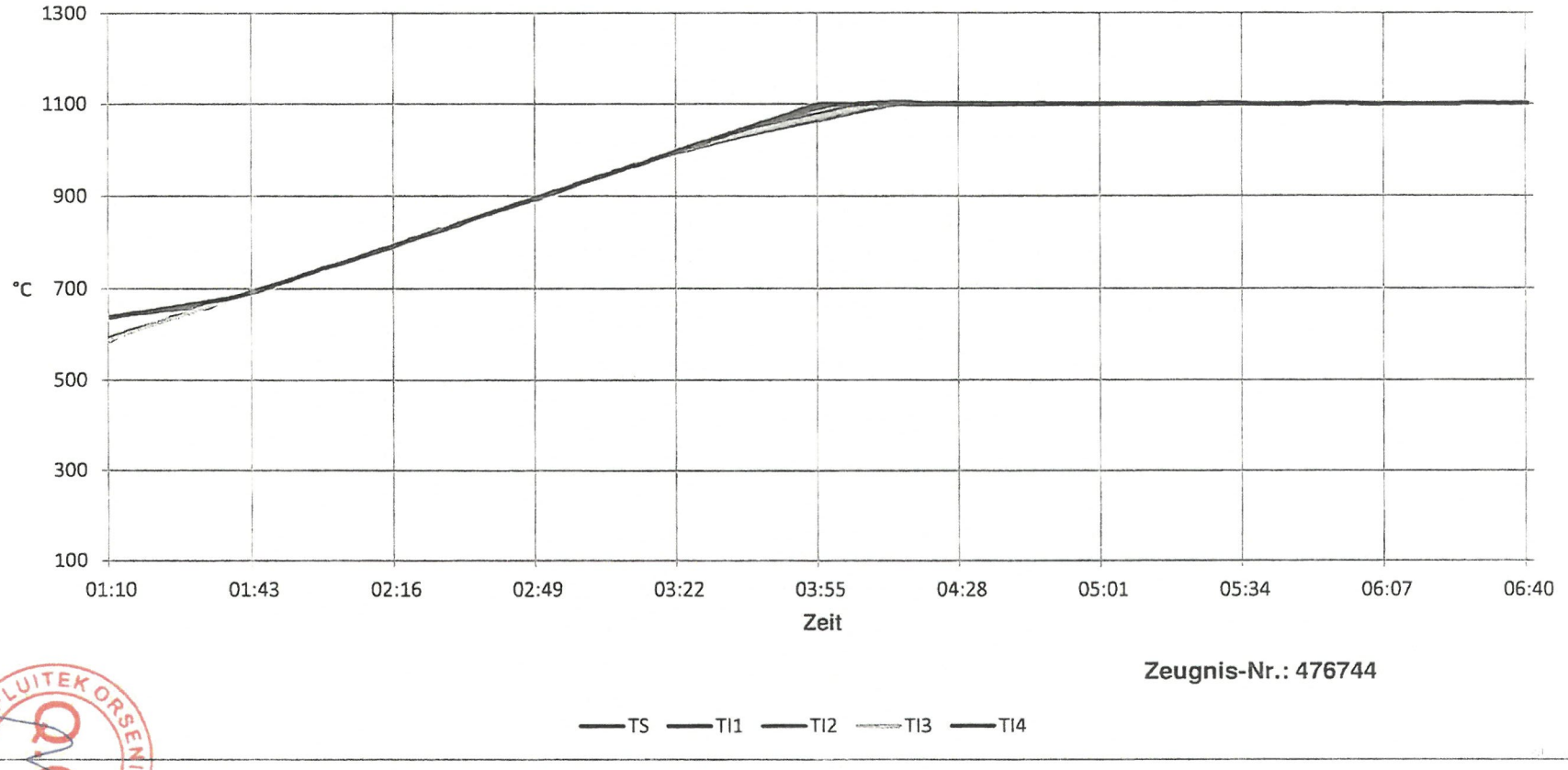
500:1 mid radius

FLUITEK ORSENIGO VALVES SRL Q.C.

Diagramm Aggregat 722

BGH Edelstahl
Freital GmbH

BGH-Auftragsnummer: 04989202
Start: 14.05.2019 01:10 Uhr
Ende: 14.05.2019 06:40 Uhr
Gesamtzeit: 0 Tage 05:30 Stunden
Los-Nr.: 722/125/6530
Wst-Nr.: 1.4410



Zeugnis-Nr.: 476744

FLUITEK ORSENIGO VALVES SRL

2 - 071887.PDF

C 240396-001/01

Wärmebehandlungsbescheinigung
Heat treatment certificate
Attestation de traitement thermique

BGH

BGH Edelstahl Freital GmbH

Kunden-Bestell-Nr. Customer order no. Cde. no. du client	BGH-Auftrags-Nr. BGH works no. BGH référence	Zeugnis-Nr. Certificate no. No. de certilicat
243862003	04989202	476744

Wärmebehandlungszustand: Condition of heat treatment: État de traitement thermique:	**lösungsgeglüht solution annealed recuit de mise en solution**
Datum: Date: Date:	14.05.2019
Ofen-Nr.: Furnace no.: No. du four:	722
Aufheizzeit: Heating up time: Temps de montée en température:	3 h
Haltetemperatur: Holding temperature: Température de maintien:	1100 °C
Haltezeit: Holding time: Temps de maintien	2,5 h
Abkühlmedium: Quenching medium: Moyen de refroidissement:	Wasser / water / eau (< 260 °C)
Datum: Date: Date:	
Ofen-Nr.: Furnace no.: No. du four:	
Haltezeit: Holding time: Temps de maintien:	
Abkühlmedium: Quenching medium: Moyen de refroidissement:	
Wärmebehandlungs-Nr.: Heat treatment lot no.: No. du lot de traitement thermique:	722/6530

FUITEK ORSENIGO VALVES SRL Q.C.

Acc. ASTM A182. Water temp. start: 18 °C Water temp. end: 22 °C, below 49 °C at any time during quenching.
Furnace Method of monitoring: Funace Set point Thermocouples

Diagramm: Diagram: Diagramme:	Datum: Date: Date:	Abnahmebeauftragter Inspector representative Inspecteur de réception
X	06.08.2019	KUNZ BGH Q413

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.

This certificate was generated by data system and it is valid without signature as well.
Ce certificat a été établi sur système informatique et est valable sans signature aussi.

Ultraschallprüfung
Ultrasonic testing

DIN EN 10204-01/05 3.1

BGH

BGH Edelstahl Freital GmbH

Kunden-Bestell-Nr. 243862003
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 049892-02
BGH works no.
BGH référence

Zeugnis-Nr. 476744
Certificate no.
No. de certificat

Erzeugnisform : Stab, rund, gewalzt, geschält
Product : round bars, rolled, peeled

Werkstoff/Quality : UNS S32750 Schmelze: 397872
Abmessung/Dimension: 76,20 RD
Anzahl/Quantity : 3 Gewicht /Weight : 628 kg
Wärmebehandlungszustand : lösungsgeglüht / solution annealed
Condition of heat treat : solution annealed

Prüfrichtlinie
Specification

A388/A 388 M (latest Revision)
(KSR/FBH max. 3 mm)

Bearbeitungszustand Machining condition	: geschält peeled
Prüfgerät Test equipment	: Deutsch-RPTS-Echograph 1155
Prüfkopf Probe	: 24x STS10WB4C
Kopplungsmittel Coupling medium	: Wasser water
Prüfumfang Extent of examination	: vollständig completely
Einschallrichtung Direction of incidence	: senkrecht und in Winkeleinschallung 40° perpendicular and angle beam 40°
Registriergrenze Registration level	: Prüfung und Justierung erfolgten gemäß obiger Spezifikation. Test and adjustment according to above mentioned specification.
Befund Result	: keine registrierpflichtigen Anzeigen no reportable indications
Prüfdatum Examination date	: 02.08.2019

Freital,den Place and date Lieu et date 06.08.19	Prüfer Testing operator Opérateur Beer, B. Stufe 2 ISO 9712	Abnahmebeauftragter Inspector representative Inspecteur de réception Kunz Stufe 2 ISO 9712	BGH Q413	Überwacher Supervisor Surveilleur

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.
This certificate was generated by data system and it is valid without signature as well.
Ce certificat a été établi sur système informatique et est valable sans signature aussi.

FLUITEK ORSENIGO VALVES SRL Q.C.

3 - 061096.PDF C 240396-001/01

LVF Ref.Nr 1 - 105710.PDF C 220053-106/01

PRESSBOLT
Pressbolt s.r.l. con unico socio
Partita Iva 03231770136
Via dell'Artigianato, 12 - 22078 - Turate (CO)
Tel. +39 02 96.97.98.50 - Fax +39 02 96.97.98.29
email:qualita@pressbolt.com

Messrs. LVF SPA
VIA BARACCA, 24
24060 - SAN PAOLO D'ARGON(BG)

Inspection Certificate EN 10204:2004 3.1

Number	Rev.	Date
3134396	0	04 November 2021

Client Reference Order		Reference Order	
Number	212947 of 07 September 2021	Number	3104728
Reference			
Item	015 - 532508	Item	150
Job		Shipping ref.	3111350 of 04 November 2021

Standard

ASTM A193(M)-20 / ASME SA193(M) BPVC-IIA-2021 - B7

PED 2014/68/EU Annex I Sect. 4.3 according to 5.65 SQR (Specimen Area)

Item Description	Heat Treatment
HEX BOLT EN ISO 4017 A/SA 193 B7 M12X0026 HOT DIP GALVANIZED ASTM A153 / F2329	QUENCHED Min 830 C AND TEMPERED Min 593 C

Heat	Quantity	Lot	Job PB
BC5744	400	P1546698	0000965470

Chemical Analysis %

	C	Mn	Si	P	S	Cr	Mo	
Required	0.38-0.48	0.75 - 1	0.15-0.35	max 0.035	max 0.04	0.8 - 1.1	0.15-0.25	
Actual	0.435	0.820	0.210	0.010	0.022	1.090	0.160	

Tensile Test

	Rm "Mpa"	Rp02 "Mpa"	A "%"	Z "%"
Required	Min 860	Min 720	min 16	min 50
Actual	954	763	22	59.4

	Elongation % 5D
Required	Min 14
Actual	19.4

	Hardness "HB"
Required	max 321
Actual	293;296;291

Mechanical tests are longitudinal performed at t/2 or t/4 as a function of specimen dimension

Macroetch Examination	Positive	Visual and dimensional Test	Positive

Manufacturer has a quality-assurance system with specific assessment for materials 2014/68/EU-Annex I-Sect.4.3 certified by TUV Rheinland for materials according to the directive

The material was manufactured, tested and checked in accordance with the specifications and additional requirements of the Purchase Order or the Agreement
No weld repair has been performed on the material

Duilio Piras
Quality control manager

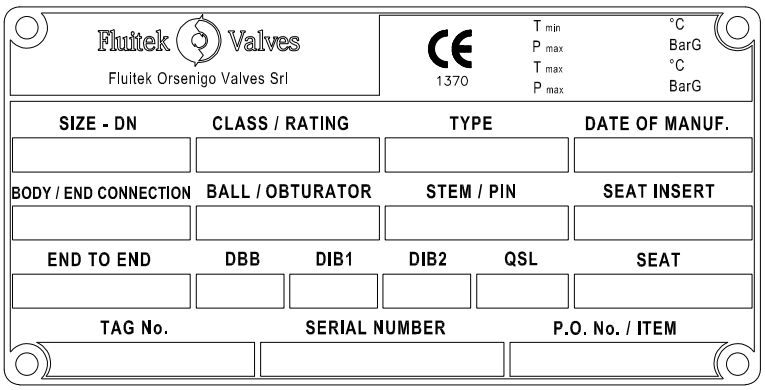
105710

Pressbolt s.r.l. con unico socio - Certificate N 0000003134396 Rev. 000 of 04 November 2021 -

02: Certificates Manufacturing Reports and Procedures

Nameplate with CE Marking

File: COPERTINA .xlsx
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Rev.	DESCRIPTION	DRAWN	DATE	CHK'D	DATE	APPV'D	DATE
3							
2							
1							
0	FIRST ISSUE	I.Rossi	13/05/2022	L.Mora	13/05/2022	D.Minelli	13/05/2022

DRAWING NOT IN SCALE

Fluitek Valves

DRAWN: I.Rossi	DATE: 13/05/2022
CHK'D: L.Mora	DATE: 13/05/2022
APPV'D: D.Minelli	DATE: 13/05/2022

SIZE: A4 | SCALE: 1:1

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DESCRIPTION:
GENERAL ASSEMBLY DRAWING

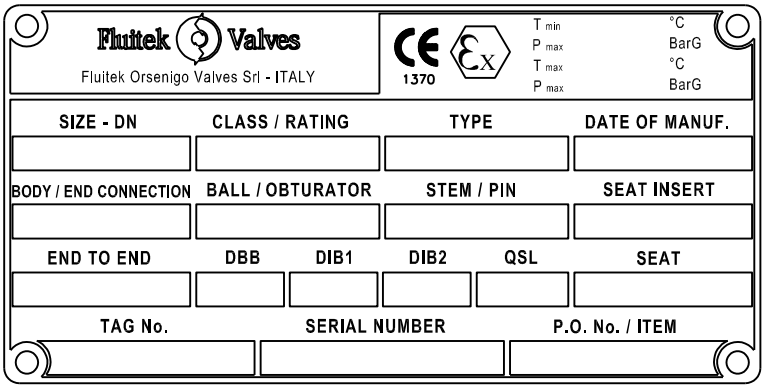
VALVE TYPE:

NAMEPLATE
CE

DRAWING NAME: **NP-API-6D_CE_01**

Rev.: 00

API 6D - CE - ATEX



Rev.	DESCRIPTION	DRAWN	DATE	CHK'D	DATE	APPV'D	DATE
3							
2							
1							
0	FIRST ISSUE	D.Barcella	11/06/2024	R.Bucco	11/06/2024	L.Mora	11/06/2024

DRAWING NOT IN SCALE

Fluitek Valves

DRAWN: D.Barcella	DATE: 11/06/2024
CHK'D: R.Bucco	DATE: 11/06/2024
APPV'D: L.Mora	DATE: 11/06/2024

SIZE: A4 | SCALE: 1:1

ALL RIGHTS OF THIS DRAWING ARE RESERVED.

DESCRIPTION: **GENERAL ASSEMBLY DRAWING**

VALVE TYPE:

NAMEPLATE
API 6D - CE - ATEX

DRAWING NAME: **NP-API-6D_CE_ATEX**

Rev.: 00

04: Manufacturing Records and Procedures

Inspection and Test Plan

File: COPERTINA .xlsx
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Base Load Power Hub (BLPH)

SDV/BDV AND TIGHT SHUT-OFF XV VALVES

INSPECTION AND TEST PLAN

Document Number: 1724000204-QC-ITP-00002

Document Class: 2

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
ROSETTI MARINO S.p.A.	07/08/2024

02	22/07/2024	Accepted for Construction (AFC)	L. Patelli	F. Buttironi	F. Buttironi
01	14/05/2024	Accepted for Construction (AFC)	M. Mariani	M. Mariani	M. Rocchetti
00	28/02/2024	Issue for Review (IFR)	M. Mariani	M. Mariani	M. Rocchetti
Rev.	Date	Description	Prepared	Reviewed	Approved

Fluitek Valves

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Fluitek Valves Fluitek Orsenigo Valves Srl - Costa di Mezzate (BG) - Italy	**INSPECTION AND TEST PLAN** In accordance with ISO 9001:2015	Fluitek Orsenigo Valves Srl Document Number. **ITP-240062_r02** DATE: 11/07/2024 Fluitek Orsenigo Valves Srl JOB No: **240062**

CLIENT :	**CLIENT P.O. No. :**	**PROJECT NAME :**
ROSETTI MARINO	1724000204 123A90A/REV.1	0295 - HOLLANDSE KUST NOORD WIND PARK
COMPANY :	**SCOPE OF SUPPLY :**	
---	BALL VALVES	

NOTES / HIGHLIGHTS :

Revisions are highlighted with blue colored text
This document is ectronically signed.
This Quality Plan must be read together with the QMSM (Quality Management System Manual) which describes the Fluitek Orsenigo Valves Srl Quality Management System.

Applicable Documents:
NACE MR 01.75
PED 2014/68/EU

Valves list - SEE ANNEX 1

LEGENDA FOR INTERVENTION AND INSPECTION CODES:

H : Hold Point - Work may not proceed without the attendance of inspection group
In case of waiver a written waiver and confirmation that work may proceed shall be issued by inspection group

W : Witness Point - Inspection Notification to inspection group.
If inspection group do not attend or if do not confirm the presence work may proceed without further notice from Fluitek

M : Monitor Point - Random surveillance of that activity. No notification to inspection group.

R : Review Point - Review of documentation by the inspection agency.

A : Approval

I : Information

NA : Not Applicable

LEGENDA FOR INVOLVED PARTIES:

Valve Manufacturer : Fluitek Orsenigo Valves Srl

CLIENT/TPI : ROSETTI MARINO **INSPECTION NOTICE : N/A**

COMPANY [CPY] : --- **INSPECTION NOTICE : N/A**

REVISION INDEX

REV	*DATE*	*DESCRIPTION*	*PREPARED BY*	*APPROVED BY*
02	11/07/2024	As per comments	*Quality - L. Patelli*	*Quality - F. Buttironi*
01	11/04/2024	As per comments	*Quality - M. Mariani*	*Quality - M. Rocchetti*
00	22/02/2024	Issued for approval	*Quality - M. Mariani*	*Quality - M. Rocchetti*

Fluitek Valves Fluitek Orsenigo Valves Srl - Costa di Mezzate (BG) - Italy	**INSPECTION AND TEST PLAN** In accordance with ISO 9001:2015	Fluitek Orsenigo Valves Srl Document Number. **ITP-240062_r02** DATE: 11/07/2024 Fluitek Orsenigo Valves Srl JOB No: **240062**

POS	ACTIVITY DESCRIPTION	APPLICABLE DOCUMENT	ACCEPTANCE CRITERIA	RESPONSIBILITY	RESULTING DOCUMENT	FOV	CLIENT / TPI	CPY	NOTES
1	**PRE MANUFACTURING ACTIVITIES AND DOCUMENTS**								
1.1	Issue of Documents : - Inspection & Test Plan (ITP) - GA Drawings, Data sheets. - NDT Procedures - Coating Procedures - Testing procedures	FOV Kick-Off-Meeting Report FOV Srl'S OFFER CLIENT'S P.O. APPLICABLE SPECIFICATIONS	FOV Srl'S OFFER CLIENT'S P.O. APPLICABLE SPECIFICATIONS	FOV Srl CLIENT	SDRL DOCUMENT	H	A	---	
1.2	Kick-off-Meeting	CLIENT'S P.O. APPLICABLE SPECS	CLIENT'S P.O. APPLICABLE SPECS	FOV Srl CLIENT	MINUTE OF MEETING	H	R	---	
2	**PURCHASING**								
2.1	Purchasing of Materials from approved Sub-supplier list (FOV AVL)	FOV PROCEDURE PRO-03-PR	FOV AVL - M.PRO.07	FOV PURCHASING DEPT.	PURCHASE ORDERS	H	R	---	
3	**RECEIPT OF MATERIALS - INCOMING CHECK**								
3.1	**BODY - CLOSURES** Review Material Test Certificates as follows: - Chemical Composition - Mechanicals Properties - Charpy Impact at -29°C - Hardness Test	ASTM A182 F316/316L NACE MR 01.75 FOV Srl MDS	ASTM A182 F316/316L NACE MR 01.75 FOV Srl MDS	FOV Srl	EN 10204-3.1 Material Test Certificates	H	R	R	
3.2	**BODY - CLOSURES** Review Material Test Certificates as follows: - Chemical Composition - Mechanicals Properties - Charpy Impact at -29°C - Hardness Test	ASTM A182 F53 NACE MR 01.75 FOV Srl MDS	ASTM A182 F53 NACE MR 01.75 FOV Srl MDS	FOV Srl	EN 10204-3.1 Material Test Certificates	H	R	R	
3.3	**BALL** Review Material Test Certificates as follows: - Chemical Composition - Mechanicals Properties - Charpy Impact at -29°C - Hardness Test	ASTM A182 F316/316L NACE MR 01.75 FOV Srl MDS	ASTM A182 F316/316L NACE MR 01.75 FOV Srl MDS	FOV Srl	EN 10204-3.1 Material Test Certificates	H	R	R	
3.4	**BALL** Review Material Test Certificates as follows: - Chemical Composition - Mechanicals Properties - Charpy Impact at -29°C - Hardness Test	ASTM A182 F53 NACE MR 01.75 FOV Srl MDS	ASTM A182 F53 NACE MR 01.75 FOV Srl MDS	FOV Srl	EN 10204-3.1 Material Test Certificates	H	R	R	
3.5	**STEM** Review Material Test Certificates as follows: - Chemical Composition - Mechanicals Properties - Charpy Impact at -29°C - Hardness Test	API 6A UNS N07718 NACE MR 01.75 FOV Srl MDS	API 6A UNS N07718 NACE MR 01.75 FOV Srl MDS	FOV Srl	EN 10204-3.1 Material Test Certificates	H	R	R	
3.6	**STEM** Review Material Test Certificates as follows: - Chemical Composition - Mechanicals Properties - Charpy Impact at -29°C - Hardness Test	ASTM A182 F53 NACE MR 01.75 FOV Srl MDS	ASTM A182 F53 NACE MR 01.75 FOV Srl MDS	FOV Srl	EN 10204-3.1 Material Test Certificates	H	R	R	

Fluitek Valves Fluitek Orsenigo Valves Srl - Costa di Mezzate (BG) - Italy	**INSPECTION AND TEST PLAN** In accordance with ISO 9001:2015	Fluitek Orsenigo Valves Srl Document Number. **ITP-240062_r02** DATE: 11/07/2024 Fluitek Orsenigo Valves Srl JOB No: **240062**

POS	ACTIVITY DESCRIPTION	APPLICABLE DOCUMENT	ACCEPTANCE CRITERIA	RESPONSIBILITY	RESULTING DOCUMENT	FOV	CLIENT / TPI	CPY	NOTES
3.7	**STUD - NUT** Review Material Test Certificates as follows: - Chemical Composition - Mechanicals Properties - Charpy Impact at -29°C - Hardness Test	ASTM A193 B8M CL.2 ASTM A194 Gr.8M NACE MR 01.75 FOV Srl MDS	ASTM A193 B8M CL.2 ASTM A194 Gr.8M NACE MR 01.75 FOV Srl MDS	FOV Srl	EN 10204-3.1 Material Test Certificates	H	R	R	
3.8	**STUD* - NUT*** Review Material Test Certificates as follows: - Chemical Composition - Mechanicals Properties - Charpy Impact at -29°C - Hardness Test	ASTM A193 B7 ASTM A194 Gr.2H NACE MR 01.75 FOV Srl MDS	ASTM A193 B7 ASTM A194 Gr.2H NACE MR 01.75 FOV Srl MDS	FOV Srl	EN 10204-3.1 Material Test Certificates	H	R	R	* HDG
3.9	**Verification of Actuators** Actuator verification and review of test certificates	Rotork procedure Purchase order	Rotork procedure Purchase order	FOV Srl	Rotork Test Certificates	H	R	R	
4	**MATERIALS MANUFACTURING AND CONTROLS (IN-HOUSE and EXTERNAL PROCESS CONTROL FOR SUBCONTRACTED ACTIVITIES)**								
	NDE for Forging Material								
4.1	**Visual Examination** Visual examination shall be conducted on the entire, visible, internal and external surface area of the valve components after final machining. Extension: 100% FOV	FOV Srl PROCEDURE QCD-11-PR - 240062	FOV Srl PROCEDURE QCD-11-PR - 240062	FOV Srl	Visual Examination internal check record	H	R	R	
4.2	**PMI Examination on body, closure, ball, seat, stem, bolting material*** PMI fon ball, seat, stem, bolting material, after final machining Extension: 100% FOV	FOV Srl PROCEDURE QCD-18-PR - 240062	FOV Srl PROCEDURE QCD-18-PR - 240062	FOV Srl	PMI examination certificate	H	R	R	*Not applicable for Carbon steel.
5	**ASSEMBLY AND VISUAL & DIMENSIONAL INSPECTION**								
5.1	Assembly of valve as per GA Drawing	FOV Srl PROCEDURE PRD-10-PR APPLICABLE GA DRAWING	FOV Srl PROCEDURE PRD-10-PR APPLICABLE GA DRAWING	FOV Srl	Assembly Internal record	H	N.A.	---	
5.2	Visual and Dimensional Inspection	APPLICABLE GA DRAWING FOV PROCEDURE QCD-11-PR	APPLICABLE GA DRAWING FOV PROCEDURE QCD-11-PR	FOV Srl	Visual and dimensional Report EN 10204 3.1 Material test Certificate	H	W	R	
5.3	Antistatic test Extension: 5% per lot	PO 240062 HPT TEST	PO 240062 HPT TEST	FOV Srl	Antistatic Test report	H	R	R	

Fluitek Valves Fluitek Orsenigo Valves Srl - Costa di Mezzate (BG) - Italy	**INSPECTION AND TEST PLAN** In accordance with ISO 9001:2015	Fluitek Orsenigo Valves Srl Document Number. **ITP-240062_r02** DATE: 11/07/2024 Fluitek Orsenigo Valves Srl JOB No: **240062**

POS	ACTIVITY DESCRIPTION	APPLICABLE DOCUMENT	ACCEPTANCE CRITERIA	RESPONSIBILITY	RESULTING DOCUMENT	FOV	CLIENT / TPI	CPY	NOTES
6	**PRESSURE TESTS for BALL VALVES**								
6.1	Hydrostatic Shell test Pressure: API 598 Duration: API 598 Leakage: No visible leakage	PO 240062 HPT TEST & 123A90-DDL-PP-DS-70003	PO 240062 HPT TEST & VALVE DATA SHEET	FOV Srl	Pressure Test report EN 10204 3.1 Test Certificate	H	W	W	
6.2	Hydrostatic Seat test Pressure: API 598 Duration: API 598 Leakage: Table 5 API 598 (SEE ANNEX 2)	PO 240062 HPT TEST & 123A90-DDL-PP-DS-70003	PO 240062 HPT TEST & VALVE DATA SHEET	FOV Srl	Pressure Test report EN 10204 3.1 Test Certificate	H	W	W	
6.3	Torque test Pressure: Maximum working pressure	PO 240062 HPT TEST & 123A90-DDL-PP-DS-70003	PO 240062 HPT TEST & VALVE DATA SHEET	FOV Srl	Pressure Test report EN 10204 3.1 Test Certificate	H	W	R	
6.4	Functional test valve + actuator Pressure: Maximum working pressure	PO 240062 HPT TEST & 123A90-DDL-PP-DS-70003	PO 240062 HPT TEST & VALVE DATA SHEET	FOV Srl	Pressure Test report EN 10204 3.1 Test Certificate	H	W	R	
6.5	Low pressure pneumatic seat test Pressure: API 598 Duration: API 598 Leakage: Table 5 API 598	PO 240062 HPT TEST & 123A90-DDL-PP-DS-70003	PO 240062 FET & VALVE DATA SHEET	FOV Srl	Pressure Test report EN 10204 3.1 Test Certificate	H	W	R	
6.6	Fugitive Emission Test according to ISO 15848-2 CL.B	PO 240062 HPT TEST & 123A90-DDL-PP-DS-70003	PO 240062 FET & VALVE DATA SHEET	FOV Srl	Pressure Test report EN 10204 3.1 Test Certificate	H	W	W	* 10% PER SIZE/ ANSI CLASS
6.7	Draining and drying of valve after testing	PO 240062 HPT TEST	PO 240062 HPT TEST	FOV Srl	-	H	R	R	
7	**PAINTING**								
7.1	Surface preparation & Coating application	FOV PAINTING PROCEDURE 240062	FOV PAINTING PROCEDURE 240062	APPROVED VENDOR FOV Srl	Painting internal check record	H	R	R	
7.2	Surface preparation pre-cleaning, surface profile and anchor pattern	FOV PAINTING PROCEDURE 240062	FOV PAINTING PROCEDURE 240062	APPROVED VENDOR FOV Srl	Painting internal check record	H	R	R	
7.3	Coating application WFT inspection, thinners, curing time, stripe coating, repair and defect removal	FOV PAINTING PROCEDURE 240062	FOV PAINTING PROCEDURE 240062	APPROVED VENDOR FOV Srl	Painting internal check record	H	R	R	
7.4	Quality Assurance and Control - General coating appearance - DFT check - Final color check - Adhesion inspection (if applicable)	FOV PAINTING PROCEDURE 240062	FOV PAINTING PROCEDURE 240062	APPROVED VENDOR FOV Srl	Painting and DFT inspection certificate	H	W	W	

Fluitek Orsenigo Valves Srl - Costa di Mezzate (BG) - Italy	**INSPECTION AND TEST PLAN** In accordance with ISO 9001:2015	Fluitek Orsenigo Valves Srl Document Number. **ITP-240062_r02** DATE: 11/07/2024 Fluitek Orsenigo Valves Srl JOB No: **240062**

POS	ACTIVITY DESCRIPTION	APPLICABLE DOCUMENT	ACCEPTANCE CRITERIA	RESPONSIBILITY	RESULTING DOCUMENT	FOV	CLIENT / TPI	CPY	NOTES
8	**FINAL INSPECTION**								
8.1	**NAMEPLATE MARKING** Marking shall be done as per Approved Nameplate Drawing.	FOV Srl NAMEPLATE DRAWING FOV PROCEDURE ENG-11-PR PED 2014/68/EU CE Marking	FOV Srl NAMEPLATE DRAWING FOV PROCEDURE ENG-11-PR PED 2014/68/EU CE Marking	FOV Srl	Nameplate Marking	H	R	R	
8.2	**MATERIAL TRACEABILITY** - Material Identification traceability, Examination and Tracking.	Material Identification traceability Proceduren°PRD-09-PR GAD FLUITEK	Material Identification traceability Proceduren°PRD-09-PR GAD FLUITEK	FOV Srl	Identification Internal record	H	R	R	
8.3	**PRESERVATION** The valve internals shall be completely drained, thoroughly cleaned and dried. Surfaces shall be free from : - any hydrostatic test fluids - cleaning agents - adhered scale, weld spatter, loose particles or fibres - organic substances, e.g. grease, oil, paint and sealant Machined and threaded surfaces shall be coated with a easily removable rust protective fluid e.g. Shell ENSIS MD or equivalent..	FOV Srl PROCEDURE SHI-20-PR Rev.02 & SHI-05-PR	FOV Srl PROCEDURE SHI-20-PR Rev.02 & SHI-05-PR	FOV Srl	---	H	R	---	
9	**FINAL CERTIFICATION**								
9.1	- MTC Certificates - Valve test reports - NDE, ENP test records (where applicable) - Painting Certificates (where applicable)	PO requirements	PO requirements	FOV Srl	Certification Dossier	H	R	R	
10	**PACKING AND SHIPPING**								
10.1	**Packing preparation** - Valve body ends shall be covered with close flange/fitting protectors. - Ball valves shall be shipped in the fully open position, unless actuator is Fail to Close - Prior to shipment, valves shall be properly packaged to ensure protection against ingress of moisture, rainfall, (sea) water splash and dirt.	FOV Srl PROCEDURE SHI-20-PR Rev.02 & SHI-05-PR	FOV Srl PROCEDURE SHI-20-PR Rev.02 & SHI-05-PR	Approved Vendor FOV Srl	-	H	R	---	
10.2	CASE MARKING, PACKING LIST	PO REQUIREMENTS SHI-20-PR Rev.02 & SHI-05-PR Packing List	PO REQUIREMENTS SHI-20-PR Rev.02 & SHI-05-PR Packing List	Approved Vendor FOV Srl	FOV Packing List	H	R	R	
10.3	Release Note	PO requirements	Approved GA Drawing/Approved ITP / PO	Approved GA Drawing/Approved ITP / PO	Release Note	H	H	R	

ANNEX 1

Pos.	Commessa	Classe	Diametro	Qta ord.
1	240062	#300	1″	1
2	240062	#300	4″	1
3	240062	#300	4″	1
4	240062	#300	4″	1
5	240062	#300	4″	1
6	240062	#300	4″	1
7	240062	#300	4″	1
8	240062	#300	1″	1
9	240062	#300	2 x 1.1/2″	1
10	240062	#300	1″	1
11	240062	#300	1″	1
12	240062	#300	1″	1
13	240062	#300	1″	1
14	240062	#300	1″	1
15	240062	#300	1″	1
16	240062	#300	1″	1
17	240062	#300	1″	1
18	240062	#300	1″	1
19	240062	#300	1″	1
20	240062	#300	1″	1
21	240062	#300	1″	1
22	240062	#300	1″	1
23	240062	#300	1.1/2″	1
24	240062	#150	1.1/2″	1
25	240062	#150	1.1/2″	1
26	240062	#150	1.1/2″	1
27	240062	#150	2x 1.1/2″	1
28	240062	#150	1″	1

ANNEX 2

Table 5—Maximum Allowable Leakage Rates for Closure Tests [c]

Valve Size		All Resilient-seated Valves[b]	Metal Seated Valves Except Check				Metal Seated Check Valves		
DN (mm)	NPS (in.)		Liquid Test [a] (drops/ min)	Liquid Test (ml/min)	Gas Test [a] (bubbles/ min)	Gas Test (ml/min)	Liquid Test (ml/min)	Gas Test (m^3/h)	Gas Test (ft^3/h)
≤ 50	≤ 2	0	0 [b]	0 [b]	0 [b]	0 [b]	6	0.08	3
65	$2^1/_2$	0	5	0.31	10	0.10	7.5	0.11	3.75
80	3	0	6	0.38	12	0.12	9	0.13	4.5
100	4	0	8	0.50	16	0.16	12	0.17	6
125	5	0	10	0.63	20	0.20	15	0.21	7.5
150	6	0	12	0.75	24	0.24	18	0.25	9
200	8	0	16	1.00	32	0.32	24	0.34	12
250	10	0	20	1.25	40	0.40	30	0.42	15
300	12	0	24	1.50	48	0.48	36	0.50	18
350	14	0	28	1.75	56	0.56	42	0.59	21
400	16	0	32	2.00	64	0.64	48	0.67	24
450	18	0	36	2.25	72	0.72	54	0.76	27
500	20	0	40	2.50	80	0.80	60	0.84	30
600	24	0	48	3.00	96	0.96	72	1.01	36
650	26	0	52	3.25	104	1.04	78	1.09	39
700	28	0	56	3.50	112	1.12	84	1.18	42
750	30	0	60	3.75	120	1.20	90	1.26	45
800	32	0	64	4.00	128	1.28	96	1.34	48
900	36	0	72	4.50	144	1.44	108	1.51	54
1000	40	0	80	5.00	160	1.60	120	1.68	60
1050	42	0	84	5.25	168	1.68	126	1.76	63
1200	48	0	96	6.00	192	1.92	144	2.02	72

[a] For the liquid test, 1 mL is considered equivalent to 16 drops. For the gas test, 1 mL is considered equivalent to 100 bubbles.

[b] There shall be no leakage for the minimum specified test duration (see Table 4). For a liquid test, 0 drops means no visible leakage per minimum specified test duration. For a standard gas test, 0 bubbles means less than 1 bubble per minimum specified test duration. For a high-pressure pneumatic closure test, refer to 5.4.

[c] Leakage rates for sizes above DN 1200 (NPS 48) shall be calculated by the following formulas:

Liquid test for metal seated valves except check: 2 x NPS (drops/min)

Gas test for metal seated valves except check: 4 x NPS (bubbles/min)

Liquid test for metal seated check valves: 3 x NPS (cc/min)

Gas test for metal seated check valves: 0.042 x NPS (m^3/h)

Gas test for metal seated check valves: 1.5 x NPS (ft^3/h)

04: Manufacturing Records and Procedures

Non- Destructive Testing certificates- M.PTE.0; M.MTE.0; RT certificates; PMI Records

File: COPERTINA .xlsx
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RAPPORTO DI TARATURA
CALIBRATION REPORT

005382

Denominazione -Description of the gauge	*Matricola n° - Serial No.*
CALIBRI CENTESIMALI	B361
	Costruttore - Manufacturer
	MITUTOYO

Procedura - Procedure	*Scala - Range*
QCD-25-PR	0-300 mm
	Classe - Class
	0,02 mm

Matrice strumento campione - Master Serial No.		*Classe - Class*	*Scala - Range*
Z002	G07544	CL 0	59,999 mm
Z003	60233	CL 0	0-100 mm
Z003	60233	CL 0	0-100 mm

Dati della verifica - Calibration data

Valore 0	Valore 1/4 Scala	Valore 1/2 Scala	Valore 3/4 Scala	Becchi da interno
0	75	150	225	59,99
Valore Misurato	Valore Misurato	Valore Misurato	Valore Misurato	Valore Misurato
0	75	150	225	60
Scostamento	Scostamento	Scostamento	Scostamento	Scostamento
0	0	0	0	0,01
Tolleranza Ammissibile	Tolleranza Ammissibile	Tolleranza Ammissibile	Tolleranza Ammissibile	Tolleranza Ammissibile
0,04	0,048	0,055	0,062	0,046
Conforme:	Conforme:	Conforme:	Conforme:	Conforme:
SI	SI	SI	SI	SI

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

Esito della verifica - Result	*Data - Date*
Conforme	20/03/2024
Scadenza Taratura - End Calibration	*Operatore - Operator*
19/03/2025	FACOETTI ALENA

RAPPORTO DI TARATURA
CALIBRATION REPORT

005293

Denominazione -Description of the gauge	*Matricola n° - Serial No.*
CALIBRI CENTESIMALI	BU065
	Costruttore - Manufacturer
	TESA

Procedura - Procedure	*Scala - Range*
QCD-25-PR	0-500 mm
	Classe - Class
	0,01 mm

Matrice strumento campione - Master Serial No.		*Classe - Class*	*Scala - Range*
Z004	090110	CL 1	125-500 mm
Z003	60233	CL 0	0-100 mm

Dati della verifica - Calibration data

Valore 0	Valore 1/4 Scala	Valore 1/2 Scala	Valore 3/4 Scala	Becchi da interno
0	125	250	375	0
Valore Misurato	Valore Misurato	Valore Misurato	Valore Misurato	Valore Misurato
0	124,97	250,03	375,01	0
Scostamento	Scostamento	Scostamento	Scostamento	Scostamento
0	0,03	0,03	0,01	0
Tolleranza Ammissibile	Tolleranza Ammissibile	Tolleranza Ammissibile	Tolleranza Ammissibile	Tolleranza Ammissibile
0,04	0,052	0,065	0,078	0,04
Conforme:	Conforme:	Conforme:	Conforme:	Conforme:
SI	SI	SI	SI	SI



Esito della verifica - Result	*Data - Date*
Conforme	23/11/2023
Scadenza Taratura - End Calibration	*Operatore - Operator*
22/11/2024	FACOETTI ALENA

MICRO-TEC
LABORATORIO METROLOGICO

Cliente - *customer:*
FLUITEK ORSENIGO VALVES s.r.l.
Via dei Livelli di Sopra, 5/7
24060 - Costa di Mezzate - BG

Rapporto di taratura - *calibration report:* FLU.525484 **data** - *date:* 29/01/2021

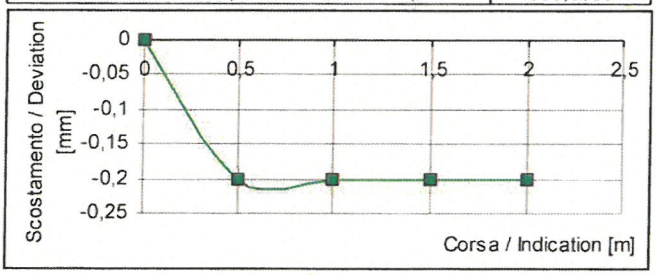
Matricola - *serial No.:* ----- **Codice Strumento** - *instrument code:* FLESSOMETRO

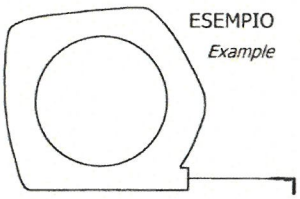
Descrizione - *description:* Flessometro 0-2 m
Costruttore - *manufacturer:* METRICA **Modello** - *model:* 8 001066 381623
Campo di misura - *measuring range:* 0-2 m *U.f.* - *resolution:* 1 mm

Linea guida - *guide line:* UNI 9052
Procedura interna - *internal procedure:* Procedura di Taratura PT-27 - flessometri analogici e digitali rev.1
Strumenti usati - *used instruments:* BPP020 - BPP025
Certificati - *certificates:* BPP020: LAT181 21-0001P05B0 scad. 30/12/2021 - BPP025: LAT107 C119200AA0 scad. 30/03/2021

Temperatura - *temperature:* (20 ± 0,5) °C - *U.R. ≤ 60%* **Luogo di taratura** - *calibrated at:* laboratorio metrologico
Incertezza estesa - *uncertainty:* U (k=2) = 232 µm

Misura teorica *Theoretical measure* / m	Lunghezza rilevata *Length detected* / m	Scostamento *Deviation* / mm	Ripetibilità *Repeatability* / m
0	0,0000	0,0	999,8000
0,5	0,4998	-0,2	999,8000
1	0,9998	-0,2	999,8000
1,5	1,4998	-0,2	999,8000
2	1,9998	-0,2	999,8000





Scostamento Max [mm]	0,2	*Maximum deviation [mm]*
Ripetibilità Scarto Quadratico Medio [mm]	0,0	*Repeatability standard deviation [mm]*

Limiti di accettabilità - *acceptability:*
Esito taratura - *calibration result:* .
Note - *notes:* nulla da rilevare.
Operatore Tecnico - *technical operator:* L.Grasselli **Verificato** - *Checked:* A.Cinel

scadenza taratura
expiry date

21 AGO. 2021
FRANCO CORBELLINI
081
CROSSWIND

MICRO-TEC s.r.l. Via Lago Maggiore, 18 - 36015 SCHIO (VI) ITALY - P.I. e C.F. 02761240247
Tel. +39 0445 561065 - Fax + 39 0445 623664 - E-mail: info@micro-tec.vi.it - www.micro-tec.vi.it

RAPPORTO DI TARATURA
CALIBRATION REPORT

LAT 166 22-L0091

Denominazione -Description of the gauge	*Matricola n° - Serial No.*
PIASTRINE CAMPIONE PER SPESSIMETRO	Z026
	Costruttore - Manufacturer
	TECHNE'
Procedura - Procedure	*Scala - Range*
	47 microns - 280 microns - 970 microns
	Classe - Class
	CL 0
Matrice strumento campione - Master Serial No.	*Classe - Class* / *Scala - Range*

Dati della verifica - Calibration data

ROSETTI MARINO SpA
Michele Sacchi
Quality Control Dept.
REVIEW 21-08-2024

21 AGO. 2024
FRANCO CORBELLINI
081
CROSSWIND

Esito della verifica - Result	*Data - Date*
Conforme	22/03/2022
Scadenza Taratura - End Calibration	*Operatore - Operator*
21/03/2032	ROCCHETTI MANUEL

2026

Laboratorio di Metrologia
UTENSIL LINE Srl
Via Acqui, 65/A
10098 Rivoli (TO) - I

Centro di Taratura LAT 166
Calibration Centre 166

Laboratorio Accreditato di Taratura
Accredited Calibration Laboratory

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO

LAT 166

Membro degli Accordi di Mutuo Riconoscimento
EA, IAF e ILAC

Signatory of EA, IAF and ILAC
Mutual Recognition Agreements

CERTIFICATO DI TARATURA LAT 166 22-L0091
Certificate of Calibration

- data di emissione *date of issue*	2022/03/22
- cliente *customer*	TECHNE SRL VIA DELLA MUSIA 97 - 25135 BRESCIA (BS)
- destinatario *receiver*	FLUITEK ORSENIGO VALVES SRL VIA LODOVICO MANCINI,5 - 20129 - MILANO (MI)

Si Riferisce a
Referring to

- oggetto *item*	CAMPIONI DI SPESSORI
- costruttore *manufactorer*	ASSICONTROL
- modello *model*	---
- matricola *serial number*	VEDI TABELLA
- data di ricevimento oggetto *date of receipt of item*	2022/03/21
- data delle misure *date of measurements*	2022/03/22
- registro di laboratorio *laboratory reference*	RG_LAB20

Il presente certificato di taratura è emesso in base all'accreditamento LAT 166 rilasciato di accordo ai decreti attuativi della legge n. 273/1991 che ha istituito il Sistema Nazionale di Taratura (SNT). ACCREDIA attesta le capacità di misura e di taratura, le competenze metrologiche del Centro e la riferibilità delle tarature eseguite ai campioni nazionali e internazionali delle unità di misura del Sistema Internazionale delle Unità (SI).
Questo certificato non può essere riprodotto in modo parziale, salvo espressa autorizzazione scritta da parte del Centro.

This certificate of calibration is issued in compliance with the accreditation LAT 166 granted according to decrees connected with Italian law No. 273/1991 wich has estabilisheed the National Calibration System. ACCREDIA attests the calibration and measurement capability, the metrological competence of the Centre and the traceability of calibration results to the national and international standards of the International System of Units (SI).
This Certificate may not be partially reproduced, except with the prior written permission of the issuing Centre.

I risultati di misura riportati nel presente Certificato sono stati ottenuti applicando le procedure di taratura citate alla pagina seguente, dove sono specificati anche i campioni o gli strumenti che garantiscono la catena di riferibilità del Centro e i rispettivi certificati di taratura in corso di validità. Essi si riferiscono esclusivamente all'oggetto in taratura e sono validi nel momento e nelle condizioni di taratura, salvo diversamente specificato.
The measurement results reported in this Certificate were obtained following the calibration procedures given in the following page, where the reference standards or instruments are indicated which guarantee the traceability chain of the laboratory, and the related calibration certificates in the course of validity are indicated as well. They relate only to the calibrated item and they are valid for the time and conditions of calibration, unless otherwise specified.

Le incertezze di misura dichiarate in questo documento sono state determinate conformemente alla Guida ISO/IEC 98 e al documento EA-4/02. Solitamente sono espresse come incertezza estesa ottenuta moltiplicando l'incertezza tipo per il fattore di copertura k corrispondente ad un livello di fiducia di circa il 95 %. Normalmente tale fattore k vale 2.
The measurement uncertainties stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually, they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of about 95%. Normally, this factor k is 2.

ROSETTI MARINO SpA
Michele Sacchi
Quality Control Dept.
REVIEW 21-08-2024

21 AGO. 2024
FRANCO CORBELLINI
001
CROSSWIND

Direzione Tecnica
(Approving Officier)

Dott. Stefano Borla

Firma Digitale - Digital Signature

Firmato digitalmente da:
BORLA STEFANO
Firmato il 23/03/2022 08:48
Seriale Certificato: 18588154
Valido dal 03/06/2020 al 03/06/2023
InfoCert Firma Qualificata 2

Laboratorio di Metrologia
UTENSIL LINE Srl
Via Acqui, 65/A
10098 Rivoli (TO) - I

Centro di Taratura LAT 166
Calibration Centre 166

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LAT 166

Membro degli Accordi di Mutuo Riconoscimento
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CERTIFICATO DI TARATURA LAT 166 22-L0091
Certificate of Calibration

0. PROCEDURE E CAMPIONI DI RIFERIMENTO

I risultati di misura riportati nel presente Certificato sono stati ottenuti applicando le procedure N.
The measurement results reported in this certificate were obtained following procedure No.

PR_TAR11 - REV.11

La catena di riferibilità ha inizio dai seguenti campioni di riferimento, muniti dei rispettivi certificati validi di taratura:
Traceability is through following reference measurement standards, validated by respective certificates of calibration:

- Blocchetti pianparalleli **CP-0182, munito di certificato I.N.RI.M. n° 20-0526-01**
- Termometro **CP-0249, munito di certificato LAT 056 n° 19-1622**

1. MODALITÀ DI TARATURA

1) La taratura è stata effettuata rilevando:

- SPESSORE MEDIO: calcolato come valore medio di cinque misurazioni consecutive eseguite nella zona centrale del campione o, se indicata, all'interno della zona contrassegnata.

Ogni lunghezza è stata ottenuta come media aritmetica dei valori di cinque misurazioni indipendenti

I rilievi sono stati eseguiti con una forza di 1 N.

Tutte le misure, entro i livelli di incertezza dichiarati, sono riportate alla temperatura di 20°C.

2) Le incertezze da associare alle misure sono espresse con un fattore di copertura k=2, che corrisponde approssimativamente ad un livello di confidenza pari al 95%, sono le seguenti:

- Spessore medio: 0,50 µm

3) Nella tabella riportata alla pagina seguente sono riportati i valori indicanti:

- Identificativo o matricola e nominale del misurando
- Materiale del misurando.
- Valore medio rilevato
- Scarto quadratico medio
- Incertezza da associare alle misure
- Identificativo o matricola e nominale del misurando

Verifica dello strumento eseguita presso:
Laboratorio Permanente Utensil Line

21 MAG 2024
FRANCO CORBELLINI
CROSSWIND

ROSETTI MARINO SpA
Michele Sacchi
Quality Control Dept.
REVIEW 21-08-2024

Laboratorio di Metrologia
UTENSIL LINE Srl
Via Acqui, 65/A
10098 Rivoli (TO) - I

Centro di Taratura LAT 166
Calibration Centre 166

Laboratorio Accreditato di Taratura
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Membro degli Accordi di Mutuo Riconoscimento
EA, IAF e ILAC

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Mutual Recognition Agreements

CERTIFICATO DI TARATURA LAT 166 22-L0091
Certificate of Calibration

Cliente:	TECHNE SRL	**Commessa:**	S220274
Oggetto:	CAMPIONI DI SPESSORI	**Modello:**	---
Costruttore:	ASSICONTROL	**Matricola:**	VEDI TABELLA
Temperatura:	(20 ± 0,5) °C	**Operatore:**	Battisti Luca

2. TABELLA DEI RISULTATI SPERIMENTALI

Matricola - Identificativo	Materiale	Valore nominale µm	Valore medio µm	Deviazione standard µm	Incertezza estesa µm
1220800	Plastico	47,00	48,43	0,10	0,50
0521047	Plastico	280,00	280,82	0,69	0,50
WG12513	Plastico	970,00	959,01	1,09	0,50

Note: ---

Fine Certificato

21 AGO. 2024
FRANCO CORBELLINI
081
CROSSWIND

ROSETTI MARINO SpA
Michele Sacchi
Quality Control Dept.
REVIEW 21-08-2024

Fluitek Valves	**P.M.I. CERTIFICATE**	**N° 240062-001 PMI** **DATE 07/07/2024**
CUSTOMER : ROSETTI MARINO S.P.A. CIG 9931200D7D	**ORDER N°:** **1724000204 123A90A/REV.1**	**SERIAL NUMBER:** NUMERO SERIALE 2400620010001
JOB. N°: 240062 JOB	**POSITION: 001** **ITEM: 10**	**DRAWING:** Ball Valve 1" 300# Disegno
EQUIPMENT: SPECTRO XSORT SPT003	**PMI PROCEDURE:** **QCD-18-PR_Rev.00 POSITIVE MATERIAL IDENTIFICATION**	**TAG: 25-BDV-022** TAG.:

TEST RESULTS

COMPONENT COMPONENTE	HEAT COLATA	MATERIAL GRADE	TEST RESULTS								
			C	Ni	Cr	Mo	Mn	Si	S	P	
VALUES REQUIRED		**A182 F316/316L**	-	**10.0 ÷ 14.0**	**16.0 ÷ 18.0**	**2.0 ÷ 3.0**	-	-	-	-	
BODY	476521	A182 F316/316L	-	10.23	16.44	2.13	-	-	-	-	**SATISFACTORY**
BALL	283122	A182 F316/316L	-	11.56	17.06	2.78	-	-	-	-	**SATISFACTORY**
FLANGE	476521	A182 F316/316L		12.10	17.15	2.66					**SATISFACTORY**
VALUES REQUIRED		**API 6ACRA UNS N07718**	-	**3.00 ÷ 5.00**	**15.0 ÷ 17.5**	-	-	-	-	-	
STEM	422416	API 6ACRA UNS N07718	-	3.66	17.22	-	-	-	-	-	**SATISFACTORY**

NOTE	**CONTROLLO QUALITA'** QUALITY CONTROL	**ISPETTORE CLIENTE** CUSTOMERS INSPECTOR

FLUITEK CASSENIGO VALVES S.R.L. Q.C.

21 AGO. 2024

FRANCO CORBELLINI

QB1

CROSSWIND R

Fluitek Valves	**P.M.I. CERTIFICATE**	**N° DA 240062-002 A 240062-007 PMI** **DATE 07/07/2024**
CUSTOMER : ROSETTI MARINO S.P.A. CIG 9931200D7D	**ORDER N°:** **1724000204 123A90A/REV.1**	**SERIAL NUMBER:** NUMERO SERIALE From 2400620020001 to 2400620070001
JOB. N°: 240062 JOB	**POSITION: From 002 to 007** **ITEM: From20 to 70**	**DRAWING:** Ball Valve 4" 300# Disegno
EQUIPMENT: SPECTRO XSORT SPT003	**PMI PROCEDURE:** **QCD-18-PR_Rev.00 POSITIVE MATERIAL IDENTIFICATION**	**TAG: See MTC list certificates** TAG.:

TEST RESULTS

COMPONENT COMPONENTE	HEAT COLATA	MATERIAL GRADE	TEST RESULTS								
			C	Ni	Cr	Mo	Mn	Si	S	P	
VALUES REQUIRED		**A182 F316/316L**	-	**10.0 ÷ 14.0**	**16.0 ÷ 18.0**	**2.0 ÷ 3.0**	-	-	-	-	
BODY	290048	A182 F316/316L	-	12.60	17.26	2.33	-	-	-	-	**SATISFACTORY**
BALL	437516	A182 F316/316L	-	13.32	16.97	2.54	-	-	-	-	**SATISFACTORY**
FLANGE	290048	A182 F316/316L		12.65	16.68	2.77					**SATISFACTORY**
VALUES REQUIRED		**API 6ACRA UNS N07718**	-	**3.00 ÷ 5.00**	**15.0 ÷ 17.5**	-	-	-	-	-	
STEM	CVJ847	API 6ACRA UNS N07718	-	4.02	16.21	-	-	-	-	-	**SATISFACTORY**

NOTE	**CONTROLLO QUALITA'** QUALITY CONTROL	**ISPETTORE CLIENTE** CUSTOMERS INSPECTOR

FLUITEK CASENIGO VALVES SRL

21 AGO. 2024

FRANCO CORBELLINI

QBJ

CROSSWIND

Fluitek Valves	**P.M.I. CERTIFICATE**	**N° 240062-009 PMI** **DATE 07/07/2024**
CUSTOMER : ROSETTI MARINO S.P.A. CIG 9931200D7D	**ORDER N°:** **1724000204 123A90A/REV.1**	**SERIAL NUMBER:** NUMERO SERIALE 2400620090001
JOB. N°: 240062 JOB	**POSITION: 009** **ITEM: 90**	**DRAWING:** Ball Valve 1-1/2" 300# Disegno
EQUIPMENT: SPECTRO XSORT SPT003	**PMI PROCEDURE:** **QCD-18-PR_Rev.00 POSITIVE MATERIAL IDENTIFICATION**	**TAG: 25-SDV-023** TAG.:

TEST RESULTS

COMPONENT COMPONENTE	HEAT COLATA	MATERIAL GRADE	TEST RESULTS								
			C	Ni	Cr	Mo	Mn	Si	S	P	
VALUES REQUIRED		**A182 F316/316L**	-	**10.0 ÷ 14.0**	**16.0 ÷ 18.0**	**2.0 ÷ 3.0**	-	-	-	-	
BODY	301095	A182 F316/316L	-	13.32	17.45	2.45	-	-	-	-	**SATISFACTORY**
BALL	472390	A182 F316/316L	-	11.23	17.12	2.32	-	-	-	-	**SATISFACTORY**
FLANGE	301095	A182 F316/316L		12.33	16.98	2.48					**SATISFACTORY**
VALUES REQUIRED		**API 6ACRA UNS N07718**	-	**3.00 ÷ 5.00**	**15.0 ÷ 17.5**	-	-	-	-	-	
STEM	422416	API 6ACRA UNS N07718	-	4.15	15.98	-	-	-	-	-	**SATISFACTORY**

NOTE	**CONTROLLO QUALITA'** QUALITY CONTROL	**ISPETTORE CLIENTE** CUSTOMERS INSPECTOR

FLUITEK VALVES SRL Q.C.

21 AGO 2024

FRANCO CORBELLINI

QC1

CROSSWIND

Fluitek Valves	**P.M.I. CERTIFICATE**	**N° DA 240062-008 DA 240062-010 A 240062-023 PMI** **DATE 07/07/2024**
CUSTOMER : ROSETTI MARINO S.P.A. CIG 9931200D7D	**ORDER N°:** **1724000204 123A90A/REV.1**	**SERIAL NUMBER:** NUMERO SERIALE 2400620080001 From 2400620100001 to 2400620230001
JOB. N°: 240062 JOB	**POSITION: 008 From 010 to 023** **ITEM: 80 From 100 to 230**	**DRAWING:** Ball Valve 1" 300# Disegno
EQUIPMENT: SPECTRO XSORT SPT003	**PMI PROCEDURE:** **QCD-18-PR_Rev.00 POSITIVE MATERIAL IDENTIFICATION**	**TAG: See MTC list certificates** TAG.:

TEST RESULTS

COMPONENT COMPONENTE	HEAT COLATA	MATERIAL GRADE	TEST RESULTS								
			C	Ni	Cr	Mo	Mn	Si	S	P	
VALUES REQUIRED		**A182 F316/316L**	-	**10.0 ÷ 14.0**	**16.0 ÷ 18.0**	**2.0 ÷ 3.0**	-	-	-	-	
BODY	291737	A182 F316/316L	-	13.20	16.97	2.33	-	-	-	-	**SATISFACTORY**
BALL	283122	A182 F316/316L	-	11.97	17.17	2.54	-	-	-	-	**SATISFACTORY**
FLANGE	291737	A182 F316/316L		13.36	17.12	2.58					**SATISFACTORY**
VALUES REQUIRED		**API 6ACRA UNS N07718**	-	**3.00 ÷ 5.00**	**15.0 ÷ 17.5**	-	-	-	-	-	
STEM	422416	API 6ACRA UNS N07718	-	4.13	16.66	-	-	-	-	-	**SATISFACTORY**

NOTE	**CONTROLLO QUALITA'** QUALITY CONTROL	**ISPETTORE CLIENTE** CUSTOMERS INSPECTOR

FLUITEK ORSENIGO VALVES SRL Q.C.

21 AGO. 2024

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CROSSWIND

Fluitek Valves	**P.M.I. CERTIFICATE**	**N° 240062-024 240062-026 PMI** **DATE 07/07/2024**
CUSTOMER : ROSETTI MARINO S.P.A. CIG 9931200D7D	**ORDER N°:** **1724000204 123A90A/REV.1**	**SERIAL NUMBER:** NUMERO SERIALE 2400620240001 2400620260001
JOB. N°: 240062 JOB	**POSITION: 24-26** **ITEM: 240-260**	**DRAWING:** Ball Valve 1-1/2" 150# Disegno
EQUIPMENT: SPECTRO XSORT SPT003	**PMI PROCEDURE:** **QCD-18-PR_Rev.00 POSITIVE MATERIAL IDENTIFICATION**	**TAG: See MTC list certificates** TAG.:

TEST RESULTS

COMPONENT COMPONENTE	HEAT COLATA	MATERIAL GRADE	TEST RESULTS								
			C	Ni	Cr	Mo	Mn	Si	S	P	
VALUES REQUIRED		**A182 F53**	-	**6.0 ÷ 8.0**	**24.0 ÷ 26.0**	**3.0 ÷ 5.0**	-	-	-	-	
BODY	60840	A182 F53	-	6.68	25.01	3.33	-	-	-	-	**SATISFACTORY**
BALL	397872	A182 F53	-	7.15	25.45	4.15	-	-	-	-	**SATISFACTORY**
STEM	397872	A182 F53		6.98	24.87	3.66					**SATISFACTORY**
FLANGE	60840	A182 F53		6.54	24.25	3.88					**SATISFACTORY**

NOTE	**CONTROLLO QUALITA'** QUALITY CONTROL	**ISPETTORE CLIENTE** CUSTOMERS INSPECTOR

FLUITEK VALSENIGO VALVES SRL

21 AGO. 2024

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CROSSWIND

Fluitek Valves	P.M.I. CERTIFICATE	N° 240062-025 240062-027 PMI DATE 07/07/2024
CUSTOMER : ROSETTI MARINO S.P.A. CIG 9931200D7D	ORDER N°: 1724000204 123A90A/REV.1	SERIAL NUMBER: NUMERO SERIALE 2400620250001 2400620270001
JOB. N°: 240062 JOB	POSITION: 025-027 ITEM: 250-270	DRAWING: Ball Valve 1" 150# Disegno
EQUIPMENT: SPECTRO XSORT SPT003	PMI PROCEDURE: QCD-18-PR_Rev.00 POSITIVE MATERIAL IDENTIFICATION	TAG: See MTC list certificates TAG.:

TEST RESULTS

COMPONENT COMPONENTE	HEAT COLATA	MATERIAL GRADE	TEST RESULTS								
			C	Ni	Cr	Mo	Mn	Si	S	P	
VALUES REQUIRED		A182 F53	-	6.0 ÷ 8.0	24.0 ÷ 26.0	3.0 ÷ 5.0	-	-	-	-	
BODY	901258	A182 F53	-	7.46	24.89	3.33	-	-	-	-	SATISFACTORY
BALL	101007	A182 F53	-	7.36	25.12	4.15	-	-	-	-	SATISFACTORY
FLANGE	901258	A182 F53		6.57	24.65	3.48					SATISFACTORY
VALUES REQUIRED		API 6ACRA UNS N07718	-	3.00 ÷ 5.00	15.0 ÷ 17.5	-	-	-	-	-	
STEM	422416	API 6ACRA UNS N07718	-	3.98	16.35	-	-	-	-	-	SATISFACTORY

NOTE	CONTROLLO QUALITA' QUALITY CONTROL	ISPETTORE CLIENTE CUSTOMERS INSPECTOR

FLUITEK CASENIGO VALVES SRL

21 AGO. 2024

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CROSSWIND

Fluitek Valves	**P.M.I. CERTIFICATE**	**N° 240062-028 PMI** **DATE 07/07/2024**
CUSTOMER : ROSETTI MARINO S.P.A. CIG 9931200D7D	**ORDER N°:** **1724000204 123A90A/REV.1**	**SERIAL NUMBER:** NUMERO SERIALE 2400620280001
JOB. N°: 240062 JOB	**POSITION: 028** **ITEM: 280**	**DRAWING:** Ball Valve 1" 150# Disegno
EQUIPMENT: SPECTRO XSORT SPT003	**PMI PROCEDURE:** **QCD-18-PR_Rev.00 POSITIVE MATERIAL IDENTIFICATION**	**TAG: 80-XV-001** TAG.:

TEST RESULTS

COMPONENT COMPONENTE	HEAT COLATA	MATERIAL GRADE	TEST RESULTS								
			C	Ni	Cr	Mo	Mn	Si	S	P	
VALUES REQUIRED		**A182 F316/316L**	-	**10.0 ÷ 14.0**	**16.0 ÷ 18.0**	**2.0 ÷ 3.0**	-	-	-	-	
BODY	376729	A182 F316/316L	-	12.33	16.98	2.23	-	-	-	-	**SATISFACTORY**
BALL	283122	A182 F316/316L	-	12.23	16.99	2.79	-	-	-	-	**SATISFACTORY**
FLANGE	376729	A182 F316/316L		13.25	16.87	2.41					**SATISFACTORY**
VALUES REQUIRED		**API 6ACRA UNS N07718**	-	**3.00 ÷ 5.00**	**15.0 ÷ 17.5**	-	-	-	-	-	
STEM	422416	API 6ACRA UNS N07718	-	3.33	16.66	-	-	-	-	-	**SATISFACTORY**

NOTE	**CONTROLLO QUALITA'** QUALITY CONTROL	**ISPETTORE CLIENTE** CUSTOMERS INSPECTOR

FLUITEK GRSENIGO VALVES SRL Q.C

21 AGO. 2024

FRANCO CORBELLINI

QC1

CROSSWIND

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/001_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	001
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	10		
Tag *Tag*	25-BDV-022	Date of execution *Data di esecuzione*	08/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	476521	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	476521	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: Satisfactory-*Soddisfacente* 21 AGO. 2024

FRANCO CORBELLINI
QBQ
CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/002_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	002
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	20		
Tag *Tag*	25-BDV-005	Date of execution *Data di esecuzione*	08/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	290048	1
BALL	A182 F316/316L	437516	1
STEM	API 6ACRA UNS N07718	CVJ847	1
FLANGE	A182 F316/316L	290048	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: Satisfactory-*Soddisfacente*

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND R

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/003_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	003
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	30		
Tag *Tag*	25-BDV-007	Date of execution *Data di esecuzione*	08/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	290048	1
BALL	A182 F316/316L	437516	1
STEM	API 6ACRA UNS N07718	CVJ847	1
FLANGE	A182 F316/316L	290048	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory**-*Soddisfacente*

21 AGO. 2024

FRANCO CORBELLINI

QBQ

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SIGNATURES - *FIRMA*

Inspection Authority *Ente ispettivo*

Customer Inspector *Ispettore cliente*

Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/004_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	004
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	40		
Tag *Tag*	25-BDV-010	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	290048	1
STEM	API 6ACRA UNS N07718	CVJ847	1
FLANGE	A182 F316/316L	290048	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory**-*Soddisfacente*

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*
		QC

FLUITEK ORSENIGO VALVES S.R.L.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/005_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	005
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	50		
Tag *Tag*	25-BDV-013	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	290048	1
BALL	A182 F316/316L	437516	1
STEM	API 6ACRA UNS N07718	CVJ847	1
FLANGE	A182 F316/316L	290048	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory-*Soddisfacente***

21 AGO. 2024

FRANCO CORBELLINI
QBQ
CROSSWIND

SIGNATURES - *FIRMA*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES S.R.L. QC

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/006_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	006
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	60		
Tag *Tag*	25-BDV-016	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	290048	1
BALL	A182 F316/316L	437516	1
STEM	API 6ACRA UNS N07718	CVJ847	1
FLANGE	A182 F316/316L	290048	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory**-*Soddisfacente*

21 AGO. 2024
FRANCO CORBELLINI
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CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES S.R.L. QC

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/007_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	007
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	70		
Tag *Tag*	25-BDV-019	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	290048	1
BALL	A182 F316/316L	437516	1
STEM	API 6ACRA UNS N07718	CVJ847	1
FLANGE	A182 F316/316L	290048	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: Satisfactory-*Soddisfacente*

21 AGO. 2024

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SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES Q.C.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/008_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	008
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	80		
Tag *Tag*	25-SDV-001	Date of execution *Data di esecuzione*	08/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	291737	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	291737	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory**-*Soddisfacente*

21 AGO. 2024

FRANCO CORBELLINI
QBQ
CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES S.R.L.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/009_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	009
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	90		
Tag *Tag*	25-SDV-023	Date of execution *Data di esecuzione*	08/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	301095	1
BALL	A182 F316/316L	472390	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	301095	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: Satisfactory-*Soddisfacente*

21 AGO. 2024

FRANCO CORBELLINI

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SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*
		FB

FLUITEK ORSENIGO VALVES S.R.L. QC

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/010_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	010
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	100		
Tag *Tag*	64-SDV-001	Date of execution *Data di esecuzione*	08/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	291737	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	291737	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory**-*Soddisfacente*

21 AGO. 2024

FRANCO CORBELLINI
QB3
CROSSWIND

SIGNATURES - *FIRMA*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES SRL Q.C.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/011_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	011
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	110		
Tag *Tag*	25-XV-004	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	291737	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	291737	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: Satisfactory-*Soddisfacente*

21 AGO. 2024

FRANCO CORBELLINI

QB1

CROSSWIND R

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*
		FLUITEK ORSENIGO VALVES S.R.L. Q.C.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/012_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	012
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	120		
Tag *Tag*	25-XV-006	Date of execution *Data di esecuzione*	08/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	291737	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	291737	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione Sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: Satisfactory-*Soddisfacente*

21 AGO. 2024

FRANCO CORBELLINI

QB3

CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/013_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	013
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	130		
Tag *Tag*	25-XV-008	Date of execution *Data di esecuzione*	08/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	291737	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	291737	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory**-*Soddisfacente*

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

SIGNATURES - *FIRMA*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES S.R.L. QC

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/014_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	014
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	140		
Tag *Tag*	25-XV-009	Date of execution *Data di esecuzione*	08/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	291737	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	291737	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory**-*Soddisfacente*

21 AGO. 2024

FRANCO CORBELLINI

QB3

CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK CORSENIGO VALVES S.R.L.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/015_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	015
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	150		
Tag *Tag*	25-XV-011	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	291737	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	291737	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: Satisfactory-*Soddisfacente*

21 AGO 2024
FRANCO CORBELLINI
QB1
CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK CORSENIGO VALVES Q.C.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/016_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	016
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	160		
Tag *Tag*	25-XV-012	Date of execution *Data di esecuzione*	08/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	291737	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	291737	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: Satisfactory-*Soddisfacente*

21 AGO. 2024

FRANCO CORBELLINI

QBQ

CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK ORSENIGO (BG) Q.C.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/017_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	017
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	170		
Tag *Tag*	25-XV-014	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	291737	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	291737	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: Satisfactory-*Soddisfacente*

21 AGO. 2024

FRANCO CORBELLINI
QBQ
CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES S.R.L.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/018_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	018
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	180		
Tag *Tag*	25-XV-015	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	291737	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	291737	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory**-*Soddisfacente*

21 AGO. 2024

FRANCO CORBELLINI
QB3
CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK CERSENIGO VALVES S.R.L. Q.C.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/019_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	019
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	190		
Tag *Tag*	25-XV-017	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	291737	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	291737	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory**-*Soddisfacente*

21 AGO. 2024

FRANCO CORBELLINI
QBQ
CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*
		FLUITEK ORSENIGO VALVES S.R.L. Q.C.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/020_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	020
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	200		
Tag *Tag*	25-XV-018	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	291737	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	291737	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory**-***Soddisfacente***

21 AGO. 2024

FRANCO CORBELLINI

QB1

CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES S.R.L.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/021_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	021
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	210		
Tag *Tag*	25-XV-020	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	291737	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	291737	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory-*Soddisfacente***

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES S.R.L. Q.B.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/022_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	022
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	220		
Tag *Tag*	25-XV-021	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	291737	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	291737	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory**-*Soddisfacente*

21 AGO. 2024
FRANCO CORBELLINI
QB3
CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES S.R.L.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/023_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	023
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	230		
Tag *Tag*	25-XV-024	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	291737	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	291737	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: Satisfactory-*Soddisfacente*

21 AGO. 2024
FRANCO CORBELLINI
QBQ
CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/024_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	024
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	240		
Tag *Tag*	50-XV-001	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F53	60840	1
BALL	A182 F53	397872	1
STEM	A182 F53	397872	1
FLANGE	A182 F53	60840	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory**-*Soddisfacente*

21 AGO. 2024

FRANCO CORBELLINI

QB3

CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*

Customer Inspector *Ispettore cliente*

Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES SRL

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/025_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	025
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	250		
Tag *Tag*	50-XV-002	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F53	901258	1
BALL	A182 F53	101007	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F53	901258	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory**-*Soddisfacente*

21 AGO. 2024
FRANCO CORBELLINI
QB1
CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*

Customer Inspector *Ispettore cliente*

Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES SRL Q.C.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/026_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	026
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	260		
Tag *Tag*	50-XV-003	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F53	60840	1
BALL	A182 F53	397872	1
STEM	A182 F53	397872	1
FLANGE	A182 F53	60840	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory-*Soddisfacente***

21 AGO. 2024

FRANCO CORBELLINI

QB1

CROSSWIND R

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*	Customer Inspector *Ispettore cliente*	Quality control *Controllo qualità*
		FLUITEK ORSENIGO VALVES S.R.L. Q.C.

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/028_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	028
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	280		
Tag *Tag*	80-XV-001	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F316/316L	376729	1
BALL	A182 F316/316L	283122	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F316/316L	376729	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory**-*Soddisfacente*

21 AGO. 2024

FRANCO CORDELLINI
QB1
CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*

Customer Inspector *Ispettore cliente*

Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES SRL QC

M.PTE (Mod.001) - Rev 6

PTE n.
CLP 240062/027_01 A

DYE PENETRANT EXAMINATION REPORT
Rapporto di controllo con liquidi penetranti

Fluitek Valves

GENERAL INFORMATION - *INFORMAZIONI GENERALI*

Customer *Cliente*	0424 - ROSETTI MARINO S.P.A. CIG 9931200D7D	FOV Job *Commessa FOV*	240062	Pos *Riga*	027
P. order *Ordine*	1724000204 123A90A	Item *Item cli.*	270		
Tag *Tag*	50-XV-004	Date of execution *Data di esecuzione*	07/07/2024		
Manufact. stage *Stadio di fabbric.*	After machining - Dopo lavorazione				
Reference spec. *Specifica riferim.*	QCD-14-PR				

Test subject - Oggetto di esame	Material - Materiale	Heat - Colata	Qty - Qtà
BODY	A182 F53	901258	1
BALL	A182 F53	101007	1
STEM	API 6ACRA UNS N07718	422416	1
FLANGE	A182 F53	901258	1

PENETRANT MATERIALS - *MATERIALI PENETRANTI*

Examination technique *Tecnica d'esame*			
Manufacturer *Produttore*	0287 - NDT ITALIANA S.R.L. A SOCIO UNICO		
Type of cleaner *Tipo di pulitore*	Solvent-*Solvente*	Trade name *Marca*	Remover BC1 (Batch N.200131s)
Type of penetrant *Tipo di penetrante*	Color contrast / Water washable-*Contrasto di colore / Lavabile in acqua*	Trade name *Marca*	Penetrant K71B2p (Batch N.191125ps)
Type of developer *Tipo sviluppatore*	Non-aqueous liquid developer-*Sviluppatore liquido non acquoso*	Trade name *Marca*	Dev. D112A (Batch N.191115W150s)
Remover *Pulitore*	Solvent-*Solvente*		

TECHNIQUE - *TECNICA*

Standard temperature range *Campo di temperatura*	10 ÷ 52 °C		
Penetrant application *Applicazione penetrante*	Spray-*Spruzzo*		
Penetration time (min-max) *Tempo di penetraz.(min-max)*	10 min. - 30 min.-*10 min. - 30 min.*		
Penetrant removal *Rimozione penetrante*	Water spray-*Getto d'acqua*		
Drying *Asciugatura*	Circulating air-*Circolazione aria*		
Max drying time *Tempo max. asciugatura*	10 min.		
Developer application *Applicazione sviluppatore*	Spary-*Spruzzo*		
Min. developing time *Tempo minimo sviluppo*	10 min.	Max. developing time *Tempo massimo sviluppo*	60 min.
Light intensity *Intensità illuminazione*	Daylight or artificial light 1076 lux. *Luce naturale o artificiale 1076 lux.*		
Other *Altro*			
Remarks *Note*			

Examination result *Esito della prova*: **Satisfactory**-*Soddisfacente*

21 NOV. 2024

FRANCO CORBELLINI
CBI
CROSSWIND

SIGNATURES - *FIRME*

Inspection Authority *Ente ispettivo*

Customer Inspector *Ispettore cliente*

Quality control *Controllo qualità*

FLUITEK ORSENIGO VALVES S.R.L. Q.C.

04: Manufacturing Records and Procedures

Painting certificates

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2026

Laboratorio di Metrologia
UTENSIL LINE Srl
Via Acqui, 65/A
10098 Rivoli (TO) - I

Centro di Taratura LAT 166
Calibration Centre 166

Laboratorio Accreditato di Taratura
Accredited Calibration Laboratory

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO

LAT 166

Membro degli Accordi di Mutuo Riconoscimento
EA, IAF e ILAC

Signatory of EA, IAF and ILAC
Mutual Recognition Agreements

CERTIFICATO DI TARATURA LAT 166 22-L0091
Certificate of Calibration

- data di emissione *date of issue*	2022/03/22
- cliente *customer*	TECHNE SRL VIA DELLA MUSIA 97 - 25135 BRESCIA (BS)
- destinatario *receiver*	FLUITEK ORSENIGO VALVES SRL VIA LODOVICO MANCINI,5 - 20129 - MILANO (MI)

Si Riferisce a
Referring to

- oggetto *item*	CAMPIONI DI SPESSORI
- costruttore *manufactorer*	ASSICONTROL
- modello *model*	---
- matricola *serial number*	VEDI TABELLA
- data di ricevimento oggetto *date of receipt of item*	2022/03/21
- data delle misure *date of measurements*	2022/03/22
- registro di laboratorio *laboratory reference*	RG_LAB20

Il presente certificato di taratura è emesso in base all'accreditamento LAT 166 rilasciato di accordo ai decreti attuativi della legge n. 273/1991 che ha istituito il Sistema Nazionale di Taratura (SNT). ACCREDIA attesta le capacità di misura e di taratura, le competenze metrologiche del Centro e la riferibilità delle tarature eseguite ai campioni nazionali e internazionali delle unità di misura del Sistema Internazionale delle Unità (SI).
Questo certificato non può essere riprodotto in modo parziale, salvo espressa autorizzazione scritta da parte del Centro.

This certificate of calibration is issued in compliance with the accreditation LAT 166 granted according to decrees connected with Italian law No. 273/1991 wich has establisheed the National Calibration System. ACCREDIA attests the calibration and measurement capability, the metrological competence of the Centre and the traceability of calibration results to the national and international standards of the International System of Units (SI).
This Certificate may not be partially reproduced, except with the prior written permission of the issuing Centre.

I risultati di misura riportati nel presente Certificato sono stati ottenuti applicando le procedure di taratura citate alla pagina seguente, dove sono specificati anche i campioni o gli strumenti che garantiscono la catena di riferibilità del Centro e i rispettivi certificati di taratura in corso di validità. Essi si riferiscono esclusivamente all'oggetto in taratura e sono validi nel momento e nelle condizioni di taratura, salvo diversamente specificato.
The measurement results reported in this Certificate were obtained following the calibration procedures given in the following page, where the reference standards or instruments are indicated which guarantee the traceability chain of the laboratory, and the related calibration certificates in the course of validity are indicated as well. They relate only to the calibrated item and they are valid for the time and conditions of calibration, unless otherwise specified.

Le incertezze di misura dichiarate in questo documento sono state determinate conformemente alla Guida ISO/IEC 98 e al documento EA-4/02. Solitamente sono espresse come incertezza estesa ottenuta moltiplicando l'incertezza tipo per il fattore di copertura k corrispondente ad un livello di fiducia di circa il 95 %. Normalmente tale fattore k vale 2.
The measurement uncertainties stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually, they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of about 95%. Normally, this factor k is 2.

Direzione Tecnica
(Approving Officier)

Dott. Stefano Borla

Firma Digitale - Digital Signature

Firmato digitalmente da:
BORLA STEFANO
Firmato il 23/03/2022 08:48
Seriale Certificato: 18588154
Valido dal 03/06/2020 al 03/06/2023
InfoCert Firma Qualificata 2

Laboratorio di Metrologia
UTENSIL LINE Srl
Via Acqui, 65/A
10098 Rivoli (TO) - I

Centro di Taratura LAT 166
Calibration Centre 166

Laboratorio Accreditato di Taratura
Accredited Calibration Laboratory

LAT 166

Membro degli Accordi di Mutuo Riconoscimento
EA, IAF e ILAC

Signatory of EA, IAF and ILAC
Mutual Recognition Agreements

CERTIFICATO DI TARATURA LAT 166 22-L0091
Certificate of Calibration

0. PROCEDURE E CAMPIONI DI RIFERIMENTO

I risultati di misura riportati nel presente Certificato sono stati ottenuti applicando le procedure N.
The measurement results reported in this certificate were obtained following procedure No.

PR_TAR11 - REV.11

La catena di riferibilità ha inizio dai seguenti campioni di riferimento, muniti dei rispettivi certificati validi di taratura:
Traceability is through following reference measurement standards, validated by respective certificates of calibration:

- Blocchetti pianparalleli **CP-0182, munito di certificato I.N.RI.M. n° 20-0526-01**
- Termometro **CP-0249, munito di certificato LAT 056 n° 19-1622**

1. MODALITÀ DI TARATURA

1) La taratura è stata effettuata rilevando:

- SPESSORE MEDIO: calcolato come valore medio di cinque misurazioni consecutive eseguite nella zona centrale del campione o, se indicata, all'interno della zona contrassegnata.

Ogni lunghezza è stata ottenuta come media aritmetica dei valori di cinque misurazioni indipendenti

I rilievi sono stati eseguiti con una forza di 1 N.

Tutte le misure, entro i livelli di incertezza dichiarati, sono riportate alla temperatura di 20°C.

2) Le incertezze da associare alle misure sono espresse con un fattore di copertura k=2, che corrisponde approssimativamente ad un livello di confidenza pari al 95%, sono le seguenti:

- Spessore medio: 0,50 µm

3) Nella tabella riportata alla pagina seguente sono riportati i valori indicanti:

- Identificativo o matricola e nominale del misurando
- Materiale del misurando.
- Valore medio rilevato
- Scarto quadratico medio
- Incertezza da associare alle misure
- Identificativo o matricola e nominale del misurando

Verifica dello strumento eseguita presso:
Laboratorio Permanente Utensil Line

Laboratorio di Metrologia
UTENSIL LINE Srl
Via Acqui, 65/A
10098 Rivoli (TO) - I

Centro di Taratura LAT 166
Calibration Centre 166

Laboratorio Accreditato di Taratura
Accredited Calibration Laboratory

LAT 166

Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC

Signatory of EA, IAF and ILAC Mutual Recognition Agreements

CERTIFICATO DI TARATURA LAT 166 22-L0091
Certificate of Calibration

Cliente:	TECHNE SRL	**Commessa:**	S220274
Oggetto:	CAMPIONI DI SPESSORI	**Modello:**	---
Costruttore:	ASSICONTROL	**Matricola:**	VEDI TABELLA
Temperatura:	(20 ± 0,5) °C	**Operatore:**	Battisti Luca

2. TABELLA DEI RISULTATI SPERIMENTALI

Matricola - Identificativo	Materiale	Valore nominale µm	Valore medio µm	Deviazione standard µm	Incertezza estesa µm
1220800	Plastico	47,00	48,43	0,10	0,50
0521047	Plastico	280,00	280,82	0,69	0,50
WG12513	Plastico	970,00	959,01	1,09	0,50

Note: ---

Fine Certificato

RAPPORTO DI TARATURA
CALIBRATION REPORT

LAT 166 22-L0091

Denominazione -Description of the gauge	*Matricola n° - Serial No.*
PIASTRINE CAMPIONE PER SPESSIMETRO	Z026
	Costruttore - Manufacturer
	TECHNE'

Procedura - Procedure	*Scala - Range*
	47 microns - 280 microns - 970 microns
	Classe - Class
	CL 0

Matrice strumento campione - Master Serial No.	*Classe - Class*	*Scala - Range*

Dati della verifica - Calibration data

Esito della verifica - Result	*Data - Date*
Conforme	22/03/2022
Scadenza Taratura - End Calibration	*Operatore - Operator*
21/03/2032	ROCCHETTI MANUEL

PAINTING CERTIFICATE

Customer: **FLUITEK ORSENIGO VALVES S.R.L.**	Date: **06/08/2024**	Report N°: **307-2024**
Customer Project: **241382 del 23/07/2024**	Specification: **Paint system 6A (PC 0301)**	
Article: **Nr.18 Valves**	Paint Supplier: **International**	
Item: **240062-001 / (From 008 to 023) / 028**	DWG: //	

EQUIPMENT			
Rough. Comparator	**Positector S.N. 252293**	Dew Point Meter	**PosiTector DPM S.N. 253041**
Tick.Gauge	**Positector S.N. 250061**	Conductivity Meter	**Elite Conductivity tester TQC s.n.3029768**
Adhesion Gauge	**Positest AT-M S.N. AT19796**	Foil Thickness Gauge	**TQC SP1570 SN**

SURFACE PREPARATION									
Date: 31/07/2024									
Test type	*According to*	*Required*				*Result*			
Sourface Cleanliness	ISO 8501-1	SA 2,5				**SA 2,5**			
Sourface Roughness	ISO 8503-2	Medium G				**Medium G**			
Sourface Roughness	ISO 8503-5	25 - 85 µm				**65 µm**			
Soluble Salt Test	ISO 8502-6/9	20 mg/m²				**12.6 mg/m²**			
Residual Dust	ISO 8502-3	Size 2 and qnt 2				**Size 1 and qnt**			
Type of Abrasive	//	STEEL GRIT GH25				**STEEL GRIT GH25**			
Blotter test	ASTM D4285	No oil / No water				**SATISFACTORY**			
Environmental Condiction	ISO 8502-4	Ta°C 5-40	Ts°C 5 min	RH% 85 max	Td°C 3 min	Ta°C **25.9**	Ts°C **26.7**	RH% **63.8**	Td°C **18.5**

COATING SYSTEM				
SYSTEM 6A – RAL 9002				
Number of Coat	**1^**	**2^**	**3^**	**4^**
Date and Time	**31/07/2024**	**01/08/2024**	**02/08/2024**	
Paint Product Name	**INTERGARD 269**	**INTERGARD 475 HS**	**INTERTHANE 990**	
Color	**RED**	**GREY**	**RAL 9002**	
Batch n°	**A) 2243167023** **B) 2243230027**	**A) 2244075031** **B) 2334012001**	**A) 2334059018** **B) 2334046015**	**A)** **B)**
Ambient Temperature	**27.1°C**	**27.6°C**	**27.9°C**	
Steel Temperature	**27.5°C**	**27.3°C**	**26.2°C**	
RH%	**64.9%**	**68.4%**	**72.8%**	
Dew Point	**19.9°C**	**21.2°C**	**22.6°C**	
Method	**SPRAY**	**SPRAY**	**SPRAY**	
Required DFT	**50 µm**	**100 µm**	**75 µm**	
Mean DFT	**55 µm**	**140 µm**	**80 µm**	

CHECK INORGANIC ZINC				
Test type	*According to*	*Date*	*Required*	*Result*
Mek Test	ASTM D4752	//	//	//

COATING ACCEPTANCE TEST				
Test type	*According to*	*Date*	*Required*	*Result*
Visual Check		**05/08/2024**		**OK**
Final Color		**05/08/2024**	RAL 9002	**RAL 9002**
Total DFT	ISO 19840	**05/08/2024**	225 µm	**275 µm**

Tested by:	*Customer QC:*	*Customer Inspector:*	*Inspector Signature:*
SJB VERNICIATURA di Sejdani Jawad Via E. Fermi, 54 - 24020 SCANZOROSCIATE (BG) Cell.: 3207514315 mail: sejdanij@gmail.com P. IVA 04306890163 Date: **06/08/2024**	FLUITEK ORSENIGO VALVES SRL QC Date:	FRANCO CORBELLINI QBT CROSSWIND W/R Date: 21 AGO. 2024	ROSETTI MARINO SpA Michele Sacchi Quality Control Dept. NACE 35744 W/R Date: 21-08-2024

PAINTING CERTIFICATE

Customer: **FLUITEK ORSENIGO VALVES S.R.L.**	Date: **09/08/2024**	Report N°: **311-2024**
Customer Project: **241382 del 23/07/2024**	Specification: **Paint system 6A (PC 0301)**	
Article: **Nr.6 Valves**	Paint Supplier: **International**	
Item: **240062- / FROM 002 to 007**	DWG: //	

EQUIPMENT			
Rough. Comparator	**Positector S.N. 252293**	Dew Point Meter	**PosiTector DPM S.N. 253041**
Tick.Gauge	**Positector S.N. 250061**	Conductivity Meter	**Elite Conductivity tester TQC s.n.3029768**
Adhesion Gauge	**Positest AT-M S.N. AT19796**	Foil Thickness Gauge	**TQC SP1570 SN**

SURFACE PREPARATION									
Date: 05/08/2024									
Test type	***According to***	***Required***				***Result***			
Sourface Cleanliness	ISO 8501-1	SA 2,5				**SA 2,5**			
Sourface Roughness	ISO 8503-2	Medium G				**Medium G**			
Sourface Roughness	ISO 8503-5	25 - 85 µm				**65 µm**			
Soluble Salt Test	ISO 8502-6/9	20 mg/m²				**12.6 mg/m²**			
Residual Dust	ISO 8502-3	Size 2 and qnt 2				**Size 1 and qnt**			
Type of Abrasive	//	STEEL GRIT GH25				**STEEL GRIT GH25**			
Blotter test	ASTM D4285	No oil / No water				**SATISFACTORY**			
Environmental Condiction	ISO 8502-4	Ta°C 5-40	Ts°C 5 min	RH% 85 max	Td°C 3 min	Ta°C **26.5**	Ts°C **26.0**	RH% **63.8**	Td°C **19.1**

COATING SYSTEM				
SYSTEM 6A – RAL 9002				
Number of Coat	**1^**	**2^**	**3^**	**4^**
Date and Time	**05/08/2024**	**06/08/2024**	**07/08/2024**	
Paint Product Name	**INTERGARD 269**	**INTERGARD 475 HS**	**INTERTHANE 990**	
Color	**RED**	**GREY**	**RAL 9002**	
Batch n°	**A) 2243167023** **B) 2243230027**	**A) 2244075031** **B) 2334012001**	**A) 2334059018** **B) 2334046015**	**A)** **B)**
Ambient Temperature	**27.6°C**	**29.8°C**	**31.4°C**	
Steel Temperature	**26.4°C**	**28.2°C**	**29.6°C**	
RH%	**63.4%**	**68.4%**	**65.3%**	
Dew Point	**20.0°C**	**22.8°C**	**24.1°C**	
Method	**SPRAY**	**SPRAY**	**SPRAY**	
Required DFT	**50 µm**	**100 µm**	**75 µm**	
Mean DFT	**55 µm**	**145 µm**	**85 µm**	

CHECK INORGANIC ZINC				
Test type	***According to***	***Date***	***Required***	***Result***
Mek Test	ASTM D4752	//	//	//

COATING ACCEPTANCE TEST				
Test type	***According to***	***Date***	***Required***	***Result***
Visual Check		**08/08/2024**		**OK**
Final Color		**08/08/2024**	RAL 9002	**RAL 9002**
Total DFT	ISO 19840	**08/08/2024**	225 µm	**285 µm**

Tested by:	*Customer QC:*	*Customer Inspector:*	*Inspector Signature:*
SJB VERNICIATURA di Sejdani Jawad Via E. Fermi, 54 - 24020 SCANZOROSCIATE (BG) Cell.: 3207514315 mail: sejdanij@gmail.com P. IVA 04306890163 Date: **09/08/2024**	FLUITEK ORSENIGO VALVES SRL Date:	Date:	Date:

CERTIFICATE OF ANALYSIS

Product: 5346092

Product Description: INTERGARD 269 RED PART A EGA088/20L/R1

Manufacturer: International Paint Limited
Stoneygate Lane Felling
City: Gateshead Country: United Kingdom

Batch Details:

Batch Number: 2243167023
Manufacturing Date: 17.07.2023
Expiration Date: 17.07.2024
Storage Condition: In the original unopened containers, protected from sunlight.

Commercial Details:

Color Code: NA
Customer: MAXICOLOR VERNICI srl
Sales Order Number: 1037094424/000010
Customer PO Number: 1806
Delivery Number: 9088315598/000010

BATCH TEST RESULTS

Characteristics	Method	Tolerance Lower Limit		Tolerance Upper Limit	Results	Unit
Specific Gravity (Pressure Cup)	SMT-025B -ISO2811-4	1,640	-	1,740	1,685	g/cm3
Solid Content (1h @ 105º)	SMT-029D	73,00	-	77,00	75,14	%

Certified By: QC Department

Issue Date: 16-Oct-2023

AkzoNobel certifies that the product mentioned above has been manufactured in accordance with the specification. The Quality Control results are copied from the relevant AkzoNobel quality management system. This certificate has been processed electronically and is therefore not signed.

CERTIFICATE OF ANALYSIS

Product: 5346107

Product Description: INTERGARD 269 PART B EGA089/5L/R1

Manufacturer: International Paint Limited
Stoneygate Lane Felling
City: Gateshead Country: United Kingdom

Batch Details:

Batch Number: 2243230027
Manufacturing Date: 21.09.2023
Expiration Date: 21.09.2025
Storage Condition: In the original unopened containers, protected from sunlight.

Commercial Details:

Color Code: NA
Customer: MAXICOLOR VERNICI srl
Sales Order Number: 1037094424/000020
Customer PO Number: 1806
Delivery Number: 9088315598/000020

BATCH TEST RESULTS

Characteristics	Method	Tolerance			Results	Unit
		Lower Limit		Upper Limit		
Specific Gravity (Pressure Cup)	SMT-025B -ISO2811-4	0,870	-	0,930	0,909	g/cm3
Solid Content (1h @ 105º)	SMT-029D	35,50	-	39,50	36,79	%

Certified By: QC Department

Issue Date: 16-Oct-2023

AkzoNobel certifies that the product mentioned above has been manufactured in accordance with the specification. The Quality Control results are copied from the relevant AkzoNobel quality management system. This certificate has been processed electronically and is therefore not signed.

CERTIFICATE OF ANALYSIS

Product: 5250006

Product Description: INTERGARD 475HS MIO LIGHT GREY PART A EVA004/20L/EU

Manufacturer: International Paint Limited
Stoneygate Lane Felling
City: Gateshead Country: United Kingdom

Batch Details:

Batch Number: 2244075031
Manufacturing Date: 24.05.2024
Expiration Date: 16.11.2025
Storage Condition: In the original unopened containers, protected from sunlight.
Temp. Conditions: Temp. >= 15,

Commercial Details:

Color Code: NA
Customer: MAXICOLOR VERNICI srl
Sales Order Number: 1039025252/000240
Customer PO Number: 2176-2179-2178 PEDRINI
Delivery Number: 9092619954/000210

BATCH TEST RESULTS

Characteristics	Method	Tolerance			Results	Unit
		Lower Limit		Upper Limit		
Specific Gravity (Pressure Cup)	SMT-025B -ISO2811-4	1,960	-	2,040	2,027	g/cm3

Certified By: QC Department

Issue Date: 3-Jun-2024

AkzoNobel certifies that the product mentioned above has been manufactured in accordance with the specification. The Quality Control results are copied from the relevant AkzoNobel quality management system. This certificate has been processed electronically and is therefore not signed.

CERTIFICATE OF ANALYSIS

Product: 5501452

Product Description: INTERGARD 475HS PART B LOW TEMPERATURE EVA056/5L/R9

Manufacturer: International Färg AB
Holmedalen Aspereds Industriomrade
City: Gunnilse Country: Sweden

Batch Details:

Batch Number: 2334012001
Manufacturing Date: 26.02.2024
Expiration Date: 25.08.2025
Storage Condition: In the original unopened containers, protected from sunlight.
Temp. Conditions: Temp. >= 15,

Commercial Details:

Color Code: NA
Customer: MAXICOLOR VERNICI srl
Sales Order Number: 1038453390/000130
Customer PO Number: 2081
Delivery Number: 9091382357/000130

BATCH TEST RESULTS

Characteristics	Method	Tolerance Lower Limit		Tolerance Upper Limit	Results	Unit
Specific Gravity (Pressure Cup)	SMT-025B -ISO2811-4	1,690	-	1,790	1,758	g/cm3
Solid Content (1h @ 105º)	SMT-029D	86,60	-	90,60	87,30	%

Certified By: QC Department

Issue Date: 2-Apr-2024

AkzoNobel certifies that the product mentioned above has been manufactured in accordance with the specification. The Quality Control results are copied from the relevant AkzoNobel quality management system. This certificate has been processed electronically and is therefore not signed.

CERTIFICATE OF ANALYSIS

Product: 5234417

Product Description: INTERTHANE 990 BASE LIGHT PART A PHA130/20L/EU

Manufacturer: International Färg AB
Holmedalen Aspereds Industriomrade
City: Gunnilse Country: Sweden

Batch Details:

Batch Number: 2334059018
Manufacturing Date: 14.05.2024
Expiration Date: 15.05.2026
Storage Condition: In the original unopened containers, protected from sunlight.
Temp. Conditions: Temp. >= 15,

Commercial Details:

Color Code: NA
Customer: MAXICOLOR VERNICI srl
Sales Order Number: 1039373353/000050
Customer PO Number: 2237
Delivery Number: 9093355050/000050

BATCH TEST RESULTS

Characteristics	Method	Tolerance Lower Limit		Tolerance Upper Limit	Results	Unit
Specific Gravity (Pressure Cup)	SMT-025B -ISO2811-4	1,146	-	1,246	1,213	g/cm3

Certified By: QC Department

Issue Date: 8-Jul-2024

AkzoNobel certifies that the product mentioned above has been manufactured in accordance with the specification. The Quality Control results are copied from the relevant AkzoNobel quality management system. This certificate has been processed electronically and is therefore not signed.

CERTIFICATE OF ANALYSIS

Product: 5505097

Product Description: INTERTHANE 990 PART B PHA046/3.7L/R9

Manufacturer: International Färg AB
Holmedalen Aspereds Industriomrade
City: Gunnilse Country: Sweden

Batch Details:

Batch Number: 2334046015
Manufacturing Date: 14.05.2024
Expiration Date: 06.11.2025
Storage Condition: In the original unopened containers, protected from sunlight.
Temp. Conditions: Temp. >= 15,

Commercial Details:

Color Code: NA
Customer: MAXICOLOR VERNICI srl
Sales Order Number: 1039289174/000030
Customer PO Number: 2225 TINTI LUGLIO PROG. CSM
Delivery Number: 9093161574/000020

BATCH TEST RESULTS

Characteristics	Method	Tolerance			Results	Unit
		Lower Limit		Upper Limit		
Specific Gravity (Weight Per Gallon Cup)	SMT-025A	1,010	-	1,110	1,089	g/cm3
Solid Content (1h @ 105º)	SMT-029D	70,5	-	74,5	72,5	%

Certified By: QC Department

Issue Date: 2-Jul-2024

AkzoNobel certifies that the product mentioned above has been manufactured in accordance with the specification. The Quality Control results are copied from the relevant AkzoNobel quality management system. This certificate has been processed electronically and is therefore not signed.

04: Manufacturing Records and Procedures

Actuator Painting procedure

File: COPERTINA .xlsx
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Base Load Power Hub (BLPH)

SDV/BDV AND TIGHT SHUT-OFF XV VALVES

ACTUATOR SURFACE PREPARATION AND PAINTING PROCEDURES

Document Number: 1724000204-MAT-PRO-00008

Document Class: 2

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
Michele Sacchi	19/08/2024

03	06/08/2024	Accepted for Construction (AFC)	ROTORK	ROTORK	ROTORK
02	22/07/2024	Issue for Review (IFR)	ROTORK	ROTORK	ROTORK
01	10/05/2024	Issue for Review (IFR)	ROTORK	ROTORK	ROTORK
00	10/04/2024	Issue for Review (IFR)	ROTORK	ROTORK	ROTORK
Rev.	Date	Description	Prepared	Reviewed	Approved

Fluitek Valves

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Project: **HOLLANDSE KUST NOORD WIND PARK Project** RFS JOB: AF7703		
Component	Material	Paint System
Actuator	Carbon Steel/Cast Iron	Norsok M501_2022, System 1B; Rotork System (PCB1EONRA7038-H)

REV.	DATE	DESCRIPTION	ISSUED BY	CHECKED AND APPROVED BY
00	09/05/2024	FIRST ISSUE	R. MAIONCHI (QC)	R. DAL TORRIONE (QC)
01	03/07/2024	SECOND ISSUE	R. MAIONCHI (QC)	R. DAL TORRIONE (QC)

1. SCOPE 2

2. NORMATIVE AND INFORMATIVE REFERENCES 2

3. APPLICABILITY 3

4. GENERAL REQUIREMENTS 3

5. HEALTH, SAFETY AND ENVIRONMENT 3

6. SURFACE PREPARATION 4

6.1 PRE-BLASTING PREPARATION 4

6.2 BLAST CLEANING 4

6.3 FINAL SURFACE CONDITIONS 4

7. PAINT APPLICATION 4

8. Qualification requirement 5

9. REPAIR 5

10. INSPECTION AND TESTING 6

Annex – Painting Inspection Certificate — Painting Cycle – Data Sheets 7

1. SCOPE

The present procedure has the scope to define materials, equipment, techniques, ambient conditions, normative references and roles and responsibilities of the firm staff operating on it. The specification reference is: ***Norsok Standard M-501 Edition 2022***.

2. NORMATIVE AND INFORMATIVE REFERENCES

ISO 8501-1	PREPARATION OF STEEL SUBSTRATES BEFORE APPLICATION OF PAINTS AND RELATED PRODUCTS – VISUAL ASSESSMENT OF SURFACE CLEANLINESS. PART 1: RUST GRADES AND PREPARATION GRADES OF UNCOATED STEEL SUBSTRATES AND OF STEEL SUBSTRATES AFTER OVERALL REMOVAL OF PREVIOUS COATINGS.
SSPC SP-1	SOLVENT CLEANING
ISO 8501-3	PREPARATION OF STEEL SUBSTRATES BEFORE APPLICATION OF PAINTS AND RELATED PRODUCTS. VISUAL ASSESSMENT OF SURFACE CLEANLINESS. PREPARATION GRADES OF WELDS, CUT EDGES AND OTHER AREAS WITH SURFACE IMPERFECTIONS.
ISO 8502-3	PREPARATION OF STEEL SUBSTRATES BEFORE APPLICATION OF PAINTS AND RELATED PRODUCTS. TEST FOR THE ASSESSMENT OF SURFACE CLEANLINESS. PART 3: ASSESSMENT OF DUST ON STEEL SURFACES PREPARED FOR PAINTING (PRESSURE SENSITIVE TAPE METHOD)
ISO 8502-6	PREPARATION OF STEEL SUBSTRATES BEFORE APPLICATION OF PAINTS AND RELATED PRODUCTS. TEST FOR THE ASSESSMENT OF SURFACE CLEANLINESS.. PART 6: EXTRACTION OF SOLUBLE CONTAMINANTS FOR ANALYSIS. BRESLE TEST.
ISO 8502-9	PREPARATION OF STEEL SUBSTRATES BEFORE THE APPLICATION OF PAINTS AND RELATED PRODUCTS. TEST FOR THE ASSESSMENT OF SURFACE CLEANLINESS. PART 9: FIELD METHOD FOR THE CONDUCTOMETRIC DETERMINATION OF WATER-SOLUBLE SALTS.
ISO 8503	PREPARATION OF STEEL SUBSTRATES BEFORE APPLICATION OF PAINTS AND RELATED PRODUCTS – SURFACE ROUGHNESS CHARACTERISTICS OF BLAST CLEANED SUBSTRATES.
ISO 19840	PAINTS AND VARNISHES – CORROSION PROTECTION OF STEEL STRUCTURES BY PROTECTIVE PAINT SYSTEMS; MEASUREMENT, ACCEPTANCE CRITERIA AND DRY FILMS THICKNESS ON ROUGH SURFACES.
ISO 16276-1	ASSESSMENT OF, AND ACCEPTANCE CRITERIA FOR, THE ADHESION/COHESION (FRACTURE STRENGTH) OF A COATING - PART 1: PULL-OFF TESTING

ISO 12944 PAINT AND VARNISHES-CORROSION PROTECTION OF STEEL STRUCTURES BY PAINT SYSTEM

ASTM D 4285 STANDARD TEST METHOD FOR INDICATING OIL OR WATER IN COMPRESSED

NORSOK M-501 NORSOK STANDARD M-501 EDITION 2022. SURFACE PREPARATION AND PROTECTIVE COATING.

3. APPLICABILITY

This procedure is applicable to the components reported in the first page (actuators in carbon steel/cast Iron) suitable to be protected by coating systems as per Norsok Standard M-501 Edition 2022. Brackets in stainless steel won't be painted.

4. GENERAL REQUIREMENTS

Our firm ensures that all equipment and structures will be duly protected from whatsoever mechanical damage, ingress of abrasives and dust from blast cleaning. We will make sure that sags, droplets and paint over spray (inclusive dry-spray) will be avoided. Adjacent areas not to be painted shall be protected as requested explicitly by the customer. On completion of the work in any area, all masking materials, spent abrasives and equipment shall be duly removed.

Unless otherwise specified in writing by the coating Manufacturer, surface preparation and paint shall not be applied under the following condition:

Air temperature is below 10° C and more than 40°C;
Surface temperature is below 10°C and more than 40°C;
Surface temperature is less than 3°C above the Dew Point;
Relative humidity is 85% or above;
Wet or damp atmosphere;
Wet surface;
Atmosphere contaminated by dirt, dust, oil, product or any other pollutant;
When the available light is less than 500 lux;
When there is the likelihood of an unfavourable change in weather conditions within two hours after painting.

The suitable environmental conditions shall be followed during the surface preparation, coating application and curing.
All the tests required by the customer will be thoroughly measured and registered through internal equipment at our disposal.

5. HEALTH, SAFETY AND ENVIRONMENT

All equipment, abrasive material and paints shall be used in accordance with the manufacturer's safety data sheets and appropriate safety precautions shall be taken. The

operators are required to follow the safety instructions in accordance with H&S procedures, Norsok M-501 and environmental issues.

6. SURFACE PREPARATION

6.1 PRE-BLASTING PREPARATION

According to ISO12944-3, all sorts of sharp edges, fillets, corners and welds will be rounded or smoothened by grinding with minimum R equal to 2 millimeters according to ISO 8501-3 grade P3.
Eventual hard surface layers will be removed by grinding prior to blast cleaning.
The surfaces in this phase will be free from weld flux, residue, slivers, oil, grease, salt etc. prior to blast cleaning. All surfaces will be washed with clean fresh water before blast cleaning. The degreasing phase (removal of oil and grease) will be performed according to SSPC- SP1 prior to blasting operations.

6.2 BLAST CLEANING

Blasting abrasives will be dry, clean and free from contaminants which will be detrimental to the coating outcome. The size of the abrasive particles will be in conformity with what indicated in Norsok Standard M-501 Edition 2022. The surface profile will be graded in accordance with the norm ISO 8503-05 (50 µm to 85 µm) for carbon steel. The cleanliness of the blast cleaned surface will be in accordance with the norm ISO 8501-1 Grade “SA 2 ½”. Only Grit type abrasives will be used.

6.3 FINAL SURFACE CONDITIONS

The surface to be coated will be clean, dry, free from oil and grease and have the requested roughness and cleanliness until the first layer of coat is applied.
Dust, blast abrasives will be removed from the surface after blast cleaning so that the particle quantity and particle size do not exceed rating 2 of the norm ISO 8502-3.
The maximum content of soluble impurities on the blasted surface as sampled on ISO 8502-6 will not exceed a conductivity grade as measured in accordance with ISO 8502-9 (Max conductivity corresponding to 20 mg/m^2 soluble salt).

7. PAINT APPLICATION

Every data sheet referred to the customers’ requirements will be stored in our quality files.

Painting System and product Manufacturer are in accordance with the Painting Cycle annex **PCB1EONRA7038-H**.

The procedure of the coating production and test data refers to our internal procedures of the quality system. Internal recording are performed by the Quality Department and Painting Department concerning the following tests:

- Temperature measurement
- Humidity measurement
- Grade of cleanliness
- Surface roughness test
- De-dusting test
- Soluble Salt contamination grade
- Visual Inspection
- MEK Test (if applicable)
- Dry film thickness and Wet film thickness per each coat.
- Pull off test

Masking of untreated areas will be carried out, where needed.
Blasted surface will be coated by the first coat of the coating system within 4 hours after abrasive blasting is finished.
For each coat a stripe coat will be applied by brush to all welds, corners, behind angles, edges of beams, etc; areas not fully reachable by spray in order to obtain the specified coverage and thickness.
Each coat will be uniformly applied over the whole surface. Each applied coat will be free from pinholes, blisters, holidays, sags, runs, fish-eye, orange peel, contamination etc.
The paint will be applied by spray in accordance with the paint manufacturer instructions and prior to the specified painting system.
Contrasting colours will be used for all successive coats of the paint system.
The carbon steel bolting are protected with the same painting cycle of actuator.

8. QUALIFICATION REQUIREMENT

Operators have relevant experience and proficient in surface preparation and coating application techniques and qualified according to Norsok Standard M-501 Edition 2022 (par. 11.2.2) to tradesman level as blast-cleaner, painter applicator etc . Personnel have relevant knowledge of health and safety hazard, use of protective equipment, coating materials, mixing and thinning coatings, coating pot-life, surface requirement etc. Personnel carrying out inspection or verification shall be qualified in accordance with NS 476, Inspector level II, Certified NACE Coating Inspector Level II or equivalent.

9. REPAIR

In case of repairs the following procedure shall be applied:

PAINTING SPECIFICATION NORSOK M501 Ed. 2022 - SYSTEM 1B

Zinc Rich Epoxy Primer	@ 60 µm
High Solid Epoxy	@ 180 µm
Polyurethane (Color)	@ 60 µm
TOTAL DFT: 300 µm	

- Nature of the damage:
  - Damage to topcoat (Not Exposing Substrate);

- Damage to substrate (Substrate Exposed);

- Damage to topcoat only (Not Exposing Substrate):

The affected areas shall be delimited by using adhesive tape to form squares or rectangles. Repair by removing damaged coating with sandpaper, or other means approved by Company (wire brushing is forbidden), feather edges and abrade top coat surface and re-apply 1 x 60 µm Polyurethane.

- Damaged to substrate (Substrate Exposed):

The affected areas shall be delimited by using adhesive tape to form squares or rectangles and adjacent areas feathered.
Repairs shall be done locally by degreasing, cleaning, disc grinding, feathering adjoining paint surface and perform surface preparation min. SA 2 1/2 by using blast cleaning equipment.
Layers of the paint shall be reconstitute by spray:

Zinc Rich Epoxy Primer	@ 60 µm
High Build Epoxy	@ 180 µm
Polyurethane (Color)	@ 60 µm

Care shall be taken to avoid damaging the surrounding areas and to ensure that complete tie-in of the coating with surrounding area. Stripe coat shall be applied by brush to all angles, corners, sharp edges, bolds and nuts, rivet heads.
All stainless steel work in the vicinity must the protected from contamination.

- Product Not Conforming to the specification (NCR)

Where the DFT exceeds the specified maximum requirements, the coating shall be removed and the surface shall be re-blasted and recoated with the initially specified coating system.

Where the DFT is inferior to the minimum requirement, re apply the final coat until to the minimum thickness specified.

Where coating defects are related to improper coating application or improper curing, the entire affect area shall be removed and the surface shall be re-blasted and recoated with the initially specified coating system.

10. INSPECTION AND TESTING

Rotork Fluid Systems. will operate the inspection and testing in accordance with ***Norsok Standard M-501 Edition 2022, Inspection Plan*** herewith enclose.

INSPECTION TEST PLAN – AF7703 REV. 01						
N.	**Process Description**	**Record**	**Requirements and Acceptance criteria (CTQs)**	**Method and Equipment**	**Frequency**	**Consequence**
1	**COMPRESSED AIR CLEANLEANESS PRE-TREATMENT PHASE /BLAST CLEANING PROCESS**	Painting Inspect. For each batch	No presence of water and oil. No defects. Look for sharp edges, weld spatter slivers, rust grade etc. ISO 8501-3	Visual Inspection	100% for all surfaces	No blasting or coating
2	**ENVIRONMENTAL CONDITIONS** Ambient Temperature Steel Temperature Dew Point Relative Humidity	Painting Inspect. For each batch	Temperature (air)10<T<40°C Temperature steel surface: 3°C above the Dew Point Elapsed time between blast cleaning and coating: maximum 4 hours. Relative humidity : < 85% and >50% during curing of organic zinc.	Thermometer Hygrometer	Before start of each shift	No blasting or coating
3	**CHECKS ON THE BLAST CLEANED SURFACE:** 3.1) Degree of Cleanliness 3.2) Surface Roughness 3.3) Degree of dust test	Painting Inspect. For each batch	3.1) Cleanliness equivalent to SA 2 ½ according to ISO 8501-1. 3.2) Roughness according to ISO 8503-5 with replica tape(50µm to 85 µm,) Carbon steel; 3.3) Presence of dust according to EN ISO 8502-3 rating 2 (max)	Visual Inspection Roughness Meter Adhesive tape	100% Every item Every Item Every Item	Reblasting Reblasting Reclining
4	**INSPECTION FOLLOWING BLAST CLEANING (SALT TEST)**	Painting Inspect. For each batch	Water soluble salt and chlorides contamination according to EN ISO 8502-6 and according to EN ISO 8502-9. Max conductivity corresponding to 20 mg/m^2 soluble salt	Bresle test	Spot checks	Repeat washing and retesting
5	**VISUAL EXAMINATIONS OF COATING**	Painting Inspect. For each batch	Detect surface Defects eg.: Curing; Contamination; Solvents; Pinholes/Popping; Sagging; Surface Defects, orange peel, fish eye, runs etc. No defect.	Visual Inspection	100% of surface after each coat	Repair of defects
6	**APPLICATION OF COATINGS** 6.1) Total coating thickness (DFT) 6.2 Adhesion Test (ISO 16276-1)	Painting Inspect. For each batch Adhesion Test Report	*Painting preparation* As per ISO 19840 and coating system data sheet Min. 5 MPA.	Gauge meter Internal equipment / min 3 dollies per panel after curing	Every item and each coat Spot checks	Repair, additional coats or recoating Coating to be rejected

ANNEX "A" – PAINTING INSPECTION CERTIFICATE –PAINTING CYCLE – DATA SHEETS –

rotork Fluid Systems	PAINTING CERTIFICATE	N.:

CUSTOMER	ORDER NUMBER	RFS JOB NUMBER	PAINTING CYCLE

SERIAL N°/ITEM:
REFERENCE DOCUMENTS:

SURFACE PREPARATION					ENVIRONMENTAL CONDITIONS Parameters 1= Ambient Temperature; 2= Steel Temp.; 3=Relative Umidity; 4=Dew Point							
TEST TYPE	DATE	Reference	Acceptance criteria	Result	START DATE:				FINISH DATE:			
GRIT TYPE:					1	2	3	4	1	2	3	4
VISUAL EXAMINATION/*CONTROLLO VISIVO*		ISO 8501-3	preparation grade P3									
BLASTING GRADE CHECK/*VERIFICA GRADO SABBIATURA*		ISO 8501-1 Grade SA	SA 2 1/2									
ASSESSMENT OF DUST/*VERIFICA PRESENZA POLVERE*		ISO 8502-3	max dust qu.ty rating 2									
SALT TEST/*VERIFICA GRADO SALINITA'*		ISO 8502-6 ISO 8502-9	Max soluble salt content 20 mg/m2									
ROUGHNESS TEST/*VERIFICA GRADO RUGOSITA'*		ISO 8503-5	50 ÷ 85 µm									

PAINTING

TEST TYPE / REQUESTED DATA	PRIMER COAT	INTERMEDIATE COAT 1° COAT	INTERMEDIATE COAT 2° COAT	TOP COAT
PRODUCT NAME *NOME DEL PRODOTTO*				
MANUFACTURER *PRODUTTORE*				
DATE OF APPLICATION *DATA APPLICAZIONE*				
APPLICATION METHOD *METODO DI APPLICAZIONE*				
AIR TEMPERATURE (°C) *TEMPERATURA DELL'ARIA (°C)*				
SURFACE STEEL TEMPERATURE (°C) *TEMPERATURA DEL PEZZO (°C)*				
RELATIVE MOISTURE *UMIDITA' RELATIVA*				
DEW POINT (°C) *PUNTO DI RUGIADA(°C)*				
WET FILM THICHNESS (µm) *SPESSORE DEL FILM UMIDO (µm)* MEASURED OUT *MISURATO*				
DRY FILM THICHNESS (µm) *SPESSORE DEL FILM SECCO (µm)* REQUIRED *RICHIESTO*				
DRY FILM THICHNESS (µm) *SPESSORE DEL FILM SECCO (µm)* MEASURED OUT *MISURATO*				

	Acceptance		Date	Result
VISUAL EXAMINATION/*CONTROLLO VISIVO*	No defects Final color			
FINAL DRY FILM THICKNESS (ISO 19840)/SPESSORE FINALE	Painting Cycle			
Adhesion Test / Prova di Adesione (ISO 16276-1)	min. 5 MPa			

Q.C.	INSPECTOR / THIRD PARTY	INSPECTOR / THIRD PARTY
Date:	Date:	Date:

ROTORK FLUID SYSTEMS
Painting Cycle Document

PAINTING CYCLE No.	PCB1EONRA7038-H
GENERIC SERVICE APPLICATION:	Offshore and coastal environment, non-insulated
ATMOSPHERIC CORROSION RESISTANCE ACCORDING TO ISO 12944	CX
SUPPORT TYPE:	CARBON STEEL/CAST IRON
SERVICE TEMPERATURE:	-50°C To + 80°C

SURFACE PREPARATION

GRADE OF CLEANLINESS ACCORDING TO ISO 8501-1	Sa 2-1/2
SURFACE ROUGHNESS CHARACTERISTICS OF BLAST-CLEANED STEEL SUBSTRATES ACCORDING TO ISO 8503-1 (min-max)	50µ 85µ
SOLUBLE SALTS LEVEL ACCORDING TO ISO 8502-6	Max 20mg/m^2 NaCl

PAINTING CYCLE

COAT	TYPE OF PAINT	NDFT (µm)
1	Zinc Rich Epoxy Primer (Avantguard 750)	60
2	High Build Epoxy (Hempaprime Multi 500)	180
3	UV-resistent topcoat (Hempathane HS 55610)	60
	Total NDFT	**300**

PRODUCT MANUFACTURER	HEMPEL
TOP COLOR:	RAL 7038
COMPLIANT WITH SPECIFICATION:	Norsok M501_2022, System 1B

NOTE

REV.	DATE	DESCRIPTION	ISSUED BY	APPROVED BY
0	14/02/2024	ISSUED FOR INTERNAL APPROVAL	Bernini	Barsotti
1	14/02/2024	APPROVED	Bernini	Maionchi

Hempadur Avantguard 750

Product characteristics

Description
Hempadur Avantguard 750 is an activated zinc-rich epoxy primer in compliance with the requirements of Level 2, type II in SSPC Paint-20, 2019 and ISO 12944 Part 5, 2018. The product is in full compliance with ASTM D520 type II and EU Directive 2004/42/EC, the Paints Directive on the limitation of volatile organic compounds: subcategory j.

Recommended use
Hempadur Avantguard 750 is recommended as a versatile primer for long-term protection of steel in severely corrosive environments including offshore.

Service temperature:
- Maximum, dry exposure only: 160°C [320°F].

Certificates / Approvals
- Meets requirements to NORSOK M-501 when used as part of a predefined paint system. Edition 6, system no. 1.
- Complies with the European Fire Standard EN 13501-1, reaction to fire classification, when used as part of a predefined paint system. B-s1, d0.

Features
- Reduces the effect of corrosion and provides excellent galvanic protection.
- Fast drying primer with short minimum overcoating intervals.
- Excellent mechanical strength, also in cyclic temperatures, with improved tolerance to high film thickness through high flexibility and self-healing effect.
- Superior tolerance to high relative humidity during application.
- Cures down to -10°C [14°F].

Product safety

Flash point 25°C [77°F]

VOC content mixed product

Legislation	Value	5% thinning, by volume	Limit value, phase II (2010)[a]
EU	330 g/L [2.75 lb/US gal]	356	500
US (coatings)	330 g/L [2.75 lb/US gal]		
US (regulatory)	330 g/L [2.75 lb/US gal]		
China	330 g/L [2.75 lb/US gal]		

VOC values may vary with shade, please consult the Safety Data Sheet, section 9. According to specific legislation, see details in the Explanatory Notes available at Hempel website, hempel.com or at your local Hempel website. [a]EU Directive 2004/42/CE.

Handling
Handle with care. Before and during use, observe safety labels on packaging and paint containers and follow all local and national safety regulations. Always consult Hempel's Safety Data Sheet for this product along with the Product Data Sheet.

For professional use only.

Product data

Product code
1736G

Product components
Base 1736U
Curing Agent 97043

Standard shade / code
Grey 19840

Gloss
Flat

Volume solids
65 ± 2%

Hempadur Avantguard 750

Specific gravity
2.3 kg/L [19 lb/US gal]

Reference dry film thickness
60 micron [2.4 mils]

Surface preparation

Cleanliness
- Remove oil, grease and other contaminants by suitable detergent cleaning.
- Remove salts, detergents and other contaminants by high pressure fresh water cleaning.

New build:
- Abrasive blasting to min. Sa 2½ (ISO 8501-1) / SP 10 (SSPC).
- Remove dust, blast media and loose materials.

Roughness
- Surface profile Medium (G) (ISO 8503-2).

Consult Hempel's separate Surface Preparation Guidelines for more details.

Application

Mixing ratio
Base 1736U : Curing Agent 97043
(8.5 : 1.5 by volume)

Products containing floating or settling particles/pigments need to be continuosly stirred during application. This is especially important in case of heavy thinning.

Thinner
Above 20°C [68°F] Hempel's Thinner 08450
Below 20°C [68°F] Hempel's Thinner 08510

Cleaner
Hempel's Tool Cleaner 99610

Pot life

Product temperature	0°C [32°F]	20°C [68°F]	40°C [104°F]
Pot life	5 hours	4 hours	1½ hours

Application method

Tool	Thinning max vol.	Application parameters
Airless spray	5%	Nozzle pressure: 220 bar [3200 psi] Nozzle orifice: 0.017-0.021"

If brush or roller application is used, more coats will be necessary to achieve the specified dry film thickness. Spray data are indicative and subject to adjustment. Pressure is for a material temperature of 20°C [68°F].

Film thickness

Specification range	Low	High	Recommended
Dry film thickness	40 micron [1.6 mils]	100 micron [3.9 mils]	60 micron [2.4 mils]
Wet film thickness	60 micron [2.5 mils]	150 micron [6 mils]	90 micron [3.5 mils]
Theoretical spreading rate	16 m²/L [650 sq ft/US gal]	6.5 m²/L [260 sq ft/US gal]	11 m²/L [450 sq ft/US gal]

Overthickness should be closely controlled and never locally exceed 200 micron [7.9 mils] DFT. On irregular surfaces it is recommended to employ special care in avoiding over application.

Application conditions
- Temperature of product must be above 15°C [59°F] during application.
- To avoid condensation, apply on a clean and dry surface with a temperature that is at least 3°C [5°F] above the dew point.
- Surface temperature must be above -10°C [14°F] during application and curing.
- Surface temperature must be below 40°C [104°F] during application and curing.

Relative Humidity:
- Relative humidity must be below 95% during curing.
- Relative humidity must be below 95% during application.

Hempadur Avantguard 750

Drying and overcoating

Product compatibility

- Previous coat: None.
- Subsequent coat: According to Hempel's Specification.

Drying time

Surface temperature		-10°C [14°F]	0°C [32°F]	20°C [68°F]	40°C [104°F]
Touch dry	min	50	30	10	5
Hard dry	hours	4½	3	1½	½

Determined for dry film thickness 60 micron [2.4 mils] at standard conditions, see Hempel's Explanatory Notes for details.

Overcoating

Hempel's specification supersedes any guidelines indicated in the overcoating table

Quality name		-10°C [14°F]	0°C [32°F]	20°C [68°F]	40°C [104°F]
Atmospheric medium					
Hempaprime Multi 500 Winter	Min	3 h	90 min	45 min	25 min
	Max	Ext*	Ext	Ext	Ext
Hempathane HS 55610	Min	3 h	90 min	45 min	25 min
	Max	56 d	42 d	14 d	3½ d
Atmospheric severe					
Hempaprime Multi 500 Winter	Min	3 h	90 min	45 min	25 min
	Max	90 d	90 d	30 d	7 d
Hempathane HS 55610	Min	3 h	90 min	45 min	25 min
	Max	20 d	15 d	5 d	28 h

Overcoating times are indicative for products of the same generic chemistry. Consult Hempel's specification for more information.

Drying conditions

- To obtain the drying time stated, it is important to maintain sufficient ventilation during application, drying and curing.

Overcoating details

- If the maximum overcoating interval is exceeded, roughening of the surface is necessary to ensure intercoat adhesion.
- Remove zinc salts or other contamination before overcoating.
- The surface must be dry and clean prior to application.

Other remarks

- Hempel's Specification supersedes any recommendations given in the Product Data Sheets.

Storage

Shelf life

Ambient temperature	25°C [77°F]
Base	12 months
Curing Agent	36 months

Shelf life from date of production, when stored in original, unopened containers. Thereafter, the product quality must be re-inspected. Storage at elevated temperatures may reduce shelf life. For advice, please consult Hempel.

Storage conditions

- Product must be stored according to local legislation, at maximum 40°C [104°F], without direct sunlight and protected from rain and snow.

Carbon Footprint

Dry film thickness	1 µm	1 mil
GWP (Global Warming Potential)	18.9 g CO_2e/m^2	0.098 lb CO_2e/ft^2

The carbon footprint is for 1 square meter / square foot of surface area with a dry film thickness of 1 micron / mil.

The scope includes raw materials, in-bound transport to the Hempel factory, Hempel manufacturing processes, and any Volatile Organic Compounds emitted during and after the application of the product.

Hempadur Avantguard 750

It is calculated based on the standard shade defined in this PDS. Values may vary with shade.

Additional documents

Additional information is available at the Hempel website https://www.hempel.com/service-and-support/technical-guidelines or at your local Hempel website:

- Explanatory Notes for Product Data Sheet.
- Application methods.
- Substrates.
- Surface Preparation.
- Application Instruction for this product.
- Repair & maintenance.
- Inspection & quality control.

This Product Data Sheet ("**PDS**") relates to the supplied product ("**Product**") and is subject to updating from time-to-time. Accordingly, the buyer/applicator should have regard to the PDS supplied together with the relevant batch of the Product (and not an earlier version). In addition to the PDS, the buyer/applicator may receive some or all of the following specifications, statements and/or guidelines as listed below or as are available from the Hempel website under 'Products' at www.hempel.com (the "**Additional documents**"):

No.	Document description	Location/comments
1.	Technical Statement	One-off specific advice provided on request for specific projects
2.	Specification	Only issued for specific projects
3.	PDS	This document
4.	Explanatory Notes to the PDS	Available at www.hempel.com and contain relevant information about the Product testing parameters
5.	Application Instruction	Where available, at www.hempel.com
6.	Generic technical guidelines (e.g. on application and surface preparation)	Where available, at www.hempel.com

In the event of a conflict of information between the PDS and the Additional documents, the order of priority of information shall be in the order as set out above. In such event you should also contact your representative at Hempel for clarification. Furthermore, the buyer/applicator must have full regard to the relevant Safety Data Sheet provided with each Product and which can also be downloaded from www.hempel.com.

Hempel shall not be liable for defects where the application of the Product has not been made fully in accordance with the recommendations and requirements set out in the relevant PDS and the Additional Documents. The information and terms of this disclaimer apply to this PDS, the Additional documents and any other documents supplied by Hempel in respect of the Product. In addition, the Product is supplied and all technical assistance is given subject to Hempel's General Conditions of Sale, Delivery and Service, unless otherwise expressly agreed in writing.

Hempaprime Multi 500

Product characteristics

Description
Hempaprime Multi 500 is a fast drying, high solids epoxy paint. It provides hard wearing and long lasting barrier protection in coating systems for severe corrosive environments. The product meets the requirements of ISO 12944 Part 5, 2019 when used as part of a predefined paint system.

Recommended use
Hempaprime Multi 500 is recommended as a high-build, intermediate coat in high performance coating systems where fast handling and short overcoating times are required. Due to its fast drying - up to twice as fast as comparable products - the product is excellent for projects where fast throughput is key. The product can also be used as a self-priming, surface tolerant coat and a finishing coat in heavy-duty coating systems. Suited for application down to 10°C [50°F]. The product is available in several MIO shades such as 18021 and 18061; both with 80% MIO content. The volume solids % for MIO shades is 77 ± 2.

Service temperature:
- Maximum, dry exposure only: 120°C [248°F].

Certificates / Approvals
- Meets requirements to ISO 12944 when used as part of a predefined paint system. Part 6, Im2; Part 9, CX.
- Meets requirements to NORSOK M-501 when used as part of a predefined paint system. Edition no. 6, System 1.

Features
- Fast overcoating.
- Crack resistant in high film thickness.
- Low VOC.
- Ready to use - optimised application properties.
- Surface tolerant.

Product safety

Flash point 25°C [77°F]

VOC content mixed product

Legislation	Value
EU	196 g/L [1.64 lb/US gal]
US (coatings)	196 g/L [1.64 lb/US gal]
US (regulatory)	196 g/L [1.64 lb/US gal]
China	196 g/L [1.64 lb/US gal]

According to specific legislation, see details in the Explanatory Notes available at Hempel website, hempel.com or at your local Hempel website. VOC values may vary with shade, please consult the Safety Data Sheet, section 9.

Handling
Handle with care. Before and during use, observe safety labels on packaging and paint containers and follow all local and national safety regulations. Always consult Hempel's Safety Data Sheet for this product along with the Product Data Sheet.

For professional use only.

Product data

Product code
45950

Product components
Base 45959
Curing Agent 95090

Standard shade* / code
Brownish red 50630 **

Gloss
Semi-gloss

Volume solids
85 ± 2%

Specific gravity
1.4 kg/L [12 lb/US gal]

Reference dry film thickness
150 micron [5.9 mils]

* Other shades are available, please contact your local Hempel representative.
** Slight discolouration may occur. This does not affect the performance of the coating.

Hempaprime Multi 500

Micaceous iron oxide (MIO) shade / code
Metallic grey 12430

Gloss
Semi-gloss

Volume solids
85 ± 2%

Specific gravity
1.6 kg/L [14 lb/US gal]

Reference dry film thickness
150 micron [5.9 mils]

Surface preparation

Cleanliness
- Remove oil, grease and other contaminants by suitable detergent cleaning.
- Remove salts, detergents and other contaminants by high pressure fresh water cleaning.

New build:
- Abrasive blasting to min. Sa 2½ (ISO 8501-1) / SP 10 (SSPC).
- Remove dust, blast media and loose materials.
- Concrete: According to Hempel's Specification.

Maintenance and Repair
- Spot abrasive blasting to min. PSa 2 (ISO 8501-2) / SP 6 (SSPC).
- Minor areas may be hand or power tool cleaned instead of abrasive blasting.
- Water jetting to min. Wa 2 (ISO 8501-4).
- Flash rust degree of maximum FR M (ISO 8501-4).
- Remove dust, blast media and loose materials.

Roughness
- Surface profile Medium (G) (ISO 8503-2).

Consult Hempel's separate Surface Preparation Guidelines for more details.

Application

Mixing ratio
Base 45959 : Curing Agent 95090
(4 : 1 by volume)

Stir well before use.

Thinner
Hempel's Thinner 08450

Cleaner
Hempel's Tool Cleaner 99610
Hempel's Thinner 08450

Pot life

Product temperature	10°C [50°F]	20°C [68°F]	30°C [86°F]
Pot life	2½ hours	1 hour	½ hours

Application method

Tool	Thinning max vol.	Application parameters
Airless spray	5%	Nozzle pressure: 225 bar [3300 psi] Nozzle orifice: 0.019-0.023"
Brush/Roller	5%	Not Applicable.

Spray data are indicative and subject to adjustment. Pressure is for a material temperature of 20°C [68°F].

Film thickness

Specification range	Low	High	Recommended
Dry film thickness	100 micron [3.9 mils]	250 micron [10 mils]	150 micron [5.9 mils]
Wet film thickness	120 micron [5 mils]	300 micron [12 mils]	175 micron [7 mils]
Theoretical spreading rate	8.5 m²/L [350 sq ft/US gal]	3.4 m²/L [140 sq ft/US gal]	5.6 m²/L [230 sq ft/US gal]

Product may be specified in another film thickness than indicated depending on purpose and area of use. This will alter spreading rate, drying and curing time and overcoating interval. For best performance, avoid excessive film thickness.

Hempaprime Multi 500

Application conditions
- Optimal paint temperature for proper mixing, pumping and spraying is: 20°C [68°F].
- To avoid condensation, apply on a clean and dry surface with a temperature that is at least 3°C [5°F] above the dew point.
- Surface temperature must be above 10°C [50°F] during application and curing.

Application remarks
- Product requires heavy duty spray equipment; spray hoses shall be as short as possible.

Drying and overcoating

Product compatibility
- Previous coat: None or according to Hempel's specification.
- Subsequent coat: None or according to Hempel's specification. Recommended products are: Hempadur, Hempaprime, Hempathane

Drying time

Surface temperature		10°C [50°F]	20°C [68°F]	30°C [86°F]	40°C [104°F]
Touch dry	hours	2½	1	⅔	⅓
Surface dry	hours	5½	2½	1	½
Hard dry	hours	8	3½	1½	¾

Determined for dry film thickness 150 micron [5.9 mils] at standard conditions, see Hempel's Explanatory Notes for details.

Overcoating

Hempel's specification supersedes any guidelines indicated in the overcoating table

Quality name		10°C [50°F]	20°C [68°F]	30°C [86°F]	40°C [104°F]
Atmospheric medium					
Hempaprime Multi 500	Min	7 h	3 h	2 h	90 min
	Max	Ext*	Ext	Ext	Ext
Hempathane HS 55610	Min	7 h	3 h	2 h	90 min
	Max	Ext*	Ext	Ext	Ext

Overcoating times are indicative for products of the same generic chemistry. Consult Hempel's specification for more information.

Drying conditions
- To obtain the drying time stated, it is important to maintain sufficient ventilation during application, drying and curing.
- According to Hempel's Specification.

Overcoating details
- If the maximum overcoating interval is exceeded, roughening of the surface is necessary to ensure intercoat adhesion.
- The surface must be dry and clean prior to application.

Other remarks
- Epoxy coats have an inherent tendency of chalking in outdoor exposure. This does not affect the performance of the coating.
- Hempel's Specification supersedes any recommendations given in the Product Data Sheets.

Storage

Shelf life

Ambient temperature	25°C [77°F]	35°C [95°F]
Base	24 months	16 months
Curing Agent	24 months	16 months

Shelf life from date of production, when stored in original, unopened containers. Thereafter, the product quality must be re-inspected. Always check the best before date or expiry date on the label.

Storage conditions
- Product must be stored according to local legislation, at maximum 40°C [104°F], without direct sunlight and protected from rain and snow.

Hempaprime Multi 500

Additional documents

Additional information is available at the Hempel website hempel.com or at your local Hempel website:

- Explanatory Notes explaining the fields in this Product Data Sheet.
- Surface Preparation Guidelines.
- Application Guidelines for different application methods.
- General Application Guidelines

This Product Data Sheet ("**PDS**") relates to the supplied product ("**Product**") and is subject to updating from time-to-time. Accordingly, the buyer/applicator should have regard to the PDS supplied together with the relevant batch of the Product (and not an earlier version). In addition to the PDS, the buyer/applicator may receive some or all of the following specifications, statements and/or guidelines as listed below or as are available from the Hempel website under 'Products' at www.hempel.com (the "**Additional documents**"):

No.	Document description	Location/comments
1.	Technical Statement	One-off specific advice provided on request for specific projects
2.	Specification	Only issued for specific projects
3.	PDS	This document
4.	Explanatory Notes to the PDS	Available at www.hempel.com and contain relevant information about the Product testing parameters
5.	Application Instruction	Where available, at www.hempel.com
6.	Generic technical guidelines (e.g. on application and surface preparation)	Where available, at www.hempel.com

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Hempathane HS 55610

Product characteristics

Description
Hempathane HS 55610 is a glossy polyurethane topcoat, cured with aliphatic isocyanate. The product has good gloss and colour retention and contains zinc phosphate.
Complies with EU Directive 2004/42/EC, The Paints Directive on the limitation of volatile organic compounds: subcategory j.

Recommended use
Hempathane HS 55610 is recommended as VOC compliant, high-build finishing coat for protection of structural steel in severely corrosive environment. The product may be specified as a one coat "direct to metal" system in environments classified as C2 and C3.

Service temperature:
- Maximum, dry exposure only: 120°C [248°F].

Certificates / Approvals
- EC-type examined as a low flame spread material when used as part of a predefined paint system. Please refer to “Declaration of Conformity” on hempel.com for further details.
- The following shades are formulated with special electrical conductive pigments that makes it possible to design paint systems that meet the requirements in ISO 80079-36:2016 Explosive atmospheres (ATEX): 95000

Features
- For severely corrosive atmospheric environment.
- Direct-to-metal in C2 and C3 environments.
- Glossy with good gloss and colour retention.
- High volume solids and VOC-compliant.
- The minimum temperature for curing is -10°C [14°F].

Product safety

Flash point 31°C [88°F]

VOC content mixed product

Legislation	Value	5% thinning, by volume	Limit value, phase II (2010)[a]
EU	343 g/L [2.86 lb/US gal]	366 g/L [3.05 lb/US gal]	500 g/L [4.17 lb/US gal]
US (coatings)	320 g/L [2.67 lb/US gal]	-	-
US (regulatory)	343 g/L [2.86 lb/US gal]		
China	343 g/L [2.86 lb/US gal]		
Hong Kong	320 g/L [2.67 lb/US gal]		

According to specific legislation, see details in the Explanatory Notes available at Hempel website, hempel.com or at your local Hempel website. VOC values may vary with shade, please consult the Safety Data Sheet, section 9. [a]EU Directive 2004/42/CE. According to EPA Method 24.

Handling
Handle with care. Before and during use, observe safety labels on packaging and paint containers and follow all local and national safety regulations. Always consult Hempel’s Safety Data Sheet for this product along with the Product Data Sheet.

For professional use only.

Product data

Product code
55610

Product components
Base 55619
Curing Agent 97050

Standard shade* / code
White 10000 **

Gloss
Glossy

* Wide range of colours is available via Hempel’s Multi-Tint® system.
** Colour stability may be affected by exposure to harsh chemical and/or high temperatures.

Hempathane HS 55610

Volume solids
67 ± 2%

Specific gravity
1.4 kg/L [12 lb/US gal]

Reference dry film thickness
80 micron [3.1 mils]

Aluminium shade / code
Aluminium grey 19002

Gloss
Please consult Hempel's Guideline on aluminium pigmented coatings.

Volume solids
58 ± 2%

Specific gravity
1.1 kg/L [10 lb/US gal]

Reference dry film thickness
80 micron [3.1 mils]

Surface preparation

Cleanliness
- Remove oil, grease and other contaminants by suitable detergent cleaning.
- Remove salts, detergents and other contaminants by high pressure fresh water cleaning.

New build:
- Abrasive blasting to min. Sa 2½ (ISO 8501-1) / SP 10 (SSPC).
- Remove dust, blast media and loose materials.

Maintenance and Repair
- Abrasive blasting to min. Sa 2 (ISO 8501-1) / SP 6 (SSPC).
- Minor areas may be hand or power tool cleaned instead of abrasive blasting.
- Water jetting to Wa 2½ (ISO 8501-4).
- Flash rust degree of maximum FR M (ISO 8501-4).
- Remove dust, blast media and loose materials.

Roughness
- Surface profile Medium (S) (ISO 8503-2).

Consult Hempel's separate Surface Preparation Guidelines for more details.

Application

Mixing ratio
Base 55619 : Curing Agent 97050
(7 : 1 by volume)

Stir well before use.

Thinner
Hempel's Thinner 08080

Cleaner
Hempel's Thinner 08080

Pot life

Product temperature	10°C [50°F]	20°C [68°F]	30°C [86°F]
Pot life	3½ hours	2 hours	1 hour

Application method

Tool	Thinning max vol.	Application parameters
Airless spray	5%	Nozzle pressure: 175 bar [2500 psi] Nozzle orifice: 0.017-0.021"

If brush or roller application is used, more coats will be necessary to achieve the specified dry film thickness. Never thin more than allowed according to local environmental legislation. Spray data are indicative and subject to adjustment. Pressure is for a material temperature of 20°C [68°F].

Hempathane HS 55610

Film thickness

Specification range	Low	High	Recommended
Dry film thickness	50 micron [2.0 mils]	125 micron [4.9 mils]	80 micron [3.1 mils]
Wet film thickness	75 micron [3 mils]	190 micron [7 mils]	120 micron [5 mils]
Theoretical spreading rate	13 m²/L [530 sq ft/US gal]	5.3 m²/L [220 sq ft/US gal]	8.3 m²/L [340 sq ft/US gal]

For best performance, avoid excessive film thickness.

Application conditions

- To avoid condensation, apply on a clean and dry surface with a temperature that is at least 3°C [5°F] above the dew point.
- Surface temperature must be above -10°C [14°F] during application and curing.
- Beware of ice on the surface at low temperatures.
- The film formation may be adversely affected by light rain, high humidity and/or condensation during application and the following interval after application: “8 hours, 20°C/68°F”.
- Optimal spraying properties are obtained at paint temperatures of 15-30°C [59-86°F]. Beyond these temperatures additional thinning may be necessary.

Relative Humidity:

- Relative humidity must be below 85% during curing.
- Relative humidity must be below 85% during application.

Drying and overcoating

Product compatibility

- Previous coat: According to Hempel’s Specification. Recommended products are: Hempaprime Multi 500 45950/3, Hempadur Quattro series, Hempadur Avantguard series.
- Subsequent coat: None.

Drying time

Surface temperature		10°C [50°F]	20°C [68°F]	30°C [86°F]
Touch dry	min	120	90	60
Surface dry	hours	11	3½	2
Hard dry	hours	12	5	3
Fully cured	days	-	7	-

Determined for dry film thickness 80 micron [3.1 mils] at standard conditions, see Hempel’s Explanatory Notes for details.

Overcoating

Hempel’s specification supersedes any guidelines indicated in the overcoating table

Quality name		-10°C [14°F]	10°C [50°F]	20°C [68°F]	30°C [86°F]
Atmospheric medium					
Hempathane HS 55610	Min	30 h	9 h	6 h	3 h
	Max	Ext*	Ext	Ext	Ext

Overcoating times are indicative for products of the same generic chemistry. Consult Hempel’s specification for more information.

Drying conditions

- To obtain the drying time stated, it is important to maintain sufficient ventilation during application, drying and curing.
- Condensation on the freshly applied coating should be avoided.

Overcoating details

- The surface must be dry and clean prior to application.

Other remarks

- Hempel’s Specification supersedes any recommendations given in the Product Data Sheets.

Hempathane HS 55610

Storage

Shelf life

Ambient temperature	25°C [77°F]
Base	36 months
Curing Agent	24 months

Shelf life from date of production, when stored in original, unopened containers. Thereafter, the product quality must be re-inspected. Storage at elevated temperatures may reduce shelf life. For advice, please consult Hempel.

Storage conditions

- Product must be stored according to local legislation, at maximum 40°C [104°F], without direct sunlight and protected from rain and snow.
- The curing agent is sensitive to moisture. Store in a dry place and keep the can tightly closed until use.

Additional documents

Additional information is available at the Hempel website https://www.hempel.com/service-and-support/technical-guidelines or at your local Hempel website:

- Explanatory Notes for Product Data Sheet.
- Application methods.
- Surface Preparation.
- Application Instruction for this product.
- Aluminium pigmented topcoats.

This Product Data Sheet ("**PDS**") relates to the supplied product ("**Product**") and is subject to updating from time-to-time. Accordingly, the buyer/applicator should have regard to the PDS supplied together with the relevant batch of the Product (and not an earlier version). In addition to the PDS, the buyer/applicator may receive some or all of the following specifications, statements and/or guidelines as listed below or as are available from the Hempel website under 'Products' at www.hempel.com (the "**Additional documents**"):

No.	Document description	Location/comments
1.	Technical Statement	One-off specific advice provided on request for specific projects
2.	Specification	Only issued for specific projects
3.	PDS	This document
4.	Explanatory Notes to the PDS	Available at www.hempel.com and contain relevant information about the Product testing parameters
5.	Application Instruction	Where available, at www.hempel.com
6.	Generic technical guidelines (e.g. on application and surface preparation)	Where available, at www.hempel.com

In the event of a conflict of information between the PDS and the Additional documents, the order of priority of information shall be in the order as set out above. In such event you should also contact your representative at Hempel for clarification. Furthermore, the buyer/applicator must have full regard to the relevant Safety Data Sheet provided with each Product and which can also be downloaded from www.hempel.com.

Hempel shall not be liable for defects where the application of the Product has not been made fully in accordance with the recommendations and requirements set out in the relevant PDS and the Additional Documents. The information and terms of this disclaimer apply to this PDS, the Additional documents and any other documents supplied by Hempel in respect of the Product. In addition, the Product is supplied and all technical assistance is given subject to Hempel's General Conditions of Sale, Delivery and Service, unless otherwise expressly agreed in writing.

04: Manufacturing Records and Procedures

Valve Painting procedure

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Base Load Power Hub (BLPH)

SDV/BDV AND TIGHT SHUT-OFF XV VALVES

VALVES SURFACE PREPARATION AND PAINTING PROCEDURES

Document Number:1724000204-MAT-PRO-00009

Document Class: 2

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
Michele Sacchi	19/08/2024

Rev.	Date	Description	Prepared	Reviewed	Approved
02	05/08/2024	Accepted for Construction (AFC)	M. Mariani	L. Patelli	F. Buttironi
01	24/07/2024	Issue for Review (IFR)	M. Mariani	L. Patelli	F. Buttironi
00	22/05/2024	Issue for Review (IFR)	L. Patelli	M. Rocchetti	F. Buttironi

Fluitek Valves

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PAINTING PROCEDURE

Table of contents

1.SCOPE **3**

2.REFERENCE **3**

3. SURFACE PREPARATION **3**

3.1 DESIGN AND PREPARATION BEFORE BLASTING **3**

3.2 BLAST CLEANING OF STEINLESS AND DUPLEX STEEL **3**

4 PAINT APPLICATION **4**

5 REPAIRS AND TOUCH UP PAINTING **5**

6 PAINTING AND COATING SYSTEMS **6**

7 INSPECTION **6**

8 PAINTER QUALIFICATION **8**

9 PAINT CYCLE **9**

10 PAINT REPORT SAMPLE **10**

11 PAINTING MATRIX **11**

12 DATASHEET **13**

1	11/07/2024	As per comments	M. MARIANI	L. PATELLI	F. BUTTIRONI
0	20/05/2024	First issue	L.PATELLI	M.ROCCHETTI	F.BUTTIRONI
Rev.	**Date**	**Modifications**	**Issued**	**Verified**	**Approved**

1.SCOPE

The scope of this specification is to provide minimum requirements for external coating of both onshore and offshore facilities in the oil and gas.

2.REFERENCE

123A90-DDL-MAT-SP-60006- Coating and Painting specification
Norsok M-501 : 2022

3. SURFACE PREPARATION

3.1 DESIGN AND PREPARATION BEFORE BLASTING

All structures and equipment shall be designed according to ISO 12944 international standard for high durability paint systems. All sharp edges shall be rounded (minimum radius > 2 mm).

The design of the item to be painted shall be such that it creates no interstice and inaccessible area. All oil or grease shall be removed by washing the item to be painted with appropriate solvents or any other suitable means before beginning blast-cleaning operations. This includes bolt holes in piping assemblies.

All mating surfaces of equipment subject to outdoor exposure shall be coated with the full coating system prior to assembly (saddles, skirts, base plates, bolted components, flanges, etc.). Special attention shall be paid to avoid splashes of zinc paint on equipment made of austenitic steel.

Abrasive blasting shall not proceed if:

1) Temperature of the substrate is less than 3 °C above the dew point

2) The relative humidity is more than 85 % RH

3) The weather is rainy or foggy, except under shelter, and subject to verification of the atmospheric conditions

Contractor shall keep a daily record of the dew point, relative humidity, ambient atmosphere and substrate temperatures (all measured before the work commences and twice per shift and when ambient conditions are obviously changing) to ensure that conditions are acceptable.

These records shall be kept and made available.

3.2 BLAST CLEANING OF STEINLESS AND DUPLEX STEEL

All surfaces to be coated shall be blast-cleaned according to:

1) The grade of cleanliness (ISO 8501 standard)

2) The surface profile Ra (ISO 8503 standard: roughness meter with adapted cut-off or visiotactile surface profile comparator) specified for each system.

3) On stainless steels and duplex substrates, only non-metallic abrasives in compliance with ISO 11126-1-10 shall be used.

After blast-cleaning, all dust must be removed using a vacuum cleaner before application of the paint (ISO 8502 – 3). All blast-cleaned surfaces shall be coated before the deterioration of the “grade of cleanliness”. In any case, any surface that has been blast-cleaned shall be coated on the same day. Before painting work commences, checks for the contamination of the surface by salts shall be performed (ISO 8502 – 6 & 9).

4 PAINT APPLICATION

4.1 GENERAL

Paint shall always be applied to surfaces that are dry, clean and degreased, for both coating on substrate and previous coat.

Painting work shall not proceed if:

1) Temperature of the substrate is less than 3 °C above the dew point

2) The relative humidity is more than 85 % RH (90 % RH for inorganic zinc silicates)

3) The weather is rainy or foggy, except under shelter, and subject to verification of the atmospheric conditions

4) The minimum or maximum temperature of the ambient atmosphere and the substrate are within the limits given in the product data sheets (usually 10 °C for epoxy based paint).

Contractor shall keep a daily record of the dew point, relative humidity, ambient atmosphere and substrate temperatures (all measured before the work commences and twice per shift and when ambient conditions are obviously changing) to ensure that conditions are acceptable.
These records shall be kept and made available.

Application shall be by airless spray.
Stripe coats shall be applied by brush to all angles, corners, sharp edges, bolt or rivet heads, etc., with the same product as this to be applied on the surface to be painted. The only exception is inorganic zinc silicates where stripe coats shall be applied using the repair system primer, i.e. zinc rich epoxy.

Different colours shall be used for all successive coats of the paint system. The finishing coat of the required colour shall be sufficiently opaque to cover the shade of the undercoat.

The thickness of each coat, including frequency and tolerance shall be checked by the Contractor according to ISO 19840. The values shall be recorded and made available.

4.2 SPRAY APPLICATION

Paints shall be applied by Air Spray or Airless Spray.

Hose and containers shall be thoroughly cleaned before addition of new materials. The spray gun shall be held no closer than 200 mm or more than 600 mm from the surface to be coated. During application the spray gun shall always be held at a right angle to the substrate. Each pass shall overlap the previous one by 50 percent. In order to achieve a uniform application, I when large surface areas are being coated, spray application shall be made in two directions so that the passes are at right angles to each other Le. cross spray at 50% over lapping. Pressures and spray fan shall be adjusted so that the optimum spray pattern is utilised for the surface being coated.

4.3 BRUSH APPLICATION

Application with brush is acceptable under the following conditions subject to Owner approval:

- When areas cannot be properly coated by spray for any reason.
- When spray application is difficult due to location of work accessibility.
- Above ground level when it is considered that loss of paint under prevailing conditions is excessive e.g. windy and progress of work has to be maintained and personnel in or near the work site or equipment property, may be affected by spray particles.
- For touch-up or repair of localised damaged paint or to areas of incorrectly applied paint.
- For painting of stripe coat e.g. when applying the initial coat of paint to corners, edges, crevices, holes, welds or other irregular surface prior to spray application.
- When the substrate material to be applied are suitable for brush application.
- The number of coats shall be adjusted to the dry film thickness to match.

Paint brushes used shall be of a style and quality that will permit appropriate application of the material being applied.

Material applied by brush shall be smooth, uniform in thickness, without any apparent surface defects such as brush marks, runs, sags, or curtains.

4.4 ROLLER APPLICATION

Roller application shall only be used with written approval from the Owner.

Roller application may be used only when:

- Spraying is not feasible.
- Primer coat is applied by brush.
- Paint application by roller method is acceptable to paint manufacturer and is in accordance with the application data.

5 REPAIRS AND TOUCH UP PAINTING

5.1 GENERAL

Any defect shall be repaired before the application of further coats. Subject to the agreement of COMPANY, and after determining the type and size of the defects, the following methods of repair shall be applied

5.2 MAJOR DEFECTS

The paint shall be removed completely by abrasive blast-cleaning and the entire system shall be reapplied.

5.3 MINOR DEFECTS (localized appearance, mechanical damage, scratches, etc.)

Subject to the agreement of the Supplier of the product, the system shall be removed by localized blast-cleaning, the edges of the sound coating shall be feathered back about 50 mm, and the repair system shall be applied.

6 PAINTING AND COATING SYSTEMS

The coating systems to be used are:

- SYSTEM 6A (PC 0301)

7 INSPECTION

7.1 PAINTING INSPECTION

Prior to surface preparation, during surface and paint application Contractors' Quality Control department shall check the following points and record the results in its quality control report.

Raw materials and conditions for storage:

1) Data sheets of the products, shelf life, storage requirements
2) Storage under shelter

Construction quality:

1) Rounding of corners, sharp edges to 2 mm radius minimum

Climatic conditions for surface preparation and coating application:

1) Temperature of substrate at least 3 °C above dew point
2) Maximum humidity 85 % RH (90 % for the application of inorganic zinc silicates)
3) For paint application, ambient temperature >10 °C for epoxy

Surface preparation quality:

1) Grade of cleanliness: Sa 2 ½ according to ISO 8501
2) Cleanliness: no grease or oil, dust level 2 maximum according to ISO 8502-3
3) Anchoring profile: G medium according to ISO 8502
4) Contamination including chlorides: according to ISO 8502-6 and 9, 20 mg/m² maximum.

Coating quality:

Testings and inspections shall be carried out as per table below:

Test type	Method	Frequency	Acceptance criteria	Consequence
Environmental conditions	Ambient and steel temperature. Relative humidity. Dew point.	Before start of each shift + minimum twice per shift.	In accordance with specified requirements	No blasting or coating
Visual examination	Visual for sharp edges weld spatter slivers, rust grade, etc. ISO 8501-3	100 % of all surfaces	No defects, see specified requirements	Defects to be repaired
Cleanliness	a) ISO 8501-1 b) ISO 8502-3	a) 100 % visual of all surfaces b) Spot checks	a) In accordance with specified requirements b) Maximum quantity and size rating 2	a) Reblasting b) Recleaning and retesting until acceptable
Salt test	ISO 8502-6 and ISO 8502-9	Spot checks	Maximum conductivity corresponding to 20 mg/m^2 NaCl	Repeated washing with potable water and retesting until acceptable
Roughness	Comparator, stylus instrument or testex tape (see ISO 8503)	Each component or once per 10 m^2	As specified	Reblasting
Curing test (for Zn silicate).	ASTM D4752	Each component or once per 100 m^2	Rating 4 to 5	Allow to cure
Visual examination of coating	Visual to determine curing, contamination, solvent retention, pinholes/popping, sagging and surface defects	100 % of surface after each coat	According to specified requirements	Repair of defects
Holiday detection	ISO 29601. Voltage, see table 1	As per coating system specification	No holidays	Repair and retesting.
Film thickness	ISO 19840. Calibration on a smooth surface	ISO 19840	ISO 19840, and coating system data sheet	Repair, additional coats or recoating as appropriate
Adhesion	ISO 4624, using equipment with an automatic centred pulling force, and carried out when coating system are fully cured	Spot checks	See notes below	Coating to be rejected

NOTE 1 For coating system no. 2 A, adhesion during CPT shall be minimum 9,0 MPa. Adhesion measured during production shall be minimum 7,0 MPa for any single measurement.

NOTE 2 For coating system no. 3A, system no. 3C, system no. 3D, system no. 3E, system no. 3F and system no. 3G, maximum 30 % reduction from the CPT is acceptable. Absolute minimum value is 5 MPa.

NOTE 3 For sprayed on passive fire protection, maximum 50 % reduction from CPT value read as cohesion is acceptable. Absolute minimum values are 2,0 MPa for cement based products and 5,0 MPa for epoxy based products. Epoxy based passive fire protection may be used to glue the test dollies to the primer in order to measure the adhesive strength.

NOTE 4 For the remaining coating systems, 50 % reduction of average adhesion value from the CPT is acceptable as minimum adhesion during production coating. Absolute minimum value is 5 MPa.

NOTE 5 For adhesion test during CPT, glue failure with values below 15 MPa is not accepted. X-cut test can be used as a supplementary test for adhesion, when relevant.

NOTE 6 Spot checks shall be defined and agreed on before start of each project and included in the inspection and test plan (ITP).

8 PAINTER QUALIFICATION

PAINTING INSPECTOR

- NACE International Coating Inspector Training and Certificate Program Level **III** is considered acceptable for qualification of painting inspector .
  FROSIO, the Norwegian Professional Council for education and Certification of inspector for Surface Treatment Level III, is considered acceptable for qualification of Painting inspector.

PAINTER QUALIFICATION

- All Painters shall demonstrate ability and knowledge of pertinent items of this procedure by successfully executing a written test and performing related tasks using approved procedures (skill test).

9 PAINT CYCLE

System 6A

Fluitek Valves	**PAINTING PROCEDURE PC 0301**	PAG 1 DI 1 REV 00

GENERAL SERVICE APPLICATION	Stainless steel surfaces
SCOPE	Painting of carbon steel valves according to Spec. 123A90-DDL-MAT-SP-60006 system 6A
TEMPERATURE RESISTANCE	-50°C To +80°C
SURFACE PREPARATION	CLEANLINESS: Sweep blast, Ref SSPC-SP16 ROUGHNESS: ISO 8503 GRADE MEDIUM G. - Anchor profile 25-85 microns

N° of coats	Type of PROCESS	Manufacturer	Product	Film Thickness
1st Coat	Epoxy Primer	INTERNATIONAL	INTERGARD 269	50 microns
2rd Coat	Epoxy Polyamine	INTERNATIONAL	INTERGARD 475HS	100 microns
3rd Coat	Polyurethane	INTERNATIONAL	INTERTHANE 990	75 microns
MINIMUM TOTAL DRY FILM THICKNESS:		225 microns		
FINAL COLOR: RAL 9002				

NOTES :
Application temperature drying times and other physical data of paint as per manufacturer specifications.

FLUITEK ORSENIGO VALVES S.r.l.
Documento Distribuito ed autenticato in forma elettronica
Document distributed and certified through electronic system

00	20/05/2024	ISSUED FOR APPROVAL	PATELLI L.
REV	**Data**	**Note**	**Emesso da:**

10 PAINT REPORT SAMPLE

CATTANEO GIOVANNI VERNICIATURE — IAS Cert. N. 0-0845 — TSA REPORT 586-23 25/07/2023 — FROSIO — AHPP MEMBER

Customer:		Purchaser:		Project:	

Purchaser Order No.:		JOB n°:	
Paint Procedure:		Paint System:	
Article:		Qty:	

com											
cv											
Qty											

ENVIRONMENTAL CONDITIONS:

Activity	BLASTING	COAT 1	COAT 2	COAT 3	COAT 4
Start date					
Time					
Steel temperature [°C]					
Air temperature [°C]					
Relative humidity [%]					
Dew point [°C]					
Blotter test acc. To ASTM D4285					

SURFACE PREPARATION METHOD:

Cleaning type	
Blasting standard	
Grit type	

SURFACE PREPARATION TEST RESULT:

Test type	Date	Required	Result
Soluble salt (ISO8502-6/9)			
Residual dust (ISO8502-3)			
Surface cleanliness			
Surface roughness (ISO 8503-2) comparator			
Surface roughness (ISO 8503-5) replica tape			
Mek test (ASTM D4752)			

COATING MATERIALS:

COAT N.	1	2	3	4
Paint supplier				
Coating brand name				
Batch no. / A				
Batch no. / B				
Expiration date				
Colour				
Application method				
Minimum DFT	µm	µm	µm	µm
Medium DFT	µm	µm	µm	µm
Required DFT	µm	µm	µm	µm

COATING ACCEPTANCE TEST:

Test type	Date	Required	Result
Visual appearance			
Final colour			
Total DFT (ISO 19840)			
Adhesion test:			

Tested by:	Approved by:	Painter:	Customer Inspector:

Cattaneo Giovanni Verniciature Via G.Galilei 52 . Trescore Balneario (BG) 24069 ITALY . P.Iva 02905530161 www.cattaneoverniciature.it - cattaneo.qualitycontrol@outlook.com - Ph: +39 035942656

SJB VERNICIATURA

PAINTING CERTIFICATE

Customer:	Date:	Report N°:
Customer Project:	Specification: //	
Article:	Paint Supplier:	
Item:	DWG: //	

EQUIPMENT			
Rough. Comparator		Dew Point Meter	
Tick.Gauge		Conductivity Meter	
Adhesion Gauge		Foil Thickness Gauge	

SURFACE PREPARATION									
Date: 22/09/2023									
Test type	*According to*	*Required*							
Sourface Cleanliness	ISO 8501-1	SA 2,5							
Sourface Roughness	ISO 8503-2	MEDIUM G							
Sourface Roughness	ISO 8503-5	50 - 75 µm							
Soluble Salt Test	ISO 8502-6/9	//							
Residual Dust	ISO 8502-3	//							
0Type of Abrasive	//	//							
Blotter test	ASTM D4285	No oil / No water							
Environmental Condiction	ISO 8502-4	Ta°C	Ts°C	RH%	Td°C	Ta°C	Ts°C	RH%	Td°C

COATING SYSTEM				
Number of Coat	**1^**	**2^**	**3^**	**4^**
Date and Time				
Paint Product Name				
Color				
Batch n°	**A)** **A)**	**B)** **B)**	**A)** **B)**	**A)** **B)**
Ambient Temperature				
Steel Temperature				
RH%				
Dew Point				
Method				
Required DFT				
Mean DFT				

CHECK INORGANIC ZINC				
Test type	*According to*	*Date*	*Required*	*Result*
Mek Test	ASTM D4752	//	//	//

COATING ACCEPTANCE TEST				
Test type	*According to*	*Date*	*Required*	*Result*
Visual Check				
Final Color				Total
DFT	ISO 19840			

Tested by:	*Customer QC:*	*Customer Inspector:*	*Inspector Signature:*
SJB VERNICIATURA di Sejdani Jawad Via E. Fermi, 54 - 24020 SCANZOROSCIATE (BG) Cell.: 3207514315 mail: sejdanij@gmail.com P. IVA 04306890163 Date:	Date:	Date:	Date:

11 PAINTING MATRIX

Pos.	Commessa	Classe	Diametro	Qta ord.	Ciclo verniciatura
001	240062	#300	1″	1,00	SYSTEM 6A RAL 9002
002	240062	#300	4″	1,00	SYSTEM 6A RAL 9002
003	240062	#300	4″	1,00	SYSTEM 6A RAL 9002
004	240062	#300	4″	1,00	SYSTEM 6A RAL 9002
005	240062	#300	4″	1,00	SYSTEM 6A RAL 9002
006	240062	#300	4″	1,00	SYSTEM 6A RAL 9002
007	240062	#300	4″	1,00	SYSTEM 6A RAL 9002
008	240062	#300	1″	1,00	SYSTEM 6A RAL 9002
009	240062	#300	2 x 1.1/2″	1,00	SYSTEM 6A RAL 9002
010	240062	#300	1″	1,00	SYSTEM 6A RAL 9002
011	240062	#300	1″	1,00	SYSTEM 6A RAL 9002
012	240062	#300	1″	1,00	SYSTEM 6A RAL 9002
013	240062	#300	1″	1,00	SYSTEM 6A RAL 9002
014	240062	#300	1″	1,00	SYSTEM 6A RAL 9002
015	240062	#300	1″	1,00	SYSTEM 6A RAL 9002
016	240062	#300	1″	1,00	SYSTEM 6A RAL 9002
017	240062	#300	1″	1,00	SYSTEM 6A RAL 9002
018	240062	#300	1″	1,00	SYSTEM 6A RAL 9002
019	240062	#300	1″	1,00	SYSTEM 6A RAL 9002
020	240062	#300	1″	1,00	SYSTEM 6A RAL 9002
021	240062	#300	1″	1,00	SYSTEM 6A RAL 9002
022	240062	#300	1″	1,00	SYSTEM 6A RAL 9002
023	240062	#300	1.1/2″	1,00	SYSTEM 6A RAL 9002
024	240062	#150	1.1/2″	1,00	UNCOATED
025	240062	#150	1.1/2″	1,00	UNCOATED
026	240062	#150	1.1/2″	1,00	UNCOATED
027	240062	#150	2x 1.1/2″	1,00	UNCOATED
028	240062	#150	1″	1,00	SYSTEM 6A RAL 9002

12 DATASHEET

Intergard® 269

International

Epoxy

SURFACE PREPARATION

All surfaces to be coated should be clean, dry and free from contamination. Prior to paint application all surfaces should be assessed and treated in accordance with ISO 8504:2000.

Oil or grease should be removed in accordance with SSPC-SP1 solvent cleaning.

Abrasive Blast Cleaning

For immersion service, Intergard 269 must be applied to surfaces blast cleaned to Sa2½ (ISO 8501-1:2007) or SSPC-SP10. However, for atmospheric exposure Intergard 269 may be applied to surfaces prepared to a minimum of Sa2½ (ISO 8501-1:2007) or SSPC-SP6.

Surface defects revealed by the blast cleaning process should be ground, filled, or treated in the appropriate manner.

Ultra High Pressure Hydroblasting / (non-immersed service only)

May be applied to surfaces prepared to Sa2 (ISO 8501-1:2007) or SSPC-SP6 which have flash rusted to no worse than Grade HB2M (refer to International Hydroblasting Standards). Further information is available from International Protective Coatings.

Tie Coat Applications (see Product Characteristics)

In the case of zinc primers, where necessary, remove weld spatter, smooth weld seams and sharp edges and blast clean welds and damaged primer to Sa2½ (ISO 8501-1:2007) or SSPC-SP6. The shop primer or other primer surface should be dry and free of all contamination (oil, grease, salt etc) and overcoated with Intergard 269 within the overcoating intervals specified for the primer (consult the relevant product data sheet).

Ensure that the zinc primer has fully cured and is clean, dry and free from zinc salts prior to overcoating.

APPLICATION

Mixing	Material is supplied in two containers as a unit. Always mix a complete unit in the proportions supplied. Once the unit has been mixed it must be used within the working pot life specified. (1) Agitate Base (Part A) with a power agitator. (2) Combine entire contents of Curing Agent (Part B) with Base (Part A) and mix thoroughly with power agitator.	
Mix Ratio	4 part(s) : 1 part(s) by volume	
Working Pot Life	10°C (50°F) 17 hours 15°C (59°F) 12 hours 25°C (77°F) 8 hours 40°C (104°F) 3 hours	
Airless Spray	Recommended	Tip Range 0.38-0.53 mm (15-21 thou) Total output fluid pressure at spray tip not less than 141 kg/cm² (2005 p.s.i.)
Air Spray (Pressure Pot)	Recommended	Gun DeVilbiss MBC or JGA Air Cap 704 or 765 Fluid Tip E
Brush	Suitable - small areas only	Typically 25-30 microns (1.0-1.2 mils) can be achieved
Roller	Suitable - small areas only	Typically 25-30 microns (1.0-1.2 mils) can be achieved
Thinner	International GTA220 (or International GTA415)	Do not thin more than allowed by local environmental legislation
Cleaner	International GTA822 or International GTA415	
Work Stoppages	Do not allow material to remain in hoses, gun or spray equipment. Thoroughly flush all equipment with International GTA822. Once units of paint have been mixed they should not be resealed and it is advised that after prolonged stoppages work recommences with freshly mixed units.	
Clean Up	Clean all equipment immediately after use with International GTA822. It is good working practice to periodically flush out spray equipment during the course of the working day. Frequency of cleaning will depend upon amount sprayed, temperature and elapsed time, including any delays. All surplus materials and empty containers should be disposed of in accordance with appropriate regional regulations/legislation.	

Intergard® 269

International

Epoxy

PRODUCT DESCRIPTION

A quick drying two component epoxy primer.

Suitable for overcoating after prolonged periods of weathering.

INTENDED USES

As a blast holding primer suitable for use in immersed and exposed conditions and overcoatable with a wide range of high performance systems.

For use at both new construction and maintenance.

Also for use as a tie coat on zinc silicate to prevent zinc salt formation on weathering and pinholing of subsequent high build topcoats.

PRACTICAL INFORMATION FOR INTERGARD 269

Colour	Red (See Product Characteristics section for further details)
Gloss Level	Matt
Volume Solids	47%
Typical Thickness	40 microns (1.6 mils) dry equivalent to 85 microns (3.4 mils) wet
Theoretical Coverage	11.80 m²/litre at 40 microns d.f.t and stated volume solids 471 sq.ft/US gallon at 1.6 mils d.f.t and stated volume solids
Practical Coverage	Allow appropriate loss factors
Method of Application	Airless Spray, Air Spray, Brush, Roller

Drying Time

			Overcoating Interval with recommended topcoats	
Temperature	**Touch Dry**	**Hard Dry**	*Minimum*	*Maximum*
10°C (50°F)	40 minutes	16 hours	16 hours	Extended[1]
15°C (59°F)	35 minutes	12 hours	12 hours	Extended[1]
25°C (77°F)	30 minutes	8 hours	8 hours	Extended[1]
40°C (104°F)	15 minutes	1 hour	4 hours	Extended[1]

[1] Maximum overcoating intervals are shorter when using polysiloxane topcoats. Consult International Protective Coatings for further details.

REGULATORY DATA

Flash Point (Typical)	Part A 26°C (79°F); Part B 25°C (77°F); Mixed 26°C (79°F)	
Product Weight	1.53 kg/l (12.8 lb/gal)	
VOC	3.75 lb/gal (450 g/lt)	EPA Method 24
	293 g/kg	EU Solvent Emissions Directive (Council Directive 1999/13/EC)

See Product Characteristics section for further details

Intergard® 269

International.

Epoxy

PRODUCT CHARACTERISTICS

Use as a Holding Primer

Intergard 269 is suitable for use as a blast holding primer for steelwork intended for exposure in both immersed and atmospheric exposure conditions. Apply Intergard 269 at the recommended thickness as over-application will result in a glossy surface which may not be suitable for overcoating after ageing.

When coating steel in high ambient temperatures thinning with International thinners may be necessary to prevent dry spray and control film thickness.

This product will not cure adequately below 5°C (41°F). For maximum performance ambient curing temperatures should be above 10°C (50°F).

Intergard 269 is also suitable for application to degreased and abraded stainless steel and galvanised steel. Abrasion can be carried out by light blasting using a non-ferrous abrasive or by carborondum disking on small areas.

Use as a Tie Coat

To ensure good penetration of zinc silicate coatings Intergard 269 should be thinned by 15-25% with International thinners. Intergard 269 should be allowed to cure before topcoating with high builds otherwise the effectiveness in preventing pinholing is reduced.

Excessive film thickness may lead to splitting of the film when overcoated with high build systems.

For application at temperatures below 10°C (50°F) alternative tie coats are available. For information contact International Protective Coatings.

When used in a marine environment the schemes and overcoating intervals utilised may differ.

Intergard 269 is globally available in Red; alternative shades may be available upon request. Consult International Protective Coatings for further details.

Note: VOC values quoted are based on maximum possible for the product taking into account variations due to colour differences and normal manufacturing tolerances.

Low molecular weight reactive additives, which will form part of the film during normal ambient cure conditions, will also affect VOC values determined using EPA Method 24.

SYSTEMS COMPATIBILITY

Intergard 269 is suitable for use over the following primers:

Interzinc 22
Interzinc 52

The following topcoats/intermediates are recommended for Intergard 269:

Intercure 200HS	Intergard 740
Intercure 420	Interseal 670HS
Interfine 629HS	Interthane 870
Interfine 878	Interthane 990
Interfine 979	Interzone 505
Intergard 251	Interzone 954
Intergard 345	Interzone 1000
Intergard 475HS	

For details of other systems, consult International Protective Coatings.

Intergard® 269

International

Epoxy

ADDITIONAL INFORMATION

Further information regarding industry standards, terms and abbreviations used in this data sheet can be found in the following documents available at www.international-pc.com:

- Definitions & Abbreviations
- Surface Preparation
- Paint Application
- Theoretical & Practical Coverage

Individual copies of these information sections are available upon request.

SAFETY PRECAUTIONS

This product is intended for use only by professional applicators in industrial situations in accordance with the advice given on this sheet, the Material Safety Data Sheet and the container(s), and should not be used without reference to the Material Safety Data Sheet (MSDS) which International Protective Coatings has provided to its customers.

All work involving the application and use of this product should be performed in compliance with all relevant national, Health, Safety & Environmental standards and regulations.

In the event welding or flame cutting is performed on metal coated with this product, dust and fumes will be emitted which will require the use of appropriate personal protective equipment and adequate local exhaust ventilation.

If in doubt regarding the suitability of use of this product, consult International Protective Coatings for further advice.

PACK SIZE

Unit Size	Part A		Part B	
	Vol	Pack	Vol	Pack
20 litre	16 litre	20 litre	4 litre	5 litre
5 US gal	4 US gal	5 US gal	1 US gal	1 US gal

For availability of other pack sizes, contact International Protective Coatings.

SHIPPING WEIGHT (TYPICAL)

Unit Size	Part A	Part B
20 litre	28.9 kg	4.1 kg
5 US gal	59.7 lb	8.4 lb

STORAGE

Shelf Life: 12 months minimum at 25°C (77°F). Subject to re-inspection thereafter. Store in dry, shaded conditions away from sources of heat and ignition.

Important Note

The information in this data sheet is not intended to be exhaustive, any person using the product for any purpose other than that specifically recommended in this data sheet without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at their own risk. All advice given or statements made about the product (whether in this data sheet or otherwise) is correct to the best of our knowledge but we have no control over the quality or the condition of the substrate or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing to do so, we do not accept any liability at all for the performance of the product or for (subject to the maximum extent permitted by law) any loss or damage arising out of the use of the product. We hereby disclaim any warranties or representations, express or implied, by operation of law or otherwise, including, without limitation, any implied warranty of merchantability or fitness for a particular purpose. All products supplied and technical advice given are subject to our Conditions of Sale. You should request a copy of this document and review it carefully. The information contained in this data sheet is liable to modification from time to time in the light of experience and our policy of continuous development. It is the user's responsibility to check with their local representative that this data sheet is current prior to using the product.

This Technical Data Sheet is available on our website at www.international-marine.com or www.international-pc.com, and should be the same as this document. Should there be any discrepancies between this document and the version of the Technical Data Sheet that appears on the website, then the version on the website will take precedence.

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www.international-pc.com

Intergard® 475HS

International

Epoxy

PRODUCT DESCRIPTION

A low VOC, high solids, high build, two component epoxy coating. Available with conventional pigmentation, or alternatively can be pigmented with micaceous iron oxide to provide enhanced overcoating properties.

INTENDED USES

For use as a high build epoxy coating to improve barrier protection for a range of anti-corrosive coating systems in a wide range of environments including offshore structures, petrochemical plants, pulp and paper mills and bridges. Suitable for use in both maintenance and new construction situations as part of an anti-corrosive coating system. The micaceous iron oxide variant improves long term overcoating properties, better facilitating application in the fabrication shop, prior to shipping, with final overcoating on site.

PRACTICAL INFORMATION FOR INTERGARD 475HS

Color	Light gray MIO and a selected range of colors
Gloss Level	Matte
Volume Solids	80%
Typical Thickness	4-8 mils (100-200 microns) dry equivalent to 5-10 mils (125-250 microns) wet
Theoretical Coverage	257 sq.ft/US gallon at 5 mils d.f.t and stated volume solids 6.40 m²/liter at 125 microns d.f.t and stated volume solids
Practical Coverage	Allow appropriate loss factors
Method of Application	Airless Spray, Air Spray, Brush, Roller

Drying Time

			Overcoating Interval with recommended topcoats	
Temperature	**Touch Dry**	**Hard Dry**	*Minimum*	*Maximum*
23°F (-5°C)	150 minutes	48 hours	48 hours	Extended*
41°F (5°C)	90 minutes	16 hours	16 hours	Extended*
50°F (10°C)	80 minutes	14 hours	13 hours	Extended*
59°F (15°C)	75 minutes	10 hours	10 hours	Extended*
77°F (25°C)	60 minutes	5 hours	5 hours	Extended*

* See International Protective Coatings Definitions & Abbreviations
Maximum overcoating intervals are shorter when using polysiloxane topcoats. Consult International Protective Coatings for further details.

For curing at elevated temperatures an alternative curing agent is available. See Product Characteristics for details.

REGULATORY DATA

Flash Point (Typical) Part A 93°F (34°C); Part B 88°F (31°C); Mixed 91°F (33°C)

VOC	1.72 lb/gal (207 g/lt) 92 g/kg	EPA Method 24 EU Solvent Emissions Directive (Council Directive 1999/13/EC)
	159 g/lt (1.32 lb/US Gal)	Chinese National Standard GB23985

See Product Characteristics section for further details

Intergard® 475HS

International.

Epoxy

SURFACE PREPARATION

All surfaces to be coated should be clean, dry and free from contamination. Prior to paint application, all surfaces should be assessed and treated in accordance with ISO 8504:2000.

Primed Surfaces

Intergard 475HS should always be applied over a recommended anti-corrosive coating scheme. The primer surface should be dry and free from all contamination, and Intergard 475HS must be applied within the overcoating intervals specified (consult the relevant product data sheet).

Areas of breakdown, damage etc., should be prepared to the specified standard (e.g. SSPC-SP6 or Sa2½ (ISO 8501 -1:2007), Abrasive Blasting, or SSPC-SP11, Power Tool Cleaning) and patch primed prior to the application of Intergard 475HS.

Zinc Primed Surfaces

Ensure that the surface of the primer is clean, dry and free from contamination and zinc salts before application of Intergard 475HS. Ensure zinc primers are fully cured before overcoating.

APPLICATION

Mixing

Material is supplied in two containers as a unit. Always mix a complete unit in the proportions supplied. Once the unit has been mixed, it must be used within the working pot life specified.

(1) Agitate Base (Part A) with a power agitator.
(2) Combine entire contents of Curing Agent (Part B) with Base (Part A) and mix thoroughly with power agitator.

Mix Ratio

3 part(s) : 1 part(s) by volume

Working Pot Life

23°F (-5°C)	41°F (5°C)	59°F (15°C)	77°F (25°C)
3 hours	3 hours	2.5 hours	2 hours

Airless Spray

Recommended

Tip Range 21-25 thou (0.53-0.63 mm)
Total output fluid pressure at spray tip not less than 2702 psi (190 kg/cm²)

Air Spray (Pressure Pot)

Recommended

Gun	DeVilbiss MBC or JGA
Air Cap	704 or 765
Fluid Tip	E

Brush

Suitable

Typically 3.0 mils (75 microns) can be achieved

Roller

Suitable

Typically 3.0 mils (75 microns) can be achieved

Thinner

International GTA007

Thinning is not normally required. Consult the local representative for advice during application in extreme conditions. Do not thin more than allowed by local environmental legislation.

Cleaner

International GTA822 (or International GTA415)

Choice of cleaner may be subject to local legislation. Please consult your local representative for specific advice.

Work Stoppages

Do not allow material to remain in hoses, gun or spray equipment. Thoroughly flush all equipment with International GTA822. Once units of paint have been mixed they should not be resealed and it is advised that after prolonged stoppages work recommences with freshly mixed units.

Clean Up

Clean all equipment immediately after use with International GTA822. It is good working practice to periodically flush out spray equipment during the course of the working day. Frequency of cleaning will depend upon amount sprayed, temperature and elapsed time, including any delays.

All surplus materials and empty containers should be disposed of in accordance with appropriate regional regulations/legislation

Intergard® 475HS

International.

Epoxy

PRODUCT CHARACTERISTICS

Intergard 475HS is primarily designed for use as a high build barrier coat to impart barrier protection to a coating system. It is recommended that it should be overcoated with a durable finish from the Interfine or Interthane range when appearance is important.

Maximum film build in one coat is best attained by airless spray. When applying by methods other than airless spray, the required film build is unlikely to be achieved. Application by air spray may require a multiple cross spray pattern to attain maximum film build. Lower or high temperatures may require specific application techniques to achieve maximum film build.

When applying Intergard 475HS by brush or roller, it may be necessary to apply multiple coats to achieve the total specified system dry film thickness.

Surface temperature must always be a minimum of 5°F (3°C) above dew point. When applying Intergard 475HS in confined spaces, ensure adequate ventilation. Exposure to unacceptably low temperatures and/or high humidities during, or immediately after, application may result in incomplete cure and surface contamination that could jeopardize subsequent intercoat adhesion.

Elevated Temperature Curing

An alternative curing agent is available for applications at temperatures greater than 77°F (25°C).

			Overcoating Interval with recommended topcoats	
Temperature	Touch Dry	Hard Dry	*Minimum*	*Maximum*
77°F (25°C)	90 minutes	6 hours	6 hours	Extended *
104°F (40°C)	60 minutes	2 hours	2 hours	Extended *

* See International Protective Coatings Definitions and Abbreviations

Interchanging standard and elevated temperature curing agents during application to a specific structure will give rise to an observable color change due to the difference in the yellowing/discoloration process common to all epoxies on exposure to UV light. In common with all epoxies, Intergard 475HS will chalk and discolor on exterior exposure. However, these phenomena are not detrimental to anti-corrosive performance.

Intergard 475HS is not designed for continuous water immersion.

The micaceous iron oxide variant of this product is frequently used as a "travel coat" prior to final overcoating on site. To ensure best extended overcoating properties, ensure overapplication does not occur and that the surface is fully cleaned of any contamination which may be present in the surface texture due to the coarse nature of the micaceous iron oxide pigmentation.

When applying Intergard 475HS at temperatures less than 59°F (15°C) or wet film thicknesses of 6 mils (150 microns) or less, addition of around 5% International GTA007 thinners will improve film appearance, sprayability and aid film thickness control.

On consultation with International Protective Coatings this product is compatible with alternative application methods such as flow coating.

Note: VOC values are typical and are provided for guidance purpose only. These may be subject to variation depending on factors such as differences in color and normal manufacturing tolerances.

Low molecular weight reactive additives, which will form part of the film during normal ambient cure conditions, will also affect VOC values determined using EPA Method 24.

SYSTEMS COMPATIBILITY

Intergard 475HS is designed for use over correctly primed steel. Suitable primers are:

Intercure 200	Interzinc 22 (mist coat or tie coat recommended)*
Intergard 251	Interzinc 315
Intergard 251HS	Interzinc 52
Intergard 269	Interzinc 52E
Interzinc 2280(mist coat or tie coat recommended)*	

Suitable topcoats are:

Intergard 740	Interfine 629HS
Interfine 878	Interfine 979
Interthane 990	Intergard 475HS

Intergard® 475HS

International

Epoxy

Interthane 990E

For alternative primers and finishes, consult International Protective Coatings.

* See relevant product data sheet for details.

Interthane 990

International

Polyurethane Finish

PRODUCT DESCRIPTION

A two pack, acrylic polyurethane finish giving excellent durability and long term recoatability.

INTENDED USES

As a cosmetic finish on above water areas. Suitable for use on topsides, external superstructure, external decks and boottops.
For use at Newbuilding, Maintenance & Repair or On Board Maintenance.

PRODUCT INFORMATION

Colour	PHB000-White, PHY999-Black ; and a wide range of colours.
Finish/Sheen	High Gloss
Part B (Curing Agent)	PHA046
Volume Solids	57% ±3% (ISO 3233:1998)
Mix Ratio	6.00 volume(s) Part A to 1 volume(s) Part B
Typical Film Thickness	50 microns dry (88 microns wet)
Theoretical Coverage	11.4 m²/litre at 50 microns dft, allow appropriate loss factors
Method of Application	Airless Spray, Brush, Conventional Spray, Roller
Flash Point (Typical)	Part A 34°C; Part B 49°C; Mixed 35°C
Induction Period	Not required

Drying Information	-5°C	5°C	25°C	35°C
Touch Dry [ISO 9117/3:2010]	8 hrs	5 hrs	1.5 hrs	60 mins
Hard Dry [ISO 9117-1:2009]	60 hrs	24 hrs	6 hrs	4 hrs
Pot Life	26 hrs	12 hrs	2 hrs	60 mins

Overcoating Data - see limitations	**Substrate Temperature**							
	-5°C		5°C		25°C		35°C	
Overcoated By	Min	Max	Min	Max	Min	Max	Min	Max
Interthane 990	60 hrs	ext	24 hrs	ext	6 hrs	ext	4 hrs	ext

Note Drying and overcoating times quoted are measured at 50 microns dry, at higher film thickness times will be increased.

REGULATORY DATA

VOC

420 g/lt as supplied (EPA Method 24)
341 g/kg of liquid paint as supplied. EU Solvent Emissions Directive (Council Directive 1999/13/EC)
379 g/lt Chinese National Standard GB23985

Note: VOC values are typical and are provided for guidance purposes only. These may be subject to variation depending on factors such as differences in colour and normal manufacturing tolerances.

Interthane 990

International.

Polyurethane Finish

CERTIFICATION

When used as part of an approved scheme, this material has the following certification:

- Fire Resistance - Surface Spread of Flame (Exova Warringtonfire)
- Fire Resistance - Smoke & Toxicity (Exova Warringtonfire)
- NORSOK M-501, Rev 4, system no.1 (NITN)
- Fire Resistance - Marine Equipment Directive compliant

Consult your International Paint representative for details.

SYSTEMS AND COMPATIBILITY

Interthane 990 must be applied over a recommended primer system, which will vary depending upon the vessel area. Direct application is acceptable over the following marine anticorrosives:

Intergard 264 (USA)
Intergard 400
Intergard 5600
Intergard 5620
Intergard 7600
Intershield 300
Intershield 803

A tiecoat of Intergard 263, Intergard 267 or Intergard 269 may be required if Interthane 990 is to be applied over other epoxy primers and may also be used to extend the maximum overcoating interval when Interthane 990 is to be applied over those primers listed above.

Interprime 198 may also be used as a primer for Interthane 990.

Consult your International Paint representative for the system best suited for the surfaces to be protected.

SURFACE PREPARATIONS

Use in accordance with the standard Worldwide Marine Specifications.
All surfaces to be coated should be clean, dry and free from contamination.
High pressure fresh water wash or fresh water wash, as appropriate, and remove all oil or grease, soluble contaminants and other foreign matter in accordance with SSPC-SP1 solvent cleaning.

NEWBUILDING/MAJOR REFURBISHMENT

Interthane 990 should always be applied over a recommended primer coating scheme. The primer surface should be dry and free from all contamination, and Interthane 990 must be applied within the overcoating intervals specified (consult the relevant product data sheet). For boottop areas the overcoating intervals for primers are reduced. Consult International Paint.
Areas of breakdown, damage etc. should be prepared to the specified standard (eg. Sa2½ (ISO 8501-1:2007)) and primed prior to the application of Interthane 990.

REPAIR/OBM

Interthane 990 should always be applied over a recommended primer coating scheme. The primer surface should be dry and free from all contamination, and Interthane 990 must be applied within the overcoating intervals specified (consult the relevant product data sheet). For boottop areas the overcoating intervals for primers are reduced. Consult International Paint.
Areas of breakdown, damage etc. should be prepared to the specified standard (eg. Sa2½ (ISO 8501-1:2007)) and primed prior to the application of Interthane 990.
Interthane 990 may be applied directly over aged Interthane 990 following thorough fresh water washing and degreasing provided the coating to be overcoated is in an intact and tightly adherent condition. Loose or flaking coatings should be removed back to a firm edge and Interthane 990 or an appropriate primer should be used to repair the area before application of the full coat.
This product may be applied directly over most generic types of paint that have been aged for at least 3 months. It is advisable that a small trial be carried out before applying a full coat.

Consult your International Paint representative for specific recommendations.

NOTE
For use in Marine situations in North America, the following surface preparation standards can be used: SSPC-SP10 in place of Sa2½ (ISO 8501-1:2007)

Interthane 990

International

Polyurethane Finish

APPLICATION

Mixing	Material is supplied in 2 containers as a unit. Always mix a complete unit in the proportions supplied. (1) Agitate Base (Part A) with a power agitator. (2) Combine entire contents of Curing Agent (Part B) with Base (Part A) and mix thoroughly with power agitator.
Thinner	Thinning is not normally required. Consult the local representative for advice during application in extreme conditions. Do not thin more than allowed by local environmental legislation.
Airless Spray	Recommended Tip Range 0.33-0.45 mm (13-18 thou) Total output fluid pressure at spray tip not less than 155 kg/cm² (2200 p.s.i.)
Conventional Spray	Use suitable proprietary equipment. Thinning may be required.
Brush	Suitable.
Roller	Suitable.
Cleaner	International GTA056/GTA713/GTA733
Work Stoppages and Cleanup	Do not allow material to remain in hoses, gun or spray equipment. Thoroughly flush all equipment with International GTA056/GTA713/GTA733. Once units of paint have been mixed they should not be resealed and it is advised that after prolonged stoppages work recommences with freshly mixed units. Clean all equipment immediately after use with International GTA056/GTA713/GTA733. It is good working practice to periodically flush out spray equipment during the course of the working day. Frequency of cleaning will depend upon amount sprayed, temperature and elapsed time, including any delays. Do not exceed pot life limitations. All surplus materials and empty containers should be disposed of in accordance with appropriate regional regulations/legislation.
Welding	In the event welding or flame cutting is performed on metal coated with this product, dust and fumes will be emitted which will require the use of appropriate personal protective equipment and adequate local exhaust ventilation. In North America do so in accordance with instruction in ANSI/ASC Z49.1 "Safety in Welding and Cutting."

SAFETY

All work involving the application and use of this product should be performed in compliance with all relevant national Health, Safety & Environmental standards and regulations.

Prior to use, obtain, consult and follow the Material Safety Data Sheet for this product concerning health and safety information. Read and follow all precautionary notices on the Material Safety Data Sheet and container labels. If you do not fully understand these warnings and instructions or if you can not strictly comply with them, do not use this product. Proper ventilation and protective measures must be provided during application and drying to keep solvent vapour concentrations within safe limits and to protect against toxic or oxygen deficient hazards. Take precautions to avoid skin and eye contact (ie. gloves, goggles, face masks, barrier creams etc.) Actual safety measures are dependant on application methods and work environment.

EMERGENCY CONTACT NUMBERS:
USA/Canada - Medical Advisory Number 1-800-854-6813
Europe - Contact (44) 191 4696111. For advice to Doctors & Hospitals only contact (44) 207 6359191
China – Contact (86) 532 83889090
R.O.W. - Contact Regional Office

Warning: Contains isocyanate. Wear air-fed hood for spray application.

Interthane 990

International.

Polyurethane Finish

LIMITATIONS

This product is not recommended for use in permanantly immersed conditions.
Interthane 990 may be used on booltop areas at reduced overcoating intervals over appropriate primers. Consult International Paint.
For brush and roller application, and in some colours, two coats of Interthane 990 may be required to give uniform coverage, especially when applying Interthane 990 over dark undercoats and when using certain lead-free bright finish colours such as yellows and oranges. Best practice is to use a colour compatible intermediate or anticorrosive coating under Interthane 990.
Interthane 990 may be applied at substrate temperatures down to -15°C. Before applications are made below -5°C consult your local IP representative for further detail of application procedure.
Low temperature, high relative humidity and condensation occurring during or immediately after application may result in a matt finish and an inferior film. Premature exposure to ponding water will cause colour change, especially in dark colours and at low temperatures.
Overcoating information is given for guidance only and is subject to regional variation depending upon local climate and environmental conditions. Consult your local International Paint representative for specific recommendations.
Apply in good weather. Temperature of the surface to be coated must be at least 3°C above the dew point. For optimum application properties bring the material to 21-27°C, unless specifically instructed otherwise, prior to mixing and application. Unmixed material (in closed containers) should be maintained in protected storage in accordance with information given in the STORAGE Section of this data sheet. Technical and application data herein is for the purpose of establishing a general guideline of the coating application procedures. Test performance results were obtained in a controlled laboratory environment and International Paint makes no claim that the exhibited published test results, or any other tests, accurately represent results found in all field environments. As application, environmental and design factors can vary significantly, due care should be exercised in the selection, verification of performance and use of the coating.
In the overcoating data section 'ext' = extended overcoating period. Please refer to our Marine Painting Guide - Definitions and Abbreviations available on our website.

UNIT SIZE

Unit Size	Part A		Part B	
	Vol	Pack	Vol	Pack
20 lt	17.14 lt	20 lt	2.86 lt	5 lt
5 US gal	5 US gal	5 US gal	1 US gal	1 US gal
1 US gal	1 US gal	1 US gal	1 US quart	1 US quart

Note : US containers are short filled
For availability of other unit sizes consult International Paint

UNIT SHIPPING WEIGHT (TYPICAL)

Unit Size	Unit Weight
1 US gal	13.7 lb
20 lt	26.59 Kg
5 US gal	54.7 lb

STORAGE

Shelf Life: Part A - 24 months minimum at 25°C.
Part B - 12 months minimum at 25°C
Subject to reinspection thereafter. Store in dry, shaded conditions away from sources of heat and ignition.

WORLDWIDE AVAILABILITY Consult International Paint.

IMPORTANT NOTE

The information in this data sheet is not intended to be exhaustive; any person using the product for any purpose other than that specifically recommended in this data sheet without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at their own risk. All advice given or statements made about the product (whether in this data sheet or otherwise) is correct to the best of our knowledge but we have no control over the quality or the condition of the substrate or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing to do so, we do not accept any liability at all for the performance of the product or for (subject to the maximum extent permitted by law) any loss or damage arising out of the use of the product. We hereby disclaim any warranties or representations, express or implied, by operation of law or otherwise, including, without limitation, any implied warranty of merchantability or fitness for a particular purpose. All products supplied and technical advice given are subject to our Conditions of Sale. You should request a copy of this document and review it carefully. The information contained in this data sheet is liable to modification from time to time in the light of experience and our policy of continuous development. It is the user's responsibility to check with their local representative that this data sheet is current prior to using the product.

This Technical Data Sheet is available on our website at www.international-marine.com or www.international-pc.com, and should be the same as this document. Should there be any discrepancies between this document and the version of the Technical Data Sheet that appears on the website, then the version on the website will take precedence.

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04: Manufacturing Records and Procedures

Worker Qualification (Painters, NDT operator)

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BUREAU VERITAS

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO
PRS N° 076C
Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC
Signatory of EA, IAF and ILAC mutual Recognition Agreements

PROVE NON DISTRUTTIVE: Certificato di Qualifica Operatore
NON-DESTRUCTIVE TESTING: Operator Qualification Certificate

N° IND-20-00077-C

Si certifica la qualifica in Prove Non Distruttive al Livello 2
It certifies the qualification for Non Destructive Testing at the level 2

Titolare del certificato / *Certificate holder*
Buttironi Fabio (ID # 4895)

Nato a / *born in*: Bergamo (BG) Il / *on*: 24 Jun 1975

Per il metodo / *for the method:*
Penetrant Testing (PT)

Per i settori / *for the sectors*:
Pre- and in-service testing which includes manufacturing

Il presente certificato viene rilasciato in conformità alla Norma UNI EN ISO 9712:2012 e Regolamento Bureau Veritas IT-IND-REG-01_NDT.IND
This certificate is issued according to UNI EN ISO 9712:2012 and Bureau Veritas Rule IT-IND-REG-01_NDT.IND

Data ultima revisione / *Date last revision*: ----------

Emesso / *issued*: 15 Jan 2020 Scadenza / *Expiry date*: 14 Jan 2025

Autorizzazione del datore di lavoro
Employer authorizing

Firma titolare del certificato
Signature of certificate holder

Responsabile Tecnico di Schema
NDT Scheme Chief
Luca Rossi

CERTIFICATE

This is to certify that Mr.

JAWAD SEJDANI
Born on 16/01/1982

Has been evaluated according to N.A.C.E. "Guide to qualification of tradesman industrial maintenance painters"

Painter

Tester : NACE inspector: Mr Giacomo Mazzoleni
NACE certified coating inspector Level III No. 18715

Place: SJB facilities located in Scanzorosciate, BergamoItaly
Date: 15 November 2022

Tester Signature

GIACOMO MAZZOLENI
NACE COATING INSPECTOR
LEVEL 3 CERTIFIED
CIP No. 18715
Sign:
Date:

SJB
QA Manager Signature

04: Manufacturing Records and Procedures

Factory Acceptance Procedure

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Base Load Power Hub (BLPH)

SDV/BDV AND TIGHT SHUT-OFF XV VALVES

FACTORY ACCEPTANCE TEST PROCEDURE

Document Number: 1724000204-QC-PRO-00010

Document Class: 2

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
V. Barratta	13/02/2025

Rev.	Date	Description	Prepared	Reviewed	Approved
01	12/02//2025	Accepted for Construction (AFC)	M. Mariani	L. Patelli	F. Buttironi
00	13/05/2024	Issue for Review (IFR)	M. Mariani	M. Rocchetti	F. Buttironi

Fluitek Valves

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Revisions	
Rev.	**§**
00	First Issue
01	As per comments
02	As per comments

INDEX

1. SCOPE ____ *3*

2. APPLICABILITY ____ *3*

3. REFERENCES ____ *3*

4. TEST FLUID & EQUIPMENT ____ *3*

5. PRESSURE GAUGES ____ *3*

6. TESTS ____ *3*

7. ALLOWABLE LEAKAGES ____ *4*

8. TESTING PROCEDURE ____ *5*

8.1 HYDRAULIC SHELL TEST PROCEDURE (TEST MEDIUM WATER) ____ **5**

8.2 HYDROSTATIC HIGH PRESSURE SEAT TEST PROCEDURE (TEST MEDIUM WATER) ____ **5**

8.3 torque test (TEST MEDIUM WATER) ____ **5**

8.4 OPERATING FUNCTIONAL TEST ON VALVE WITH ACTUATOR(TEST MEDIUM WATER) ____ **6**

8.5 LOW PRESSURE PNEUMATIC SEAT TEST (TYPE II)(TEST MEDIUM AIR) ____ **6**

9. CERTIFICATION ____ *8*

10. SAMPLE REPORT ____ *9*

1. SCOPE

This procedure is intended to give necessary and adequate instructions so that the hydrostatic tests of the valves are carried out in accordance with the standards and applicable specifications.
Before starting tests, the pneumatic actuator must be installed onto the valves according to applicable GA Drawings Fluitek valves and Rotork actuators and relevant accessories duly checked.

2. APPLICABILITY

This procedure applies to dual plate valves for Fluitek JOB. 240062.

3. REFERENCES

- ASME B16-34 Valves-Flanged, Treaded, and Welding End
- I.ASS.01 – "Serraggio connessioni NPT" – last review available
- API 598 11th Edition – Valve inspection and testing
- PED
- ASME Sec. V Nondestructive examination
- ISO 15848:2015 Industrial valves-Measurement, test and qualification procedures for fugitive emissions
-ASNT SNT-TC-1A or ISO 9712 Personnel Qualification and Certification in Nondestructive Testing
-EN 473 Nondestructive testing. Qualification and certification of NDT personnel - General principles

4. TEST FLUID & EQUIPMENT

Hydrostatic test shall be carried out with potable water containing a corrosion inhibitor and chloride content shall not exceed 30 ppm. Water PH shall lie between 6,5 and 8,5. Water temperature shall be maintained at ambient temperature (+10°C÷+38°C).
Tests shall be carried out prior to any painting of valve bodies.

5. PRESSURE GAUGES

- Pressure gauges and pressure/temperature recorders shall be calibrated according to the Q.A. program (±2% of full scale tolerance according to BS 5781).
- The test pressure shall not be less than 20% nor greater than 80% of the full scale range of the pressure gauge if are used in lieu of pressure transducers.

6. TESTS

The following tests are to be made on the valves, based on the client's requests and on the QSL of the valve (table above):

- Hydrostatic Shell test
- Hydrostatic Seat test at high pressure
- Torque test
- Functional test valve + actuator
- Low pressure Air Seat test

7. ALLOWABLE LEAKAGES

Table 5—Maximum Allowable Leakage Rates for Closure Tests [c]

Valve Size		All Resilient-seated Valves	Metal Seated Valves Except Check		Metal Seated Check Valves		
DN (mm)	NPS (in.)		Liquid Test [a] (drops/min)	Gas Test [a] (bubbles/min)	Liquid Test (cc/min)	Gas Test (m^3/h)	Gas Test (ft^3/h)
≤ 50	≤ 2	0	0 [b]	0 [b]	6	0.08	3
65	$2^1/_2$	0	5	10	7.5	0.11	3.75
80	3	0	6	12	9	0.13	4.5
100	4	0	8	16	12	0.17	6
125	5	0	10	20	15	0.21	7.5
150	6	0	12	24	18	0.25	9
200	8	0	16	32	24	0.34	12
250	10	0	20	40	30	0.42	15
300	12	0	24	48	36	0.50	18
350	14	0	28	56	42	0.59	21
400	16	0	32	64	48	0.67	24
450	18	0	36	72	54	0.76	27
500	20	0	40	80	60	0.84	30
600	24	0	48	96	72	1.01	36
650	26	0	52	104	78	1.09	39
700	28	0	56	112	84	1.18	42
750	30	0	60	120	90	1.26	45
800	32	0	64	128	96	1.34	48
900	36	0	72	144	108	1.51	54
1000	40	0	80	160	120	1.68	60
1050	42	0	84	168	126	1.76	63
1200	48	0	96	192	144	2.02	72

[a] For the liquid test, 1 mL is considered equivalent to 16 drops. For the gas test 1 mL is considered equivalent to 100 bubbles.

[b] There shall be no leakage for the minimum specified test duration (see Table 4). For liquid test, 0 drops means no visible leakage per minimum specified test duration. For standard gas test, 0 bubbles means less than 1 bubble per minimum specified test duration. For high-pressure pneumatic closure test refer to paragraph 5.4.

[c] Leakage rates for sizes above DN 1200 (NPS 48) shall be calculated by the following formulas:
Liquid Test for Metal Seated Valves except Check: 2 x NPS (drops/min)
Gas Test for Metal Seated Valves except Check: 4 x NPS (bubbles/min)
Liquid Test for Metal Seated Check Valves: 3 x NPS (cc/min)
Gas Test for Metal Seated Check Valves: 0.042 x NPS (m^3/h)
Gas Test for Metal Seated Check Valves: 1.5 x NPS (ft^3/h)

8. TESTING PROCEDURE

8.1 HYDRAULIC SHELL TEST PROCEDURE (TEST MEDIUM WATER)

- Put the valve on the hydrostatic test bench or close the valve ends with test blind flanges.
- Place the disc in semi-open position
- Fill the valve with water through the valve ends.
- Pressurize at 1.5 rating pressure.
- After a stabilization period, pressure shall be maintained for the time specified in table below.
- Thoroughly examine the entire surface of the valve, making sure that there are no visible drops or humidity traces for all the test duration.
- Relieve the pressure to zero and complete sections of test record.

Duration: Table 4 API 598

ACCEPTANCE CRITERIA: See §7

8.2 HYDROSTATIC HIGH PRESSURE SEAT TEST PROCEDURE (TEST MEDIUM WATER)

- Fill the valve and body cavity with water, purging all the air from the vent of the body (if any)
- Place the valve in closed position.
- Pressurize one side of the valve according to the flow direction at 1.1 rating pressure and, after a period of stabilization, maintain the pressure for the time specified in table below.
- Check for the loss of the seat through the opposite seat.
- Drain completely the valve and proceed with following test.

Duration: Table 4 API 598
ACCEPTANCE CRITERIA: See §7

8.3 torque test (TEST MEDIUM WATER)

The maximum torque or thrust required to operate ball, gate or plug valves shall be measured at the pressure specified by the purchaser for the following valve operations:

a) Open to closed with the bore pressurized and the cavity at atmospheric pressure, if applicable to the valve design;
b) Closed to pen with both sides of the obturator pressurized and the cavity at atmospheric pressure;

c) Closed to open with one side of the obturator pressurized and the cavity at atmospheric pressure;
d) As in item c) but with the other side of the obturator pressurized.

Torque shall be measured with seats free of sealant except where the sealant is the primary means of sealing. If necessary for assembly, a lubricant with a viscosity not exceeding that of SAE 10W motor oil or equivalent may be used.

The measured torque or thrust results shall be recorded and shall not exceed the manufacturer's documented breakaway torque/thrust.

ACCEPTANCE CRITERIA:
The maximum force required at the handwheel or wrench to apply the breakaway torque or thrust shall not exceed 80 lbf (360 N).

8.4 OPERATING FUNCTIONAL TEST ON VALVE WITH ACTUATOR(TEST MEDIUM WATER)
After complete the previous test, assemble the actuator and operate the valve-actuator unit through three complete open/close cycles without differential pressure applied to the valve. Verify the maneuverability of the valve-actuator unit. After with the valve in the fully closed position apply to one side (A) of the valve the MOP (maximum operating pressure), used for sizing the actuator with the other side vented to the atmosphere Operate the valve-actuator unit through three complete open/close cycles and verify the maneuverability of the valve-actuator unit and measure the operating time to open/close the valve. Depressurize the valve and repeat the operations described previous on the other valve side (B).

Open/ close time shall be verified and recorded for each valves.
During functional test shall be verified that all required accessories (e.g. safety valve, position transmitter, filter regulator, etc.) are present.

8.5 LOW PRESSURE PNEUMATIC SEAT TEST (TYPE II)(TEST MEDIUM AIR)

- With the valve in closed position, pressurize one side of the valve according to the flow direction to pressure indicated at §7 (5.5 to 6 barg) and, after a period of stabilization, maintain the pressure for the time specified at §8..
- Check for the loss of the seat through the opposite seat with bubbles method.

Duration: Table 4 API 598
ACCEPTANCE CRITERIA: See §7

8.6 FUGITIVE EMISSION TEST (TEST MEDIUM HELIUM)

- Personnel qualification

Experienced personnel with ISO 9712 or ASNT Level II in leak testing will carry out the test.

- Test medium and equipment

Test medium shall be pure Helium, minimum 97%.
Helium Mass Spectrometer LEYBOLD PhoeniXL300 with sniffer probe shall be used for leak detection.

- Test pressure

Test pressures shall be 6 bar, unless otherwise agreed by the manufacturer and the purchaser.

- Test temperature

The test temperature shall be at room temperature as defined in ISO 15848-1.

- Method

The leakage shall be measured both when the valve is static and also in the dynamic condition (i.e. during the valve operation).
The probe shall be kept at a scanning distance of 3 mm or less and maintained in position for duration of 5 sec while checking.
Leakage check points shall be sealed with and adhesive foil tape with a max thickness of 40µm. This foil shall be provided with a hole at the highest point. The leakage shall be measured using sniffer probe.
Measuring frequency for leakage is as follows:
- measure at static;
-for dynamic: during the 5th cycle, measure during the closure member travel from fully - closed to fully open.

- Leakage measurement locations

The following areas shall be checked for leakage:
- Between the stem and packing
- Between the packing outside diameter and stuffing box inside
- Circumference of the body bonnet joint
- Drains plugs and vent plugs (if any) and check valve plug
- Bleeder valve (if any)
- External trunnion (if any)
Seat injector (if any)
Stem injector (if any)

- Measurement of stem (shaft) seal leakages

a. Place the valve in half open position and pressurize at the pressure specified in Par.4.3.
b. Measure the seal leakage using the sniffing method.
c. Then, fully open and close the pressurized test valve five times
d. Place the valve in half open position after the mechanical cycles and measure the stem seal leakage as in point B.
e. If the reading exceeds the values of the required tightness class according to table below, the test shall be considered as having failed. A corrective action shall be proposed and agreed with the purchaser or the lot of valves shall be rejected.

Table 1 — Tightness classes for stem seals

Class	Measured leakage ppmv	Remarks
A	≤50	Typically achieved with bellow seals or equivalent stem (shaft) sealing system for quarter turn valves
B	≤100	Typically achieved with PTFE based packings or elastomeric seals
C	≤200	Typically achieved with flexible graphite-based packings
NOTE Measured by sniffing method as defined in ISO 15848-1:2015, Annex B.		

- Measurement of leakage of body seal

a. Place the valve in half open position and pressurize at the pressure as Par.4.3

b. After the test pressure has been stabilized, detect leakage of the body seal with the sniffing method

c. If the reading exceeds the values of the required tightness class according to table below, the test shall be considered as having failed. A corrective action shall be proposed and agreed with the purchaser or the lot of valves shall be rejected

Table 2 — Leakage from body seals

Measured leakage ppmv
≤50
NOTE Measured by the sniffing method as defined in ISO 15848-1:2015, Annex B.

9. CERTIFICATION

Results of the hydraulic testing shall be certified by the relevant test reports, containing all the details of the valve, the order, the applicable documents, the modalities of the test, the result and signature of the Appointed Inspector.

10. SAMPLE REPORT

Fluitek Valves	PRESSURE TEST REPORT Rapporto di prova di pressatura	Cert. HPT No.

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *dsf* *Cliente*			
P. Order *Ordine*		**Item/s** *Item/s*	
FOV Job *Commessa FOV*		**Position/s** *Posizione/i*	
TAG *TAG*		**Quantity** *Quantità*	
Type of valve/s *Tipo di valvola/e*		**Serial Number** *Numero seriale*	
Applicable Standard *Norma applicabile*			
Acceptance criteria *Criteri di accettabilità*			
Date of execution *Data di esecuzione*			

TEST DATA – *INFORMAZIONI SULLA PROVA*

Type of test *Tipo di prova*	**Pressure** *Pressione (bar)*	**Duration** *Durata(min)*	**Acceptable L[1]** *Perdita ammessa*	**L[1] detected** *Perdita rilevata*	**Result** *Esito*
HYDRAULIC SHELL TEST *Prova idraulica del corpo*			No VisibleLeakage	No VisibleLeakage	SATISFACTORY
HIGH-PRESSURE HYDRAULIC SEAT TEST *Prova di tenuta dei seggi ad acqua ad alta pressione*			No VisibleLeakage	No VisibleLeakage	SATISFACTORY

REMARKS – *NOTE*

OTHER TEST – *ALTRE PROVE*

Type of test *Tipo di prova*	**Test procedure** *Procedura di controllo/prova*	**Result** *Esito*
VISUAL CONTROL *Controllo visivo*		SATISFACTORY
DIMENSIONAL CONTROL *Controllo dimensionale*		SATISFACTORY

REMARKS – *NOTE*

Test Final Result ***Esito finale della prova***	☒ SATISFACTORY *Soddisfacente*	☐ UNSATISFACTORY *Non soddisfacente*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	**Customer Inspector** *Ente Ispettore Cliente*	**Quality Control** *Controllo Qualità*

[1] L=Leakage

M.HPT.01 – Rev. 1

Page 1 of 1

Fluitek Valves	**TORQUE CERTIFICATE** *Certificato di misurazione della coppia di manovra*	Cert. TRQ No.

GENERAL INFORMATION – *INFORMAZIONI GENERALI*			
Customer *Cliente*			
P. Order *Ordine*			
FOV Job *Commessa FOV*			
TAG *TAG*			
Type of valve/s *Tipo di valvola/e*			
Date of execution *Data di esecuzione*			

TEST DATA AND RESULT – *INFORMAZIONI SULLA PROVA ED ESITI*

Torque test performer at *Prova effettuata a* **Bars**

Step *Fase*	**Value (Nm)** *Valore*	
Close To Open Side A		
Close To Open Side B		

REMARKS – *NOTE*

SIGNATURE – *FIRME*

Inspection Authority *Ente Ispettivo*	**Customer Inspector** *Ispettore Cliente*	**Quality Control** *Controllo qualità*

Fluitek Valves	FUGITIVE EMISSION TEST REPORT	Cert. FET No.

GENERAL INFORMATION – *INFORMAZIONI GENERALI*			
Customer *Cliente*			
P. Order *Ordine*		**Item/s** *Item/s*	
FOV Job *Commessa FOV*		**Position/s** *Posizione/i*	
TAG *TAG*		**Quantity** *Quantità*	
Type of valve/s *Tipo di valvola/e*		**Serial Number** *Numero seriale*	
Applicable Specification *Specifica applicabile*			
Date of execution *Data di esecuzione*			

TEST VARIABLE – *DATI DI PROVA*			
Equipment *Strumento di misura*			
Calibrate leak *Fuga calibrata*			
Test medium *Fluido di prova*			
Test temperature *Temperatura di prova*			
Test method *Metodo di prova*			
Background *Sottofondo*		**Background after 5 cycles** *Sottofondo dopo 5 cicli*	
Test pressure *Pressione di prova*			
Acceptance leakage *Perdita ammissibile*			
Leakage detected *Perdita rilevata*			

REMARKS – *NOTE*

FET LEAKAGE CLASS: < **BH** >

Value in atm*cm^3/s , obtained without background noise.

Test Final Result *Esito finale della prova*	☐ SATISFACTORY *Soddisfacente*	☐ UNSATISFACTORY *Non soddisfacente*

Step No.		Detected leakage	Acceptance Criteria
1st Step	Body Flange		
0 CYCLES	Stem		
2nd Step	Body Flange		
After 5 CYCLES	Stem		

SIGNATURE – *FIRME*		
Inspection authority *Ente ispettivo*	**Customer Inspector** *Ente* *Ispettore Cliente*	**Quality Control** *Controllo Qualità*

Fluitek Valves	CONTINUITY TEST	Cert. DDC No.

GENERAL INFORMATION – *INFORMAZIONI GENERALI*			
Customer Cliente			
P. Order Ordine		**Item/s** Item/s	
FOV Job Commessa FOV		**Position/s** Posizione/i	
TAG TAG		**Quantity** Quantità	
Subject Oggetto		**Serial Number**	
Applicable Standard *Norma applicabile*			
Acceptance criteria *Criteri di accettabilità*			
Date of execution Data di esecuzione			

STATEMENT – *DICHIARAZIONE*

REMARKS – *NOTE*

SIGNATURE – *FIRME*

Inspection Authority *Ente Ispettivo*	Customer Inspector *Ispettore Cliente*	Quality Control *Controllo qualità*

REV.	DATE	DESCRIPTION		ISSUED BY	CHECKED AND APPROVED BY
00	12/02/2025	PRIMA EMISSIONE	FIRST ISSUE	R. DAL TORRIONE (QE)	L. CAPPELLINI (QS)

Sommario

1. SCOPO 2

1. SCOPE 2

2. DOCUMENTI RELATIVI 2

2. APPLICABLE DOCUMENTATION 2

3. CONTROLLI E COLLAUDI 2

3. INSPECTIONS AND TESTING 2

A. COLLAUDI INTERMEDI STANDARD (DOVE APPLICABILE) 2

A. INTERMEDIATE STANDARD TESTING (WHERE APPLICABLE) 2

A.1.1 Prova di pressione ... 3
A.1.1 Pressure test ... 3
A.2 Prova di tenuta ... 3
A.2 Leak test ... 3
A.3.1 Verifica prestazioni - attuatori singolo effetto ... 3
A.3.1 Actuator functional test - single acting actuators ... 3

C. COLLAUDI FINALI (DOVE APPLICABILE) 3

C. FINAL TESTING (WHERE APPLICABLE) 3

C.1 Verifica verniciatura ... 4
C.1 Painting check ... 4
C.2 Verifica visiva e dimensionale ... 4
C.2 Visual and dimensional check ... 4
C.3 Prova di tenuta del circuito pneumatico/idraulico ... 4
C.3 Leak test of pneumatic/hydraulic circuit ... 4
C.4 Prova funzionale sistema di controllo ... 4
C.4 Control system functional test ... 4
C.6 Tempi di manovra ... 5
C.6 Actuator stroking time ... 5

4. ISPEZIONE FINALE 5

4. FINAL INSPECTION 5

5 ETICHETTE 5

5 LABELS 5

6. CERTIFICATO DI COLLAUDO E DI CONFORMITÀ 5

6. FACTORY ACCEPTANCE TEST CERTIFICATE and Declaration of conformity 5

1. SCOPO

La presente procedura definisce le modalità di controllo e collaudo a cui vengono sottoposti gli attuatori per la verifica dei requisiti espressi dal Cliente.

2. DOCUMENTI RELATIVI

I controlli e i collaudi sono svolti in accordo alla seguente documentazione tecnica (dove applicabile):

- Specifica dati attuatore;
- Schema operativo;
- Schema elettrico;
- Disegno dimensioni di ingombro;
- Disegno costruttivo tronchetto e giunto accoppiamento valvola;
- Specifica del ciclo di verniciatura;
- Performance table (solo se richiesto il rilievo delle prestazioni dell'attuatore);
- PO3.02.02 gestione accessori per assieme PED e ATEX.

3. CONTROLLI E COLLAUDI

I controlli ed i collaudi richiamati nella presente procedura sono condotti con l'ausilio di strumenti ed attrezzature calibrati in accordo all'istruzione operativa FSP07 e FSP07-A_LU.

I fluidi utilizzati per i controlli e collaudi sono:

- Attuatori pneumatici: aria secca e filtrata e/o azoto.

A. COLLAUDI INTERMEDI STANDARD (DOVE APPLICABILE)

I seguenti collaudi intermedi vengono eseguiti sul solo corpo attuatore prima dell'eventuale assemblaggio dei componenti di controllo:

1. SCOPE

The scope of the present procedure is to define the factory acceptance testing to verify the Customer's requirements are fully satisfied.

2. APPLICABLE DOCUMENTATION

Inspections and testing are carried out based on the following documentation (where applicable):

- Actuator data sheet;
- Operative diagram;
- Wiring diagram;
- Actuator overall dimensions drawing;
- Valve top working drawing;
- Painting cycle specification;
- Performance table (only if the actuators performance test is required);
- PO3.02.02 gestione accessori per assieme PED e ATEX.

3. INSPECTIONS AND TESTING

The inspections and controls stated within this document are carried out with the aid of calibrated instrumentation in accordance with the operative instruction FSP07 and FSP07-A_LU.

These inspections and controls shall be carried out using:

- Pneumatic actuator: dry filtered air and/or nitrogen.

A. INTERMEDIATE STANDARD TESTING (WHERE APPLICABLE)

The following tests are performed before the eventual assembly of controls' components, on the actuator body only:

A.1.1 Prova di pressione

Collaudo strutturale pressurizzando entrambe le camere del cilindro pneumatico e/o idraulico secondo le pressioni riportate nella Tabella 1 e indicate sul FAT (Factory Acceptance Test).
In caso di attuatore per il quale la camera di polmonazione non possa essere pressurizzata, il collaudo è eseguito alimentando come da Tabella 1 la sola camera di pressione del cilindro pneumatico e/o idraulico.
Criterio di accettazione: nessuna perdita è ammessa.

A.1.1 Pressure test

Check of the actuator structure by pressurizing both chambers of the hydraulic a/o pneumatic cylinder according to the pressure values reported in the Table 1 and indicated on the FAT form (Factory Acceptance Test).
In case the breathing chamber could not be pressurized, the test is done by supplying just the pressure side of the hydraulic a/o pneumatic cylinder as per Table 1.
Acceptance criteria: zero leakage.

Tabella 1. Pressioni di prova strutturale:

Table 1. Testing criteria:

ACTUATOR	PRESSURE (BAR)	TIME (MIN)
Pneumatic	1.1 x Design pressure	5

A.2 Prova di tenuta

Collaudo della tenuta del pistone pressurizzando per 5 minuti con aria secca o con olio idraulico una camera del cilindro alla pressione minima di esercizio specificata dal Cliente o minima di dimensionamento (sizing) dell'attuatore mantenendo l'altra camera a pressione atmosferica.
Criterio di accettazione: nessuna perdita è ammessa.

A.2 Leak test

Leak test of the piston seal by pressurizing one side of the cylinder to the minimum working pressure specified by the Customer or to the sizing pressure of the actuator for 5 minutes with air or hydraulic oil with the other side of the cylinder at atmospheric pressure.
Acceptance criteria: zero leakage.

A.3.1 Verifica prestazioni - attuatori singolo effetto

Valutazione delle prestazioni dell'attuatore verificando i valori di pressione all'inizio della compressione e ad inizio ritorno della molla.
Criterio di accettazione: i valori di pressione rilevati a inizio corsa e inizio decompressione molla devono risultare in accordo alle tolleranze indicate nel Certificato FAT finale.

A.3.1 Actuator functional test - single acting actuators

Checking the pressure values at the beginning of stroke (spring starts to compress) and at the return stroke (spring starts to release).
Acceptance criteria: The recorded values have to be in accordance with the range shown on the final FAT certificate.

C. COLLAUDI FINALI (DOVE APPLICABILE)

I seguenti collaudi finali vengono eseguiti con l'attuatore verniciato ed assemblato al proprio eventuale sistema di controllo:

C. FINAL TESTING (WHERE APPLICABLE)

The following tests are performed after the painting with the actuator assembled with a possible control system:

C.1 Verifica verniciatura

Verifica della conformità al ciclo di verniciatura applicabile.
Criterio di accettazione: per le singole misurazioni sono ammessi scostamenti dello spessore finale secco compresi tra -40% e +300% dello spessore totale definito nel ciclo di verniciatura. La media delle misurazioni deve risultare compresa tra -20% e +150%.

C.2 Verifica visiva e dimensionale

Verifica visiva e dimensionale in accordo al disegno delle dimensioni d'ingombro.

Criterio di accettazione: vengono ammesse differenze entro il +30%, se non diversamente indicato nel disegno delle dimensioni d'ingombro.

C.3 Prova di tenuta del circuito pneumatico/idraulico

Collaudo con aria o olio della tenuta del circuito pneumatico e/o idraulico (se non diversamente specificato nella check list di riferimento) alla pressione di settaggio della valvola di sicurezza o alla massima pressione operativa dell'assemblato attuatore / pannello di controllo se non viene fornita una valvola di sicurezza.
Verifica visiva assenza di perdite da tubazioni e raccordi.
Criterio di accettazione: nessuna perdita è ammessa.

C.4 Prova funzionale sistema di controllo

Collaudo funzionale del controllo automatico ed a distanza in accordo alla logica della documentazione tecnica di commessa.
Controllo visivo che i componenti pneumatici e/o idraulici ed i componenti elettrici siano assemblati e connessi in accordo alla documentazione tecnica.
Criterio di accettazione: corretta funzionalità del sistema di controllo.
Quando presenti scarichi convogliati, prevedere la chiusura della/e linea/e di scarico e verificare l'assenza di perdite, mantenendola/e in pressione per 5min.

In caso di attuatori pneumatici il cui pannello di controllo preveda l'istallazione di una relief valve preceduta dal filtro regolatore, applicare la pressione massima (indicata nella summary table) all'ingresso del filtro regolatore e verificare la pressione a valle della relief mantenendo il filtro regolatore completamente aperto.
Criterio di accettabilità: valori di pressione inferiori o uguali alla pressione di settaggio della relief x 1.1.

C.1 Painting check

Check of the conformity to the applicable painting cycle.
Acceptance criteria: for the single thickness measurements, values between -40% and 300% of the total dry film thickness are acceptable. The average of the measurements shall be between -20% and +150%.

C.2 Visual and dimensional check

Visual and dimensional check according to the overall dimensions drawing.

Acceptance criteria: dimensions must be within +30% if not differently specified in the overall dimensions drawing.

C.3 Leak test of pneumatic/hydraulic circuit

Leak test of the pneumatic a/o hydraulic circuit by pressurizing it (if not differently specified in the reference check list) with air or oil at the safety relief valve setting pressure or at the maximum operative pressure of the actuator / control panel assembly if no relief valve is provided.
Visual check of any leakage from tubing and fittings

Acceptance criteria: zero leakage.

C.4 Control system functional test

Functional test with automatic a/o remote control according to technical documentation of the job.
Visual Check that the pneumatic or hydraulic and electric components are assembled and connected according to the technical documents.
Acceptance criteria: correct functional operation.
When channelled exhaust ports are present, close the discharge line/es and check the absence of any leakage, keeping the discharge tubing in pressure for 5 min.

In case of pneumatic actuators where the control panel includes the installation of a relief valve with a filter regulator, apply the maximum pressure (indicated in the summary table) to the filter regulator and check the pressure at the output connection of the control panel assembly, maintaining the filter regulator completely open.

Acceptance criteria: pressure values =< 1.1x relief pressure setting

C.6 Tempi di manovra

Verifica dei tempi di intervento dell'attuatore in apertura e chiusura alla minima pressione di esercizio specificata dal Cliente o minima di dimensionamento (sizing).
Criterio di accettazione: i tempi devono risultare minori o uguali alle richieste del Cliente (Come riportato nel Summary Sheet).

C.6 Actuator stroking time

Actuator opening and closing time check at the minimum pressure specified by the Customer or at the minimum sizing pressure of the actuator.
Acceptance criteria: Times recorded shall be lower or equal to times specified by the Customer (as detailed in the summary sheet).

4. ISPEZIONE FINALE

Ciascun attuatore è soggetto ad ispezione finale (dove applicabile) in termini di:

- Controllo che il grado di protezione delle custodie dei componenti elettrici sia in accordo alle richieste contrattuali;
- Controllo che la stampigliatura della targa dati sia corretta;

Controllo che l'imballo per la spedizione sia in accordo alla specifica contrattuale.

4. FINAL INSPECTION

Each actuator is submitted to the final inspection (where applicable) in terms of:

- Check the protection rating of electric equipments is according to the contractual requirements;
- Check the correct tag stamping;

Check that packing is according to the requirements of the contractual specifications.

5 ETICHETTE

Prima della fase di imballaggio viene controllata la presenza di tutte le etichette previste e la correttezza dei dati riportati, a fronte della documentazione di riferimento.

5 LABELS

Prior to packing, the presence of all the foreseen labels and the accuracy of the information is checked according to the reference documentation.

6. CERTIFICATO DI COLLAUDO E DI CONFORMITÀ

I controlli ed i collaudi intermedi e finali sono documentati dal certificato di collaudo FAT - factory acceptance test certificate. Il FAT attesta il rilascio dell'attuatore.
Laddove previsto, inoltre, viene predisposta e rilasciata al Cliente una Dichiarazione di conformità (DoC) alle normative di riferimento.

6. FACTORY ACCEPTANCE TEST CERTIFICATE AND DECLARATION OF CONFORMITY

The intermediate and final Inspections and testing are documented into the FAT - factory acceptance test certificate. The FAT states the actuator release. Where applicable, a Declaration of conformity to the applicable Standards is issued and released to the Customer.

04: Manufacturing Records and Procedures

ATEX register

File: COPERTINA .xlsx

This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Base Load Power Hub (BLPH)

ATEX REGISTER

SDV/BDV AND TIGHT SHUT-OFF XV VALVES

Document Number: 1724000204-IN-LIS-00013

Document Class: 2

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
V. Barratta	18/06/2025

Rev.	Date	Description	Prepared	Reviewed	Approved
02	12/06/2025	Accepted for Construction	M. Mariani	L. Patelli	M. Rocchetti
01	17/01/2025	Accepted for Construction	M. Mariani	L. Patelli	M. Rocchetti
00	15/10/2024	Issue for Review (IFR)	M. Mariani	L. Patelli	F. Buttironi

Fluitek Valves

Table of Contents

SH.	DESCRIPTION	REVISIONS							
		00	01	02					
1	Cover	X	X	X					
2	Table of Contents	X	X	X					
3	Revision / Change Log	X	X	X					
4	Atex Register	X	X	X					

Revision / Change Log

Rev.	Description
00	ISSUE FOR REVIEW (IFR)
01	ACCEPTED FOR CONSTRUCTION (AFC)
02	ACCEPTED FOR CONSTRUCTION (AFC) NOTE: Removed valves and related equipments 50-XV-001, 50-XV-002, 50-XV-003, 50-XV-004 because installed in a non hazardous area

HOLDS LIST

No.	Description
1.	-

No.	Revision	Tag Number	Description	Location	Manufacturer	Model Type Catalogue Number	Serial Number	ATEX Certification Marking	Reference Document	ATEX Certificate Number	Installation Zone	Notes / Comments	P.O.	Vendor	Skid / Package	Barrier Calculation Ref.	Non-Electrical Equipment	Special Conditions of safe use Applicable
1	REV. 02	25-ZSHL-022	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0127022	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
2	REV. 02	25-ZSHL-005	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0128944	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
3	REV. 02	25-ZSHL-007	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0116129	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
4	REV. 02	25-ZSHL-010	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0128944	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
5	REV. 02	25-ZSHL-013	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0116129	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
6	REV. 02	25-ZSHL-016	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0128944	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
7	REV. 02	25-ZSHL-019	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0128961	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
8	REV. 02	25-ZSHL-001	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0127022	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
9	REV. 02	25-ZSHL-023	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0128944	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
10	REV. 02	64-ZSHL-001	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0127022	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
11	REV. 02	25-ZSHL-004	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0127022	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
12	REV. 02	25-ZSHL-006	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0127022	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
13	REV. 02	25-ZSHL-008	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0127022	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
14	REV. 02	25-ZSHL-009	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0127022	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
15	REV. 02	25-ZSHL-011	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0116886	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
16	REV. 02	25-ZSHL-012	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0116886	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
17	REV. 02	25-ZSHL-014	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0116129	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
18	REV. 02	25-ZSHL-015	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0128944	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
19	REV. 02	25-ZSHL-017	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0128944	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
20	REV. 02	25-ZSHL-018	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0129171	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
21	REV. 02	25-ZSHL-020	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0127022	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
22	REV. 02	25-ZSHL-021	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0128944	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
23	REV. 02	25-ZSHL-024	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0116886	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
24	REV. 02	80-ZSHL-001	LIMIT SWITCHES BOX	UPPER DECK	SOLDO	SQN120E-20X23L7	IT03B0127022	II 2GD Ex db IIC T4/T6 Gb	123A90-DDL-IN-DS-40030	CML 19ATEX1359X	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	YES
25	REV. 02	25-BDY-022	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL1052-0800	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
26	REV. 02	25-BDY-005	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL1052-0801	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
27	REV. 02	25-BDY-007	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10424-1558	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
28	REV. 02	25-BDY-010	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10524-0792	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
29	REV. 02	25-BDY-013	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10524-8795	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
30	REV. 02	25-BDY-016	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10524-1556	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
31	REV. 02	25-BDY-019	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10524-1557	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
32	REV. 02	25-SDY-001	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10524-8796	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
33	REV. 02	25-SDY-023	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10424-1568	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
34	REV. 02	64-SDY-001	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10524-1874	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
35	REV. 02	25-XY-004	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10524-8831	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
36	REV. 02	25-XY-006	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10424-1559	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
37	REV. 02	25-XY-008	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10524-8791	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
38	REV. 02	25-XY-009	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10524-9832	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
39	REV. 02	25-XY-011	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10424-8688	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
40	REV. 02	25-XY-012	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10424-1546	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
41	REV. 02	25-XY-014	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10424-1547	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
42	REV. 02	25-XY-015	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10524-8797	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
43	REV. 02	25-XY-017	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10524-8799	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
44	REV. 02	25-XY-018	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10524-3541	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
45	REV. 02	25-XY-020	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10524-8794	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
46	REV. 02	25-XY-021	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10524-8797	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
47	REV. 02	25-XY-024	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10424-1554	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
48	REV. 02	80-XY-001	SOLENOID VALVE	UPPER DECK	BIFOLD	FP06P-S1-04-32-NU-V-77A-24D-57	FL10524-3798	II 2 GEx db IIC T6 / Ex tb IIIC T85°C Db	123A90-DDL-IN-DS-40030	Baseefa10ATEX0026	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	NO	NO
49	REV. 02	25-BDV-022	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620010001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
50	REV. 02	25-BDV-005	FLOATING BALL VALVE	UPPER DECK	FLUITEK	4" 300#	2400620020001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
51	REV. 02	25-BDV-007	FLOATING BALL VALVE	UPPER DECK	FLUITEK	4" 300#	2400620030001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
52	REV. 02	25-BDV-010	FLOATING BALL VALVE	UPPER DECK	FLUITEK	4" 300#	2400620040001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
53	REV. 02	25-BDV-013	FLOATING BALL VALVE	UPPER DECK	FLUITEK	4" 300#	2400620050001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
54	REV. 02	25-BDV-016	FLOATING BALL VALVE	UPPER DECK	FLUITEK	4" 300#	2400620060001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
55	REV. 02	25-BDV-019	FLOATING BALL VALVE	UPPER DECK	FLUITEK	4" 300#	2400620070001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
56	REV. 02	25-SDV-001	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620080001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
57	REV. 02	25-SDV-023	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1-1/2" 300#	2400620090001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
58	REV. 02	64-SDV-001	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620100001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
59	REV. 02	25-XV-004	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620110001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
60	REV. 02	25-XV-006	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620120001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
61	REV. 02	25-XV-008	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620130001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
62	REV. 02	25-XV-009	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620140001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
63	REV. 02	25-XV-011	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620150001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
64	REV. 02	25-XV-012	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620160001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
65	REV. 02	25-XV-014	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620170001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
66	REV. 02	25-XV-015	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620180001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
67	REV. 02	25-XV-017	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620190001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
68	REV. 02	25-XV-018	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620200001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
69	REV. 02	25-XV-020	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620210001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
70	REV. 02	25-XV-021	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620220001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
71	REV. 02	25-XV-024	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 300#	2400620230001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO

No.	Revision	Tag Number	Description	Location	Manufacturer	Model Type Catalogue Number	Serial Number	ATEX Certification Marking	Reference Document	ATEX Certificate Number	Installation Zone	Notes / Comments	P.O.	Vendor	Skid / Package	Barrier Calculation Ref.	Non-Electrical Equipment	Special Conditions of safe use Applicable
72	REV. 02	80-XV-001	FLOATING BALL VALVE	UPPER DECK	FLUITEK	1" 150#	2400620280001	II 2G Ex c II T6	1724000204-IN-DA-00004	240062-ATEX	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
73	REV. 02	25-ACT-022	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771400101	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
74	REV. 02	25-ACT-005	ACTUATOR	UPPER DECK	RFS	CP/S-055-200A/BA	AF771400201	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
75	REV. 02	25-ACT-007	ACTUATOR	UPPER DECK	RFS	CP/S-055-200A/BA	AF771400301	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
76	REV. 02	25-ACT-010	ACTUATOR	UPPER DECK	RFS	CP/S-055-200A/BA	AF771400401	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
77	REV. 02	25-ACT-013	ACTUATOR	UPPER DECK	RFS	CP/S-055-200A/BA	AF771400501	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
78	REV. 02	25-ACT-016	ACTUATOR	UPPER DECK	RFS	CP/S-055-200A/BA	AF771400601	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
79	REV. 02	25-ACT-019	ACTUATOR	UPPER DECK	RFS	CP/S-055-200A/BA	AF771400701	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
80	REV. 02	25-ACT-001	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771400801	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
81	REV. 02	25-ACT-023	ACTUATOR	UPPER DECK	RFS	CP/S-035-100A/BA	AF771400901	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
82	REV. 02	64-ACT-001	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771401001	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
83	REV. 02	25-ACT-004	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771401101	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
84	REV. 02	25-ACT-006	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771401201	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
85	REV. 02	25-ACT-008	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771401301	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
86	REV. 02	25-ACT-009	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771401401	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
87	REV. 02	25-ACT-011	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771401501	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
88	REV. 02	25-ACT-012	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771401601	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
89	REV. 02	25-ACT-014	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771401701	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
90	REV. 02	25-ACT-015	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771401801	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
91	REV. 02	25-ACT-017	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771401901	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
92	REV. 02	25-ACT-018	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771402001	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
93	REV. 02	25-ACT-020	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771402101	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
94	REV. 02	25-ACT-021	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771402201	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
95	REV. 02	25-ACT-024	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771402301	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
96	REV. 02	80-ACT-001	ACTUATOR	UPPER DECK	RFS	CP/S-035-080A/AA	AF771402801	II 2 G Ex h IIC T5 Gb X II 2 D Ex h IIIC T5 Db X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY ROTORK	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
97	REV. 02	25-PCV-022	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL40524-1567	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
98	REV. 02	25-PCV-005	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL40524-1496	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
99	REV. 02	25-PCV-007	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL20524-0122	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
100	REV. 02	25-PCV-010	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL40524-1491	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
101	REV. 02	25-PCV-013	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL40524-1524	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
102	REV. 02	25-PCV-016	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL20524-1855	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
103	REV. 02	25-PCV-019	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL20424-0188	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
104	REV. 02	25-PCV-001	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL20524-1050	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
105	REV. 02	25-PCV-023	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL40524-1501	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
106	REV. 02	64-PCV-001	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL20524-1048	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
107	REV. 02	25-PCV-004	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL40524-1043	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
108	REV. 02	25-PCV-006	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL02524-1047	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
109	REV. 02	25-PCV-008	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL28524-1849	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
110	REV. 02	25-PCV-009	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL20524-1052	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
111	REV. 02	25-PCV-011	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL20424-0143	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
112	REV. 02	25-PCV-012	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL20524-0119	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
113	REV. 02	25-PCV-014	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL40524-1497	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
114	REV. 02	25-PCV-015	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL20524-0099	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO

No.	Revision	Tag Number	Description	Location	Manufacturer	Model Type Catalogue Number	Serial Number	ATEX Certification Marking	Reference Document	ATEX Certificate Number	Installation Zone	Notes / Comments	P.O.	Vendor	Skid / Package	Barrier Calculation Ref.	Non-Electrical Equipment	Special Conditions of safe use Applicable
115	REV. 02	25-PCV-017	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL20524-1951	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
116	REV. 02	25-PCV-018	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL20524-0113	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
117	REV. 02	25-PCV-020	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL40524-1500	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
118	REV. 02	25-PCV-021	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL40524-1490	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
119	REV. 02	25-PCV-024	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL20424-0098	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
120	REV. 02	80-PCV-001	FILTER REGULATOR	UPPER DECK	BIFOLD	F.R. BIFOLD 1/4" SH06-FR-SR-MD-10-X4	FL40524-1502	II 2G Ex c IIC T6 Gb	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY BIFOLD	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	NO
121	REV. 02	25-PSV-022	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308828	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
122	REV. 02	25-PSV-005	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308847	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
123	REV. 02	25-PSV-007	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308849	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
124	REV. 02	25-PSV-010	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308844	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
125	REV. 02	25-PSV-013	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308834	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
126	REV. 02	25-PSV-016	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308839	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
127	REV. 02	25-PSV-019	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308852	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
128	REV. 02	25-PSV-001	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308855	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
129	REV. 02	25-PSV-023	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308850	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
130	REV. 02	64-PSV-001_1	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308829	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
131	REV. 02	25-PSV-004	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308837	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
132	REV. 02	25-PSV-006	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308836	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
133	REV. 02	25-PSV-008	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308840	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
134	REV. 02	25-PSV-009	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308854	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
135	REV. 02	25-PSV-011	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308838	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
136	REV. 02	25-PSV-012	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308846	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
137	REV. 02	25-PSV-014	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308828	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
138	REV. 02	25-PSV-015	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308832	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
139	REV. 02	25-PSV-017	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308830	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
140	REV. 02	25-PSV-018	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308845	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
141	REV. 02	25-PSV-020	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308853	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
142	REV. 02	25-PSV-021	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308848	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
143	REV. 02	25-PSV-024	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308842	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
144	REV. 02	80-PSV-001_1	RELIEF	UPPER DECK	NGI	D10/S INOX+VITON T.4,7 bar	025308851	II 2G Ex h IIC T6 Gb X	123A90-DDL-IN-DS-40030	DECLARATION OF CONFORMITY BY NGI	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
145	REV. 02	25-PG-022	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE20Z3D	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
146	REV. 02	25-PG-005	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE2DG37	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
147	REV. 02	25-PG-007	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE246IP	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
148	REV. 02	25-PG-010	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE2IX3T	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
149	REV. 02	25-PG-013	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE2CP3F	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
150	REV. 02	25-PG-016	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE28LJ8	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
151	REV. 02	25-PG-019	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE2372Q	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
152	REV. 02	25-PG-001	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE2JS3P	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
153	REV. 02	25-PG-023	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE2N2J4	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
154	REV. 02	64-PG-001	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE22RJ8	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
155	REV. 02	25-PG-004	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE2EIJB	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
156	REV. 02	25-PG-006	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE2AC3O	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
157	REV. 02	25-PG-008	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE2G630	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
158	REV. 02	25-PG-009	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE272IO	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
159	REV. 02	25-PG-011	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE21M31	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
160	REV. 02	25-PG-012	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE2PEJI	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
161	REV. 02	25-PG-014	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE25R3A	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
162	REV. 02	25-PG-015	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE1ZV47	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
163	REV. 02	25-PG-017	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE2FPJJ	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
164	REV. 02	25-PG-018	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE2Q2J7	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
165	REV. 02	25-PG-020	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE2KV3T	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
166	REV. 02	25-PG-021	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE294IS	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
167	REV. 02	25-PG-024	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE2MD3D	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES
168	REV. 02	80-PG-001	PRESSURE GAUGE	UPPER DECK	WIKA	232.50/233.50	PW00DE26B2V	II 2G Ex h IIC T6..T1 Gb X	123A90-DDL-IN-DS-40030	DOCUMENT N°11564220 REV7	Zone 2, Gas Group IIC	N.A	1724000204	FLUITEK VALVES S.r.l.	N.A	N.A	YES	YES

Fluitek Valves	**DECLARATION OF CONFORMITY ATEX 2014/34/EU** *Dichiarazione di Conformità ATEX 2014/34/EU*	**Cert. DDC No.** **240062 ATEX**

GENERAL INFORMATION – *INFORMAZIONI GENERALI*			
Customer ***Cliente***	ROSETTI MARINO S.P.A.		
P. Order ***Ordine***	1724000204 123A90A	**Item/s** ***Item/s***	ALL
FOV Job ***Commessa FOV***	240062	**Position/s** ***Posizione/i***	ALL
Subject ***Oggetto***	BALL VALVE		
Date of execution ***Data di esecuzione***	24/07/2024		

STATEMENT – *DICHIARAZIONE*

We declare that this product has been manufactured in accordance with the Euporean Directive 2014/34/EU to the classification II 2 G/D Tx c.
Technical standards and specifications used are referenced in the Fluitek Orsenigo valves above stated internal job.
The equipment satisfies the provision of directive 2014/34/EU and of standards EN 1127-1, UNI CEI EN ISO 80079-36:2016.
Technical file deposited to Notified Body TUV RHEINLAND 0035.

REMARKS – *NOTE*

SIGNATURE – *FIRME*

Inspection Authority ***Ente Ispettivo***	**Customer Inspector** ***Ispettore Cliente***	**Quality Control** ***Controllo qualità***
		FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Bescheinigung über die Hinterlegung der Dokumentation
Acknowledgement of receipt

Hinterlegungsnummer *Deposit number*	**557/Ex-Ab 3221/20 (Updating 01)**
Gegenstand: Gerät / Typ *Subject: Equipment / type*	Technische Dokumentation / *Technical documentation* VALVES type: FB2/3-ST2/3-VL2/3-FBK/CA-STK/CA-VLK/CA-SWF-STT-WB2/3-GF/P-GT/Y/N-SW/C/Y-BUT (Technical File number: TF-ATEX/2020 rev.1)
Anschrift *Address*	FLUITEK ORSENIGO VALVES Srl Via dei Livelli di Sopra, 7/5 24060 Costa di Mezzate (BG) Italy

Die Unterlagen sind bei uns am 10/19/2022 eingegangen und werden unter o. g. Hinterlegungs-Nr. ordnungsgemäß gelagert bis 04/17/2030.
We received the documents on 10/19/2022 and stored them properly until 04/17/2030 under deposit number above.

Die TÜV Rheinland Industrie Service GmbH ist mit der Kenn-Nr. 0035 benannte Stelle für den Geltungsbereich der Richtlinie 2014/34/EU.
TÜV Rheinland Industrie Service GmbH has notified body number 0035 with the identification of the scope of Directive 2014/34/EU.

TÜV Rheinland Industrie Service GmbH
Anerkannte ATEX-Zertifizierstelle / ATEX-Notified Body Nr. 0035
Am Grauen Stein - 51105 Köln - Germany
(bearbeitende Stelle / executing unit: Alfredstr. 81, 45130 Essen)

i.A./ in order Michael Behrens 10/19/2022

10/201 10.17 E A4 ® TÜV, TUEV and TUV are registered trademarks. Utilisation and application requires prior approval.

rotork Fluid Systems	EU Declaration of Conformity	Rif. JOB nr: AF7703

Manufacturer: Rotork Fluid Systems S.r.l.

Address: Via Padre Jacques Hamel, 138/B
55016 Porcari, Lucca – Italy
Tel. +39 0583 2221
Fax. +39 0585 091362

Section PED: ☐ Applicable ☒ Not Applicable

Under its sole responsibility declares that the items specified below have been designed, manufactured, inspected and tested as required by the relevant provisions of the Pressure Equipment Directive 2014/68/UE.
The equipment has been submitted to the following conformity assessment procedures:

☐**Module H**: **CE-1370-PED-H-RTK 001-23-ITA** **Serial No.:**

☐ **Module H1**: **CE-1370-PED-H1-RTK 001-23-ITA** **Serial No.:**
CE-1370-PED-H1D-RTK 001-20-ITA
CE-1370-PED-H1D-RTK 002-20-ITA

Notified Body: Bureau Veritas Italia SPA Viale Monza 347 20126 MI – Italy
NB Number: 1370

Description: The pressure equipment is a part pressure of pneumatic actuator that is product of Rotork Fluid Systems for quart turn and linear valve. It is composed by a cylinder can and two flanges packaged by tie rods.

Other technical standards and specifications used:
VSR rev.1995; RACCOLTA "M"; RACCOLTA "S"; AD 2000-Merkblatt; ASME VIII Div.1/Div.2; ASME II; EN 13445-3

Section ATEX:

Under its sole responsibility declares that the actuators model:

☒ **GP/GH, CP/CH, RP/RH, LP/LH, HPG, HPL MARKED:** **II 2 G Ex h IIC T5 Gb X**
II 2 D Ex h IIIC T100°C Db X
IP 66M/67M

to which this declaration refers, are in compliance with the following European Directive: **ATEX 2014/34/EU** and they are manufactured according to the following harmonized standards:
EN 12100 / EN ISO 80079-36 / EN ISO 80079-37 / EN ISO4413 / EN ISO4414 / EN 60529

☐ **CQP/CQH MARKED:** **II 2 G Ex h IIC T5 Gb X**
II 2 D Ex h IIIC T100°C Db X
IP 66/68

to which this declaration refers, are in compliance with the following European Directive: **ATEX 2014/34/EU** and they are manufactured according to the following harmonized standards:
EN 12100 / EN ISO 80079-36 / EN ISO 80079-37 / EN ISO4413 / EN ISO4414 / EN 60529

☐ **GO, GOL, EH MARKED:** **II 2 G Ex 60079-46 II_ T_ _ X**
(II 2 D Ex 60079-46 III_ T_ _X)
IP 6_

to which this declaration refers, are in compliance with the following European Directive: **ATEX 2014/34/EU** and they are manufactured according to the following harmonized standards:
EN 12100 / EN ISO 80079-36 / EN ISO 80079-37 / EN ISO4413 / EN ISO4414 / IEC 60079-46, EN 60529

The conformity has been evaluated according to ***Annex VIII (Article 13, Point 1. (b)(ii))*** *of* ***ATEX 2014/34/EU*** *directive.*
TECHNICAL FILE N° TR 219 *(Receipt Number:* ***BVI/ATEX/ITA/24/080*** *Bureau Veritas ITA)*

Section API 6DX: ☐ Applicable ☒ Not Applicable

Under its sole responsibility, the Manufacturer declares that the items specified above have been designed, manufactured, inspected, and tested as required by the applicable provisions of the current edition of the product standard API 6DX and all addenda.

SIGNED ON BEHALF OF ROTORK FLUID SYSTEMS S.R.L. (authorized representative of):

Legal Representative: Metin Gerceker **Signature:**

Place / date: Porcari / 05/02/2025

Keeping the World Flowing
for Future Generations

Rotork fluid power actuator special condition of use

The actuator is suitable for use as a Category 2 device for Zone 1/21 and Zone 2/22. The Type of Protection used is: constructional safety "c".

In the following are reported specific conditions of use and warnings for hazardous zones:

1. Verify the Hazardous classification of the actuator is compatible with the plant zoning. Refer to the actuator nameplate.
2. Do not use the equipment outside its ambient temperature range limits. Verify operating limits and ambient temperature range on the nameplate and in the specific technical documentation.
3. Equipment temperature class T5 depends upon the environmental or exercise fluid temperature, actuator has no internal heat source. The actuator surface temperature is strictly dependent on the temperature of the process fluid used by the valve on which it operates and by irradiation's conditions. The end user must check the surface temperature of the actuator, so that this cannot go over the minimum gas ignition temperature, which classifies the area with the explosion risk. Dust and debris accumulated on the actuator will slow down its cooling and contribute to the increase of its external temperature; in presence of dust, equipment surface temperature must not exceed 2/3 of the ignition temperature of the dust. Dust ignition temperature is reduced by 75 °C if a 5 mm thick coating builds up.
4. The end user must guarantee equal voltage potential between the valve and the actuator by their mechanical coupling and provide appropriate earthing of the valve. Specific earthing instruction is detailed in installation, commissioning and maintenance manual.
5. Prevent electrostatic charges in potentially explosive areas; do not polish/rub non-conductive surface with a dry cloth. Operators must wear suitable antistatic clothing and use tools that will not generate a static charge. The users must ensure the operating environment and any materials surrounding the actuator cannot lead to a reduction in the safe use of, or the protection afforded by, the actuator.
6. Avoid maintenance operations with acid/basic solutions.
7. Damage to the paintwork shall be repaired according to painting specification provided by Rotork.
8. The end user shall assure that actuator and its components are installed far from magnetic fields, electromagnetic fields, radioactive sources, electrical sparks, lightning, electroacoustic transducer which could modify its behaviour.
9. When replacement parts are required, ensure that the qualified service technician uses only replacement parts specified by Rotork. Substitutions will invalidate any hazardous area certification and may result in fire, electrical shock, other hazards, or improper operation.

rotork®

A full listing of the Rotork sales and service network is available on our website.

www.rotork.com

Corporate Headquarters
Rotork plc
tel +44 (0)1225 733200
email mail@rotork.com

rotork®

Electric Actuators and Control Systems
Fluid Power Actuators and Control Systems
Gearboxes and Gear Operators
Precision Control and Indication
Projects, Services and Retrofit

PUB010-046-00
Issue 09/24

As part of a process of on-going product development, Rotork reserves the right to amend and change specifications without prior notice. Published data may be subject to change. For the very latest version release, visit our website at www.rotork.com

The name Rotork is a registered trademark. Rotork recognises all registered trademarks. Published and produced in the UK by Rotork. POLTG0924

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308828

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

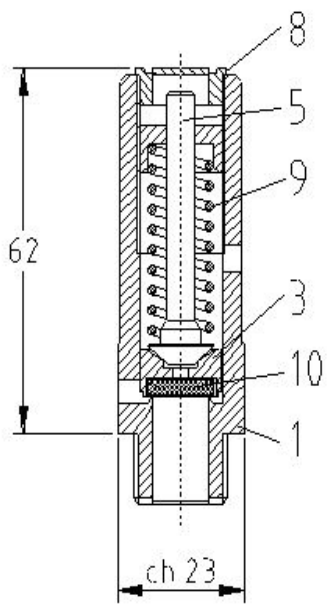
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308829

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

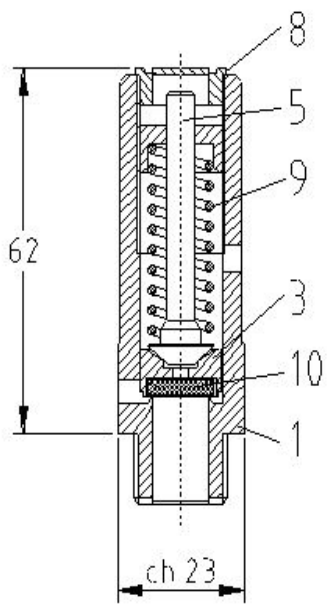
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

10 VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Surpression):** **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Ecart de fermature):** **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberti mi Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. **025308830**

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**
Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

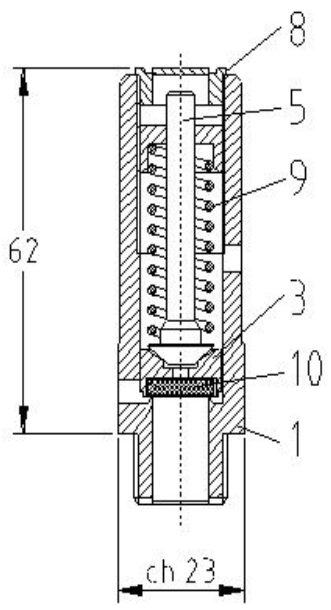
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Surpression):** **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Ecart de fermature):** **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308831

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

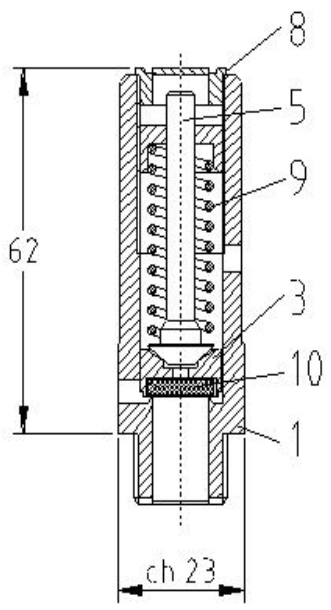
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberto Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308832

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
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PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

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Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

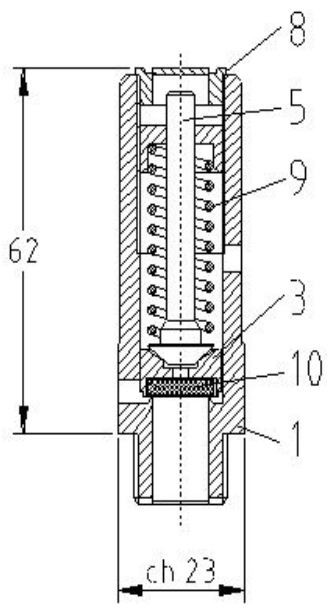
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
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8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

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- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
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http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. **025308833**

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
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VALVOLA DI SICUREZZA
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PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
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Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

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Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

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- P.N.: **60** *(Nenndruck):*

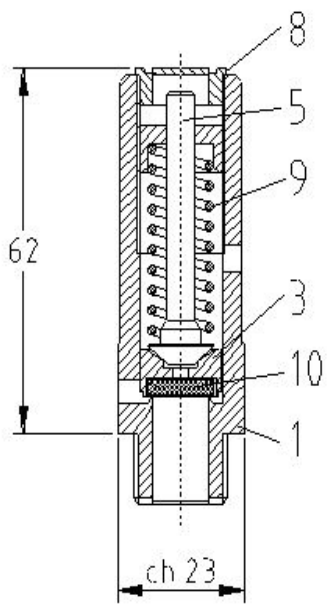
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9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308834

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

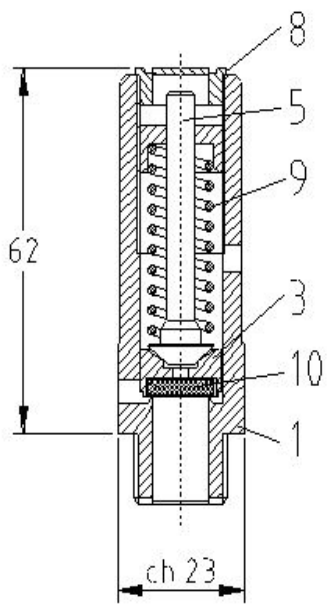
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. : **0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberto Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308835

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**
Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manifacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

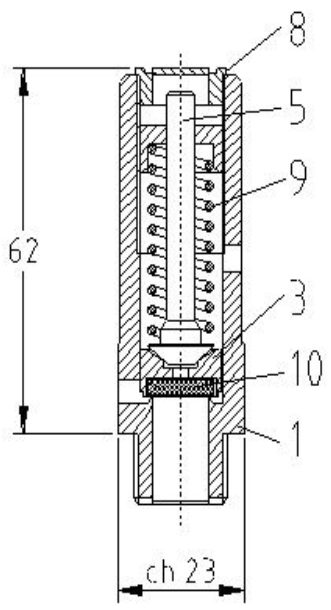
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. : **0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberto Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308836

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

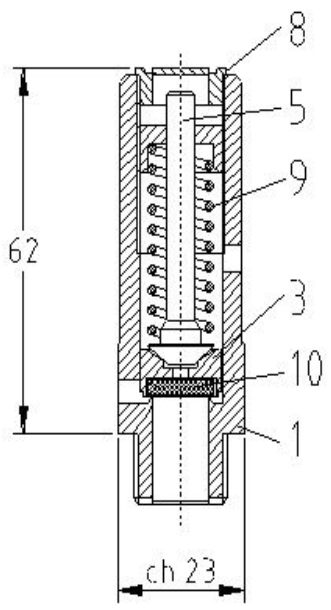
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

10 VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
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2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
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T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
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http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308837

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
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DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

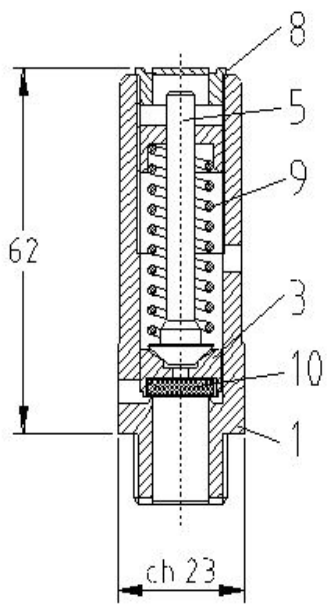
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Surpression):** **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Ecart de fermature):** **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberto Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308838

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manifacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

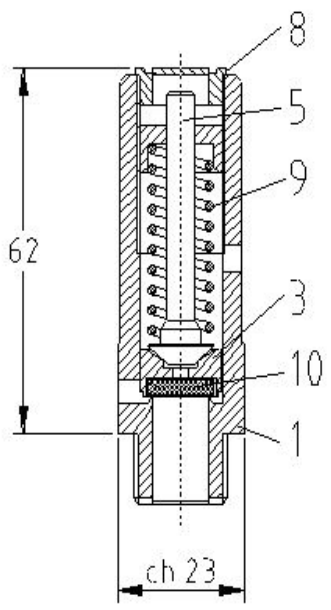
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. : **0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308839

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manifacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

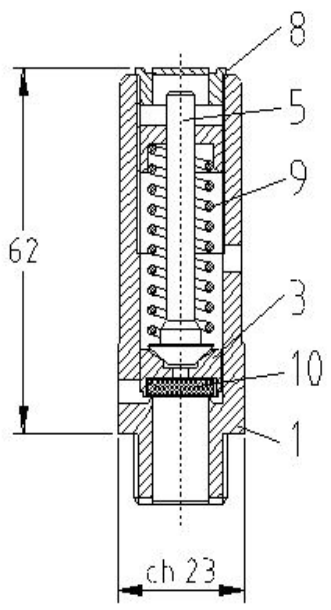
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Surpression):** **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Ecart de fermature):** **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308840

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manifacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

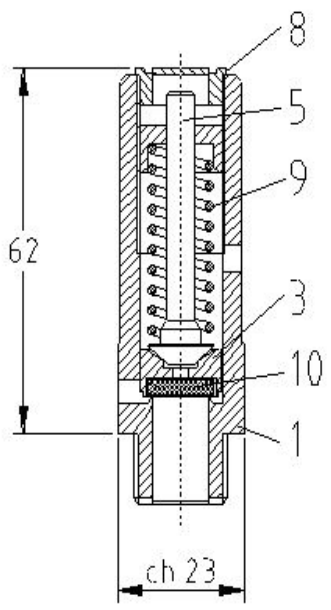
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

10 VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Surpression):** **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Ecart de fermature):** **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
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http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308841

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

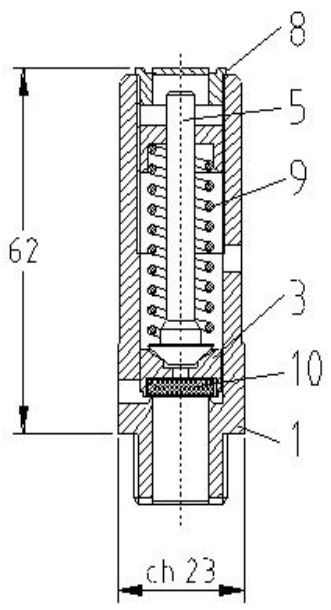
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Surpression):** **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Ecart de fermature):** **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberto Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308842

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**
Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manifacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

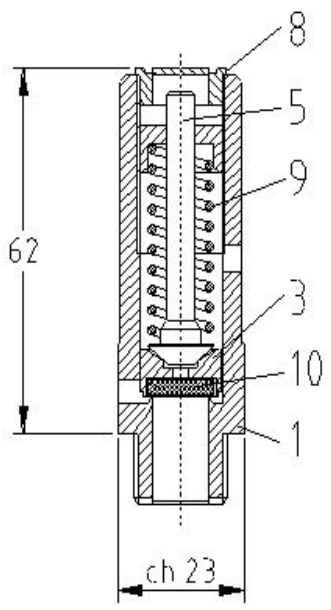
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberto Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308843

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

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Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manifacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

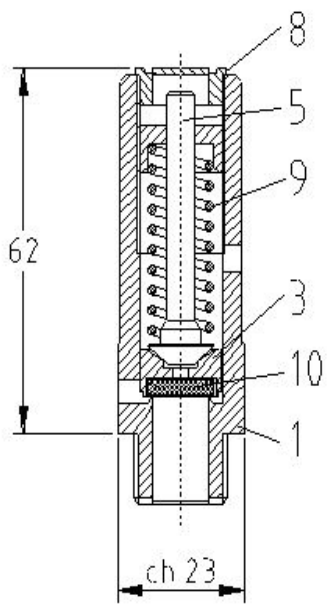
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
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http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308844

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
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VALVOLA DI SICUREZZA
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PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
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PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

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G / S / L
Group 1 or 2

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- P.N.: **60** *(Nenndruck):*

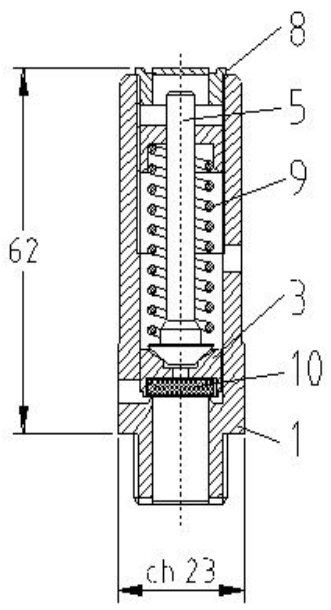
- h / do: **0,4**

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- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Surpression):** **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Ecart de fermature):** **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. **025308845**

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**
Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

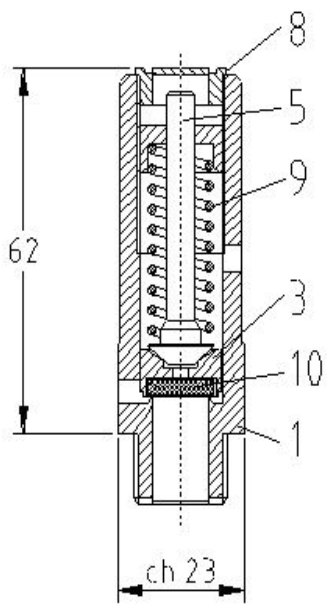
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Surpression):** **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Ecart de fermature):** **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberto Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308846

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

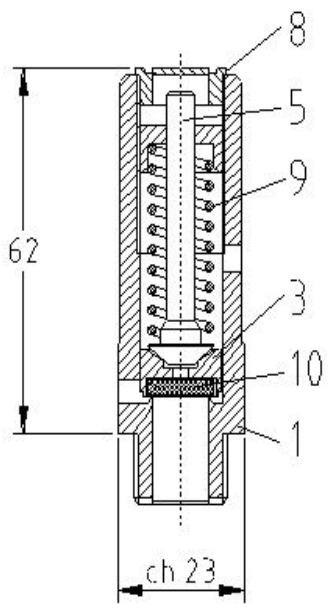
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Surpression):** **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Ecart de fermature):** **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberto Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308847

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

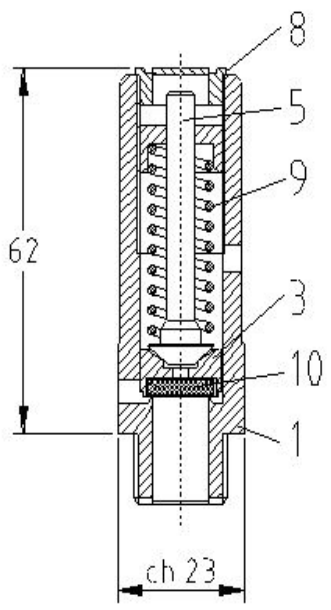
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

10 VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. : **0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308848

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**
Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

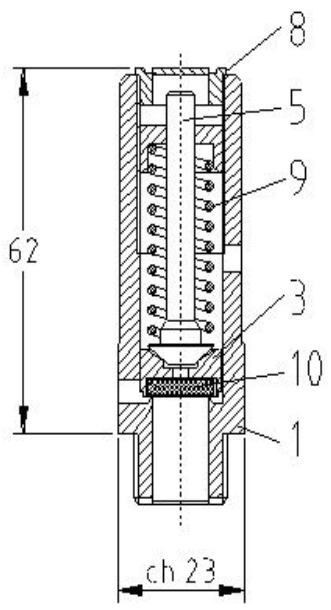
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

10 VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Surpression):** **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Ecart de fermature):** **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberto Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308849

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body):
(Meldestelle): (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manifacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

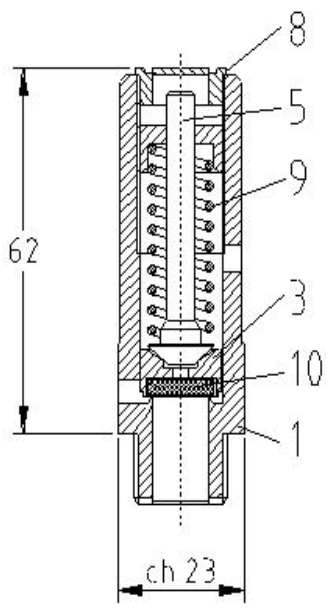
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Surpression):** **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(Ecart de fermature):** **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. **025308850**

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**
Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

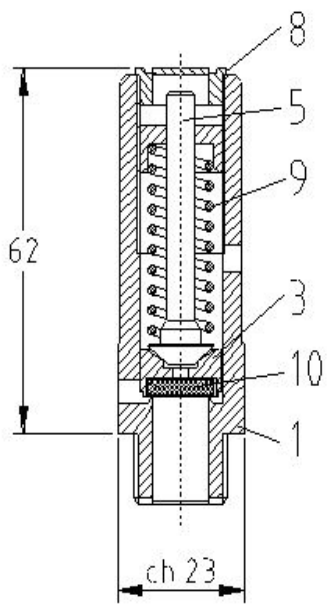
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. : **0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308851

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**
Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

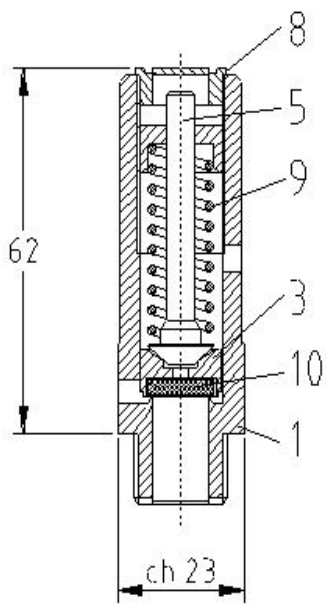
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

10 VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. : **0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
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http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308852

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**
Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manufacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

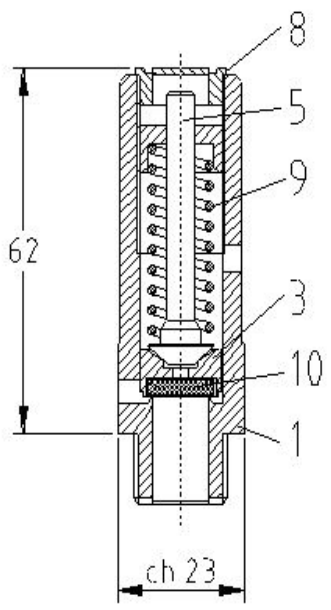
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. : **0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308853

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**
Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

Questa dichiarazione di conformità è rilasciata sotto la sola responsabilità del produttore. - *This declaration of conformity is issued under the sole responsability of the manufacturer.* - Diese Konformitätserklärung wird unter der alleinigen Verantwortung des Herstellers ausgestellt.
Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manifacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

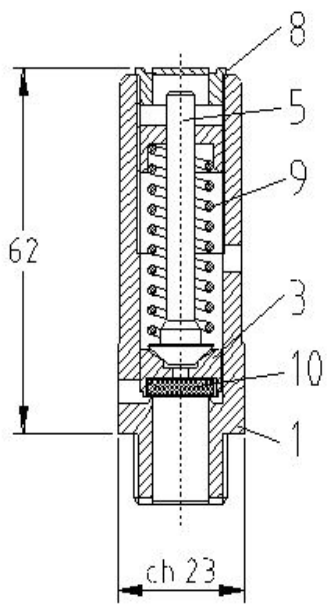
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. : **0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
LOC. CAMPASSO - 29010 PIANELLO VALTIDONE (PC) Italy - Tel. +39 0523994629 - Fax +39 0523997219
http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308854

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
KONFORMITATSERKLARUNG EU Anlage IV Richtlinie 2014/68/EU - Anlage VIII Richtlinie 2014/34/EU
DECLARATION DE CONFORMITÉ UE Annexe IV D.E. 2014/68/UE – Annex VIII D.E. 2014/34/UE

VALVOLA DI SICUREZZA
SAFETY VALVE
SICHERHEITSVENTIL
SOUPAPE DE SURETE

PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
DESIG , MANUFACTURE AND TEST ACCORDING TO 2014/68/EU DIRECTIVE - 15/05/14 CLASS IV Module H1
PROJEKT , KONSTRUKTION UND ABNAHMEPRUFUNG GEMAB EG-RICHTLINIE 2014/68/EU - 15/05/14 KATEGORIE IV Formblatt H1
PROJET,FABRICATION ET VERIFICATION CONFORME A LA DIRECTIVE 2014/68/UE-15/05/14 CATEGORIE IV Module H1

Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**

Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

Organismo notificato: (Notified body): *(Meldestelle):* (Organisme agree):
TÜV SÜD Industrie Service GmbH
Westendstraße 199
D 80686 Munich
0036

II 2G Ex h IIC T6 Gb X
File : TÜV IT 18 ATEX 032 AR

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Fluido - *Fluid* - **Fluide**
G / S / L
Group 1 or 2

- Marchio del costruttore: (Manifacturer's Mark): *(Herstellerzeichen):* **(Marquae du constructeur)**

- P.N.: **60** *(Nenndruck):*

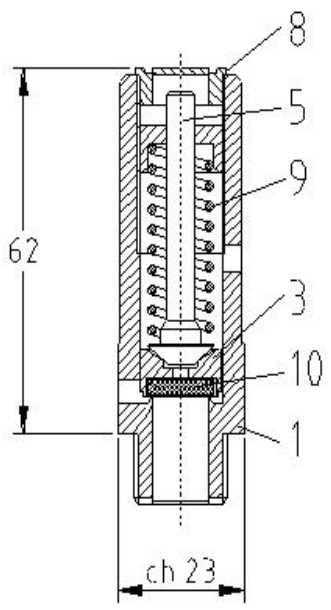
- h / do: **0,4**

- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

- Entrata: (In): *(Eintritt):* **1/2" NPT** **(Entre):**

- Uscita: (Out): *(Austritt):* **(Sortie):**

- Materiali: (Material): *(Material):* **(Matériaux):**



1- UNI EN 10088 1.4404
3- UNI EN 10088 1.4404
5- UNI EN 10088 1.4404
8- UNI EN 10088 1.4404
9- UNI EN 10270-3 1.4310

[10] VITON (-20 / +200 °C)

- Diametro orifizio: do (Opening diameter): do *(Innen durchmrsser): do* **(Diametre orifice):do** **10** mm

- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. : **0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS s.r.l.
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http:// www.nuovageneral.it - E-mail: info@nuovageneral.it - P.IVA 01337040339 - C.F. 01317650065
REA-PC 117793 - Reg. Imp.PC 01317650065 - Capitale Sociale € 100.000,00 i.v.

N. 025308855

Tipo: (Typ.): **D10/S INOX**

Dis. : **009-0 Rev. 24/10/22**

DICHIARAZIONE DI CONFORMITÁ UE Allegato IV, D. E. 2014/68/UE - Allegato VIII, D.E. 2014/34/UE
DECLARATION OF CONFORMITY EU Annex IV, E. D. 2014/68/EU - Annex VIII, E.D. 2014/34/EU
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VALVOLA DI SICUREZZA
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PROGETTO , COSTRUZIONE E COLLAUDO CONFORME ALLA DIRETTIVA 2014/68/UE - 15/05/14 CATEGORIA IV Modulo H1
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Garanzia qualità totale Nr. : **Full quality assurance system Nr. :**
Garantie gesamte Qualität Nr. : **Garantie qualité totale Nr.:**
Module H1 : DGR-0036-QS-1180-24

Norme e spec. utilizzate : (Codes or spec.ref.) : *(Angewandte normen und spezifikationen) :* (Regulements et spec. utilise):
AD-Merkblatt A2 - VdTUV-Merkblatt Sicherheitsventil 100 / Racc."E"1979 / EN80079-36:2016 -37:2016 / ISO4126-1 / AS1271:2003 / EN13648-1 / UNI 10197

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G / S / L
Group 1 or 2

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- P.N.: **60** *(Nenndruck):*

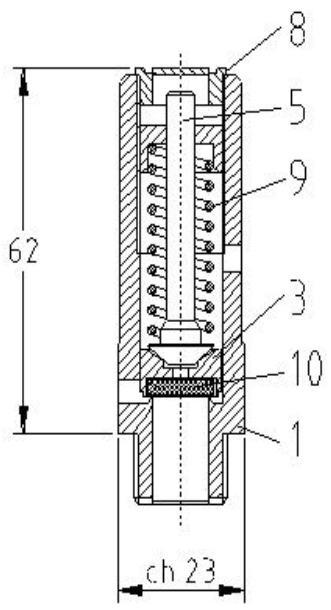
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- D.N.: (Nominal Diameter): *(Anschlusgewinde):* **(D.N):**

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- Area: (Area): *(Offnung):* **(Surface):** **0,785** cm^2

- Alzata: h (Valve Lift): h *(Hub): h* **(Haussement): h** **4** mm

- Limiti di temperatura di esercizio dei materiali utilizzati a pressione atmosferica: (Operating temperature limits for materials used at atmospheric pressure): *(Betriebstemperaturgrenze der unter Luftdruck verwendeten Materialien):* **(Limites de température de fonctionnement des matériaux utilisés sous pression atmosphérique):** **-20 / +200 °C**

- Coefficiente di efflusso : (Flow coefficient.): *(AusfluBziffer.):* **(Coefficient d'écoulement** **Kd 0,86**

- Coefficiente di efflusso ridotto : (Reduced flow coefficient): *(Reduzierte Ausflußziffer):* **(Coefficient d'écoulement réduit** **Kdr = 0,9xKd = 0,77**

- Pressione di taratura: (Setting Pressure): *(Abgleichungssdruck):* **(Pression de tarage):** **4,7** bar g

- Variabilità campo di taratura: (Variability Setting Filed): *(Abgleichungsberelch):* **(Variabilite champ de tarage):** **3,1 - 5** bar g

- Sovrappressione: (Overpressure): *(Uber-Unterdruck):* **(Surpression):** **10%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

- Scarto di chiusura: (Closing variation): *(Unterdruck):* **(Ecart de fermature):** **15%** % della pressione di taratura (% of Setting Pressure) *(% Abgieichungsdruck)* **(% De la pression de tarage)**

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide): ARIA-AIR-LUFT Temper. :**0** °C

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** **328,02** kg/h **253,73** Nm^3/h **4228,82** lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

TIPO FLUIDO: (FLUID TYPE): *(MEDIUM):* (Type de fluide):

- Scarico in atmosfera: (Discharge in Atmosphere): *(AbfluB gegen Atmosphare):* **(Decharge en atmosphere):** kg/h Nm^3/h lt/min.

Anno costruzione:
(Year of manufacture):
(Baujahr):
(Annee de fabrication):
2025

Si dichiara che la valvola ha subito con buon esito il controllo finale compreso il test di tenuta (90% Pset) e la prova idraulica del corpo a 1,5 x P.N.
We declare that this valve has passed successfully the test, the seat tightness test (90% Pset) and the hydraulic test of the body to 1,5 x P.N.
Hiermit bestätigen wir, dass das Ventil die Abschlusskontrolle einschließlich der Sitzdichtheit (90%Pset) und hydraulischen Gehäuseprüfung mit einem Druck von 1,5 x P.N.
On declare que la soupape a ete soumise avec resultat satisfiant a le control final y-compri l'epreuve d'étanchéité (90% Pset) et l'epreuve hydraulique du corps a 1,5xPN.

EN 10204 3.1 Cod. : **00F16D10SSVNPAX047**

Nr.Ord. : D2500700 REV 1 **S.V. Code : 00F16D10SSVNPAX047** **Date :** 17/04/2025

NUOVA GENERAL INSTRUMENTS SRL
Alberigini Patrizia (CEO)

NUOVA GENERAL INSTRUMENTS

	I Descrizione ATEX-UKEX	GB Atex-UKEX Description	D *Beschreibung ATEX-UKEX*	F Description ATEX-UKEX	ES Descripción ATEX-UKEX
	Simbolo rappresentativo per dispositivi certificati ATEX-UKEX	Representative symbol of ATEX-UKEX certified equipment	*Repräsentatives Symbol für ATEX-UKEX zertifizierte Geräte*	Symbole représentatif des équipements certifiés ATEX-UKEX	*Símbolo representativo para dispositivos con certificación ATEX-UKEX*
II	Gruppo dell'apparecchio	Equipment's group	*Gerätegruppe*	Groupe d'appareils	*Grupo de dispositivos*
2	Categoria dell'apparecchio	Equipment's category	*Gerätekategorie*	Catégorie d'appareils	*Categoría de dispositivos*
G	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI E NEBBIE	Protected to explosive atmosphere due to GAS, STEAM and FOG	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF UND NEBEL*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS ET BROUILLARDS	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPOR Y NIEBLA*
GD	Protezione delle atmosfere esplosive dovute a presenza di GAS, VAPORI, NEBBIE, NUBI e POLVERI	Protected to explosive atmosphere due to GAS, STEAM, FOG and DUST	*Schutz explosionsfähiger Atmosphären durch GAS, DAMPF, NEBEL, WOLKEN und PULVER*	Protection des atmosphères explosives grâce à la présence de GAZ, VAPEURS, BROUILLARDS, NUAGES et POUSSIÈRES	*Protección de atmósferas explosivas debido a la presencia de GAS, VAPORES, NIEBLA, NUBES y POLVO*
Ex h (Type of protection "c" constructional safety)	Indicazione di apparecchiatura non elettrica	Non-electrical equipment indication	*Hinweis auf nichtelektrische Geräte*	Indication des équipements non électriques	*Indicación de equipos no eléctricos*
IIC	Sottodivisione del gruppo di apparecchi	Equipment group subdivision	*Unterteilung der Gerätegruppe*	Subdivision du groupe d'appareils	*Subdivisión del grupo de dispositivos*
T6	Temperatura massima di parete ≤85°C	Maximum surface temperature ≤85°C	*Maximale Oberflächentemperatur ≤85 ° C*	Température maximale de paroi ≤85 ° C	*Temperatura máxima de la pared ≤85 ° C*
Gb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
GbDb	Equipment Protection Level (EPL)	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*	Equipment Protection Level (EPL)	*Equipment Protection Level (EPL)*
X	La massima temperatura superficiale potrebbe essere superiore alla classe di temperatura, si raccomanda come massima temperatura il valore maggiore tra T6 e la max Temperatura ammissibile per la tenuta (V. COC)	The max surface temperature could be higher than the temperature class, it is recommended as max temperature the higher value between T6 and the max Admissible temperature for the seal (V. COC)	*Die max. Oberflächentemperatur kann höher sein als die Temperaturklasse, als max. Temperatur wird der höhere Wert zwischen T6 und der max. zulässigen Temperatur für die Dichtung (V. COC) empfohlen.*	La température de surface maximale peut être supérieure à la classe de température, il est recommandé comme température maximale la valeur la plus élevée entre T6 et la température maximale admissible pour le joint (V. COC)	*La temperatura máxima de la superficie podría ser superior a la clase de temperatura, se recomienda como temperatura máxima el valor más alto entre T6 y la temperatura máxima admisible para el sello (V. COC)*

NUOVA GENERAL INSTRUMENTS

MANUALE USO MANUTENZIONE IT

Il manuale d'uso e manutenzione è il documento che accompagna la valvola dal momento della sua costruzione sino alla sua rottamazione. Risulta cioè essere parte integrante di essa. E' richiesta la lettura del manuale prima che venga intrapresa QUALSIASI ATTIVITA' che coinvolga l'apparecchiatura compresa la movimentazione e lo scarico della stessa dal mezzo di trasporto. Si raccomanda di istruire il personale destinato all'installazione. L'utente e l'addetto alla manutenzione hanno l'obbligo di conoscere il contenuto del presente manuale.

ATTENZIONE: La compatibilità del tipo di valvola e del materiale di costruzione, con il fluido e le condizioni operative e di processo è responsabilità dell'utilizzatore. Le verifiche fatte dalla NGI sono basate unicamente sulle informazioni trasmesse dall'acquirente/utilizzatore. Lo stoccaggio, l'installazione, la verifica periodica e la manutenzione sono responsabilità dell'utilizzatore.

Prestare molta cura ed attenzione nell'uso delle valvole di sicurezza, in quanto il presente manuale non è, e non può essere, esaustivo e prevedere tutte le possibili installazioni ed utilizzi delle stesse. Le valvole di sicurezza NGI sono progettate per fluidi tipo gas, vapori e liquidi. Il passaggio di polveri e/o solidi attraverso la sede di tenuta può compromettere il funzionamento. Nella progettazione non sono stati presi in considerazione i seguenti fattori: Sollecitazioni dovute a terremoti, Carichi dovuti a vento, Sollecitazioni a fatica. In caso di incendio esterno, per il superamento della temperatura di esercizio si ha il collasso della sede di tenuta della valvola di sicurezza, la quale andrà automaticamente in scarico. Per evitare tale evento si rende necessario adottare idonei sisteni di raffreddamento e protezione.

1. GARANZIA - Per qualsiasi comunicazione con la NGI citare sempre il tipo di valvola e il N° di matricola posizionato sul corpo valvola. I prodotti NGI sono garantiti per un periodo di 12 mesi (comunque in funzione della legge vigente) a partire dalla data di collaudo riportata sul certificato. Tutte le parti accertate difettose di materiale o di lavorazione, saranno sostituite gratuitamente, franco stabilimento NGI. Altre richieste dovute a danni per usura, sporcizia, manipolazioni incompetenti, ecc., saranno respinte da NGI, come pure ulteriori garanzie contrattuali. Qualsiasi reclamo relativo alla merce giunta in quantità o esecuzione diversa da quella ordinata, dovrà pervenire a NGI per iscritto al massimo entro 10 giorni dal ricevimento del materiale. La vita media delle valvole di sicurezza a sede di tenuta con elastomeri, ed in particolari condizioni di esercizio, è di circa 24-36 mesi. La vita media delle valvole di sicurezza a sede di tenuta metallica/PTFE, ed in particolari condizioni di esercizio, é di 36-48 mesi. Alla scadenza di tali termini è necessario eseguire una verifica visiva esterna che confermi il buon stato delle stesse (prive di forti ossidazioni - erosioni e con le feritoie/connessioni di scarico libere da ostruzioni). In assenza di evidenti ossidazioni, erosioni, incrostazioni e/o danneggiamenti dovuti a cause esterne, la vita media si prolunga di altrettanto periodo come sopra descritto.

2. NOTE GENERALI ALLA CONSEGNA - Al ricevimento della valvola controllare che: L'imballaggio sia integro; La fornitura corrisponda alle specifiche dell'ordine (vedi documento di trasporto e/o fattura); Non vi siano danni; Qualora siano stati richiesti in ordine i certificati in forma cartacea, consegnare tali documenti all'ufficio preposto. ATTENZIONE DOCUMENTI NON DUPLICABILI. In caso di danni o pezzi mancanti informare immediatamente e in modo dettagliato lo spedizioniere, la NGI o i suoi rappresentanti di zona. I disegni o qualsiasi altro documento consegnato assieme alla valvola, sono di proprietà della NGI che se ne riserva tutti i diritti e non possono essere messi a disposizione di terzi. E' quindi vietata la riproduzione, anche parziale del testo o delle illustrazioni. **CONSIGLIO: INSTALLARE SUBITO LE VALVOLE E NON LASCIARLE INATTIVE PER LUNGO TEMPO.**

3. DESCRIZIONE VALVOLA - Sul corpo della valvola di sicurezza sono stampigliati i dati identificazione del costruttore, il modello, il valore della pressione di taratura, l'identificazione del materiale di costruzione, i picchi temperatura minima e massima che può raggiungere la valvola, il DN In x Out (dove previsto), il numero di matricola. Le valvole di sicurezza NGI ad alzata totale a molla per vapori, gas e liquidi, sono il risultato di una grande esperienza, maturata in decine di anni di applicazione in diversi campi ed adempiono ampiamente a tutti i requisiti di ultima difesa degli apparecchi a pressione. Sono perfettamente in grado di non far superare l'aumento di pressione massima ammessa, anche se tutti gli altri dispositivi autonomi di sicurezza installati a monte si sono bloccati. Le valvole di sicurezza NGI sono costituite da un corpo ottone o in acciaio inossidabile altamente resistenti per alte e basse temperature. Sono dotate di un'asta, di una sede e di un otturatore che garantiscono la massima efficienza nel tempo. Le connessioni unificate permettono qualsiasi accoppiamento. Tutte le valvole sono tarate in fabbrica per garantire il massimo della sicurezza ed il minimo di manutenzione. A questo scopo La invitiamo a leggere attentamente questo manuale, in modo che Lei possa trarre tutti i benefici e sicurezze di cui gli impianti in cui le valvole NGI verranno installate, necessitano.

4. PRESCRIZIONI DI SICUREZZA - Sugli impianti devono essere installate valvole i cui materiali di costruzione siano idonei ad operare nelle condizioni previste (natura e stato fisico del fluido, ambiente esterno). Verificare che gli attacchi delle valvole di sicurezza siano conformi alle specifiche dell'impianto su cui devono essere installate; in particolare, nel dimensionamento del bocchello di attacco della valvola, tenere in opportuna considerazione le forze e i momenti generati dal passaggio del fluido attraverso la valvola. Se lo scarico avviene in atmosfera, direzionare la valvola in maniera tale da non provocare danni a persone o cose. Ogni regolazione o messa a punto, deve essere rigorosamente eseguita da tecnici specializzati, che conoscono i pericoli delle valvole di sicurezza. Prima di effettuare regolazioni o messe a punto indossare OCCHIALI, GUANTI e altre PROTEZIONI INDIVIDUALI ed assicurarsi che l'impianto sia a pressione zero e temperatura ambiente. Prima di intervenire sulla valvola, assicurarsi che sia a pressione zero e temperatura ambiente. **ATTENZIONE AI GAS TOSSICI O NOCIVI.** Se la valvola non è fissata bene, esiste il pericolo di vibrazioni. Quindi assicurarsi che i fissaggi siano serrati a fondo. La valvola può operare solo dopo l'avvenuto collaudo NGI o di altri Enti preposti. La marcatura sulla valvola di sicurezza riporta esattamente la pressione di taratura, il materiale di costruzione e i picchi temperatura minima e massima che può raggiungere la valvola. **PERICOLO DI USTIONE FREDDA O USTIONE CALDA. LA SUPERFICE ESTERNA PUO' RAGGIUNGERE LA TEMPERATURA DEL FLUIDO INTERNO. NON MANOMETTERE MAI, IN NESSUN CASO LA VALVOLA, NE TOGLIERE IL PIOMBINO/SIGILLO DI FABBRICA PER NESSUNA RAGIONE.** Non lubrificare per nessuna ragione. In caso di cattivo funzionamento, interpellare immediatamente la NGI. **ATTENZIONE: IN AMBIENTI CORROSIVI, DEVONO ESSERE MONTATE SOLO VALVOLE IN ACCIAIO INOSSIDABILE O COMPATIBILI CON IL FLUIDO DI CONTATTO. ATTENZIONE: NON IDONEA PER FLUIDI INSTABILI**

5. TRASPORTO - Le valvole NGI a secondo della dimensione possono essere trasportate in scatole o in casse. Comunque le valvole di piccole dimensioni possono essere trasportate a mano, quelle di grosse dimensioni con un carrello a forche o gru. **ATTENZIONE: VIBRAZIONI, COLPI, IMPURITA', POSSONO DANNEGGIARE IL FUNZIONAMENTO DELLA VALVOLA, PER QUESTO LE VALVOLE DEVONO ESSERE MANEGGIATE CON CURA E SENZA TOGLIERE LE PROTEZIONI DELLE CONNESSIONI, CHE IMPEDISCONO L'ENTRATA DI IMPURITA', PRIMA DELL'INSTALLAZIONE.**

6. INSTALLAZIONE - Le valvole vengono fornite dalla NGI con la taratura richiesta e piombate. **ATTENZIONE: BISOGNA ASSICURARSI CHE LA PIOMBATURA/SIGILLO DI FABBRICA NON VENGA MAI DANNEGGIATO. LA ROTTURA DEI SIGILLI E' MOTIVO DI DECADIMENTO DELLA GARANZIA.** Per il serraggio della valvola all'apparecchiatura da proteggere, agire esclusivamente sulla sede ricavata nella parte inferiore del corpo vicino all'attacco d'entrata e con appropriati utensili. Montare le valvole in luogo accessibile ma protetto da urti e manomissioni, per evitare danni alle persone durante lo scarico e per facilitare controlli e verifiche periodiche. Non interporre tra serbatoio (o impianto) e valvola organi di intercettazione o strozzamento. Il manicotto di collegamento della valvola deve essere il più corto possibile e avere un'area di passaggio non inferiore a quella delle connessioni di entrata e uscita. Le valvole di sicurezza a molla, aventi pressione di taratura inferiore a 1 bar (0,1 MPa - 14,5 psi) devono essere montate con il cappello in verticale rivolto verso l'alto. Per pressioni di taratura superiori a 1 bar (0,1 MPa - 14,5 psi) con fluido gas, la posizione di montaggio è ininfluente al corretto funzionamento; nel caso di liquidi, vapori e condense devono essere montate con il cappello in verticale rivolto verso l'alto.**FACENDO ATTENZIONE a non danneggiare la superficie, togliere le protezioni e montare la valvola secondo le specifiche dell'impianto.** Se lo scarico dovesse essere collegato ad una tubazione esterna, tale tubazione deve essere la più corta possibile per evitare contropressioni non previste. La massima contropressione prevista è del 10% della pressione di taratura. Evitare che sostegni o tubazioni trasmettano forze o momenti di reazione alla valvola. La tubazione di connessione in ingresso e quella di coinvolgimento dello scarico in uscita, possono trasmettere alla valvola, sia chiusa che in fase di scarico, sollecitazioni statiche, dinamiche e termiche capaci di compromettere la stabilità della valvola di sicurezza. Le tubazioni devono quindi essere progettate, realizzate ed installate in modo da evitare che sulla valvola di sicurezza gravino sollecitazioni aggiuntive, oltre a quelle determinate dalla pressione interna e dal serraggio. Per le valvole di sicurezza a scarico convogliato, collegare il foro di spurgo ad una tubazione per convogliarlo in una zona non pericolosa. Al fine di assicurare una buona tenuta della valvola di sicurezza, la pressione di esercizio dell'attrezzatura protetta non deve superare il 90% della pressione di taratura della valvola stessa. In caso di pressione pulsante, il margine di esercizio va ulteriormente ridotto, in funzione della ampiezza e della frequenza della pulsazione, fino ad un valore massimo pari all'80% della pressione di taratura. Anomalie nella conduzione dell'impianto che provochino lo sfioro della valvola, possono compromettere la successiva capacità di tenuta della stessa. **Accertarsi della corretta messa a terra della valvola, anche tramite la stessa connessione d'ingresso.** Apporre, in funzione dell'installazione, apposite indicazioni (cartelli) che informino sui rischi residui degli organi in movimento (moto) e della temperatura di esercizio. Prima di avviare l'impianto assicurarsi che all'interno dello stesso non ci siano corpi solidi che possono danneggiare la sede di tenuta della valvola. Problemi di tenuta possono verificarsi su tutte le valvole a tenuta "metallica" o in "PTFE", qualora tra le superfici di sede e otturatore si vengano a depositare anche minuscoli frammenti di materiale vario (scorie di saldatura o impurità di altro tipo presenti nelle tubazioni dell'impianto). Laddove le condizioni (natura del fluido e temperatura di esercizio) lo consentano, è possibile ricorrere alla "tenuta morbida". In caso di scarico prolungato ad alta temperatura, si può verificare una variazione del modulo di elasticità tangenziale del materiale di costruzione della molla, con conseguente diminuzione della pressione di taratura e aumento dello scarto di richiusura della valvola di sicurezza. È necessario, ai fini della funzionalità della valvola di sicurezza, controllare che non vi sia trafilamento di fluido tra le superfici di sede e otturatore. Nel caso ciò si verificasse, intervenire nel più breve tempo possibile per il ripristino della corretta tenuta. Nel caso in cui si possano verificare, nel tratto a monte della valvola di sicurezza, fenomeni di cristallizzazione o polimerizzazione del fluido di processo è buona norma realizzare il tronchetto d'ingresso più corto possibile e dotare la valvola di camicia di riscaldamento o sistema equivalente. La cristallizzazione o la polimerizzazione del fluido nella zona a valle dell'otturatore (lato bassa pressione del corpo valvola) o nel cappello della valvola, può determinare il bloccaggio della valvola. È importante, al fine di evitare un tale inconveniente, tenere sotto controllo la valvola di sicurezza, avendo cura di rilevare un eventuale trafilamento di fluido che ne provocherebbe appunto il bloccaggio.

7. PULIZIA E LUBRIFICAZIONE - Le valvole di sicurezza NGI sono costruite per funzionare senza essere lubrificate; è sufficiente conservarle pulite ed efficienti.

8. MANUTENZIONE ORDINARIA - ISPEZIONI - La valvola è un meccanismo molto delicato. E' compito del conduttore dell'impianto controllare l'efficienza e in caso di necessità chiamare il tecnico specializzato o inviare la valvola alla NGI. L'ispezione delle valvole di sicurezza è riservata ad Enti preposti ed è disciplinata dalle norme di legge specifiche, vigenti nel paese d'installazione. **ATTENZIONE: LA NGI NON SI ASSUME NESSUNA RESPONSABILITA' PER INTERVENTI O MANOMISSIONI NON AUTORIZZATI DALLA NGI STESSA. LA NGI NON E' PIU' RESPONSABILE DELLA VALVOLA STESSA DOPO RIPARAZIONI, RITARATURE, SOSTITUZIONE DI PEZZI O QUALSIASI ALTRO INTERVENTO ESEGUITO SENZA IL SUO DIRETTO CONTROLLO.**

9. Controllo periodico delle valvole di sicurezza munite di dispositivo di apertura manuale con sedi di tenuta in elastomero per vapore d'acqua. - Per assicurarsi che le valvole di sicurezza continuino a essere in buona efficienza di esercizio, esse devono venire provate periodicamente. A tale scopo esse verranno aperte manualmente facendole scattare mediante la leva o la ghiera di apertura; questa prova deve farsi mantenendo nell'apparecchio protetto una pressione compresa fra l'80 e il 90% di quella di taratura della valvola. La valvola deve aprirsi decisamente, con abbondante fuoriuscita di fluido, e deve richiudersi nettamente una volta abbandonata la leva o riattivata la ghiera. La manovra deve essere breve e non ripetuta. La periodicità dipende dalle condizioni di impianto (maggiore o minore probabilità che la valvola si sporchi o si depositano sali contenuti nell'acqua). **Effettuare la prova all'avvio dell'impianto e poi attenersi alle disposizioni di norma e/o di legge del paese di installazione.** La procedura sopra descritta non è applicabile alle valvole di sicurezza sprovviste di apertura manuale. Per eventuali verifiche periodiche si dovrà intervenire bypassando le varie sicurezze dell'impianto e/o eseguire la prova al banco per raggiungere la pressione di taratura. La NGI si riserva la facoltà di modificare senza preavviso caratteristiche, performance e disegni dei prodotti.

NUOVA GENERAL INSTRUMENTS

MAINTENANCE AND USE MANUAL

GB

The use and maintenance manual is the document that accompanies the valve from its construction to its scrapping. It is therefore an integral part of it. Read the manual before performing any operations on the equipment, including handling and unloading it from the transport vehicle. Instruct personnel responsible for installation. The user and the maintenance technician must be familiar with the contents of this manual.

CAUTION: The user is responsible for checking the compatibility of the valve type and the construction material with the fluid and the operating and process conditions. Checks made by NGI are based solely on the information provided by the buyer/user. The user is responsible storage, installation, periodic checks and maintenance.

Take the utmost care in the use of safety valves, as this manual is not, and cannot be, exhaustive and does not provide for all its possible installations and uses. NGI safety valves are designed for fluids such as gases, vapours and liquids. The passage of dust and/or solids through the seal seat can compromise functioning. The following factors were not taken into consideration in the design: Stress caused by earthquakes, Wind loads, Fatigue stresses. In case of external fire when the operating temperature is exceeded, the seal seat of the safety valve collapses and the latter will be automatically discharged. To avoid this, make use of suitable cooling and protection systems.

1. WARRANTY - Whenever communicating with NGI, always mention the type of valve and the serial number indicated on the valve body. NGI products are guaranteed for a period of 12 months (depending however on the law in force) from the testing date shown on the certificate. All parts found to be defective in material or workmanship will be replaced free of charge ex NGI. Other claims due to wear and tear, dirt, incompetent handling, etc. shall be rejected by NGI, as well as other contractual guarantees. Any complaints relating to the goods received in a quantity or execution different from that ordered must be received by NGI in writing within a maximum of 10 days of receipt of the material. The average life of elastomer seal seat safety valves in their specific operating conditions is approximately 24-36 months. The average life of metal/PTFE seal seat safety valves in their specific operating conditions is approximately 36-48 months. At the end of this period, an external visual check must be made to ensure that the valves are in good condition (no serious oxidations - erosion and with the slits/discharge connections free from obstructions). If there is no obvious oxidation, erosion, fouling and/or damage due to outside causes, the average life is extended by the same period described above.

2. GENERAL DELIVERY INFORMATION - Upon receipt of the valve, make sure that: The packaging is intact, the material supplied corresponds with the order specifications (see the delivery note and/or invoice), there is no damage. If hard copy certificates have been requested in the order, deliver these documents to the office in charge. CAUTION: DOCUMENTS CANNOT BE DUPLICATED. In the event of damage or missing parts, immediately inform the carrier, NGI or its local representatives with details. Drawings and any other documents delivered with the valve are the property of NGI, which reserves all rights, and may not be made available to third parties. Any full or partial reproduction of the text or illustrations is therefore prohibited. **RECOMMENDATION: INSTALL VALVES IMMEDIATELY AND DO NOT LEAVE THEM INACTIVE FOR A LONG TIME.**

3. VALVE DESCRIPTION - Data identifying the manufacturer, the model, the calibration pressure value, identification of the construction material, the minimum and maximum temperature peaks that the valve can reach, the DN In x Out (where present) and the serial number are all marked on the body of the safety valve. NGI spring-loaded safety valves for steam, gases and liquids are the result of extensive experience gained over decades of application in various fields and largely meet all the requirements for final protection of pressure vessels. They are fully capable of preventing maximum permitted pressures from being exceeded, even if all other independent safety devices installed at points upstream have failed to work. NGI safety valves consist of a brass or stainless steel body that is highly resistant to high and low temperatures. They are fitted with a stem, a seat and a disc that guarantee maximum efficiency over time. Unified connections allow any type of coupling. All valves are factory-calibrated to ensure maximum safety and minimum maintenance. To this end, please carefully read this manual to ensure all the benefits and safety required on systems where NGI valves are installed.

4. SAFETY REQUIREMENTS - Valves must be installed on the systems whose construction materials are suitable for operation in the expected conditions (nature and physical state of the fluid, external environment). Make sure that safety valve connections comply with the specifications of the system on which they are to be installed. In particular, take into account the forces and momentum generated by the passage of the fluid through the valve when sizing the valve connection nozzle. If the valve discharges into the atmosphere, it must be pointed in a direction that will not cause harm to persons or property. Any adjustments or tuning must be performed by specialised technicians who are familiar with the dangers of safety valves. Put on GOGGLES, GLOVES and other PERSONAL PROTECTIVE EQUIPMENT and make sure that the system is at zero pressure and at room temperature before performing any adjustments or tuning. Before performing any operations on the valve, make sure it is at zero pressure and at room temperature. **BEWARE OF TOXIC OR HARMFUL GASES.** Vibrations may occur if the valve is not properly secured. Therefore, make sure that the fastenings are completely tightened. The valve may only be used after having been tested by NGI or by other authorised entities. The marking on the safety valve contains the exact calibration pressure, the construction material and the minimum and maximum temperature peaks that the valve can reach. **DANGER OF COLD BURNS OR SCALDING. THE OUTSIDE SURFACE MAY REACH THE TEMPERATURE OF THE FLUID CONTAINED INSIDE. NEVER UNDER ANY CIRCUMSTANCES TAMPER WITH THE VALVE NOR REMOVE THE LEAD/MANUFACTURER'S SEAL FOR ANY REASON.** Do not lubricate for any reason. Contact NGI immediately in the event of defective operation. **CAUTION: ONLY STAINLESS STEEL VALVES OR VALVES COMPATIBLE WITH THE CONTACT FLUID MUST BE USED IN CORROSIVE ENVIRONMENTS. CAUTION: NOT SUITABLE FOR UNSTABLE FLUIDS**

5. TRANSPORT - Depending on size, NGI valves can be transported in boxes or in crates. Smaller valves must however be transported by hand, while larger sized valves with a forklift or crane. **CAUTION: VIBRATIONS, IMPACT AND IMPURITIES CAN DAMAGE VALVE FUNCTIONING. VALVES MUST THEREFORE BE HANDLED WITH CARE, WITHOUT REMOVING THE CAPS ON THE CONNECTIONS WHICH PREVENT IMPURITIES FROM ENTERING INSIDE BEFORE INSTALLATION.**

6. INSTALLATION - Valves are supplied by NGI with the required calibration and lead-sealed. **CAUTION: MAKE SURE THAT THE LEAD/MANUFACTURER'S SEAL IS NOT DAMAGED. BREAKAGE OF THE SEAL WILL VOID THE WARRANTY.** To secure the valve to the equipment being protected, use suitable tools and only use the seat fitted at the bottom of the body near the inlet connection. Install the valves in a position that is accessible but protected from impact and tampering to prevent personal injury during discharge and to facilitate checks and periodic inspections. Do not install shut-off or throttling devices between the tank (or system) and the valve. The valve connection pipe must be as short as possible and must have a cross-section no smaller than the input and output connections. Spring-loaded safety valves with a pressure calibrated to less than 1 bar (0.1 MPa - 14.5 psi) must be installed with the cap facing upwards. The assembly position is irrelevant to correct operation for calibration pressures over 1 bar (0.1 MPa - 14.5 psi) for fluid gas. For liquids, vapours and condensates, they must be installed with the cap facing upwards. **BE CAREFUL not to damage the surface, remove the caps and install the valve according to the system specifications.** If the discharge needs to be connected to outside pipes, these must be as short as possible to prevent unforeseen backpressure. The maximum backpressure permitted is 10% of the calibration pressure. Prevent supports or pipes from transmitting forces or reaction moments to the valve. Inlet and outlet connection pipes can transmit static, dynamic and thermal stresses to the valve, both when closed and in the discharge phase, which can compromise safety valve stability. Pipes must therefore be designed, constructed and installed in such a way as to prevent the safety valve from being subjected to additional stresses, in addition to those caused by internal pressure and tightening. For conveyed discharge safety valves, connect the bleeder hole to a pipe to convey it into a non-hazardous area. To ensure a good safety valve seal, the operating pressure of the protected equipment must not exceed 90% of the safety valve calibration pressure. In the event of a pulsating pressure, the operating margin must be further reduced, depending on the amplitude and frequency of the pulsation, to a maximum value of 80% of the calibration pressure. Malfunctions in system operation that cause overflow of the valve can compromise its subsequent sealing capacity. **Make sure the valve is properly earthed, even through the same input connection.** Depending on the installation, affix appropriate indications (signs) to inform the user of the residual risks of moving parts (motion) and the operating temperature. Before starting up the system, make sure that there are no solid bodies inside it that could damage the valve seal seat. Sealing problems can occur on all "metal" or "PTFE" sealed valves any time tiny fragments of various materials (welding slag or other impurities present in the system piping) are deposited between the seat and the disc surfaces. Where conditions (nature of the fluid and operating temperature) allow it, a "soft seal" can be used. In the event of prolonged discharge at high temperature, there may be a change in the tangential modulus of elasticity of the spring construction material, resulting in decrease calibration pressure and an increase in safety valve blowdown. For the purpose of safety valve operation, make sure that there is no fluid leakage between the surfaces of the seat and the disc. If this occurs, intervene as soon as possible to restore the correct seal. If crystallisation or polymerisation of the process fluid can occur in the section upstream of the safety valve, make the entry connection as short as possible and equip the valve with a heating jacket or equivalent system. Crystallisation or polymerisation of the fluid in the area downstream of the disc (low pressure side of the valve body) or in the valve cap can cause the valve to lock. In order to avoid such an inconvenience from occurring, it is important to monitor the safety valve, taking care to detect any fluid leakage that would cause it to lock.

7. CLEANING AND LUBRICATION - NGI safety valves have been built to work without lubrication; they simply need to be kept clean and efficient.

8. ROUTINE MAINTENANCE - INSPECTIONS - Valves are very delicate mechanisms. It is the duty of the system operator to monitor the efficiency and, if necessary, contact a specialised technician or send the valve to NGI. Safety valves must be inspected by authorised entities according to the specific legal regulations in force in the country of installation. **CAUTION: NGI IS IN NO WAY LIABLE FOR UNAUTHORISED INTERVENTIONS OR TAMPERING. NGI IS NO LONGER RESPONSIBLE FOR THE VALVE ITSELF AFTER REPAIRS, RECALIBRATIONS, REPLACEMENT OF PARTS OR ANY OTHER WORK CARRIED OUT WITHOUT ITS DIRECT SUPERVISION.**

9. Periodic checks on safety valves equipped with a manual opening device with elastomer seal seat for steam. - Safety valves must be tested periodically to ensure that they continue to operate in good working order. For this purpose, they shall be opened manually by means of the lever or the opening ring nut. This test shall be carried out maintaining a pressure in the protected equipment of between 80 and 90% of the valve calibration pressure. The valve must open cleanly and release an abundant amount of fluid, and then must close completely once the lever is released or the ring nut is re-tightened. This operation should be short and performed only once. The frequency depends on the system conditions (greater or lesser probability that the valve will become dirty or that salts contained in the water will be deposited). **Carry out the test at system start-up and then comply with the standard and/or legal requirements of the country of installation.** The above-described procedure is not applicable to safety valves without manual opening. For any periodic checks, the various system safety devices must be bypassed and/or a bench test must be carried out to reach the calibration pressure. NGI reserves the right to change product characteristics, performance and drawings without prior notice.

NUOVA GENERAL INSTRUMENTS

GEBRAUCHS-UND WARTUNGSANLEITUNG DE

Das Bedienungs- und Wartungshandbuch begleitet das Ventil von seiner Konstruktion bis zu seiner Verschrottung. Es gehört zum Ventil. Das Handbuch muss vor JEDER TÄTIGKEIT, welche das Gerät betrifft, einschließlich dem Bewegen und dem Abladen des Geräts vom Transportfahrzeug, durchgelesen werden. Wir empfehlen das Personal für die Installation einzuweisen. Das Bedien- und Wartungspersonal ist verpflichtet, den Inhalt des Handbuchs zu lesen und zu kennen.

ACHTUNG: Der Betreiber ist dafür verantwortlich, die Kompatibilität des Ventiltyps und des Baumaterials mit dem Betriebsmedium und den Betriebsbedingungen zu prüfen. Die von NGI durchgeführten Prüfungen basieren einzig auf die vom Käufer/Betreiber übermittelten Angaben. Die Lagerung, Installation, regelmäßige Prüfung und Wartung fallen unter die Verantwortung des Betreibers.

Seien Sie sehr vorsichtig und umsichtig beim Gebrauch der Sicherheitsventile, da das Handbuch weder erschöpfend ist, noch sein kann und nicht alle möglichen Installationen und Anwendungen der Sicherheitsventile vorsehen kann. Die Sicherheitsventile NGI sind für gasförmige, dampfförmige und flüssige Betriebsmedien konstruiert und gebaut worden. Der Durchlauf von Staub und/oder Feststoffen durch den Dichtsitz kann den Betrieb des Ventils beeinträchtigen. Bei der Konstruktion wurden die folgenden Faktoren berücksichtigt: Beanspruchung durch Erdbeben, Belastung durch Wind und Materialermüdung. Im Falle eines Feuers versagt durch das Übersteigen der Betriebstemperatur der Dichtsitz des Sicherheitsventils, das sich infolge automatisch öffnen wird. Um ein Eintreten dieses Vorfalls zu verhindern, müssen geeignete Kühl- und Schutzsysteme eingebaut werden.

1. GARANTIE - Bei jeder Kommunikation mit NGI immer den Ventiltyp und die Seriennummer, die auf dem Ventilgehäuse abgelesen werden können, angeben. Die Produkte von NGI haben 12 Monate Garantie (in jedem Fall vom Gesetz vorgesehen), die mit dem Datum der technischen Abnahme, das auf dem Zertifikat steht, beginnt zu laufen. Alle Teile mit nachgewiesenem Materialfehler oder Fabrikationsfehler werden kostenfrei frei Werk von NGI ersetzt. Sonstige Forderungen wegen Schäden durch Verschleiß, Schmutz, nicht fachmännisch ausgeführten Eingriffen usw. werden von NGI abgewiesen, wie auch sonstige vertragliche Garantien. Jede Beschwerde hinsichtlich des Warenumfangs, wenn die Menge oder die Ausführung sich von der bestellten Ware unterscheidet, muss bei NGI innerhalb von 10 Tagen ab dem Erhalt des Materials schriftlich eingereicht werden. Die durchschnittliche Lebensdauer von Sicherheitsventilen mit Dichtsitzen aus Elastomer unter besonderen Betriebsbedingungen liegt ungefähr bei 24-36 Monaten. Die durchschnittliche Lebensdauer von Sicherheitsventilen mit Dichtsitzen aus Metall/PTFE unter besonderen Betriebsbedingungen liegt ungefähr bei 36-48 Monaten. Nach Ablauf dieser Zeiten muss man eine Sichtprüfung außen am Ventil vornehmen, um zu sehen, ob es noch im guten Zustand ist (ohne Oxidierungen, Erosion und mit den Schlitzen/Ablassanschlüssen frei). Wenn keine Oxidierungen, Erosionen, Ablagerungen und/oder Schäden durch äußere Ursachen zu sehen sind, verlängert sich die durchschnittliche Lebensdauer um den oben genannten Zeitraum.

2. ALLGEMEINE ANMERKUNGEN ZUR LIEFERUNG - Bei der Entgegennahme des Ventils kontrollieren, ob: Die Verpackung heil ist; die Lieferung den Spezifikationen der Bestellungen entspricht (siehe Lieferschein und/oder Rechnung); keine Schäden zu sehen sind. Wenn bei der Bestellung Zertifikate auf Papier angefragt worden sind, müssen diese Unterlagen beim zuständigen Büro abgegeben werden. ACHTUNG: DIE UNTERLAGEN SIND NICHT DUPLIZIERBAR. Bei Schäden oder fehlenden Teilen sofort und detailliert dem Spediteur, NGI oder den Gebietsvertreter informieren. Die Zeichnungen oder jedes andere mit dem Ventil gelieferte Dokument sind Eigentum der NGI, die sich alle Rechte vorbehält, und dürfen Dritten nicht zur Verfügung gestellt werden. Das heißt, die Reproduktion des gesamten oder eines Teils des Textes oder der Illustrationen ist verboten. **EMPFEHLUNG: INSTALLIEREN SIE DIE VENTILE SOFORT UND LASSEN SIE SIE NICHT FÜR LANGE ZEIT INAKTIV.**

3. BESCHREIBUNG DES VENTILS - Auf dem Ventilgehäuse sind die Herstellerdaten, das Modell, der Einstelldruck, die Materialidentifikation, die Mindest- und Höchsttemperaturspitzen, welche das Ventil erreichen kann, der DN in x Out (wenn vorgesehen) und die Seriennummer aufgedruckt. Die federbelasteten Vollhubsicherheitsventile NGI für Dämpfe, Gase und Flüssigkeiten sind das Ergebnis einer enormen Erfahrung, die in Jahrzehnten der Anwendung in den verschiedensten Bereichen gereift ist, und erfüllen umfassend alle der aktuellsten Schutzanforderungen an Druckgeräten. Sie sind perfekt in der Lage, den zulässigen Höchstdruck nicht zu übersteigen, auch wenn alle vorgeschalteten autonomen Sicherheitseinrichtungen blockiert sind. Die Sicherheitsventile NGI sind aus einem Körper aus Messing oder rostfreiem Stahl und hochbeständig bei hohen und niedrigen Temperaturen. Sie sind mit Schaft, Sitz und Teller ausgerüstet, welche maximale Leistungsfähigkeit über die Jahre garantieren. Die vereinheitlichten Anschlüsse erlauben jede Kombination. Alle Ventile werden im Werk fest eingestellt, um höchste Sicherheit und geringste Wartung zu garantieren. In diesem Sinne bitten wir Sie, dieses Handbuch aufmerksam durchzulesen, damit Sie jeden Nutzen und alle Sicherheit, welche die Anlagen, in denen die Ventile NGI eingebaut werden, brauchen, genießen können.

4. SICHERHEITSVORSCHRIFTEN - In den Anlagen müssen Ventile eingebaut werden, deren Baumaterial geeignet ist, unter den vorgesehenen Bedingungen (Natur und physischer Status des Betriebsmediums, Außenumgebung) zu arbeiten. Kontrollieren Sie, dass die Anschlüsse der Sicherheitsventile den Spezifikationen der Anlage, in die sie eingebaut werden sollen, entsprechen; berücksichtigen Sie vor allem bei der Dimensionierung des Anschlussstutzen des Ventils die Kräfte und Momente, die durch den Fluss des Betriebsmediums durch das Ventil erzeugt werden. Wenn das Ventil das Betriebsmedium in die Atmosphäre abbläst, das Ventil so ausrichten, dass es weder Personen noch Gegenständen Schaden zufügen kann. Die Einstellungen und Einrichtungen dürfen nur von spezialisierten Technikern, welche die Gefahren bei Sicherheitsventilen kennen, ausgeführt werden. Vor Einstellungen oder Einrichtungen müssen SCHUTZBRILLE, SCHUTZHANDSCHUHE und weitere PERSÖNLICHE SCHUTZAUSRÜSTUNGEN angelegt werden und es muss kontrolliert werden, dass die Anlage nicht unter Druck steht und auf Raumtemperatur abgekühlt ist. Bevor man an dem Ventil eingreift, kontrollieren, dass der Druck gleich Null ist und die Temperatur auf Raumtemperatur gefallen ist. **VORSICHT BEI GIFTIGEN ODER GESUNDHEITSSCHÄDLICHEN GASEN.** Wenn das Ventil nicht gut befestigt ist, besteht Vibrationsgefahr. Deswegen muss man kontrollieren, dass alle Anschlüsse bis zum Anschlag festgedreht sind. Das Ventil darf erst nach der technischen Abnahme durch NGI oder eine andere zuständige Stelle in Betrieb genommen werden. Auf der Kennzeichnung auf dem Sicherheitsventil stehen der Einstelldruck, das Baumaterial und die Mindest- und Höchsttemperaturspitzen, die das Ventil erreichen kann. **KALT- UND HEISSVERBRENNUNGSGEFAHR. DIE ÄUSSERE OBERFLÄCHE KANN DIE TEMPERATUR DES INTERN STRÖMENDEN BERIEBSMEDIUMS ERREICHEN. DAS VENTIL DARF UNTER KEINEN UMSTÄNDEN MANIPULIERT NOCH DIE PLOMBIERUNG/VERSIEGELUNG VOM WERK ENTFERNT WERDEN.** Aus keinem Grund schmieren. Wenn das Ventil schlecht funktioniert, sofort NGI kontaktieren. **ACHTUNG: IN KORROSSIVEN UMGEBUNGEN DÜRFEN NUR VENTILE AUS ROSTFREIEM STAHL ODER AUS MATERIAL, DAS MIT DEM KONTAKTFLUID KOMPATIBEL IST, MONTIERT WERDEN. ACHTUNG: NICHT GEEIGNET FÜR INSTABILE BETRIEBSMEDIEN.**

5. TRANSPORT - Die Ventile NGI werden je nach Größe in Schachteln oder Kisten transportiert. Die kleinen Ventile können mit der Hand, die großen Ventile müssen mit einem Gabelstapler oder Kran transportiert werden. **ACHTUNG: VIBRATIONEN, SCHLÄGE UND UNREINHEITEN KÖNNEN DIE FUNKTIONEN DES VENTILS BESCHÄDIGEN, DESWEGEN MÜSSEN DIE VENTILE VOR DER INSTALLATION VORSICHTIG UND MIT DEN SCHUTZKAPPEN AN DEN ANSCHLÜSSEN ZUM SCHUTZ VOR DEM EINDRINGEN VON SCHMUTZ IN DIE VENTILE GEHANDHABT WERDEN.**

INSTALLATION - NGI liefert die Ventile gemäß den Angaben bei der Bestellung fest eingestellt und plombiert. **ACHTUNG: ES MUSS KONTROLLIERT WERDEN, DASS DIE PLOMBIERUNG/VERSIEGELUNG VOM WERK NICHT BESCHÄDIGT WIRD. EIN KAPUTTES SIEGEL MACHT DIE GARANTIE UNGÜLTIG.** Bei der Montage des Ventils an das Gerät, das sie schützen soll, ausschließlich am Sitz im unteren Teil des Körpers am Einlassflansch mit geeigneten Werkzeugen drehen. Die Ventile an zugänglichen, aber vor Schlägen und Manipulationen geschützten Orten montieren, um Verletzungen beim Abblasen zu verhindern und die Kontrollen und regelmäßigen Prüfungen zu erleichtern. Zwischen dem Tank (oder der Anlage) und dem Ventil keine Absperr- oder Drosseleinrichtungen einbauen. Der Verbindungsmuffe des Ventils muss so kurz wie möglich sein, mit einem Durchgangsbereich nicht unter dem der Einlass- und Auslassflansche. Die federbelasteten Ventile mit einem Einstelldruck unter 1 bar (0,1 MPa - 14,5 psi) müssen mit der Kappe senkrecht nach oben montiert werden. Bei Einstelldrücken über 1 bar (0,1 MPa - 14,5 psi) mit Flüssiggas hat die Montageposition keinen Einfluss für den korrekten Betrieb; bei Flüssigkeiten, Dämpfen und Kondensaten müssen sie mit der Kappe senkrecht nach oben montiert werden.

6. ACHTEN SIE DARAUF: Nicht die Oberfläche zu beschädigen, die Schutzkappe zu entfernen und das Ventil gemäß den Spezifikationen der Anlage zu montieren. Wenn der Auslass an ein externes Rohrleitungssystem angeschlossen werden soll, muss die Rohrleitung so kurz wie möglich sein, um nicht vorgesehene Gegendrücke zu verhindern. Der vorgesehene maximale Gegendruck liegt bei 10% des Einstelldrucks. Vermeiden Sie, dass Halterungen oder Rohrleitungen Kräfte oder Reaktionsmomente auf das Ventil übertragen. Die Rohranschlussstücke am Eingang und am Auslass am Ausgang können auf das Ventil, wenn es geschlossen ist, und beim Ablassen, statische, dynamische und thermische Beanspruchungen übertragen, welche die Stabilität des Sicherheitsventils beeinträchtigen können. Die Rohrleitungen müssen so konstruiert, gebaut und installiert werden, dass keine zusätzlichen zu den Beanspruchungen, die durch den Innendruck und die Spannung bestimmt werden, das Sicherheitsventil belasten. Bei Sicherheitsventilen mit Abblaseleitung, die Ablassöffnung an eine Leitung schließen, um das Betriebsmedium in einen ungefährlichen Bereich abzulassen. Damit das Sicherheitsventil dicht hält, darf der Betriebsdruck des geschützten Geräts nicht größer als 90% des Einstelldrucks vom Ventil sein. Bei einem pulsierenden Druck muss die Betriebsmarge nach der Weite und der Frequenz der Pulsierung noch weiter bis zu einem Höchstwert von 80 % des Einstelldrucks reduziert werden. Störungen bei der Anlagenführung, die das Überströmen des Ventils auslösen, können infolge die Dichtheit des Ventils beeinträchtigen. **Kontrollieren Sie, dass das Ventil korrekt über den Anschluss am Eingang geerdet ist.** Bringen Sie bei der Installation Hinweise (Schilder) an, die vor den Restrisiken an den sich bewegenden Teilen (Bewegung) und durch die Betriebstemperatur warnen. Bevor Sie die Anlage in Betrieb nehmen, kontrollieren, dass sich keine Festkörper in der Anlage befinden, die den Dichtsitz des Ventils beschädigen können. Dichtheitsprobleme können bei allen Ventilen mit "Metall-" oder "PTFE"-Dichtungen auftreten, wenn sich zwischen der Sitzfläche und dem Teller kleine Fragmente aus verschiedenen Materialien (Schweißabfälle oder andere Unreinheiten in den Rohrleitungen der Anlage) ablagern. Wenn die Bedingungen (die Eigenschaften des Betriebsmediums und der Betriebsdruck) es zulassen, kann man auch "Weichdichtungen" einsetzen. Bei einem längeren Ablass bei hohen Temperaturen kann es zu einer Veränderung des tangentialen Elastizitätsmoduls des Baumaterials für die Feder kommen, dadurch vermindert sich der Einstelldruck und der Abstand beim Wiederschließen des Sicherheitsventils erhöht sich. Man muss unbedingt, damit das Sicherheitsventil sicher funktioniert, kontrollieren, dass das Betriebsmedium nicht zwischen den Sitz und den Teller dringt. Wenn dies doch der Fall ist, so schnell wie möglich eingreifen, um die Dichtheit des Ventilsitzes wiederherzustellen. Wenn sich das Betriebsmedium vor dem Sicherheitsventil kristallisiert oder polymerisiert, wird in der Regel der Eingangsstutzen so kurz wie möglich gebaut und das Ventil mit einer Heizmanschette oder einem gleichwertigen System ausgerüstet. Wenn sich das Betriebsmedium im Bereich hinter dem Teller (niedrige Druckseite des Ventilgehäuses) oder in der Ventilkappe kristallisiert oder polymerisiert, kann das Ventil blockieren. Deswegen muss das Sicherheitsventil unbedingt regelmäßig auf mögliches Eindringen des Betriebsmediums, das eine Blockierung verursachen kann, kontrolliert werden.

7. REINIGUNG UND SCHMIERUNG - Die Sicherheitsventile NGI sind schmierfrei und müssen nur sauber und leistungsfähig gehalten werden.

8. ORDENTLICHE WARTUNG -KONTROLLLEN - Ventile haben eine empfindliche Mechanik. Der Anlagenführer hat die Aufgabe, die Leistungsfähigkeit zu kontrollieren und gegebenenfalls einen spezialisierten Techniker zu rufen oder das Ventil an NGI einzuschicken. Die Kontrolle des Sicherheitsventils bleibt den zuständigen Stellen vorbehalten und wird von den spezifischen, im Installationsland geltenden Gesetzesvorschriften geregelt. **ACHTUNG: NGI HAFTET NICHT FÜR NICHT VON NGI SELBST GENEHMIGTEN EINGRIFFEN ODER MANIPULATIONEN. NGI HAFTET NICHT MEHR FÜR DAS VENTIL, WENN ES AUSSERHALB DER DIREKTEN KONTROLLE DURCH NGI REPARIERT ODER NEU EINGESTELLT WURDE ODER AN IHM IMMER OHNE WISSEN VON NGI ERSATZEILE AUSGETAUSCHT ODER ANDERE EINGRIFFE VORGENOMMEN WORDEN SIND.**

9. Regelmäßige Kontrolle der Sicherheitsventile mit handbetätigter Öffnung mit Dichtsitz aus Elastomer für Wasserdampf. - Um eine kontinuierliche gute Leistung der Ventile sicherzustellen, müssen sie regelmäßig getestet werden. Um die Ventile zu testen, müssen sie über den Hebel oder das Öffnungsgewinde geöffnet werden; dieser Test muss mit einem Betriebsdruck im Gerät, das geschützt werden soll, zwischen 80 und 90% des Einstelldrucks des Ventils durchgeführt werden. Das Ventil muss sich schlagartig öffnen, mit einem kräftigen Austritt des Betriebsmediums, und muss sich sauber schließen, sobald der Hebel losgelassen oder das Öffnungsgewinde neu aktiviert wird. Der Vorgang muss kurz sein und darf nicht wiederholt werden. Die Periodizität hängt von den Anlagenbedingungen (höhere oder geringere Wahrscheinlichkeit, dass das Ventil schmutzig wird und sich Salze aus dem Wasser ablagern) ab. **Den Testanlauf der Anlage durchführen und sich an die Regelungen und gesetzlichen Vorschriften im Installationsland halten.** Der oben beschriebene Vorgang ist nicht auf die Sicherheitsventile ohne handgesteuerte Öffnung anwendbar. Für eventuelle regelmäßige Prüfungen muss man die verschiedenen Sicherheitseinrichtungen der Anlage umgehen und/oder den Test am Prüfstand ausführen, um den Einstelldruck zu erreichen. NGI behält sich das Recht vor, ohne Ankündigung Eigenschaften, Leistung und Zeichnungen der Produkte zu ändern.

NUOVA GENERAL INSTRUMENTS

MANUEL D'USAGE ET D'ENTRETIEN

FR

Le manuel d'utilisation et d'entretien est le document qui accompagne la soupape, de sa construction jusqu'à sa destruction. Il fait partie intégrante de celle-ci. Il faut lire le manuel avant d'entreprendre UNE QUELCONQUE ACTIVITÉ qui implique l'appareil y compris le déplacement et le déchargement de celle-ci du moyen de transport. Il est recommandé d'instruire le personnel destiné à son installation. L'utilisateur et la personne préposée à l'entretien ont l'obligation de connaître le contenu du présent manuel.

ATTENTION : La compatibilité du type de soupape et du matériel de construction avec le fluide et les conditions de fonctionnement et de procédé est de la responsabilité de l'utilisateur. Les contrôles faits par NGI sont uniquement basés sur les informations transmises par l'acheteur/utilisateur. Le stockage, l'installation, le contrôle périodique et l'entretien sont de la responsabilité de l'utilisateur.

Faire très attention pendant l'utilisation des soupapes de sécurité, puisque le présent manuel n'est pas, et ne peut pas être exhaustif et prévoir toutes les installations et utilisations possibles de celles-ci. Les soupapes de sécurité NGI sont conçues pour des fluides de type gaz, vapeurs et liquides. Le passage de poussière et/ou solide à travers le siège étanche peut compromettre le fonctionnement. Dans la conception, les facteurs suivants n'ont pas été pris en compte : Sollicitations dues à des tremblements de terre, charges dues au vent, sollicitations dues à la fatigue. En cas d'incendie extérieur, pour le dépassement de la température de fonctionnement, on remarque la chute du siège étanche de la soupape de sécurité, qui se déchargera automatiquement. Pour éviter cet événement, il faut adopter des systèmes de refroidissement et de protection appropriés.

1. GARANTIE - Pour toute communication avec la NGI, toujours citer le type de soupape et le n° de série placé sur le corps de la soupape. Les produits NGI sont garantis sur une période de 12 mois (dans tous les cas, en fonction de la loi en vigueur) à partir de la date d'essai indiquée sur le certificat. Toutes les pièces qui seront démontrées comme défectueuses de matériel ou d'usinage, seront remplacées gratuitement, départ-usine NGI. D'autres demandes dues à des dommages pour usure, saleté, manipulations incompétentes, etc., seront refusées par NGI, comme garanties contractuelles supplémentaires. Toute réclamation relative à la marchandise arrivée en quantité ou exécution différente de celle commandée devra parvenir à NGI par écrit au maximum 10 jours après la réception du matériel. La durée de vie moyenne des soupapes de sécurité à siège étanche avec élastomères, et en particulier des conditions de fonctionnement, est d'environ 24-36 mois. La durée de vie moyenne des soupapes de sécurité à siège étanche métallique/PTFE, et en particulier des conditions de fonctionnement, est d'environ 36-48 mois. Une fois ces termes terminés, il faut exécuter une vérification visuelle externe qui confirme le bon été de celles-ci (sans fortes oxydations - érosions et avec les fentes / connexion de déchargement libres des obstructions). En l'absence d'oxydations, d'érosion, d'incrustations et/ou d'endommagement évidents dus à des causes externes, la durée de vie moyenne se prolonge d'une période similaire comme indiqué ci-dessus.

2. NOTES GÉNÉRALES À LA LIVRAISON - Lors de la réception de la soupape, contrôler que : L'emballage est intègre ; la fourniture correspond aux caractéristiques de la commande (voir document de transport et/ou facture) ; aucun dommage n'est présent ; si des certificats sous forme papier ont été demandés lors de la commande, remettre ces documents au bureau préposé. ATTENTION DOCUMENTS NON DUPLICABLES. En cas de dommages ou des pièces manquantes, informer immédiatement et de manière détaillée le transporteur, la NGI ou ses représentants de zone. Les dessins ou tout autre document livré avec la soupape sont de la propriété de NGI qui se réserve tous les droits et ne peuvent pas être mis à disposition de tiers. La reproduction, même partielle du texte ou des illustrations, est donc interdite. **CONSEIL : INSTALLER IMMÉDIATEMENT LES SOUPAPES ET NE PAS LES LAISSER INACTIVES PENDANT UN TEMPS PROLONGÉ.**

3. DESCRIPTION DE LA SOUPAPE - Sur le corps de la soupape de sécurité sont imprimés les données d'identification du constructeur, le modèle, la valeur de la pression d'étalonnage, l'identification du matériau de construction, les pics de température minimale et maximale que peut atteindre la soupape, le DN In x Out (si prévu, le numéro de série. Les soupapes de sécurité NGI à levée totale à ressort pour les vapeurs, les gaz et les liquides, sont le résultat d'une grande expérience, mûrie au cours de dizaines d'années d'application dans différents champs et mettent largement en place toutes les exigences de dernière défense des appareils à pression. Elles sont parfaitement capables de ne pas faire dépasser l'augmentation de pression maximale admise, même si tous les autres dispositifs autonomes de sécurité installés en amont se sont bloqués. Les soupapes de sécurité NGI sont constituées d'un corps en laiton ou en acier inoxydable hautement résistant aux températures élevées et basses. Elles sont équipées d'une tige, d'un siège et d'un obturateur qui garantissent une efficacité maximale dans le temps. Les connexions unifiées permettent n'importe quel couplage. Toutes les soupapes sont étalonnées en usine pour garantir une sécurité maximale et un entretien minimum. Pour cela, nous vous invitons à lire attentivement ce manuel, pour que vous puissiez profiter de tous les bénéfices et les sécurités dont les installations dans lesquelles les soupapes NGI seront installées ont besoin.

4. PRESCRIPTIONS DE SÉCURITÉ - Il faut installer sur les installations des soupapes dont les matériaux de construction sont appropriés pour fonctionner dans les conditions prévues (nature et état physique du fluide, environnement extérieur). Vérifier que les raccords des soupapes de sécurité sont conformes aux caractéristiques de l'installation sur lesquelles elles doivent être installées ; en particulier, dans le dimensionnement de la bouche de raccord de la soupape, faire attention aux forces et aux moments générés par le passage du fluide à travers la soupape. Si le déchargement se fait dans une atmosphère, diriger la soupape afin de ne pas provoquer des dommages à des personnes ou des choses. Chaque réglage ou mise au point doit être rigoureusement exécuté par des techniciens spécialisés, qui connaissent les dangers des soupapes de sécurité. Avant d'effectuer les réglages ou les mises au point, porter DES LUNETTES, DES GANTS et toute autre PROTECTION INDIVIDUELLE et s'assurer que l'installation soit à pression zéro et à température ambiante. Avant d'intervenir sur la soupape, s'assurer qu'elle est à pression zéro et à température ambiante. **ATTENTION AUX GAZ TOXIQUES ET NOCIFS.** Si la soupape n'est pas bien fixée, il existe le danger de vibrations. S'assurer donc que les fixations sont serrées à fond. La soupape peut travailler uniquement après avoir effectué l'essai NGI ou tout autre organisme préposé. Le marquage sur la soupape de sécurité indique exactement la pression d'étalonnage, le matériau de construction et les pics de température minimum et maximum que peut atteindre la soupape. **DANGER DE BRÛLURE FROIDE OU BRÛLURE CHAUDE LA SURFACE EXTERNE PEUT ATTEINDRE LA TEMPÉRATURE DU FLUIDE INTERNE. NE JAMAIS MODIFIER, EN AUCUN CAS LA SOUPAPE, NE PAS RETIRER LE PLOMB/SCEAU D'USINE.** Ne jamais lubrifier. En cas de dysfonctionnement, interpeler immédiatement NGI. **ATTENTION : DANS DES ENVIRONNEMENTS CORROSIFS, IL FAUT MONTER UNIQUEMENT DES SOUPAPES EN ACIER INOXYDABLE OU COMPATIBLES AVEC LE FLUIDE EN CONTACT. ATTENTION : NON APPROPRIÉ POUR LES FLUIDES INSTABLES**

5. TRANSPORT - Les soupapes NGI, en fonction de leur dimension, peuvent être transportées dans des boîtes ou dans des caisses. Dans tous les cas, les soupapes de petites dimensions peuvent être transportées à la main, celles de grosses dimensions avec un chariot à fourche ou une grue. **ATTENTION : VIBRATIONS, COUPS, IMPURETÉS PEUVENT ENDOMMAGER LE FONCTIONNEMENT DE LA SOUPAPE ; C'EST LA RAISON POUR LAQUELLE LES SOUPAPES DOIVENT ÊTRE MANIPULÉES AVEC SOIN ET SANS RETIRER LES PROTECTIONS DES BRANCHEMENTS, QUI EMPÊCHENT L'ENTRÉE D'IMPURETÉS, AVANT L'INSTALLATION.**

6. INSTALLATION - Les soupapes sont fournies par NGI avec l'étalonnage requis et plombées. **ATTENTION : IL FAUT S'ASSURER QUE LE PLOMB / SCEAU D'USINE NE SOIT JAMAIS ENDOMMAGÉ. LA RUPTURE DES SCEAUX EST UNE RAISON D'ANNULATION DE LA GARANTIE.** Pour le serrage de soupape sur l'appareil à protéger, agir uniquement sur le siège préposé dans la partie inférieure du corps à proximité du raccord d'entrée et avec les outils appropriés. Monter les soupapes dans un lieu accessible, mais protégé des chocs et des modifications, pour éviter les dommages aux personnes pendant le déchargement et pour faciliter les contrôles et les vérifications périodiques. Ne pas interposer entre le réservoir (ou l'installation) et la soupape des organes d'interception ou d'étranglement. Le manchon de branchement de la soupape doit être le plus court possible et avoir une zone de passage non inférieure à celle des connexions d'entrée et de sortie. Les soupapes de sécurité à ressort, ayant une pression d'étalonnage inférieure à 1 bar (0,1 MPa - 14,5 psi), doivent être montées avec le chapeau à la verticale orienté vers le haut. Pour des pressions d'étalonnage supérieures à 1 bar (0,1 Mpa - 14,5 psi) avec un fluide ou gaz, la position de montage n'a aucune influence sur le bon fonctionnement ; dans le cas de liquides, de vapeurs et de condensation, elles doivent être montées avec le chapeau à la verticale orienté vers le haut. **EN FAISANT ATTENTION à ne pas endommager la surface, retirer les protections et monter la soupape selon les caractéristiques de l'installation.** Si le déchargement doit être branché à une tuyauterie externe, cette tuyauterie doit être la plus courte possible pour éviter des contre-pressions non prévues. La contre-pression maximale prévue est à 10 % de la pression d'étalonnage. Éviter que les soutiens et les tuyauteries transmettent des forces ou des moments de réaction à la soupape. La tuyauterie de connexion en entrée et celle d'implication de l'évacuation en sortie peuvent transmettre à la vanne, aussi bien fermée qu'en phase de déchargement, des sollicitations statiques, dynamiques et thermiques capables de compromettre la stabilité de la soupape de sécurité. Les tuyauteries doivent donc être conçues, réalisées et installées afin d'éviter que sur la soupape de sécurité pèsent des sollicitations supplémentaires, en plus de celles déterminées par la pression interne et par le serrage. Pour les soupapes de sécurité à déchargement impliqué, brancher le trou d'évent à une tuyauterie pour le convoyer dans une zone non dangereuse. Afin d'assurer une bonne étanchéité de la soupape de sécurité, la pression de fonctionnement de l'équipement protégé ne doit pas dépasser 90 % de la pression d'étalonnage de la soupape. En cas de pression pulsée, la marge de fonctionnement doit être encore plus réduite, en fonction de l'amplitude et de la fréquence de la pulsation, jusqu'à une valeur maximale égale à 80 % de la pression d'étalonnage. Des anomalies dans la conduction de l'installation qui provoquent l'effleurement de la soupape peuvent compromettre la capacité successive d'étanchéité de celle-ci. **S'assurer de la mise à la terre correcte de la soupape, même par la même connexion d'entrée.** Placer, en fonction de l'installation, des indications spécifiques (panneaux) qui informent des risques résiduels des organes en mouvement (moteur) et de la température de fonctionnement. Avant de démarrer l'installation, s'assurer qu'à l'intérieur de celle-ci il n'y ait pas de corps solides qui peuvent endommager le siège étanche de la soupape. Des problèmes d'étanchéité peuvent se vérifier sur toutes les soupapes à étanchéité « métallique » ou en « PTFE », si entre les surfaces de siège et l'obturateur se déposent également de minuscules fragments de matériau divers (déchets de soudure ou impuretés d'autre type présents dans les tuyauteries de l'installation). Là où les conditions (nature du fluide et température de fonctionnement) le permettent, il est possible de recourir à « l'étanchéité souple ». En cas de vidange prolongée à température élevée, il peut se vérifier une variation du module d'élasticité tangentiel du matériau de construction du ressort, avec pour conséquence une diminution de la pression d'étalonnage et une augmentation du déchet de refermeture de la soupape de sécurité. Il faut, pour la fonctionnalité de la soupape de sécurité, contrôler qu'il n'y ait pas de fuite de fluide entre les surfaces de siège et l'obturateur. Si cela devait se vérifier, intervenir dans les plus brefs délais possible pour restaurer une étanchéité correcte. Si l'on devait remarquer, dans la partie en amont de la soupape de sécurité, des phénomènes de cristallisation ou de polymérisation du fluide de procédé, il est bon de réaliser le tronc d'entrée le plus court possible et d'équiper la soupape de chemise de chauffage ou un système équivalent. La cristallisation ou la polymérisation du fluide dans la zone en aval de l'obturateur (côté basse pression du corps de la soupape) ou dans le chapeau de la soupape peuvent déterminer le blocage de la soupape. Il est important, afin d'éviter un tel inconvénient, de garder sous contrôle la soupape de sécurité, en prenant soin de relever des éventuelles fuites de fluide qui pourraient en provoquer le blocage.

7. NETTOYAGE ET LUBRIFICATION - Les soupapes de sécurité NGI sont construites pour fonctionner sans être lubrifiées ; il suffit de les conserver propres et efficaces.

8. ENTRETIEN ORDINAIRE - INSPECTIONS - La soupape est un mécanisme très délicat. C'est le rôle du conducteur de l'installation contrôler l'efficacité et en cas de besoin, appeler le technicien spécialisé ou envoyer la soupape à NGI. L'inspection des soupapes de sécurité est réservée à des organismes préposés et est réglementée par les normes de loi spécifiques, en vigueur dans le pays d'installation. **ATTENTION : L'ENTREPRISE NGI REJETTE TOUTE RESPONSABILITÉ POUR LES INTERVENTIONS OU LES MODIFICATIONS NON AUTORISÉES PAR NGI. L'ENTREPRISE NGI N'EST PLUS RESPONSABLE DE LA SOUPAPE APRÈS RÉPARATIONS, NOUVEL ÉTALONNAGE, REMPLACEMENT DE PIÈCES OU TOUTE AUTRE INTERVENTION EXÉCUTÉE SANS SON CONTRÔLE DIRECT.**

9. Contrôle périodique des soupapes de sécurité équipées de dispositif d'ouverture manuel avec sièges étanches en élastomère pour les vapeurs d'eau. - Pour s'assurer que les soupapes de sécurité continuent à être en bon état de fonctionnement, elles doivent être testées régulièrement. Pour cela, elles doivent être ouvertes manuellement en étant déclenchée grâce au levier ou l'embout d'ouverture ; cet essai doit se faire en maintenant dans l'appareil protégé une pression comprise entre 80 et 90 % de celle d'étalonnage de la soupape. La soupape doit s'ouvrir franchement, avec une sortie de fluide abondante, et doit se refermer nettement une fois abandonné le levier et réactiver l'embout. La manœuvre doit être brève et non répétée. La périodicité dépend des conditions d'installation (probabilité majeure ou mineure que la soupape se salisse ou que des sels contenus dans l'eau se déposent). **Effectuer l'essai au démarrage de l'installation puis respecter les dispositions de norme et/ou de loi du pays d'installation** La procédure décrite ci-dessus n'est pas applicable aux soupapes de sécurité sans ouverture manuelle. Pour les éventuelles vérifications périodiques, il faudra intervenir en contournant les différentes sécurités de l'installation et/ou exécuter l'essai au banc pour rejoindre la pression d'étalonnage. L'entreprise NGI se réserve la faculté de modifier sans préavis les caractéristiques, les performances et les dessins des produits.

NUOVA GENERAL INSTRUMENTS

MANUAL DE USO Y MANTENIMIENTO ES

El manual de uso y mantenimiento es el documento que acompaña a la válvula desde el momento de su construcción hasta su desguace. O sea que forma parte integrante de ella. Antes de comenzar CUALQUIER TIPO DE ACTIVIDAD con el aparato, incluidos la movilización y el descargue del mismo del medio de transporte, es necesario leer el manual. Se recomienda instruir al personal responsable de la instalación. El usuario y el personal de mantenimiento tienen la obligación de conocer el contenido del presente manual.

ATENCIÓN: La compatibilidad del tipo de válvula y del material de construcción con el fluido y las condiciones de funcionamiento y de proceso, es responsabilidad del usuario. Las pruebas realizadas por la NGI se basan exclusivamente en las informaciones transmitidas por el comprador/usuario. El almacenaje, la instalación, la verificación periódica y el mantenimiento son responsabilidad del usuario.

Prestar mucha atención y cuidado durante el uso de las válvulas de seguridad, ya que el presente manual no es, y no puede ser, exhaustivo y prever todas las posibles instalaciones y los usos de las mismas. Las válvulas de seguridad NGI son diseñadas para fluidos como gas, vapor y líquidos. El paso de polvos y/o sólidos a través del asiento de sello puede comprometer el funcionamiento. En el diseño no se han considerado los siguientes factores: Solicitaciones debidas a terremotos, Cargas debidas al viento, Solicitaciones debidas al trabajo. En caso de incendio externo, la superación de la temperatura de ejercicio provoca el colapso del asiento de sello de la válvula de seguridad, la cual automáticamente entra en modo descarga. Para evitar que esto ocurra, se hace necesario adoptar sistemas de refrigeración y de protección adecuados.

1. GARANTÍA - Para cualquier comunicación con la NGI indicar siempre el tipo de válvula y el N° de matrícula que se encuentra en el cuerpo de la válvula. Los productos NGI están cubiertos por garantía por 12 meses (de todas formas según la ley aplicable) a partir de la fecha de la prueba que se encuentra en el certificado. Todas las partes que presentan defectos en lo que se refiere al material o a la producción, serán reemplazadas de forma gratuita, ex fábrica NGI. Otras solicitudes debidas a daños por usura, suciedad, mala manipulación, etc., serán rechazadas por NGI, así como otras garantías contractuales. Todo tipo de reclamación relativa a la mercadería que ha llegado en cantidad o con una realización diferente a la que se ha solicitado, deberá ser enviada a NGI por escrito no más tarde de los 10 días siguientes a la fecha de recepción del material. El promedio de vida de las válvulas de seguridad con asiento de sello con elastómero, y en condiciones de ejercicio especiales, es de más o menos 24-36 meses. El promedio de vida de las válvulas de seguridad con asiento de sello revestido en PTFE, y en condiciones de ejercicio especiales, es de más o menos 36-48 meses. Una vez vencido este plazo, es necesario realizar una prueba visual externa que confirme el buen estado de las mismas (sin fuertes oxidaciones - erosiones y con las claraboyas/conexiones de descarga sin obstrucciones). De no haber oxidaciones, erosiones, incrustaciones y/o daños evidentes que se deben a causas externas, el promedio de vida se extiende durante otros tantos meses, como se ha descrito más arriba.

2. NOTAS GENERALES PARA LA ENTREGA - Cuando se recibe la válvula controlar que: El embalaje esté entero; El suministro corresponda a la lista del pedido (véase documento de transporte y/o factura); No hayan daños; En caso de que se hayan solicitado con el pedido los certificados en formato papel, entregar dichos documentos a la oficina establecida. ATENCIÓN: DOCUMENTOS NO REPLICABLES. En caso de que se presenten daños o de que falten piezas, comunicar en seguida todos los detalles al fletador, a la NGI o a sus representantes de zona. Los dibujos o cualquier otro tipo de documento entregado junto con la válvula, son de propiedad de la NGI, quien se reserva todos los derechos y no podrán ser hechos accesibles a terceros. Por tanto, su reproducción, incluso parcial o de sus imágenes, está prohibida. **CONSEJO: INSTALAR LAS VÁLVULAS EN SEGUIDA Y NO DEJARLAS INACTIVAS DURANTE MUCHO TIEMPO.**

3. DESCRIPCIÓN VÁLVULAS - En el cuerpo de las válvulas de seguridad se encuentran los datos de identificación del constructor, el modelo, el valor de la presión establecida, la identificación del material de construcción, los picos de temperatura mínima y máxima que puede alcanzar la válvula, el DN In x Out (donde se requiera), el número de matrícula. Las válvulas de seguridad NGI de tipo levantamiento total con resorte para vapor, gas y líquidos son el resultado de una gran experiencia, adquirida durante muchos años de aplicación en diferentes ámbitos y cumplen los requisitos de seguridad de los equipos a presión. Son perfectamente capaces de no hacer exceder el aumento de presión máxima permitida, incluso cuando todos los demás dispositivos sólidos de seguridad instalados anteriormente están bloqueados. Las válvulas de seguridad NGI presentan un cuerpo de latón o de acero inoxidable altamente resistentes para temperaturas altas y bajas. Tienen un asta, una sede y un obturador que garantizan la máxima eficiencia en el tiempo. Las conexiones unificadas permiten todo tipo de acoplamiento. Todas las válvulas son configuradas en fábrica para garantizar la máxima seguridad y el mínimo mantenimiento. Para este propósito, os invitamos a que lean con atención este manual, para que podáis beneficiar de todas las ventajas y de la seguridad de que necesitan las plantas donde se instalarán las válvulas NGI.

4. REQUISITOS DE SEGURIDAD - En las plantas se deben instalar válvulas que presentan materiales de construcción adecuados para obrar en las condiciones previstas (origen y estado físico del fluido, ambiente exterior). Comprobar que las uniones de las válvulas de seguridad se ajusten a las especificaciones de la planta donde deben instalarse; en especial, por lo que se refiere al dimensionamiento de la boca de enganche de la válvula, tomar debidamente en cuenta las fuerzas y los movimientos originados por el paso del fluido a través de la válvula. Si la descarga se genera en el ambiente, dirigir la válvula hacia un lugar donde no pueda causar daños a personas o cosas. Cada ajuste o perfeccionamiento, deben realizarse por técnicos especializados, quienes conocen los peligros de las válvulas de seguridad. Antes de realizar ajustes o perfeccionamientos, ponerse GAFAS, GUANTES y otros EQUIPOS DE PROTECCIÓN PERSONAL y asegurarse de que la planta tenga presión cero y una temperatura ambiente adecuada. Antes de realizar cualquier trabajo en el cuerpo de la válvula, asegurarse de que tenga presión cero y una temperatura ambiente adecuada. **ATENCIÓN A LOS GASES TÓXICOS O DAÑINOS.**Si la válvula no está bien fijada, existe el peligro de vibraciones. Por tanto, asegurarse de que las fijaciones estén bien ajustadas. La válvula puede obrar solo después de la prueba realizada por NGI o por otras autoridades competentes. La marca sobre la válvula de seguridad presenta la presión establecida correcta, el material de construcción y los picos de temperatura mínima y máxima que puede alcanzar la válvula. **PELIGRO DE USTIÓN FRÍA O DE USTIÓN CALIENTE. LA SUPERFICIE EXTERNA PUEDE ALCANZAR LA TEMPERATURA DEL FLUIDO INTERNO. NO FORZAR JAMÁS, DE NINGUNA MANERA, LA VÁLVULA NI TAMPOCO QUITAR EL PLOMO/MARCA DE FÁBRICA POR NINGUNA RAZÓN.** No lubricar por ninguna razón. En caso de mal funcionamiento, comunicarse en seguida con NGI. **ATENCIÓN: EN AMBIENTES CORROSIVOS DEBEN INSTALARSE SOLO VÁLVULAS DE ACERO INOXIDABLE O COMPATIBLES CON EL FLUIDO DE CONTACTO. ATENCIÓN: NO ADECUADA PARA FLUIDOS INESTABLES**

5. TRANSPORTE - Las válvulas NGI, según su tamaño, pueden transportarse en cajas o cajones. De todas formas, las válvulas de pequeñas dimensiones pueden transportarse a mano, mientras que las grandes con una carretilla elevadora o una grúa. **ATENCIÓN: VIBRACIONES, GOLPES, IMPUREZAS, PUEDEN DAÑAR EL FUNCIONAMIENTO DE LA VÁLVULA, POR TANTO LAS VÁLVULAS DEBEN MANIPULARSE CON ATENCIÓN Y SIN QUITAR LAS PROTECCIONES DE LAS CONEXIONES, LAS CUALES IMPIDEN LA ENTRADA DE IMPUREZAS, ANTES DE LA INSTALACIÓN.**

INSTALACIÓN - Las válvulas son abastecidas por NGI con la calibración exigida y precintadas. **ATENCIÓN: ASEGURARSE DE QUE EL PRECINTADO/MARCA DE FÁBRICA NO LLEGUEN DAÑADOS. LA ROTURA DE LOS SELLOS ES MOTIVO DE DENEGACIÓN DE GARANTÍA.** Para ajustar la válvula al equipo a proteger, obrar exclusivamente en la sede que se ha extraído de la parte inferior del cuerpo cerca de la conexión de entrada y usando herramientas adecuadas. Montar las válvulas en un lugar accesible pero reparado de golpes y violaciones para evitar daños a las personas durante el descargue y para simplificar los controles y las pruebas periódicas. No interponer dispositivos de golpeteo o de estrangulación entre el tanque (o la planta) y la válvula. El zuncho de conexión de la válvula debe ser lo más corto posible y tener un área de paso no inferior a la de las conexiones de entrada y salida. Las válvulas de seguridad de resorte, que tienen una presión establecida inferior a 1 bar (0,1 MPa - 14,5 psi), deben montarse con el casquete en posición vertical mirando hacia arriba. Para presiones establecidas superiores a 1 bar (0,1 MPa - 14,5 psi) con fluido gas, la posición de montaje es irrelevante para el correcto funcionamiento; en caso de líquidos, vapores y agua de condensación deben montarse con el casquete en posición vertical mirando hacia arriba.

6. PRESTANDO ATENCIÓN a no dañar la superficie, quitar las protecciones y montar la válvula según las características de la planta. Si el escape está conectado a un tubo externo, este tubo debe ser lo más corto posible para evitar contrapresiones no previstas. La contrapresión máxima prevista es del 10% de la presión establecida. Evitar que los soportes o los tubos transmitan fuerzas o momentos reacción a la válvula. Los tubos de conexión en entrada y el que implica el escape, pueden transmitir a la válvula, tanto cerrada como en fase de descargue, solicitaciones estáticas, dinámicas y térmicas capaces de comprometer la estabilidad de la válvula de seguridad. Por tanto, los tubos deben estar protegidos, realizados e instalados como para evitar que la válvula de seguridad se someta a solicitaciones adicionales, además a aquellas determinadas por la presión interna y por el ajuste. Para las válvulas de seguridad de descargue común, conectar el agujero purgador a un tubo para transportar todo hacia una zona no peligrosa. Para asegurarse de que la válvula de seguridad cierre bien, la presión de trabajo del equipo protegido no debe ser mayor al 90% de la presión establecida por la válvula misma. En caso de presión pulsátil, el margen de trabajo se reduce aún más, según la amplitud y la frecuencia de la pulsación, hasta alcanzar un valor máximo igual al 80% de la presión establecida. Irregularidades en la conducción de la planta que causan el desbordamiento de la válvula, pueden comprometer la siguiente capacidad de sujeción de la misma. **Asegurarse de la correcta puesta a tierra de la válvula, incluso mediante la misma conexión de entrada.** Poner, según la instalación, indicaciones (carteles) adecuadas que informen sobre los riesgos de los órganos en movimiento (moto) y de la temperatura de trabajo. Antes de poner la planta en función, asegurarse de que dentro de la misma no hayan cuerpos sólidos que puedan dañar el asiento de sello de la válvula. En caso de que entre las superficies del asiento y el obturador se depositen trozos de diferentes tipos de material (escorias de soldadura o impurezas de otro tipo presentes en los tubos de la planta, incluso pequeños) pueden presentarse problemas de sello en todas las válvulas de asiento metálico o de "PTFE". Allí donde las condiciones (origen del fluido y temperatura de trabajo) lo permitan, se puede recurrir a la junta blanda. En caso de descargue prolongado de alta temperatura, se puede presentar una variación del módulo elástico tangencial del material de construcción del resorte, con consiguiente reducción de la presión establecida y el aumento de la diferencia de cierre de la válvula de seguridad. Para el correcto funcionamiento de la válvula de seguridad, se hace necesario controlar que no hayan pérdidas de fluido entre las superficies del asiento y del obturador. En caso de que suceda lo dicho, intervenir lo antes posible para restaurar la capacidad de cierre correcta. En caso de que se presenten, en la parte alta de la válvula de seguridad, fenómenos de cristalización o de polimerización del fluido de proceso, estaría bien realizar la tubería de entrada lo más corta posible y dotar la válvula de camisa de calefacción o de un sistema equivalente. La cristalización o la polimerización del fluido en la parte baja del obturador (lado de baja presión del cuerpo de la válvula) o en el casquete de la válvula, puede causar el bloqueo de la válvula. Para evitar dicho inconveniente, es importante mantener bajo control la válvula de seguridad, teniendo cuidado de detectar eventuales pérdidas de fluido que, de hecho, causarían su bloqueo.

7. LIMPIEZA Y LUBRICACIÓN - Las válvulas de seguridad NGI son diseñadas para funcionar sin lubricación; es suficiente con mantenerlas limpias y eficientes.

8. MANTENIMIENTO ORDINARIO - INSPECCIÓN - La válvula es un mecanismo muy delicado. Es tarea del responsable de la planta controlar su eficiencia y en caso de necesidad llamar al técnico especializado o enviar la válvula a la NGI. La inspección de las válvulas de seguridad debe ser realizada solo por autoridades competentes y está regida por disposiciones jurídicas específicas, en vigor en el país de instalación. **ATENCIÓN: LA NGI NO ASUME NINGUNA RESPONSABILIDAD EN RELACIÓN CON INTERVENCIONES O MODIFICACIONES NO AUTORIZADAS POR LA NGI. LA NGI NO ES MÁS RESPONSABLE DE LA VÁLVULA DESPUÉS DE REPARACIONES, RECALIBRACIONES, REEMPLAZO DE PIEZAS O CUALQUIER OTRO TIPO DE INTERVENCIÓN REALIZADA SIN SU CONTROL DIRECTO.**

9. Control periódico de las válvulas de seguridad que llevan dispositivo manual con asientos de sello de elastómeros para vapor de agua. - Para asegurarse de que las válvulas de seguridad permanezcan eficientes, deben ser controladas periódicamente. Para tal fin, deben abrirse manualmente activándolas por medio de la palanca o del anillo de apertura; esta prueba debe realizarse manteniendo en el equipo protegido una presión de entre el 80 y el 90% de la establecida para la válvula. La válvula debe abrirse de manera firme, con mucha pérdida de fluido, y debe cerrarse radicalmente una vez que se ha soltado la palanca o que se ha vuelto a activar el anillo de apertura. La maniobra debe ser corta y no debe repetirse. La periodicidad depende de las condiciones de la planta (según la mayor o menor probabilidad de que la válvula se ensucie o de que se depositen sales que contienen agua). **Realizar la prueba cuando se ponga en marcha la planta y luego ajustarse a los requisitos establecidos y/o a la ley del país de instalación.** El procedimiento que se ha descrito anteriormente no se aplica con las válvulas de seguridad que no tienen apertura manual. Para eventuales pruebas periódicas se deberá intervenir eludiendo las pruebas de seguridad de la planta y/o se deberá realizar la prueba de banco para alcanzar la presión establecida. La NGI se reserva el derecho de modificar las características, el rendimiento y los dibujos de los productos sin previo aviso.

EU-Konformitätserklärung
EU Declaration of Conformity

Dokument Nr. / ***Document No.*** **11564220** — **Revision** / ***Issue*** **07**

Wir erklären in alleiniger Verantwortung, dass die mit CE gekennzeichneten Produkte
We declare under our sole responsibility that the CE marked products

Typenbezeichnung / ***Type Designation***

23a.50.063 + option ATEX | **23a.50.1*0 + option ATEX**
26a.50.063 + option ATEX | **26a.50.1*0 + option ATEX**
23a.30.063 + option ATEX | **23a.30.1*0 + option ATEX**
26a.30.063 + option ATEX | **26a.30.1*0 + option ATEX**
23a.53.063 + option ATEX | **23a.53.100 + option ATEX**
23a.54.063 + option ATEX | **23a.54.100 + option ATEX**
23a.36.1*0 + option ATEX
PG23LT.063 + option ATEX | **PG23LT.1*0 + option ATEX**
PG23CP.063 + option ATEX | **PG23CP.100 + option ATEX**
PG28.1*0 + option ATEX
PG23HP-S.1*0 + option ATEX | **PG23HP-P.1*0 + option ATEX**

*** Nominal size**
0 = 100mm
6 = 160mm

a Case filling
2 = Without case filling
3 = With case filling

Beschreibung / ***Description***: **Rohrfederdruckmessgerät** / ***Bourdon Tube Pressure Gauge***

gemäß gültigem Datenblatt / *according to the valid data sheet*: PM 02.02, PM 02.04, PM 02.12, PM 02.15, PM 02.22, PM 02.24, PM 02.32, PM 02.28, PM 02.29

mit den nachfolgenden relevanten Harmonisierungsvorschriften der Union übereinstimmen
are in conformity with the following relevant Union harmonisation legislation

Angewandte harmonisierte Normen oder sonstige technische Spezifikationen:
Applied harmonised standards or other technical specifications:

2014/68/EU	Druckgeräterichtlinie (DGRL) (1) *Pressure Equipment Directive (PED)* (1)	
2014/34/EU	Explosionsschutz (ATEX) (2) *Explosion protection (ATEX)* (2)	
Ex	II 2G Ex h IIC T6 … T1 Gb X II 2D Ex h IIIC T85 °C … T450 °C Db X	EN ISO 80079-36 :2016 EN ISO 80079-37 :2016

(1) PS > 200 bar; Modul A, druckhaltendes Ausrüstungsteil
PS > 200 bar; Module A, pressure accessory

(2) Modul A „interne Fertigungskontrolle“. Die Dokumentation ist hinterlegt unter der Nummer 074/24 bei der Notifizierten Stelle der EU, IBExU Institut für Sicherheitstechnik GmbH (EU ID-Nr. 0637).
Module A “Internal Control of Production”. The Documentation is deposited under registration number 074/24 at Notified Body of EU, IBExU Institut für Sicherheitstechnik GmbH (EU ID 0637). .

Unterzeichnet für und im Namen von / *Signed for and on behalf of*

WIKA Alexander Wiegand SE & Co. KG

Klingenberg, 2024-04-24

Sascha Schnellbacher, Vice President
CoE Gauges, Sensors & Instruments

Mariusz Lubomski, Director of Quality
CoE Gauges, Sensors & Instruments

2.6 Specific conditions of use

EN

1. All accessories (e.g. valves or attachment components) must be assessed in combination with the delivered instruments by the end user.
2. The operator must recognise ignition hazards and take suitable protective measures. See chapter 2.2 “Responsibility of the operator”.
3. The legibility of the marking must be observed during time in use but at least during inspection periods of three years. See chapter 2.2 “Responsibility of the operator”.
4. For instruments with marking pointer, ensure that there are no electrostatic charging mechanisms at the marking pointer.
5. Avoid any kind of external impact. External impacts can generate sparks through friction processes between different materials.
6. The filling/refilling of instruments by non-authorised personnel leads to a loss of the explosion protection and can lead to damage to the instrument.

14375375.04 04/2025 EN/DE/FR/ES

EU - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

3 EU - Type Examination Certificate Number: **Baseefa10ATEX0026 – Issue 15**

4 Product: **Type 27 & 77 Solenoid Operator**

5 Manufacturer: **Bifold Fluidpower Limited**

6 Address: **Chadderton, Oldham, Greater Manchester, OL9 9XA, UK**

7 This re-issued certificate extends EU Type Examination Certificate No. **Baseefa10ATEX0026** to apply to product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Fimko Oy, Notified Body number 0598, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

8.1 The original certificate was issued by SGS Baseefa Ltd (UK Notified Body 1180). It, and any supplements previously issued by SGS Baseefa Ltd have been transferred to the supervision of SGS Fimko Oy (EU Notified Body 0598). The original certificate number is retained.

The examination and test results are recorded in confidential Report No. **See Certificate History**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-1:2014** **EN 60079-31:2014**

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following:

II 2GD **Ex db IIC T6 Gb (Tamb -60°C to +40°C)***
Ex tb IIIC T85°C Db (Tamb -60°C to +40°C)* IP66/67
***alternative Temperature class/Ambient combinations may also be marked, see schedule**

SGS Fimko Oy Customer Reference No. **1688** Project File No. **22/0377**

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SGS Fimko Oy
Takomotie 8
FI-00380 Helsinki, Finland
Telephone +358 (0)9 696 361
e-mail sgs.fimko@sgs.com
web site www.sgs.fi
Business ID 0978538-5 Member of the SGS Group (SGA SA)

Mikko Välimäki
Authorised Signatory for SGS Fimko Oy

13 # Schedule

14 ## Certificate Number Baseefa10ATEX0026 – Issue 15

15 Description of Product

The Type 77 and Type 27 Solenoid Operators are rated at up to 240Vac or dc and have a maximum power dissipation of 14W. The Type 77 Solenoid Operator comprises a stainless steel cylindrical enclosure, whereas the Type 27 comprises an aluminium cylindrical enclosure, both have a spigot cover fitted with a silicone rubber seal.

In addition to the above there is also a two winding alternative designated the 'Pulse-Pulse Solenoid operator' which has a maximum combined coil rating limited to 20.5W.

The base of the enclosure is fitted with an adaptor bush which incorporates venting holes to allow the unit to be fitted onto a valve assembly rated up to a maximum pneumatic pressure of 10 bar. For hydraulic valves and valves with pneumatic pressures greater than 10 bar the top of the valve is provided with additional venting holes.

Internally the unit is fitted with a coil holder, coil and armature onto which is mounted an adjusting rod which forms a cylindrical joint with the adaptor bush and operates the valve when the solenoid is activated.

The cover may be fitted with a pushbutton or a rotary operator which can be used to operate the valve manually either momentarily or permanently.

The cover is secured using four stainless steel socket head cap screws grade of grade A4-70.

The equipment is marked:

Ex db IIC T6 Gb (Tamb -60°C to +40°C)*

Ex tb IIIC T85°C Db (Tamb -60°C to +40°C)* IP66/67

*The following alternative Temperature class/Ambient combinations may also be marked

T5/T100°C (Tamb -60°C to +55°C)

T4/T135°C (Tamb -60°C to +90°C)

An M20 or ½" NPT cable entry hole is provided as specified on the certified drawings for the accommodation of suitable IECEx Equipment (not a Component) certified cable entry device, with or without the interposition of a suitable IECEx Equipment certified (not a Component) flameproof thread adapter.

An M20 cable entry is provided unless the marking 'K85' appears in the Model No. marked on the label, in which case a ½" NPT cable entry hole is provided.

16 Report Number

See Certificate History

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product:

Clause	Subject
1.4.1	External effects
1.4.2	Aggressive substances etc.

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Issue	Date	Description
0-SL0070	0	2022.06.30	TYPE 27 & 77 SOLENOID LABEL - ROTORK BRAND - L240

Current drawings which remain unaffected by this issue:

Number	Issue	Date	Description
0-SC0004	1	09.07.20	Solenoid Lid Options G.A
0-SC0006	0	17.04.09	Latched Energised and Tamperproof Solenoid Options
0-SC0008	1	29.03.11	Override Cover Assembly
0-SC0009	0	12.02.15	Serial Numbers IIB, Type 77
**0-GA0870	0	07.11.17	General Arrangement L209 Variant – Fixed Head Operator
0-SC0003	11	20.09.21	Type 27 and 77 Solenoid Operator
0-SC0007	5	24.11.21	Sol. Operator Pulse-Pulse.
0-SL0056	4	13.01.22	Type 27 & 77 Solenoid housing label Ex d
0-SL0058	5	2022.02.07	Type 27 & 77 Solenoid housing label Ex d
0-SL0068	0	2022.01.17	Label Type 27 and 77 Solenoid Operator

**This drawing is common to this certificate and BAS02ATEX2048, BAS21UKEX0642 and is held with IECEx BAS 10.0008.

20 Certificate History

Certificate No.	Date	Comments
Baseefa10ATEX0026	20 April 2010	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-1: 2007, EN 61241-0: 2004 and EN 61241-1: 2004 is documented in Test Report No. GB/BAS/ExTR10.0014/00.
Baseefa10ATEX0026/1	7 April 2011	Amendment to the diametral tolerance for the adjusting rod. Omission of drawing 0-SC0001 (previously submitted in error). Alternative design of pushbutton override cover assembly. Minor drawing variations. Documented in Test Report No. GB/BAS/ExTR11.0084/00
Baseefa10ATEX0026/2	8 July 2011	Alternative internal design to form the Pulse-Pulse Solenoid Operator. This unit has two windings with a combined rating of 20.5W. Amended designation for the solenoid housing material. Documented in Test Report No. GB/BAS/ExTR11.0123/00
Baseefa10ATEX0026/3	2 April 2012	Alternative label design incorporating the complete range of temperature class and ambient temperature markings provided for by this certificate. Documented in Test Report No. GB/BAS/ExTR12.0086/00

Certificate No.	Date	Comments
Baseefa10ATEX0026/4	2 December 2013	A re-designation of the Type FP Solenoid Operator, to the Type 77 Solenoid Operator. A satisfactory assessment against the requirements of the updated standards IEC 60079-0: 2011 and IEC 60079-31: 2008 (superseding IEC 61241), complete with a review of the marking. Introduction of an alternative aluminium housing and cover material. Documented in Test Report No. GB/BAS/ExTR13.0291/00
Baseefa10ATEX0026/5	29 July 2014	This issue permits existing information (for example on Schedule Drawings) to be replaced by the revised certificate holders address. No other changes may be made to the certified design. Documented in Test Report No. None.
Baseefa10ATEX0026/6	17 February 2015	Clarification of the Type name. The Type 77 comprises a stainless steel housing and the Type 27 comprises an aluminium housing. To allow the introduction of alternative seal materials. To allow the Type 77 Solenoid Operators having Serial numbers as defined in drawing number 0-SC0009 to be marked with Ex d IIB T6 Gb. Documented in Test Report No. GB/BAS/ExTR14.0317/00
Baseefa10ATEX0026/7	23 June 2016	Minor drawing changes not affecting certification. Documented in Test Report No. GB/BAS/ExTR16.0164/00
Baseefa10ATEX0026/8	16 March 2017	To allow the introduction of an alternative low power circuit. To allow for correction of the Type designation listed on the EU-Type Examination Certificate Baseefa10ATEX0026 To allow for correction of description to include the Pulse Pulse Unit. Documented in Test Report No. GB/BAS/ExTR17.0076/00
Baseefa10ATEX0026/9	20 July 2017	To allow the introduction of an alternative low power circuit. Documented in Test Report No. GB/BAS/ExTR17.0211/00
Baseefa10ATEX0026/10	3 January 2018	To introduce an alternative non-rotational mounting arrangement to attach the adaptor bushing via the coil holder to the enclosure housing. Identification of threaded entry holes on the enclosure wall. Documented in Test Report No. GB/BAS/ExTR17.0274/00
Baseefa10ATEX0026/11	7 March 2018	To introduce alternative terminal plate with a different grounding point design. To introduce optional certification marks in addition to the existing one to be included on to the certification label marking. Documented in Test Report No. GB/BAS/ExTR 18.0041/00
Baseefa10ATEX0026/12	12 July 2019	To assess the Type 27 and 77 Solenoid Operator against the standards EN IEC 60079-0:2018, EN 60079-1:2014 and EN 60079-31:2014 To permit minor drawing changes to the certification label that do not affect certification Documented in Test Report No. GB/BAS/ExTR19.0100/00

Certificate No.	Date	Comments
Baseefa10ATEX0026/13	14 July 2020	To introduce an alternative Detented Manual Over-Ride Lid (alternative spigoted cover), which allows the valve to be operated manually. Documented in Test Report No. GB/BAS/ExTR19.0341/00.
Baseefa10ATEX0026 – issue 14	11 February 2022	This issue of the certificate incorporates previously issued primary & supplementary certificates. To remove drawings 138-10, 138-10-K85, 0-S0252 and 0-S0254 transferring critical details to drawing 0-SC0003 revision 11. To remove drawing 0-SC0001. To add drawing 0-SL0068. To add an alternative encapsulant. To update the nameplate drawings to include UKEX details. Documented in Test Report No. GB/BAS/ExTR21.0158/00
Baseefa10ATEX0026 – issue 15	2 November 2022	This issue of the certificate incorporates previously issued primary & supplementary certificates. To add an alternative marking drawing with a different manufacturer branding. The assessment is documented in test report GB/BAS/ExTR22.0138/00
For drawings applicable to each issue, see original of that issue.		

Document Reference: - D of C Baseefa14ATEX0223DR_01

EU Declaration of Conformity

Manufacturer: Bifold Fluidpower Ltd
Address: Broadgate, Oldham Broadway Business Park,
Chadderton, Oldham
Greater Manchester
OL9 9XA
UK

Tel: +44 (0)161-345-4777
E-mail: sales@bifold.co.uk

Product Type (Object of the Declaration):

Type SH, ASH & SC Filter Regulator

Declaration statement:

On behalf of the above company, I declare that, the *Object of the Declaration* described above is in conformity with the relevant Union harmonisation legislation: Directive 2014/34/EU, with the following limitation;

Limitation on the validity of the Declaration of Conformity:

None

Provisions of the Directive fulfilled by the Equipment:

Group II Category 2 Gb Db Ex c IIC T6

Bifold Technical File Reference:

DF-FP_SH_20140627114952

Technical File lodged with Notified Body:

SGS Fimko Oy 0598 Helsinki, Finland

SGS Baseefa Technical File Reference:

Baseefa14ATEX0223DR

Technical basis for compliance with the Essential Health and Safety Requirements of Directive 2014/34/EU: -

BS EN 13463-1: 2009 – Non-electrical equipment for use in potentially explosive atmospheres. Basic method and requirements
BS EN 13463-5: 2011 – Non-electrical equipment for use in potentially explosive atmospheres. Protection by constructional safety 'c'

(A review against the following harmonised standards, shows no significant changes relevant to this equipment): -

BS EN ISO 80079-36: 2016 – Explosive atmospheres. Non-electrical equipment for explosive atmospheres. Basic method and requirements
BS EN ISO 80079-37: 2016 – Explosive atmospheres. Non-electrical equipment for explosive atmospheres. Non-electrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k"

Paul Barrow
Quality Manager

4th November 2020

EU Type Examination Certificate CML 19ATEX1359X Issue 1

1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

2 Equipment **SOLDO™ SK and SQ Series Limit Switch Boxes**

3 Manufacturer **Rotork Instruments Italy srl**

4 Address **Via Portico 17**
24050
Orio al Serio (BG)
Italy

5 The equipment is specified in the description of this certificate and the documents to which it refers.

6 CML B.V., Chamber of Commerce No 67386717, Koopvaardijweg 32, 4906CV Oosterhout, The Netherlands, Notified Body Number 2776, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 12.

7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.

8 This EU Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Article 13 apply to the manufacture of the equipment or component and are separately certified.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-31:2014

10 The equipment shall be marked with the following:

II 2 G D

Ex db IIC T* Gb

Ex tb IIIC T*°C Db

Ta = -55°C to +*°C

**The ambient temperature classes and maximum surface temperature for dust depend upon the ambient temperature ranges. See Table in Section 11.*

11 Description

The SOLDO™ SK and SQ Series Limit Switch Boxes are electromechanical devices used to indicate the position of valves/actuators etc. by means of an electrical signal and an optional visual indicator. The metallic enclosure is constructed from aluminium (SK) or 316 or 316L stainless steel (SQ) and comprises of two enclosure halves secured with 4 x M6 stainless steel fasteners with a minimum property class of 500 MPa. An operating rod passes through each enclosure half for connection to the device being monitored. The rod operates the internal switch/sensor for signalling and passes through to the external indicator (when fitted). There are two threaded entries (M20 or ½" NPT) into the enclosure for cable entry.

The applicable ambient temperature ranges and corresponding Temperature Classes and Maximum Surface Temperatures for Dust are detailed in the table below:

Ambient Temp. Range	T Class	Maximum Surface Temp. for Dust
-55°C to +60°C	T6	T85°C
-55°C to +80°C	T5	T100°C
-55°C to +105°C	T4	T135°C

Rating:

Max. Voltage: 125 Vdc/250 Vac
Max. Current: 10 A
Max. Power: 10 W

Notes:

- Sira 12ATEX1098X is superseded by this certificate.
- The product covered by Issue 0 of this certificate remains identical to that previously covered by Sira 12ATEX1098X.
- Where Sira 12ATEX1098X is specified in other product certification, or other technical specifications, this certificate reference for the product shall be used in its place; updating of the other product certificate or technical specification is not required.

Variation 1

This variation introduced the following changes:

i. Introduction of power dissipation calculation as supporting certification document.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	04 Oct 2019	R12654A/00	Initial issue
1	27 Mar 2024	R17518A/00	Introduction of Variation 1

Note: Drawings that describe the equipment or component are listed in the Annex.

13 Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.

ii. The power dissipation inside the flameproof enclosure shall not exceed 10 W.

14 Specific Conditions of Use (Special Conditions)

The following conditions relate to safe installation and/or use of the equipment.

i. The equipment is fitted with a non-conducting position indicator which could potentially generate an ignition-capable level of electrostatic charge under certain extreme conditions. Therefore, the equipment shall not be installed in a location where it may be subjected to external conditions (such as high-pressure steam) which might cause a build-up of electrostatic charge on the non-conducting surfaces. Additionally, cleaning of the equipment should be done only with a damp cloth.

ii. The maximum temperature at the cable entry points may exceed 70°C. The user shall refer to the manufacturer's instructions document for guidance in respect of the selection of suitable cabling for the equipment.

iii. Dust layers in excess of 50 mm shall not be allowed to form on the equipment.

iv. The following have a minimum flamepath width (*L*) and maximum gap (i_c) other than that detailed in EN 60079-1 Table 3 and are detailed below:

Flamepath	**Joint Width (*L*) mm**	**Max. Gap (i_c) mm**
Cover shaft/Cover	26	0.097
Body Shaft/Body	26	0.097

Certificate Annex

Certificate Number	**CML 19ATEX1359X**
Equipment	**SOLDO™ SK and SQ Series Limit Switch Boxes**
Manufacturer	**Rotork Instruments Italy srl**

The following documents describe the equipment or component defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
SL-0202069-00	1 of 1	-	04 Oct 2019	Coperchio SQ certificazione ATEX IECEx UL
SL-0202070-00	1 of 1	-	04 Oct 2019	Coperchio SK certificazione ATEX IECEx UL
SL-0201093-00	1 of 1	-	04 Oct 2019	Corpo SQ certificazione ATEX IECEx UL
SL-0201096-00	1 of 1	-	04 Oct 2019	Corpo SK certificazione ATEX IECEx UL
SD-0201130-00	1 of 1	-	04 Oct 2019	Corpo SK certificazione ATEX IECEx
SD-0201132-00	1 of 1	-	04 Oct 2019	Corpo SQ certificazione ATEX IECEx
SD-0202091-00	1 of 1	-	04 Oct 2019	Cover SQ certificazione ATEX IECEx
SD-0202093-00	1 of 1	-	04 Oct 2019	Cover SQ certificazione ATEX IECEx
SL-0204138-00	1 of 1	-	04 Oct 2019	Stelo corpo SK-SQ certifcazione ATEX
SL-0204140-00	1 of 1	-	04 Oct 2019	Stelo coperchio SK-SQ certificazione ATEX
SD-0204186-01	1 of 1	01	04 Oct 2019	Shaft body SK sintered bronze bush approval ATEX IECEx UL
SD-0204187-01	1 of 1	01	04 Oct 2019	Shaft cover SK sintered bronze bush approval ATEX IECEx UL
SD-0204184-01	1 of 1	01	04 Oct 2019	Shaft body SQ sintered bronze bush approval ATEX IECEx UL
SD-0204185-01	1 of 1	01	04 Oct 2019	Shaft cover SQ sintered bronze bush approval ATEX IECEx UL
SD-0213155-00	1 of 1	-	04 Oct 2019	Retaining ring UNI 7434-8
SD-0213152-00	1 of 1	-	04 Oct 2019	Retaining washer for shaft UNI 7435 D2
SL-0208046-00	1 of 1	-	04 Oct 2019	Vite coperchio SK-SQ certificazione ATEX
SD-0207019-00	1 of 1	-	04 Oct 2019	O-ring shaft SK-SQ ATEX IECEx UL
SL-0207020-00	1 of 1	-	04 Oct 2019	O-ring coperchio SK-SQ certificazione ATEX
SD-0211053-03	1 of 1	3-1	04 Oct 2019	SQ metal plate IP66-67 ATEX/IECEx certification
SD-0211054-03	1 of 1	3-1	04 Oct 2019	SQ metal plate IP66-68 10 m ATEX/IECEx certitication
SD-0211055-03	1 of 1	3-1	04 Oct 2019	SK metal plate IP66-67 ATEX/IECEx certification

Certificate Annex

Certificate Number **CML 19ATEX1359X**

Equipment **SOLDO™ SK and SQ Series Limit Switch Boxes**

Manufacturer **Rotork Instruments Italy srl**

Drawing No	Sheets	Rev	Approved date	Title
SD-0211056-03	1 of 1	3-1	04 Oct 2019	SK metal plate IP66-68 10 m ATEX/IECEx certification
SD-0225231-00	1 of 1	-	04 Oct 2019	Assieme SQ-SK certificazione ATEX IECEx UL
SD-0225228-00	1 of 1	-	04 Oct 2019	SK assembly
SD-0225232-00	1 of 1	-	04 Oct 2019	SQ assembly
SD-0225293-00	1 of 1	-	04 Oct 2019	SQ assembly certificazione ATEX IECEx
SD-0225295-00	1 of 1	-	04 Oct 2019	SK assembly certificazione ATEX IECEx
SL-0212199-00	1 of 1	-	04 Oct 2019	Tipico Cicuito Stapato 5 Amp, Certificazione ATEX
SL-0223298-00	1 of 1	-	04 Oct 2019	Scheda C/Stapato 10 Amp, Certificazione ATEX
SD-0212239-00	1 of 1	-	04 Oct 2019	Circuito Stampato Destro DPDT SK
SD-0212232-00	1 of 1	-	04 Oct 2019	Circuito Stampato Verticale Sinistro DPDT SK
SD-0212230-00	1 of 1	-	04 Oct 2019	Circuito Stampato Sinistro DPDT SK
SD-0212240-00	1 of 1	-	04 Oct 2019	Circuito Stampato Verticale DPDT SK

Issue 1

None.

04: Manufacturing Records and Procedures

PED Certificate

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CERTIFICATE OF QUALITY SYSTEM APPROVAL

N° CE-1370-PED-H-Flu 001-22-ITA

Bureau Veritas Italia SpA, acting within the scope of its notification (notified body number 1370), attests that the quality system operated by the manufacturer for design, manufacture, final product inspection and testing of the pressure equipment/assembly identified hereunder has been examined against the provisions of annex III, module H, of the Pressure Equipment Directive n° 2014/68/EU, and found to satisfy the provisions of the directive which apply to it.

Manufacturer (Name):	FLUITEK ORSENIGO VALVES S.R.L
Address:	Via dei Livelli di Sopra, 7/5 24060, Costa di Mezzate, Italy
Trading Name - Mark:	FLUITEK ORSENIGO VALVES S.R.L
Equipment/Assembly description:	Pressure accessory
Identification of equipment/assemblies concerned (or list on the back or attached where necessary):	See page 2

This certificate will expire on (dd/mm/yyyy): 28/11/2025

The approval is conditional upon the surveillance audits, visits, tests and verifications to be carried out by the local Bureau Veritas entity that entered into a contract with the manufacturer, pursuant to the provisions of such contract.

This certificate shall be deemed to be void and the manufacturer shall alone bear any consequences pursuant to its use, where the manufacturer fails to comply with his undertakings as per the agreement in respect of (a) implementation of the approved quality system and (b) inspection and tests on the final product, and generally where the manufacturer fails in particular to comply with any of his obligations under directive nr 2014/68/EU of 15 may 2014 as transposed in the applicable law(s).

Date of initial (or renewal) audit (dd/mm/yyyy):	29/11/2022
Auditor:	PAOLO GUARAGNI

Made at	On (dd/mm/yyyy)	Approved and Recorded in	Signed by	Signature authorised by Notified Body No 1370
Milano	29/11/2022	Italy	PAOLO GUARAGNI	

Registration Code: 2022/002814/CE-1370-PED

The present document is subject to the terms of General Conditions of Service attached to the agreement signed by the applicant.
The present document shall not be reproduced, except by the manufacturer in compliance with the provisions of the contract entered into between the local Bureau Veritas entity and the manufacturer.

PED - H - Rev. 06/2016 H

N° CE-1370-PED-H-Flu 001-22-ITA

List of the concerned equipment/assemblies

Ball Valve DBB Gate Check Globe Split Bolted Body / Top Entry Welded Body / Butterfly / Manifold / Strainers

PN	Class	
20	150	1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64"
50	300	1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64"
64	400	1 1/2"- 64" 1 1/2"- 64" 1 1/2"- 64" 1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64"
100	600	1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64"
150	900	1 1/2" - 56" 1 1/2" - 56" 1 1/2" - 56" 1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64"
250	1.500	1 1/2" - 48" / 1 1/2" - 48" 1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64"
420	2.500	1 1/2" - 24" / 1 1/2" - 24" 1 1/2" - 64" 1 1/2" - 64" 1 1/2" - 64"
138	2.000	1 1/2" - 9" / 1 1/2" - 9" 1 1/2" – 21 1/4" 1 1/2" – 21 1/4" 1 1/2" – 21 1/4"
207	3.000	1 1/2" - 9" / 1 1/2" - 9" 1 1/2" – 21 1/4" 1 1/2" – 21 1/4" 1 1/2" – 21 1/4"
345	5.000	1 1/2" - 9" / 1 1/2" - 9" 1 1/2" – 18 3/4" 1 1/2" – 18 3/4" 1 1/2" – 18 3/4"
690	10.000	1 1/2" - 7 1/16" / 1 1/2" - 7 1/16" 1 1/2" – 13 1/16" 1 1/2" – 13 1/16" 1 1/2" – 13 1/16"

BUREAU VERITAS ITALIA Notified Body no 1370

PED - H - Rev. 06/2016 H

04: Manufacturing Records and Procedures

Inspection Release Note IRN 240062

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ROSETTI MARINO	RELEASE NOTE	Nr. RN-0204-FLU-001	Sheet 1 of 9
		Date 28/08/2024	Rev. 0

PROGETTO *Project*	CLIENTE *Client*	COMMESSA *Job*
HOLLANDSE KUST NOORD WIND PARK	CROSSWIND	*123A90*

FORNITORE *Vendor*	FLUITEK ORSENIGO VALVES S.R.L.	NUMERO D' ORDINE *Purchase Order No.*	*1724000204*

Release Note	☐ FOR PAYMENT	☒ FOR SHIPMENT

RELEASE NOTE FOR PAYMENT

PO Art.		

RELEASE NOTE FOR SHIPMENT

POS. Item	Q.TA' Quantity	DESCRIZIONE Description	Nr. TAG TAG No.	TIPO DI ISPEZIONE / Kind of Inspection	ESITO / Result
10	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1 ND BODY: 1 Full Bore Size: 1" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-BDV-022**	FINAL	SATISFACTORY
20	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 4 ND BODY: 4 Full Bore Size: 4" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-BDV-005**	FINAL	SATISFACTORY
30	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 4 ND BODY: 4 Full Bore Size: 4" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-BDV-007**	FINAL	SATISFACTORY
40	1	**BALL VALVE**	**25-BDV-010**	FINAL	SATISFACTORY

L' INCARICATO */Person in charge* ROSETTI MARINO *Supply Management dept.*		IL RAPPR. DEL CLIENTE / *Client Representative*	IL FORNITORE */Vendor*	CONSTRUCTION MANAGER *Only requested for Punch List to be closed at Yard*
Nome Cognome *Name Surname*	**Firma** *Signature*			
Martino Basile		N.A.	N.A.	N.A.

QUESTO DOCUMENTO NON SOLLEVA IL FORNITORE DALLA RESPONSABILITA' DI EVENTUALI DIFETTI E/O MALFUNZIONAMENTI RILEVATI DURANTE L'USO / *The present RELEASE NOTE does not relieve the Supplier of the responsibility of any possible defects and/or malfunctioning arising during the utilisation.*

		Ball Valve Type: FLOATING ND END: 4 ND BODY: 4 Full Bore Size: 4" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included			
50	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 4 ND BODY: 4 Full Bore Size: 4" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-BDV-013**	FINAL	SATISFACTORY
60	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 4 ND BODY: 4 Full Bore Size: 4" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-BDV-016**	FINAL	SATISFACTORY
70	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 4 ND BODY: 4 Full Bore Size: 4" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6	**25-BDV-019**	FINAL	SATISFACTORY

L' INCARICATO */Person in charge* **ROSETTI MARINO** *Supply Management dept.*		IL RAPPR. DEL CLIENTE / *Client Representative*	**IL FORNITORE** */Vendor*	**CONSTRUCTION MANAGER** ***Only requested for Punch List to be closed at Yard***
Nome Cognome *Name Surname*	**Firma** *Signature*			
Martino Basile		N.A.	N.A.	N.A.

QUESTO DOCUMENTO NON SOLLEVA IL FORNITORE DALLA RESPONSABILITA' DI EVENTUALI DIFETTI E/O MALFUNZIONAMENTI RILEVATI DURANTE L'USO / *The present RELEASE NOTE does not relieve the Supplier of the responsibility of any possible defects and/or malfunctioning arising during the utilisation.*

		Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included			
80	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1 ND BODY: 1 Full Bore Size: 1" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-SDV-001**	FINAL	SATISFACTORY
90	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 2 ND BODY: 1,5 Reduced Bore Size: 2 x 1.1/2" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-SDV-023**	FINAL	SATISFACTORY
100	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1 ND BODY: 1 Full Bore Size: 1" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**64-SDV-001**	FINAL	SATISFACTORY
110	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1 ND BODY: 1 Full Bore Size: 1" Rating: 300 RF	**25-XV-004**	FINAL	SATISFACTORY

L' INCARICATO */Person in charge* **ROSETTI MARINO** *Supply Management dept.*		IL RAPPR. DEL CLIENTE / *Client Representative*	**IL FORNITORE** */Vendor*	**CONSTRUCTION MANAGER** ***Only requested for Punch List to be closed at Yard***
Nome Cognome *Name Surname*	**Firma** *Signature*			
Martino Basile		N.A.	N.A.	N.A.

QUESTO DOCUMENTO NON SOLLEVA IL FORNITORE DALLA RESPONSABILITA' DI EVENTUALI DIFETTI E/O MALFUNZIONAMENTI RILEVATI DURANTE L'USO / *The present RELEASE NOTE does not relieve the Supplier of the responsibility of any possible defects and/or malfunctioning arising during the utilisation.*

		Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included			
120	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1 ND BODY: 1 Full Bore Size: 1" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-XV-006**	FINAL	SATISFACTORY
130	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1 ND BODY: 1 Full Bore Size: 1" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-XV-008**	FINAL	SATISFACTORY
140	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1 ND BODY: 1 Full Bore Size: 1" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-XV-009**	FINAL	SATISFACTORY
150	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1 ND BODY: 1	**25-XV-011**	FINAL	SATISFACTORY

L' INCARICATO /*Person in charge* **ROSETTI MARINO** *Supply Management dept.*		IL RAPPR. DEL CLIENTE / *Client Representative*	**IL FORNITORE** /*Vendor*	**CONSTRUCTION MANAGER** ***Only requested for Punch List to be closed at Yard***
Nome Cognome *Name Surname*	**Firma** *Signature*			
Martino Basile		N.A.	N.A.	N.A.

QUESTO DOCUMENTO NON SOLLEVA IL FORNITORE DALLA RESPONSABILITA' DI EVENTUALI DIFETTI E/O MALFUNZIONAMENTI RILEVATI DURANTE L'USO / *The present RELEASE NOTE does not relieve the Supplier of the responsibility of any possible defects and/or malfunctioning arising during the utilisation.*

		Full Bore Size: 1" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included			
160	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1 ND BODY: 1 Full Bore Size: 1" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-XV-012**	FINAL	SATISFACTORY
170	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1 ND BODY: 1 Full Bore Size: 1" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-XV-014**	FINAL	SATISFACTORY
180	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1 ND BODY: 1 Full Bore Size: 1" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-XV-015**	FINAL	SATISFACTORY
190	1	**BALL VALVE**	**25-XV-017**	FINAL	SATISFACTORY

L' INCARICATO */Person in charge* **ROSETTI MARINO** *Supply Management dept.*		IL RAPPR. DEL CLIENTE / *Client Representative*	**IL FORNITORE** */Vendor*	**CONSTRUCTION MANAGER** ***Only requested for Punch List to be closed at Yard***
Nome Cognome *Name Surname* *Martino Basile*	**Firma** *Signature*	N.A.	N.A.	N.A.

QUESTO DOCUMENTO NON SOLLEVA IL FORNITORE DALLA RESPONSABILITA' DI EVENTUALI DIFETTI E/O MALFUNZIONAMENTI RILEVATI DURANTE L'USO / *The present RELEASE NOTE does not relieve the Supplier of the responsibility of any possible defects and/or malfunctioning arising during the utilisation.*

		Ball Valve Type: FLOATING ND END: 1 ND BODY: 1 Full Bore Size: 1" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included			
200	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1 ND BODY: 1 Full Bore Size: 1" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-XV-018**	FINAL	SATISFACTORY
210	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1 ND BODY: 1 Full Bore Size: 1" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-XV-020**	FINAL	SATISFACTORY
220	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1 ND BODY: 1 Full Bore Size: 1" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6	**25-XV-021**	FINAL	SATISFACTORY

L' INCARICATO /*Person in charge* **ROSETTI MARINO** *Supply Management dept.*		IL RAPPR. DEL CLIENTE / *Client Representative*	**IL FORNITORE** /*Vendor*	**CONSTRUCTION MANAGER** ***Only requested for Punch List to be closed at Yard***
Nome Cognome *Name Surname* *Martino Basile*	**Firma** *Signature*	N.A.	N.A.	N.A.

QUESTO DOCUMENTO NON SOLLEVA IL FORNITORE DALLA RESPONSABILITA' DI EVENTUALI DIFETTI E/O MALFUNZIONAMENTI RILEVATI DURANTE L'USO / *The present RELEASE NOTE does not relieve the Supplier of the responsibility of any possible defects and/or malfunctioning arising during the utilisation.*

		Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included			
230	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1,5 ND BODY: 1,5 Full Bore Size: 1.1/2" Rating: 300 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**25-XV-024**	FINAL	SATISFACTORY
240	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1,5 ND BODY: 1,5 Full Bore Size: 1.1/2" Rating: 150 RF Body Material: A182 F53 Trim: A182 F53 Painting Cycle: Unpainted Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**50-XV-001**	FINAL	SATISFACTORY
250	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1,5 ND BODY: 1,5 Full Bore Size: 1.1/2" Rating: 150 RF Body Material: A182 F53 Trim: A182 F53 Painting Cycle: Unpainted Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**50-XV-002**	FINAL	SATISFACTORY
260	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1,5 ND BODY: 1,5 Full Bore Size: 1.1/2" Rating: 150 RF	**50-XV-003**	FINAL	SATISFACTORY

L' INCARICATO */Person in charge* **ROSETTI MARINO** *Supply Management dept.*		IL RAPPR. DEL CLIENTE / *Client Representative*	**IL FORNITORE** */Vendor*	**CONSTRUCTION MANAGER** ***Only requested for Punch List to be closed at Yard***
Nome Cognome *Name Surname*	**Firma** *Signature*			
Martino Basile		N.A.	N.A.	N.A.

QUESTO DOCUMENTO NON SOLLEVA IL FORNITORE DALLA RESPONSABILITA' DI EVENTUALI DIFETTI E/O MALFUNZIONAMENTI RILEVATI DURANTE L'USO / *The present RELEASE NOTE does not relieve the Supplier of the responsibility of any possible defects and/or malfunctioning arising during the utilisation.*

		Body Material: A182 F53 Trim: A182 F53 Painting Cycle: Unpainted Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included			
270	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 2 ND BODY: 1,5 Reduced Bore Size: 2 x 1.1/2" Rating: 150 RF Body Material: A182 F53 Trim: A182 F53 Painting Cycle: Unpainted Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**50-XV-004**	FINAL	SATISFACTORY
280	1	**BALL VALVE** Ball Valve Type: FLOATING ND END: 1 ND BODY: 1 Full Bore Size: 1" Rating: 150 RF Body Material: A182 F316 Trim: A182 F316 Painting Cycle: Norsok System 6 Fire Safe design to API 6FA / API-607 / ISO 10497 Complete with Rotork Actuator - relief valve for actuator included	**80-XV-001**	FINAL	SATISFACTORY
290	1	**SPARE PARTS 2 YEARS VALVE composed by:** SPARE SOFT GASKET + SEAT	**N/A**	/	/
300	1	**SPARE PARTS 2 YEARS composed by:** ACTUATOR SPARE SEAL GASKET	**N/A**	/	/

Warehouse open Monday to Friday From 08.00 to 12.00 and from 13.00 to 17.00.
Contact Mr. Rota +39 3451608099

L' INCARICATO */Person in charge* **ROSETTI MARINO** *Supply Management dept.*		IL RAPPR. DEL CLIENTE / *Client Representative*	**IL FORNITORE** */Vendor*	**CONSTRUCTION MANAGER** ***Only requested for Punch List to be closed at Yard***
Nome Cognome *Name Surname* *Martino Basile*	**Firma** *Signature*	N.A.	N.A.	N.A.

QUESTO DOCUMENTO NON SOLLEVA IL FORNITORE DALLA RESPONSABILITA' DI EVENTUALI DIFETTI E/O MALFUNZIONAMENTI RILEVATI DURANTE L'USO / *The present RELEASE NOTE does not relieve the Supplier of the responsibility of any possible defects and/or malfunctioning arising during the utilisation.*

ROSETTI MARINO	RELEASE NOTE	**Nr.** RN-0204-FLU-001	Sheet **9** of **9**
		Date 28/08/2024	**Rev.** 0

PROGETTO *Project* **HOLLANDSE KUST NOORD WIND PARK**	**CLIENTE** *Client* CROSSWIND	**COMMESSA** *Job* ***123A90***
FORNITORE *Vendor* **FLUITEK ORSENIGO VALVES S.R.L.**		**NUMERO D' ORDINE** *Purchase Order No.* *1724000204*

DOCUMENTI APPLICABILI / *APPLICABLE DOCUMENTS*

POSIZIONE *Items*	**TIPO DI DOCUMENTO** *Type of Document*	**NUMERO DI DOCUMENTO** *Document Number*	**Rev.**	**COD. DI APPROV.** *Approv. Code*
All	Purchase Order	1724000204	2	N/A

PUNCH LIST: ☐ SI / *YES* VEDI PUNCH LIST ALLEGATA N° / *REFER TO ATTACHED PUNCH LIST N°*
☒ NO/ *NO*

CONTROLLO VALIDITA' FIDEJUSSIONE ***/ PERFORMANCE or WARRANTY BOND expiration date check***
Estensione Fidejussione Richiesta *(Performance or Warranty Bond Extension of Validity required)*
☐ SI / *YES* ☒ NO/ *NO*
Acceptance Method: *Performance or Warranty Bond valid if actually delivery date it's not greater than two weeks from contractual delivery date.*

RELEASE NOTE

RISULTATO / *RESULT*	**FORNITURA /** *SUPPLY*	**DISTRIBUZIONE A: /** *DISTRIBUTION TO:*	
☒POSITIVO / *POSITIVE*	☒COMPLETA / *COMPLETE*	☒Project Manager	☒Administration
☐ NEGATIVO / *NEGATIVE*	☐ PARZIALE / *PARTIAL*	☒ Project Quality Manager	☒ Project Eng-/Procurement Coord
☐PUNTI PENDENTI / *PUNCH-LIST*	☐ ULTIMA / *FINAL*	☒ Warehouse	☒ Supplier

NOTE / *NOTES*

Note:
None

L' INCARICATO */Person in charge* **ROSETTI MARINO** *Supply Management dept.*		IL RAPPR. DEL CLIENTE / *Client Representative*	**IL FORNITORE** */Vendor*	**CONSTRUCTION MANAGER** ***Only requested for Punch List to be closed at Yard***
Nome Cognome *Name Surname*	**Firma** *Signature*			
Martino Basile		N.A.	N.A.	N.A.

QUESTO DOCUMENTO NON SOLLEVA IL FORNITORE DALLA RESPONSABILITA' DI EVENTUALI DIFETTI E/O MALFUNZIONAMENTI RILEVATI DURANTE L'USO / *The present RELEASE NOTE does not relieve the Supplier of the responsibility of any possible defects and/or malfunctioning arising during the utilisation.*

ROSETTI MARINO	RELEASE NOTE	Nr. RN-0204-FLU-002	Sheet 1 of 1
		Date 22/08/2024	Rev. 0

PROGETTO *Project*	CLIENTE *Client*	COMMESSA *Job*
HOLLANDSE KUST NOORD WIND PARK	CROSSWIND	*123A90*

FORNITORE *Vendor*		NUMERO D' ORDINE *Purchase Order No.*	
	FLUITEK ORSENIGO VALVES S.R.L.		*1724000204*

Release Note	☐ FOR PAYMENT	☒ FOR SHIPMENT

RELEASE NOTE FOR PAYMENT

PO Art.		

RELEASE NOTE FOR SHIPMENT

POS. Item	Q.TA' Quantity	DESCRIZIONE Description	Nr. TAG TAG No.	TIPO DI ISPEZIONE / Kind of Inspection	ESITO / Result
340	1	**BALL VALVE**	**50-XV-005**	FINAL	SATISFACTORY

Warehouse open Monday to Friday From 08.00 to 12.00 and from 13.00 to 17.00.
Contact Mr. Rota +39 3451608099

DOCUMENTI APPLICABILI / *APPLICABLE DOCUMENTS*

POSIZIONE *Items*	TIPO DI DOCUMENTO *Type of Document*	NUMERO DI DOCUMENTO *Document Number*	Rev.	COD. DI APPROV. *Approv. Code*
All	Purchase Order	1724000204	2	N/A

PUNCH LIST: ☐ SI / *YES* VEDI PUNCH LIST ALLEGATA N° / *REFER TO ATTACHED PUNCH LIST N°*
☒ NO/ *NO*

CONTROLLO VALIDITA' FIDEJUSSIONE / *PERFORMANCE or WARRANTY BOND expiration date check*
Estensione Fidejussione Richiesta *(Performance or Warranty Bond Extension of Validity required)*
☐ SI / *YES* ☒ NO/ *NO*
Acceptance Method: *Performance or Warranty Bond valid if actually delivery date it's not greater than two weeks from contractual delivery date.*

RELEASE NOTE

RISULTATO / *RESULT*	FORNITURA / *SUPPLY*	DISTRIBUZIONE A: / *DISTRIBUTION TO:*	
☒ POSITIVO / *POSITIVE*	☒ COMPLETA / *COMPLETE*	☒ Project Manager	☒ Administration
☐ NEGATIVO / *NEGATIVE*	☐ PARZIALE / *PARTIAL*	☒ Project Quality Manager	☒ Project Eng-/Procurement Coord
☐ PUNTI PENDENTI / *PUNCH-LIST*	☐ ULTIMA / *FINAL*	☒ Warehouse	☒ Supplier

NOTE / *NOTES*

Note:
None

L' INCARICATO /*Person in charge* ROSETTI MARINO *Supply Management dept.*		IL RAPPR. DEL CLIENTE / *Client Representative*	IL FORNITORE /*Vendor*	CONSTRUCTION MANAGER *Only requested for Punch List to be closed at Yard*
Nome Cognome *Name Surname*	**Firma** *Signature*			
Bonifacio Rico		N.A.	N.A.	N.A.

QUESTO DOCUMENTO NON SOLLEVA IL FORNITORE DALLA RESPONSABILITA' DI EVENTUALI DIFETTI E/O MALFUNZIONAMENTI RILEVATI DURANTE L'USO / *The present RELEASE NOTE does not relieve the Supplier of the responsibility of any possible defects and/or malfunctioning arising during the utilisation.*

04: Manufacturing Records and Procedures

NCR's and Waiver Reports
Welding and preheating Book procedures

NOT APPLICABLE

File: COPERTINA .xlsx
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05: Test Record

Production Test Results Records
Mechanical Completion Records

NOT APPLICABLE

File: COPERTINA .xlsx
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05: Test Record

Test Records
Actuator Manufacturing Records
FAT Records

File: COPERTINA .xlsx
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Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Fluitek Valves	**PRESSURE TEST REPORT** Rapporto di prova di pressatura	**Cert. HPT No.** **240062-001**

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	**Item/s** *Item/s*	10
FOV Job *Commessa FOV*	240062	**Position/s** *Posizione/i*	001
TAG *TAG*	25-BDV-022	**Quantity** *Quantità*	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 300#	**Serial Number** *Numero seriale*	2400620010001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST BALL Rev.00		
Acceptance criteria *Criteri di accettabilità*	PO 240062 HPT TEST BALL Rev.00		
Date of execution *Data di esecuzione*	From 22/07/2024 to 24/07/2024		

TEST DATA – *INFORMAZIONI SULLA PROVA*

Type of test *Tipo di prova*	**Pressure** *Pressione (bar)*	**Duration** *Durata(Sec.)*	**Acceptable L[1]** *Perdita ammessa*	**L[1] detected** *Perdita rilevata*	**Result** *Esito*
HYDROSTATIC SHELL TEST *Prova idrostatica del corpo*	75	15	NO VISIBLE LEAKAGE	No Visible Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad acqua alta pressione 'lato A'*	55	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad acqua alta pressione 'lato B'*	55	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato A'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato B'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY

REMARKS – *NOTE*

Torque test performed with satisfactory results (Dp 49,6 bar), the highest value was 21 Nm.
Draining and drying was performed after tests.

OTHER TEST – *ALTRE PROVE*

Type of test *Tipo di prova*	**Test procedure** *Procedura di controllo/prova*	**Result** *Esito*
VISUAL CONTROL *Controllo visivo*	D240062-01 Rev2	SATISFACTORY
DIMENSIONAL CONTROL *Controllo dimensionale*	D240062-01 Rev2	SATISFACTORY

Test Final Result *Esito finale della prova*: ☒ SATISFACTORY *Soddisfacente* ☐ UNSATISFACTORY *Non soddisfacente*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	**Customer Inspector** *Ente Ispettore Cliente*	**Quality Control** *Controllo Qualità*
L. FONTANA ON BEHALF OF ROSETTI MARINO S.P.A. ☐ REVIEW ☒ WITNESS 24/7/2024	24 LUG. 2024 FRANCO CORBELLINI ON BEHALF OF ☑ W ☐ R ☐ M CROSSWIND	FLUITEK VALVES SRL NIGO Q.C.

[1] L=Leakage

Fluitek Valves	**PRESSURE TEST REPORT** Rapporto di prova di pressatura	**Cert. HPT No.** **240062-da 002 a 006**

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	**Item/s** *Item/s*	20-30-40-50-60
FOV Job *Commessa FOV*	240062	**Position/s** *Posizione/i*	002-003-004-005-006
TAG *TAG*	25-BDV-005 / 25-BDV-007 / 25-BDV-010 / 25-BDV-013 / 25-BDV-016	**Quantity** *Quantità*	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 4" 300#	**Serial Number** *Numero seriale*	From 2400620020001 to 2400620060001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST BALL Rev.00		
Acceptance criteria *Criteri di accettabilità*	PO 240062 HPT TEST BALL Rev.00		
Date of execution *Data di esecuzione*	From 22/07/2024 to 24/07/2024		

TEST DATA – *INFORMAZIONI SULLA PROVA*

Type of test *Tipo di prova*	**Pressure** *Pressione (bar)*	**Duration** *Durata(Sec.)*	**Acceptable L[1]** *Perdita ammessa*	**L[1] detected** *Perdita rilevata*	**Result** *Esito*
HYDROSTATIC SHELL TEST *Prova idrostatica del corpo*	75	15	NO VISIBLE LEAKAGE	No Visible Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad acqua alta pressione 'lato A'*	55	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad acqua alta pressione 'lato B'*	55	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato A'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato B'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY

REMARKS – *NOTE*

Torque test performed with satisfactory results (Dp 49,6 bar), the highest value was 260 Nm.
Draining and drying was performed after tests.

OTHER TEST – *ALTRE PROVE*

Type of test *Tipo di prova*	**Test procedure** *Procedura di controllo/prova*	**Result** *Esito*
VISUAL CONTROL *Controllo visivo*	D240062-02-03-04-05-06-07 Rev2	SATISFACTORY
DIMENSIONAL CONTROL *Controllo dimensionale*	D240062-02-03-04-05-06-07 Rev2	SATISFACTORY

Test Final Result *Esito finale della prova*: ☒ SATISFACTORY *Soddisfacente* ☐ UNSATISFACTORY *Non soddisfacente*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	**Customer Inspector** *Ente Ispettore Cliente*	**Quality Control** *Controllo Qualità*
	L. FONTANA ON BEHALF OF ROSETTI MARINO S.P.A ☐ REVIEW ☒ WITNESS 24/7/2024	FLUITEK ORSENIGO VALVES SRL Q.C.

[1] L=Leakage

Fluitek Valves	**PRESSURE TEST REPORT** Rapporto di prova di pressatura	**Cert. HPT No.** **240062-009**

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	**Item/s** *Item/s*	90
FOV Job *Commessa FOV*	240062	**Position/s** *Posizione/i*	009
TAG *TAG*	25-SDV-023	**Quantity** *Quantità*	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1-1/2" 300#	**Serial Number** *Numero seriale*	240062009001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST BALL Rev.00		
Acceptance criteria *Criteri di accettabilità*	PO 240062 HPT TEST BALL Rev.00		
Date of execution *Data di esecuzione*	From 22/07/2024 to 24/07/2024		

TEST DATA – *INFORMAZIONI SULLA PROVA*

Type of test *Tipo di prova*	**Pressure** *Pressione (bar)*	**Duration** *Durata(Sec.)*	**Acceptable L[1]** *Perdita ammessa*	**L[1] detected** *Perdita rilevata*	**Result** *Esito*
HYDROSTATIC SHELL TEST *Prova idrostatica del corpo*	75	15	NO VISIBLE LEAKAGE	No Visible Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad acqua alta pressione 'lato A'*	55	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad acqua alta pressione 'lato B'*	55	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato A'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato B'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY

REMARKS – *NOTE*

Torque test performed with satisfactory results (Dp 49,6 bar), the highest value was 20 Nm.
Draining and drying was performed after tests.

OTHER TEST – *ALTRE PROVE*

Type of test *Tipo di prova*	**Test procedure** *Procedura di controllo/prova*	**Result** *Esito*
VISUAL CONTROL *Controllo visivo*	D240062-09 Rev2	SATISFACTORY
DIMENSIONAL CONTROL *Controllo dimensionale*	D240062-09 Rev2	SATISFACTORY

Test Final Result *Esito finale della prova*: ☒ SATISFACTORY *Soddisfacente* ☐ UNSATISFACTORY *Non soddisfacente*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	**Customer Inspector** *Ente Ispettore Cliente*	**Quality Control** *Controllo Qualità*
L. FONTANA ON BEHALF OF Rosetti Marino S.p.A ☐ REVIEW ☒ WITNESS 24-7-2024	24 LUG. 2024 FRANCO CORBELLINI ON BEHALF OF ☑ W ☐ R ☐ M CROSSWIND	FLUITEK VALVES SRL QC

[1] L=Leakage

Fluitek Valves	**PRESSURE TEST REPORT** Rapporto di prova di pressatura	**Cert. HPT No.** **240062-008 DA 010 A 023**

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer ***Cliente***	ROSETTI MARINO S.P.A.		
P. Order ***Ordine***	1724000204 123A90A	**Item/s** ***Item/s***	80-100-110-120-130-140-150-160-170-180-190-200-210-220-230
FOV Job ***Commessa FOV***	240062	**Position/s** ***Posizione/i***	008-010-011-012-013-014-015-016-017-018-019-020-021-022-023
TAG ***TAG***	25-SDV-001 / 64-SDV-001 / 25-XV-004 / 25-XV-006 / 25-XV-008 / 25-XV-009 / 25-XV-011 / 25-XV-012 / 25-XV-014 / 25-XV-015 / 25-XV-017 / 25-XV-018 / 25-XV-020 / 25-XV-021 / 25-XV-025	**Quantity** ***Quantità***	1
Type of valve/s ***Tipo di valvola/e***	BALL VALVE 1" 300#	**Serial Number** ***Numero seriale***	2400620080001 From 2400620100001 to 2400620230001
Applicable Standard ***Norma applicabile***	PO 240062 HPT TEST BALL Rev.00		
Acceptance criteria ***Criteri di accettabilità***	PO 240062 HPT TEST BALL Rev.00		
Date of execution ***Data di esecuzione***	From 22/07/2024 to 24/07/2024		

TEST DATA – *INFORMAZIONI SULLA PROVA*

Type of test ***Tipo di prova***	**Pressure** ***Pressione (bar)***	**Duration** ***Durata(Sec.)***	**Acceptable L[1]** ***Perdita ammessa***	**L[1] detected** ***Perdita rilevata***	**Result** ***Esito***
HYDROSTATIC SHELL TEST *Prova idrostatica del corpo*	75	15	NO VISIBLE LEAKAGE	No Visible Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad acqua alta pressione 'lato A'*	55	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad acqua alta pressione 'lato B'*	55	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato A'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato B'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY

REMARKS – *NOTE*

Torque test performed with satisfactory results (Dp 49,6 bar), the highest value was 20 Nm.
Draining and drying was performed after tests.

OTHER TEST – *ALTRE PROVE*

Type of test ***Tipo di prova***	**Test procedure** ***Procedura di controllo/prova***	**Result** ***Esito***
VISUAL CONTROL *Controllo visivo*	D240062-08 Rev2	SATISFACTORY
DIMENSIONAL CONTROL *Controllo dimensionale*	D240062-08 Rev2	SATISFACTORY

Test Final Result ***Esito finale della prova*** ☒ SATISFACTORY *Soddisfacente* ☐ UNSATISFACTORY *Non soddisfacente*

SIGNATURE – *FIRME*

Inspection authority ***Ente ispettivo***	**Customer Inspector** ***Ente Ispettore Cliente***	**Quality Control** ***Controllo Qualità***
	24 LUG 2024 FRANCO CORBELLINI ON BEHALF OF ☑ W ☐ R ☐ M CROSSKIND	L. FONTANA ON BEHALF OF ROSETTI MARINO S.P.A ☐ REVIEW ☒ WITNESS 24/7/2024

[1] L=Leakage

Fluitek Valves	**PRESSURE TEST REPORT** Rapporto di prova di pressatura	**Cert. HPT No.** **240062-025-027**

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	**Item/s** *Item/s*	250-270
FOV Job *Commessa FOV*	240062	**Position/s** *Posizione/i*	025-027
TAG *TAG*	50-XV-002 / 50-XV-004	**Quantity** *Quantità*	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 150#	**Serial Number** *Numero seriale*	2400620250001 2400620270001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST BALL Rev.00		
Acceptance criteria *Criteri di accettabilità*	PO 240062 HPT TEST BALL Rev.00		
Date of execution *Data di esecuzione*	From 22/07/2024 to 24/07/2024		

TEST DATA – *INFORMAZIONI SULLA PROVA*

Type of test *Tipo di prova*	**Pressure** *Pressione (bar)*	**Duration** *Durata(Sec.)*	**Acceptable L[1]** *Perdita ammessa*	**L[1] detected** *Perdita rilevata*	**Result** *Esito*
HYDROSTATIC SHELL TEST *Prova idrostatica del corpo*	30	15	NO VISIBLE LEAKAGE	No Visible Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad acqua alta pressione 'lato A'*	22	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad acqua alta pressione 'lato B'*	22	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato A'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato B'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY

REMARKS – *NOTE*

Torque test performed with satisfactory results (Dp 20 bar), the highest value was 18 Nm.
Draining and drying was performed after tests.

OTHER TEST – *ALTRE PROVE*

Type of test *Tipo di prova*	**Test procedure** *Procedura di controllo/prova*	**Result** *Esito*
VISUAL CONTROL *Controllo visivo*	D240062-25-27 Rev2	SATISFACTORY
DIMENSIONAL CONTROL *Controllo dimensionale*	D240062-25-27 Rev2	SATISFACTORY

Test Final Result *Esito finale della prova*: ☒ SATISFACTORY *Soddisfacente* ☐ UNSATISFACTORY *Non soddisfacente*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	**Customer Inspector** *Ente Ispettore Cliente*	**Quality Control** *Controllo Qualità*
L. FONTANA ON BEHALF OF ROSETTI MARINO S.p.A ☐ REVIEW ☒ WITNESS 24-7-2024	24 LUG. 2024 FRANCO CORBELLINI ON BEHALF OF ☑ W ☐ R ☐ M CROSSWIND	FLUITEK VALSENIGO VALVES S.R.L. Q.C.

[1] L=Leakage

Fluitek Valves	**PRESSURE TEST REPORT** Rapporto di prova di pressatura	**Cert. HPT No.** **240062-024-026**

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	**Item/s** *Item/s*	240-260
FOV Job *Commessa FOV*	240062	**Position/s** *Posizione/i*	024-026
TAG *TAG*	50-XV-001 / 50-XV-003	**Quantity** *Quantità*	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1-1/2" 150#	**Serial Number** *Numero seriale*	2400620240001 2400620260001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST BALL Rev.00		
Acceptance criteria *Criteri di accettabilità*	PO 240062 HPT TEST BALL Rev.00		
Date of execution *Data di esecuzione*	From 22/07/2024 to 24/07/2024		

TEST DATA – *INFORMAZIONI SULLA PROVA*

Type of test *Tipo di prova*	**Pressure** *Pressione (bar)*	**Duration** *Durata(Sec.)*	**Acceptable L[1]** *Perdita ammessa*	**L[1] detected** *Perdita rilevata*	**Result** *Esito*
HYDROSTATIC SHELL TEST *Prova idrostatica del corpo*	30	15	NO VISIBLE LEAKAGE	No Visible Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad acqua alta pressione 'lato A'*	22	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad acqua alta pressione 'lato B'*	22	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato A'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato B'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY

REMARKS – *NOTE*

Torque test performed with satisfactory results (Dp 20 bar), the highest value was 18 Nm.
Draining and drying was performed after tests.

OTHER TEST – *ALTRE PROVE*

Type of test *Tipo di prova*	**Test procedure** *Procedura di controllo/prova*	**Result** *Esito*
VISUAL CONTROL *Controllo visivo*	D240062-24-26 Rev2	SATISFACTORY
DIMENSIONAL CONTROL *Controllo dimensionale*	D240062-24-26 Rev2	SATISFACTORY

Test Final Result *Esito finale della prova*: ☒ SATISFACTORY *Soddisfacente* ☐ UNSATISFACTORY *Non soddisfacente*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	**Customer Inspector** *Ente Ispettore Cliente*	**Quality Control** *Controllo Qualità*
L. FONTANA ON BEHALF OF ROSETTI MARINO S.p.A. ☐ REVIEW ☒ WITNESS 24/7/2024	24 LUG. 2024 FRANCO CORBELLINI ON BEHALF OF ☑ W ☐ R ☐ M CROSSWIND	FLUITEK VALVES S.R.L. SENIGO Q.M.

[1] L=Leakage

Fluitek Valves	**PRESSURE TEST REPORT** Rapporto di prova di pressatura	**Cert. HPT No.** **240062-028**

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	**Item/s** *Item/s*	280
FOV Job *Commessa FOV*	240062	**Position/s** *Posizione/i*	028
TAG *TAG*	80-XV-001	**Quantity** *Quantità*	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 150#	**Serial Number** *Numero seriale*	2400620280001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST BALL Rev.00		
Acceptance criteria *Criteri di accettabilità*	PO 240062 HPT TEST BALL Rev.00		
Date of execution *Data di esecuzione*	From 22/07/2024 to 24/07/2024		

TEST DATA – *INFORMAZIONI SULLA PROVA*

Type of test *Tipo di prova*	**Pressure** *Pressione (bar)*	**Duration** *Durata(Sec.)*	**Acceptable L[1]** *Perdita ammessa*	**L[1] detected** *Perdita rilevata*	**Result** *Esito*
HYDROSTATIC SHELL TEST *Prova idrostatica del corpo*	29	15	NO VISIBLE LEAKAGE	No Visible Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad acqua alta pressione 'lato A'*	21	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad acqua alta pressione 'lato B'*	21	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato A'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato B'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY

REMARKS – *NOTE*

Torque test performed with satisfactory results (Dp 49,6 bar), the highest value was 21 Nm.
Draining and drying was performed after tests.

OTHER TEST – *ALTRE PROVE*

Type of test *Tipo di prova*	**Test procedure** *Procedura di controllo/prova*	**Result** *Esito*
VISUAL CONTROL *Controllo visivo*	D240062-028 Rev2	SATISFACTORY
DIMENSIONAL CONTROL *Controllo dimensionale*	D240062-028 Rev2	SATISFACTORY

Test Final Result *Esito finale della prova*: ☒ SATISFACTORY *Soddisfacente* ☐ UNSATISFACTORY *Non soddisfacente*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	**Customer Inspector** *Ente Ispettore Cliente*	**Quality Control** *Controllo Qualità*
	24 LUG. 2024 FRANCO CORBELLINI ON BEHALF OF ☑ W ☐ R ☐ M, CROSSWIND	L. FONTANA ON BEHALF OF ROSETTI MARINO S.P.A ☐ REVIEW ☒ WITNESS 24/7/2024

FLUITEK VALVES S.R.L. CORSENIGO

[1] L=Leakage

Fluitek Valves	FUGITIVE EMISSION TEST REPORT	Cert. FET No. 240062-006

GENERAL INFORMATION – *INFORMAZIONI GENERALI*			
Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	**Item/s** *Item/s*	60
FOV Job *Commessa FOV*	240062	**Position/s** *Posizione/i*	006
TAG *TAG*	25-BDV-016	**Quantity** *Quantità*	1
Type of valve/s *Tipo di valvola/e*	Ball Valve 4" 300#	**Serial Number** *Numero seriale*	2400620060001
Applicable Specification *Specifica applicabile*	240062 PO FET Rev 0		
Date of execution *Data di esecuzione*	23/07/2024		

TEST VARIABLE – *DATI DI PROVA*			
Equipment *Strumento di misura*	Leybold Phonenixl 300 SN 90001039815		
Calibrate leak *Fuga calibrata*	TL7 (6,6x10-7 mbar l/s) SN 150330-425		
Test medium *Fluido di prova*	Helium (min purity 97%)		
Test temperature *Temperatura di prova*	Ambient		
Test method *Metodo di prova*	Sniffer		
Background *Sottofondo*	$5.5x10^{-7}$	**Background after 5 cycles** *Sottofondo dopo 5 cicli*	$5.5x10^{-7}$
Test pressure *Pressione di prova*	132.4 Bars x 10 Minutes		
Acceptance leakage *Perdita ammissibile*	See Below Table		
Leakage detected *Perdita rilevata*	See Below Table		

REMARKS – *NOTE*

FET LEAKAGE CLASS: < **BH** >
Value in atm*cm^3/s , obtained without background noise.

Test Final Result *Esito finale della prova*	☒ SATISFACTORY *Soddisfacente*	☐ UNSATISFACTORY *Non soddisfacente*

Step No.		Detected leakage	Acceptance Criteria
1st Step	Body Flange	$1.45x10^{-7}$	$6.68x10^{-6}$
0 CYCLES	Stem	$1.80x10^{-6}$	$3.55x10^{-5}$
2nd Step	Body Flange	$1.60x10^{-7}$	$6.68x10^{-6}$
After 5 CYCLES	Stem	$1.85x10^{-6}$	$3.55x10^{-5}$

FRANCO CORBELLINI
ON BEHALF OF CROSSWIND
☑ W ☐ R ☐ M
24-07-2024

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
	L. FONTANA ON BEHALF OF ROSETTI MARINO S.P.A. ☐ REVIEW ☒ WITNESS 24-7-2024	FLUITEK ORSENIGO VALVES SRL QC

Fluitek Valves	FUGITIVE EMISSION TEST REPORT	Cert. FET No. 240062-013

GENERAL INFORMATION – *INFORMAZIONI GENERALI*			
Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	**Item/s** *Item/s*	130
FOV Job *Commessa FOV*	240062	**Position/s** *Posizione/i*	013
TAG *TAG*	25-XV-008	**Quantity** *Quantità*	1
Type of valve/s *Tipo di valvola/e*	Ball Valve 1" 300#	**Serial Number** *Numero seriale*	2400620130001
Applicable Specification *Specifica applicabile*	240062 PO FET Rev 0		
Date of execution *Data di esecuzione*	23/07/2024		

TEST VARIABLE – *DATI DI PROVA*			
Equipment *Strumento di misura*	Leybold Phonenixl 300 SN 90001039815		
Calibrate leak *Fuga calibrata*	TL7 (6,6x10-7 mbar l/s) SN 150330-425		
Test medium *Fluido di prova*	Helium (min purity 97%)		
Test temperature *Temperatura di prova*	Ambient		
Test method *Metodo di prova*	Sniffer		
Background *Sottofondo*	$5.5x10^{-7}$	**Background after 5 cycles** *Sottofondo dopo 5 cicli*	$5.5x10^{-7}$
Test pressure *Pressione di prova*	132.4 Bars x 10 Minutes		
Acceptance leakage *Perdita ammissibile*	See Below Table		
Leakage detected *Perdita rilevata*	See Below Table		

REMARKS – *NOTE*

FET LEAKAGE CLASS: < **BH** >
Value in atm*cm^3/s , obtained without background noise.

Test Final Result *Esito finale della prova*	☒ SATISFACTORY *Soddisfacente*	☐ UNSATISFACTORY *Non soddisfacente*

Step No.		Detected leakage	Acceptance Criteria
1st Step	Body Flange	$1.42x10^{-7}$	$6.68x10^{-6}$
0 CYCLES	Stem	$1.79x10^{-6}$	$3.55x10^{-5}$
2nd Step	Body Flange	$1.62x10^{-7}$	$6.68x10^{-6}$
After 5 CYCLES	Stem	$1.81x10^{-6}$	$3.55x10^{-5}$

FRANCO CORBELLINI CROSSWIND
ON BEHALF OF
☑ W ☐ R ☐ M
24-07-2024

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	**Customer Inspector** *Ente Ispettore Cliente*	**Quality Control** *Controllo Qualità*
	L. FONTANA ON BEHALF OF ROSETTI MARINO S.P.A ☐ REVIEW ☒ WITNESS 24.7.2024	FLUITEK CROSSWIND VALVES SRL

Fluitek Valves	FUGITIVE EMISSION TEST REPORT	Cert. FET No. 240062-019

GENERAL INFORMATION – *INFORMAZIONI GENERALI*			
Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	**Item/s** *Item/s*	190
FOV Job *Commessa FOV*	240062	**Position/s** *Posizione/i*	019
TAG *TAG*	25-XV-017	**Quantity** *Quantità*	1
Type of valve/s *Tipo di valvola/e*	Ball Valve 1" 300#	**Serial Number** *Numero seriale*	2400620190001
Applicable Specification *Specifica applicabile*	240062 PO FET Rev 0		
Date of execution *Data di esecuzione*	23/07/2024		

TEST VARIABLE – *DATI DI PROVA*			
Equipment *Strumento di misura*	Leybold Phonenixl 300 SN 90001039815		
Calibrate leak *Fuga calibrata*	TL7 (6,6x10-7 mbar l/s) SN 150330-425		
Test medium *Fluido di prova*	Helium (min purity 97%)		
Test temperature *Temperatura di prova*	Ambient		
Test method *Metodo di prova*	Sniffer		
Background *Sottofondo*	$5.5x10^{-7}$	**Background after 5 cycles** *Sottofondo dopo 5 cicli*	$5.5x10^{-7}$
Test pressure *Pressione di prova*	132.4 Bars x 10 Minutes		
Acceptance leakage *Perdita ammissibile*	See Below Table		
Leakage detected *Perdita rilevata*	See Below Table		

REMARKS – *NOTE*

FET LEAKAGE CLASS: < **BH** >
Value in atm*cm^3/s , obtained without background noise.

Test Final Result *Esito finale della prova*	☒ SATISFACTORY *Soddisfacente*	☐ UNSATISFACTORY *Non soddisfacente*

Step No.		Detected leakage	Acceptance Criteria
1st Step	Body Flange	$1.46x10^{-7}$	$6.68x10^{-6}$
0 CYCLES	Stem	$1.82x10^{-6}$	$3.55x10^{-5}$
2nd Step	Body Flange	$1.64x10^{-7}$	$6.68x10^{-6}$
After 5 CYCLES	Stem	$1.86x10^{-6}$	$3.55x10^{-5}$

FRANCO CORBELLINI
ON BEHALF OF
☒ W ☐ R ☐ M
CROSSWIND
24-07-2024

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	**Customer Inspector** *Ente Ispettore Cliente*	**Quality Control** *Controllo Qualità*
	L. FONTANA ON BEHALF OF ROSETTI MARINO S.P.A ☐ REVIEW ☒ WITNESS 24-7-2024	FLUITEK VALVES SRL

Fluitek Valves	**FUGITIVE EMISSION TEST REPORT**	**Cert. FET No.** 240062-026

GENERAL INFORMATION – *INFORMAZIONI GENERALI*			
Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	**Item/s** *Item/s*	260
FOV Job *Commessa FOV*	240062	**Position/s** *Posizione/i*	026
TAG *TAG*	50-XV-003	**Quantity** *Quantità*	1
Type of valve/s *Tipo di valvola/e*	Ball Valve 1-1/2" 150#	**Serial Number** *Numero seriale*	2400620260001
Applicable Specification *Specifica applicabile*	240062 PO FET Rev 0		
Date of execution *Data di esecuzione*	23/07/2024		

TEST VARIABLE – *DATI DI PROVA*			
Equipment *Strumento di misura*	Leybold Phonenixl 300 SN 90001039815		
Calibrate leak *Fuga calibrata*	TL7 (6,6x10-7 mbar l/s) SN 150330-425		
Test medium *Fluido di prova*	Helium (min purity 97%)		
Test temperature *Temperatura di prova*	Ambient		
Test method *Metodo di prova*	Sniffer		
Background *Sottofondo*	$5.5x10^{-7}$	**Background after 5 cycles** *Sottofondo dopo 5 cicli*	$5.5x10^{-7}$
Test pressure *Pressione di prova*	132.4 Bars x 10 Minutes		
Acceptance leakage *Perdita ammissibile*	See Below Table		
Leakage detected *Perdita rilevata*	See Below Table		

REMARKS – *NOTE*

FET LEAKAGE CLASS: < **BH** >
Value in atm*cm^3/s , obtained without background noise.

Test Final Result *Esito finale della prova*	☒ SATISFACTORY *Soddisfacente*	☐ UNSATISFACTORY *Non soddisfacente*

Step No.		Detected leakage	Acceptance Criteria
1st Step	Body Flange	$1.43x10^{-7}$	$6.68x10^{-6}$
0 CYCLES	Stem	$1.84x10^{-6}$	$3.55x10^{-5}$
2nd Step	Body Flange	$1.66x10^{-7}$	$6.68x10^{-6}$
After 5 CYCLES	Stem	$1.86x10^{-6}$	$3.55x10^{-5}$

FRANCO CORBELLINI CROSSWIND
ON BEHALF OF
☑ W ☐ R ☐ M
24-07-2024

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	**Customer Inspector** *Ente Ispettore Cliente*	**Quality Control** *Controllo Qualità*
	L. FONTANA ON BEHALF OF ROSETTI MARINO S.P.A ☐ REVIEW ☒ WITNESS 24-7-2024	FLUITEK VENTURI VALVES S.R.L. Q.C.

Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-001

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	10
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	001
TAG *TAG*	25-BDV-022	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 300#	Serial Number Numero seriale	2400620010001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	24/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF7703001010**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	4 *Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Open
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	0,40	sec
CLOSE OPERATION	40	barG	0,45	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	0,38	sec
CLOSE OPERATION	40	barG	0,47	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
21 NOV. 2024	FRANCO CORBELLINI QBQ CROSSWIND	FLUITEK OSPEDALETTO VALVES SRL Q.C.

Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-002

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	20
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	002
TAG *TAG*	25-BDV-005	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 4" 300#	Serial Number Numero seriale	2400620020001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	23/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S055200A/BA**
Serial Number *Numero Seriale*	**AF770300201**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Oen
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	2	sec
CLOSE OPERATION	40	barG	1	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	2	sec
CLOSE OPERATION	40	barG	1	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
		FLUITEK OF PELNIGO VALVES SRL

21 AGO. 2024

FRANCO CORBELLINI

QBQ

CROSSWIND

Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-003

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	30
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	003
TAG *TAG*	25-BDV-007	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 4" 300#	Serial Number Numero seriale	2400620030001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	23/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S055200A/BA**
Serial Number *Numero Seriale*	**AF770300301**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Oen
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	2	sec
CLOSE OPERATION	40	barG	1	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	2	sec
CLOSE OPERATION	40	barG	1	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*

FLUITEK VALVES SRL

21 AGO. 2024

FRANCO CORBELLINI

QBQ

CROSSWIND

Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-004

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	40
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	004
TAG *TAG*	25-BDV-010	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 4'' 300#	Serial Number Numero seriale	2400620040001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	24/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S055200A/BA**
Serial Number *Numero Seriale*	**AF770300401**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Open
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	2	sec
CLOSE OPERATION	40	barG	1	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	2	sec
CLOSE OPERATION	40	barG	1	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
21 AGO. 2024 FRANCO CORBELLINI QBQ CROSSWIND		FLUITEK ORBIGO VALVES SRL

Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-005

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	50
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	005
TAG *TAG*	25-BDV-013	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 4'' 300#	Serial Number Numero seriale	2400620050001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	24/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S055200A/BA**
Serial Number *Numero Seriale*	**AF770300501**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Oen
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	2	sec
CLOSE OPERATION	40	barG	1	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	2	sec
CLOSE OPERATION	40	barG	1	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
		FLUITEK ORSENIGO VALVES SRL QC

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-006

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	60
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	006
TAG *TAG*	25-BDV-016	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 4'' 300#	Serial Number Numero seriale	2400620060001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	23/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S055200A/BA**
Serial Number *Numero Seriale*	**AF770300601**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Oen
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	2	sec
CLOSE OPERATION	40	barG	1	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	2	sec
CLOSE OPERATION	40	barG	1	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
		FLUITEK ORSENIGO VALVES SRL

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-008

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	80
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	008
TAG *TAG*	25-BDV-022	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 300#	Serial Number Numero seriale	2400620080001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	22/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770300801**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	0,37	sec
CLOSE OPERATION	40	barG	0,48	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	0,41	sec
CLOSE OPERATION	40	barG	0,47	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-009

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	90
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	009
TAG *TAG*	25-SDV-023	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1-1/2" 300#	Serial Number Numero seriale	2400620090001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	24/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035100A/BA**
Serial Number *Numero Seriale*	**AF770300901**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	4 *Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	2	sec
CLOSE OPERATION	40	barG	1	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	2	sec
CLOSE OPERATION	40	barG	1	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*

FLUITEK VALVES SRL

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-010

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	100
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	010
TAG *TAG*	64-SDV-001	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 300#	Serial Number Numero seriale	2400620100001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	22/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770301001**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	10	barG	0,40	sec
CLOSE OPERATION	10	barG	0,45	sec
SIDE B – *Lato B*				
OPEN OPERATION	10	barG	0,38	sec
CLOSE OPERATION	10	barG	0,47	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
		FLUITEK ORSENIGO VALVES SRL

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-011

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	110
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	011
TAG *TAG*	25-XV-004	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1'' 300#	Serial Number Numero seriale	2400620110001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	22/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770301101**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	0,40	sec
CLOSE OPERATION	40	barG	0,42	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	0,41	sec
CLOSE OPERATION	40	barG	0,45	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*

FLUITEK ORSENIGO VALVES SRL

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-012

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	120
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	012
TAG *TAG*	25-XV-006	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 300#	Serial Number Numero seriale	2400620120001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	22/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770301201**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	0,41	sec
CLOSE OPERATION	40	barG	0,46	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	0,38	sec
CLOSE OPERATION	40	barG	0,44	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
		FLUITEK CASTENIGO VALVES SRL Q.C.

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-013

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	130
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	013
TAG *TAG*	25-XV-008	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 300#	Serial Number Numero seriale	2400620130001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	23/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770301301**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	4 *Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	0,40	sec
CLOSE OPERATION	40	barG	0,38	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	0,41	sec
CLOSE OPERATION	40	barG	0,39	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
		FLUITEK ORSENIGO VALVES SRL

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-014

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	140
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	014
TAG *TAG*	25-XV-009	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 300#	Serial Number Numero seriale	2400620140001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	22/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770301401**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	0,41	sec
CLOSE OPERATION	40	barG	0,44	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	0,40	sec
CLOSE OPERATION	40	barG	0,49	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
		FLUITEK OSTERGNIGO VALVES SRL

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-015

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	150
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	015
TAG *TAG*	25-XV-011	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1'' 300#	Serial Number Numero seriale	2400620150001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	22/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770301501**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	0,49	sec
CLOSE OPERATION	40	barG	0,47	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	0,42	sec
CLOSE OPERATION	40	barG	0,46	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
	21 AGO. 2024 FRANCO CORBELLINI RBQ CROSSWIND	FLUITEK ORSENIGO VALVES SRL

Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-016

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	160
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	016
TAG *TAG*	25-XV-012	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 300#	Serial Number Numero seriale	2400620160001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	23/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770301601**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	4 *Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	0,39	sec
CLOSE OPERATION	40	barG	0,39	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	0,40	sec
CLOSE OPERATION	40	barG	0,39	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
		FLUITEK ORSENIGO VALVES SRL

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-017

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	170
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	017
TAG *TAG*	25-XV-014	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 300#	Serial Number Numero seriale	2400620170001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	22/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770301701**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	0,37	sec
CLOSE OPERATION	40	barG	0,49	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	0,38	sec
CLOSE OPERATION	40	barG	0,43	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
		FLUITEK OLGINIGO VALVES SRL QC

21 AGO 2024
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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-018

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	180
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	018
TAG *TAG*	25-XV-015	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 300#	Serial Number Numero seriale	2400620180001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	22/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770301801**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	0,40	sec
CLOSE OPERATION	40	barG	0,43	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	0,42	sec
CLOSE OPERATION	40	barG	0,45	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*

FLUITEK ORIGINAL VALVES S.R.L. Q.C.

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-019

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	190
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	019
TAG *TAG*	25-XV-017	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1'' 300#	Serial Number Numero seriale	2400620190001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	22/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770301901**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	0,38	sec
CLOSE OPERATION	40	barG	0,51	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	0,37	sec
CLOSE OPERATION	40	barG	0,49	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
		FLUITEK VALVES SRL Q.C.

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-020

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	200
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	020
TAG *TAG*	25-XV-018	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1'' 300#	Serial Number Numero seriale	2400620200001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	22/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770302001**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	0,39	sec
CLOSE OPERATION	40	barG	0,44	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	0,40	sec
CLOSE OPERATION	40	barG	0,45	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*

FLUITEK ORISTANO VALVES SRL

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-021

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	210
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	021
TAG *TAG*	25-XV-020	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 300#	Serial Number Numero seriale	2400620210001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	22/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770302101**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	0,40	sec
CLOSE OPERATION	40	barG	0,48	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	0,38	sec
CLOSE OPERATION	40	barG	0,47	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-022

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	220
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	022
TAG *TAG*	25-XV-021	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1'' 300#	Serial Number Numero seriale	2400620220001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	22/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770302101**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	0,38	sec
CLOSE OPERATION	40	barG	0,43	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	0,40	sec
CLOSE OPERATION	40	barG	0,47	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*

FLUITEK ORSENIGO VALVES SRL

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-023

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	230
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	023
TAG *TAG*	25-XV-024	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 300#	Serial Number Numero seriale	2400620230001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	22/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770302301**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	*4 Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	40	barG	0,42	sec
CLOSE OPERATION	40	barG	0,45	sec
SIDE B – *Lato B*				
OPEN OPERATION	40	barG	0,40	sec
CLOSE OPERATION	40	barG	0,47	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-024

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	240
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	024
TAG *TAG*	50-XV-003	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1-1/2" 150#	Serial Number Numero seriale	2400620240001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	23/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035100A/BA**
Serial Number *Numero Seriale*	**AF770302601**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	4 *Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	17,7	barG	0,39	sec
CLOSE OPERATION	17,7	barG	0,39	sec
SIDE B – *Lato B*				
OPEN OPERATION	17,7	barG	0,40	sec
CLOSE OPERATION	17,7	barG	0,39	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
		FLUITEK ORSENIGO VALVES SRL QC

21 AGO. 24
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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-025

GENERAL INFORMATION – *INFORMAZIONI GENERALI*			
Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	250
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	025
TAG *TAG*	50-XV-002	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 150#	Serial Number Numero seriale	2400620250001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	24/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*	
Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770302501**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	4 *Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*				
SIDE A – *Lato A*				
OPEN OPERATION	17,7	barG	2	sec
CLOSE OPERATION	17,7	barG	1	sec
SIDE B – *Lato B*				
OPEN OPERATION	17,7	barG	2	sec
CLOSE OPERATION	17,7	barG	1	sec

TEST RESULTS – *RISULTATI DI PROVA*		
Test result *Esito della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*		
Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
		FLUITEK ORSENIGO VALVES SRL

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-026

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	260
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	026
TAG *TAG*	50-XV-001	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1-1/2" 150#	Serial Number Numero seriale	2400620260001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	23/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035100A/BA**
Serial Number *Numero Seriale*	**AF770302401**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	4 *Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	17,7	barG	0,36	sec
CLOSE OPERATION	17,7	barG	0,38	sec
SIDE B – *Lato B*				
OPEN OPERATION	17,7	barG	0,38	sec
CLOSE OPERATION	17,7	barG	0,38	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
		FLUITEK ORBITALGO VALVES SRL

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-027

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	270
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	027
TAG *TAG*	50-XV-004	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1" 150#	Serial Number Numero seriale	2400620270001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	24/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770302701**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	4 *Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24* *Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	17,7	barG	2	sec
CLOSE OPERATION	17,7	barG	1	sec
SIDE B – *Lato B*				
OPEN OPERATION	17,7	barG	2	sec
CLOSE OPERATION	17,7	barG	1	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
		FLUITEK ORBASSANO VALVES S.R.L.

21 AGO. 2024

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Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240062-028

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	1724000204 123A90A	Item/s Item/s	280
FOV Job *Commessa FOV*	240062	Position/s Posizione/i	028
TAG *TAG*	80-XV-001	Quantity Quantità	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1'' 150#	Serial Number Numero seriale	2400620280001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST Rev.0 (API6D)		
Date of execution *Data di esecuzione*	24/07/2024		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	**CP/S035080A/AA**
Serial Number *Numero Seriale*	**AF770302801**
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	4 *Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	*24 Vdc*
Fail position *Posizione di Fail*	Close
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	10	barG	2	sec
CLOSE OPERATION	10	barG	1	sec

SIDE B – *Lato B*				
OPEN OPERATION	10	barG	2	sec
CLOSE OPERATION	10	barG	1	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result *Esito della prova* ☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	Customer Inspector *Ente Ispettore Cliente*	Quality Control *Controllo Qualità*
		FLUITEK ORZINIGO VALVES SRL QC

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Fluitek Valves	**PRESSURE TEST REPORT** Rapporto di prova di pressatura	**Cert. HPT No.** **240396-001**

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	17240000204 23A90A	**Item/s** *Item/s*	340
FOV Job *Commessa FOV*	240396	**Position/s** *Posizione/i*	001
TAG *TAG*	50-XV-005	**Quantity** *Quantità*	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1-1/2" 150#	**Serial Number** *Numero seriale*	2403960010001
Applicable Standard *Norma applicabile*	PO 240062 HPT TEST BALL Rev.00		
Acceptance criteria *Criteri di accettabilità*	PO 240062 HPT TEST BALL Rev.00		
Date of execution *Data di esecuzione*	17/02/2025		

TEST DATA – *INFORMAZIONI SULLA PROVA*

Type of test *Tipo di prova*	**Pressure** *Pressione (bar)*	**Duration** *Durata(Sec.)*	**Acceptable L[1]** *Perdita ammessa*	**L[1] detected** *Perdita rilevata*	**Result** *Esito*
HYDROSTATIC SHELL TEST *Prova idrostatica del corpo*	30	15	NO VISIBLE LEAKAGE	No Visible Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad acqua alta pressione 'lato A'*	22	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
HYDROSTATIC HIGH PRESSURE SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad acqua alta pressione 'lato B'*	22	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE A' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato A'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY
LOW PRESSURE PNEUMATIC SEAT TEST 'SIDE B' *Prova di tenuta del seggio ad Aria a bassa pressione 'lato B'*	6	15	TABLE 5 PROCEDURE	No Leakage	SATISFACTORY

REMARKS – *NOTE*

Torque test performed with satisfactory results (Dp 20 bar), the highest value was 30 Nm.
Draining and drying was performed after tests.

OTHER TEST – *ALTRE PROVE*

Type of test *Tipo di prova*	**Test procedure** *Procedura di controllo/prova*	**Result** *Esito*
VISUAL CONTROL *Controllo visivo*	D240396-01 Rev0	SATISFACTORY
DIMENSIONAL CONTROL *Controllo dimensionale*	D240396-01 Rev0	SATISFACTORY

Test Final Result *Esito finale della prova*: ☒ SATISFACTORY *Soddisfacente* ☐ UNSATISFACTORY *Non soddisfacente*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	**Customer Inspector** *Ente Ispettore Cliente*	**Quality Control** *Controllo Qualità*
	17-02-2025 FRANCO CORBELLINI ON BEHALF OF ☑ W ☐ R ☐ M CROSS WIND	

[1] L=Leakage

Fluitek Valves	**FUNCTIONAL TEST CERTIFICATE** Certificato di Prova Funzionale	**Cert. FAT No.** 240396-001

GENERAL INFORMATION – *INFORMAZIONI GENERALI*

Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	17240000204 23A90A	**Item/s** *Item/s*	340
FOV Job *Commessa FOV*	240396	**Position/s** *Posizione/i*	001
TAG *TAG*	50-XV-005	**Quantity** *Quantità*	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1-1/2" 150#	**Serial Number** *Numero seriale*	2403960010001
Applicable Standard *Norma applicabile*	QCD-13-D-PR 240166- Rev.00		
Date of execution *Data di esecuzione*	17/02/2025		

ACTUATOR DATA – *INFORMAZIONI SULL'ATTUATORE*

Actuator model *Modello dell'attuatore*	CP-S-035-100 A / BA
Serial Number *Numero Seriale*	AF788800101
Actuator Supply Pressure *Pressione di ingresso dell'attuatore*	4.5 *Bars*
Actuator Power Supply *Alimentazione dell'attuatore*	24 Vdc
Fail position *Posizione di Fail*	OPEN
Datasheet reference *Scheda tecnica di riferimento*	

FUNCTIONAL TEST – *PROVA DI FUNZIONAMENTO*

SIDE A – *Lato A*				
OPEN OPERATION	20	barG	0.42	sec
CLOSE OPERATION	20	barG	0.26	sec
SIDE B – *Lato B*				
OPEN OPERATION	20	barG	0.46	sec
CLOSE OPERATION	20	barG	0.26	sec

TEST RESULTS – *RISULTATI DI PROVA*

Test result
Esito della prova

☒ Satisfactory *Soddisfacente* ☐ Unsatisfactory *Non soddisfacente*

REMARKS – *NOTE*

Test Final Result *Esito finale della prova*	☒ Satisfactory *Soddisfacente*	☐ Unsatisfactory *Non soddisfacente*	Remarks *Note*	*NONE*

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	**Customer Inspector** *Ente Ispettore Cliente*	**Quality Control** *Controllo Qualità*
FRANCO CORBELLINI ON BEHALF OF ☑ W ☐ R ☐ M 17-02-2025 CROSSWIND		FLUITEK ORSENIGO VALVES S.R.L. Q.C.

Fluitek Valves	**FUGITIVE EMISSION TEST REPORT**	**Cert. FET No.** 240396-001

GENERAL INFORMATION – *INFORMAZIONI GENERALI*			
Customer *Cliente*	ROSETTI MARINO S.P.A.		
P. Order *Ordine*	17240000204 23A90A	**Item/s** *Item/s*	340
FOV Job *Commessa FOV*	240396	**Position/s** *Posizione/i*	001
TAG *TAG*	50-XV-005	**Quantity** *Quantità*	1
Type of valve/s *Tipo di valvola/e*	BALL VALVE 1-1/2" 150#	**Serial Number** *Numero seriale*	2403960010001
Applicable Specification *Specifica applicabile*	240396 PO FET Rev 0		
Date of execution *Data di esecuzione*	17/02/2025		

TEST VARIABLE – *DATI DI PROVA*			
Equipment *Strumento di misura*	Leybold Phonenixl 300 SN 90001039815		
Calibrate leak *Fuga calibrata*	TL7 (6,6x10-7 mbar l/s) SN 150330-425		
Test medium *Fluido di prova*	Helium (min purity 97%)		
Test temperature *Temperatura di prova*	Ambient		
Test method *Metodo di prova*	Sniffer		
Background *Sottofondo*	$5.5x10^{-7}$	**Background after 5 cycles** *Sottofondo dopo 5 cicli*	$5.5x10^{-7}$
Test pressure *Pressione di prova*	132.4 Bars x 10 Minutes		
Acceptance leakage *Perdita ammissibile*	See Below Table		
Leakage detected *Perdita rilevata*	See Below Table		

REMARKS – *NOTE*

FET LEAKAGE CLASS: < **BH** >
Value in atm*cm^3/s , obtained without background noise.

Test Final Result *Esito finale della prova*	☒ SATISFACTORY *Soddisfacente*	☐ UNSATISFACTORY *Non soddisfacente*

Step No.		**Detected leakage**	**Acceptance Criteria**
1st Step	Body Flange	$1.45x10^{-7}$	$6.68x10^{-6}$
0 CYCLES	Stem	$1.80x10^{-6}$	$3.55x10^{-5}$
2nd Step	Body Flange	$1.60x10^{-7}$	$6.68x10^{-6}$
After 5 CYCLES	Stem	$1.85x10^{-6}$	$3.55x10^{-5}$

17-02-2025
FRANCO CORBELLINI
ON BEHALF OF
☑ W ☐ R ☐ M
CROSSWIND

SIGNATURE – *FIRME*

Inspection authority *Ente ispettivo*	**Customer Inspector** *Ente Ispettore Cliente*	**Quality Control** *Controllo Qualità*
		FLUITEK VALVES SRL Q.C.