Base Load Power Hub (BLPH)

PRESSURE SAFETY VALVES

MANUFACTURERS RECORD BOOK (FINAL DOSSIER)

Document Number: 1724000518-QC-LIS-00008

Document Class: 2

Rev.	Date	Description	Prepared	Reviewed	Approved
05	31/03/2025	Accepted for construction (AFC)	A.Martinez	Delponte P.L.	Bianchi R.
04	20/02/2025	Accepted for construction (AFC)	A.Martinez	Delponte P.L.	Bianchi R.
03	03/02/2025	Accepted for construction (AFC)	A.Martinez	Delponte P.L.	Bianchi R.
02	28/11/2024	Issue for Review (IFR)	A.Martinez	Delponte P.L.	Bianchi R.
01	25/11/2024	Issue for Review (IFR)	A.Martinez	Delponte P.L.	Bianchi R.
00	19/11/2024	Issue for Review (IFR)	A.Martinez	Delponte P.L.	Bianchi R.

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2	Table of Contents	X	X	X	X	X	X		
3	Revision / Change Log / Hold List	X	X	X	X	X	X		
4	Manufacturer Record Book	X	X	X	X	X	X		

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Revision / Change Log

Rev.	Description
00	Issue for Review (IFR)
01	Issue for Review (IFR)
02	Issue for Review (IFR)
03	Accepted for construction (AFC)
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Base Load Power Hub (BLPH)

PRESSURE SAFETY VALVES

MANUFACTURERS RECORD BOOK (FINAL DOSSIER) - INDEX

Document Number: 1724000518-QC-LIS-00009

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Rev.	Date	Description	Prepared	Reviewed	Approved
05	31/03/2025	Accepted for Construction (AFC)	A.Martinez	Delponte P.L.	Bianchi R.
04	31/01/2025	Accepted for Construction (AFC)	A.Martinez	Delponte P.L.	Bianchi R.
03	17/09/2024	Accepted for Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
02	08/07/2024	Accepted for Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
01	10/06/2024	Accepted for Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
00	16/05/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.

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3	Revision / Change Log / Hold List	X	X	X	X	X	X		
4	Index	X	X	X	X	X	X		

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Revision / Change Log

Rev.	Description
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02	Accepted for Construction (AFC)
03	Accepted for Construction (AFC)
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DOCUMENT TITLE

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PART 1 - DESIGN DOSSIER

LIST

SUPPLIER MASTER INDEX REGISTER (SMIR)

Base Load Power Hub (BLPH)

PRESSURE SAFETY VALVES

SUPPLIER MASTER INFORMATION REGISTER

Document Number: 1724000518-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
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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	27-05-2024

Rev.	Date	Description	Prepared	Reviewed	Approved
01	08/05/2024	Issue for Information (IFI)	Di Virgilio L.	Delponte P.L.	Bianchi R.
00	05/04/2024	Issue for Information (IFI)	Di Virgilio L.	Delponte P.L.	Bianchi R.

technical

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1	Cover	X	X						
2	Table of Contents	X	X						
3	Revision / Change Log / Hold List	X	X						
4	References	X	X						
5	SMIR	X	X						

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Revision / Change Log

Rev.	Description
00	Issue for Information (IFI)
01	Issue for Information (IFI)

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

Ordine n°/*order nr.*	1724000518	Fornitore/*Supplier*:	TECHNICAL SRL		
data / *dated:*		Codice F./ *S. Code:*			
Commessa / *Job:*		Indirizzo/ *address* :	Via Toscana, 9 - 20060 Vignate (MI)		
Descrizione / *Description*	PRESSURE SAFETY VALVES	Persona di riferim./ *contact person:*	Michela Rotella (rotella.michela@technical.it)		
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	Document Approval (I/A)
1	1724000518-MD-LIS-00001	00	1724000518-MD-LIS-00001	00	23/3962-SMIR	00	SUPPLIER MASTER INDEX REGISTER (SMIR)	INS		A3	21/03/2024				A
							QUALITY DOCUMENTS								
2	1724000518-QC-ITP-00002	00	1724000518-QC-ITP-00002	00	23/3962-ITP	00	INSPECTION AND TEST PLAN	QUA		A4	19/04/2024				A
							ENGINEERING DOCUMENTS								
3	1724000518-IN-DA-00003	00	1724000518-IN-DA-00003	00	23/3962-DWG+NPD	00	GENERAL ARRANGEMENTS INCLUDING NAMEPLATE DRAWING	INS		A4	05/04/2024		X		A
4	1724000518-IN-DS-00004	00	1724000518-IN-DS-00004	00	23/3962-DSH+CLC	00	INSTRUMENTS DATA SHEETS (INCLUDING SIZING CALCULATION SHEETS)	INS		A4	05/04/2024		X		A
5	1724000518-MAT-PRO-00005	00	1724000518-MAT-PRO-00005	00	PA-PRO_23/3962	00	SURFACE PREPARATION AND PAINTING PROCEDURE	INS		A4	05/04/2024				A
6	1724000518-QC-PRO-00006	00	1724000518-QC-PRO-00006	00	23/3962-IL42+IL10	00	FACTORY ACCEPTANCE TEST PROCEDURE including HYDROSTATIC TEST PROCEDURE	INS		A4	05/04/2024				A
7	1724000518-NDT-PRO-00007	00	1724000518-NDT-PRO-00007	00	23/3962-NDEPRO+OP	00	NON-DESTRUCTIVE EXAMINATIONS PROCEDURES (NDE) including PMI TEST PROCEDURE, NDE OPERATORS LIST and QUALIFICATIONS	QUA		A4	05/04/2024				A
8	1724000518-QC-PRO-00014	00	1724000518-QC-PRO-00014	00	23/3962-IL84	00	FUGITIVE EMISSION PROCEDURE	QUA		A4	05/04/2024				A
9	1724000518-IN-LIS-00015	00	1724000518-IN-LIS-00015	00	23/396-VATR	00	VENDOR ASSET AND TAG REGISTER	DAT		A4	14/06/2024				A
							CERTIFICATES								
10	1724000518-QC-DB-00008	00	1724000518-QC-DB-00008	00	23/3962-MRB	00	MANUFACTURERS RECORD BOOK (FINAL DOSSIER)	CERT		A4/A3	19/08/2024		X		A
11	1724000518-QC-LIS-00009	00	1724000518-QC-LIS-00009	00	23/3962-MRBI	00	MANUFACTURERS RECORD BOOK (FINAL DOSSIER) - INDEX	QUA		A4	10/05/2024				A
12	1724000518-IN-LIS-00013	00	1724000518-IN-LIS-00013	00	23/3962-ATEX	00	ATEX DOCUMENTATION	INS		A4	08/07/2024				A
							SPARES & MAINTENANCE DATA								
13	1724000518-IN-MAN-00010	00	1724000518-IN-MAN-00010	00	23/3962-IOM	00	INSTALLATION, OPERATION AND MAINTENANCE MANUAL	Eng-Instrumentation		A4	14/06/2024		X		A
14	1724000518-COM-LIS-00011	00	1724000518-COM-LIS-00011	00	23/3962-SPARE	00	SPARE PART INDEX REGISTER (COMMISSIONING, 2-YEAR's OPERATION, CAPITAL)	Eng-Instrumentation		A4	14/06/2024		X		A
15	1724000518-QC-PRO-00012	00	1724000518-QC-PRO-00012	00	23/3962-PP17	00	PACKING, HANDLING, SHIPPING, PRESERVATION AND STORAGE PROCEDURES	EXP		A4	14/06/2024				I

Notes:

(1) Numero documento Cliente
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(2) Numero documento interno
Document number internal

(3) Numero documento Fornitore (assegnato dal Fornitore)
Document number assigned by Supplier

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(7) A4, A3, A1 (compilato dal Fornitore)
A4, A3, A1 (Supplier)

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Foreseen date for the first issue (Supplier)

DRAWINGS

GENERAL ARRANGEMENTS INCLUDING NAMEPLATE DRAWING

Base Load Power Hub (BLPH)

GENERAL ARRANGEMENTS INCLUDING NAMEPLATE DRAWING PSV

Document Number: 1724000518-IN-DA-00003

Document Class: 2

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Sign	Date
V. Barratta	04-10-2024

Rev.	Date	Description	Prepared	Reviewed	Approved
05	16/09/2024	Accepted For Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
04	30/07/2024	Accepted For Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
03	19/06/2024	Accepted For Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
02	29/05/2024	Accepted For Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
01	11/04/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.
00	22/03/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.

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3	Revision / Change Log	X	X	X	X	X	X		
4	320-K10-5L Dwg	X	X	X	X	X	X		
5	320-K10-5L Bill Material	X	X	X	X	X	X		
6	320-E20-5L Dwg	X	X	X	X	X	X		
7	320-E20-5L Bill Material	X	X	X	X	X	X		
8	320-D10-L2 Dwg	X	X	X	X	X	X		
9	320-D10-L2 Bill Material	X	X	X	X	X	X		
10	Nameplate 00-0227-00	X	X	X	X	X	X		
11	Additional nameplate 99-0391-00	X	X	X	X	X	X		
12	Atex nameplate 99-0362-30		X	X	X	X	X		
13	320-D10-F1 DWG				X	X	X		
14	320-D10-F1 Bill Material				X	X	X		

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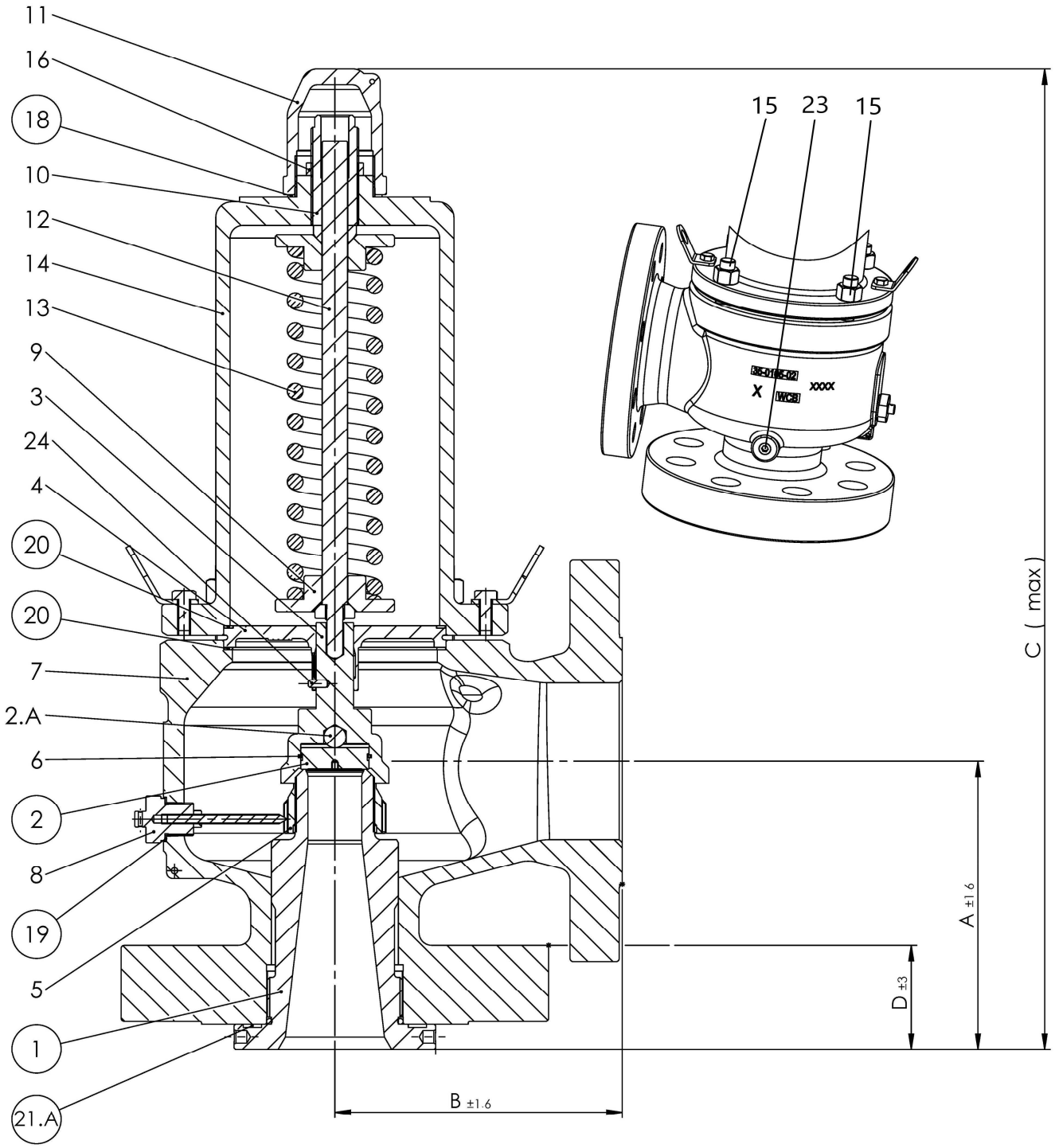
List of PSV covered

Safety Valve Tag No	Model No	Doc No
80-PSV-001	320-K10-5L	23/3962_DWG_1
25-PSV-001A	320-E20-5L	23/3962_DWG_2-3-4-5-6-7
25-PSV-001B	320-K10-5L	23/3962_DWG_2-3-4-5-6-7
25-PSV-001C	320-K10-5L	23/3962_DWG_2-3-4-5-6-7
25-PSV-001D	320-K10-5L	23/3962_DWG_2-3-4-5-6-7
25-PSV-001E	320-K10-5L	23/3962_DWG_2-3-4-5-6-7
25-PSV-001F	320-K10-5L	23/3962_DWG_2-3-4-5-6-7
64-PSV-001	320-D10-L2	23/3962_DWG_8
50-PSV-011	320-D10-F1	23/3962_DWG_9

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recommended spare parts

Overall dimensions in accordance with API 526



Flange dimensions as per ASME B16.5 except for inlet flange thickness that may be higher than minimun specified.

Connections ASME B16.5			Dimensions (mm)						Orifice / area cm²	Weight
INLET	OUTLET	RF	A	B	C max	D	E	F	K	kg
3" 150 RF	4" 150 RF		156	162	615	49			12.94	52

Model	Tag	Job. n°
320-K10-5L	80-PSV-001	23/3962
Customer	**Order. n°**	**Doc. n°**
ROSETTI MARINO spa	1724000518 123A90A	23/3962_DWG_1

Rev.	Date	Description	Prepared	Checked	Approved
1	23/07/2024	MODIFIED GASKETS 18-19-20-21a	DI VIRGILIO L.	TESA C.	BIANCHI R.
0	18/03/2024	ISSUED for ORDER	DI VIRGILIO L.	TESA C.	BIANCHI R.

Type: K1 3" 150 RF

jpg : 320-K10

tecHnical ITALIAN VALVES MANUFACTURER SINCE 1973	Safety valve - 30000 Series - Bill of material		Job. n° 23/3962
	Model 320-K10-5L	Tag 80-PSV-001	SPT-075

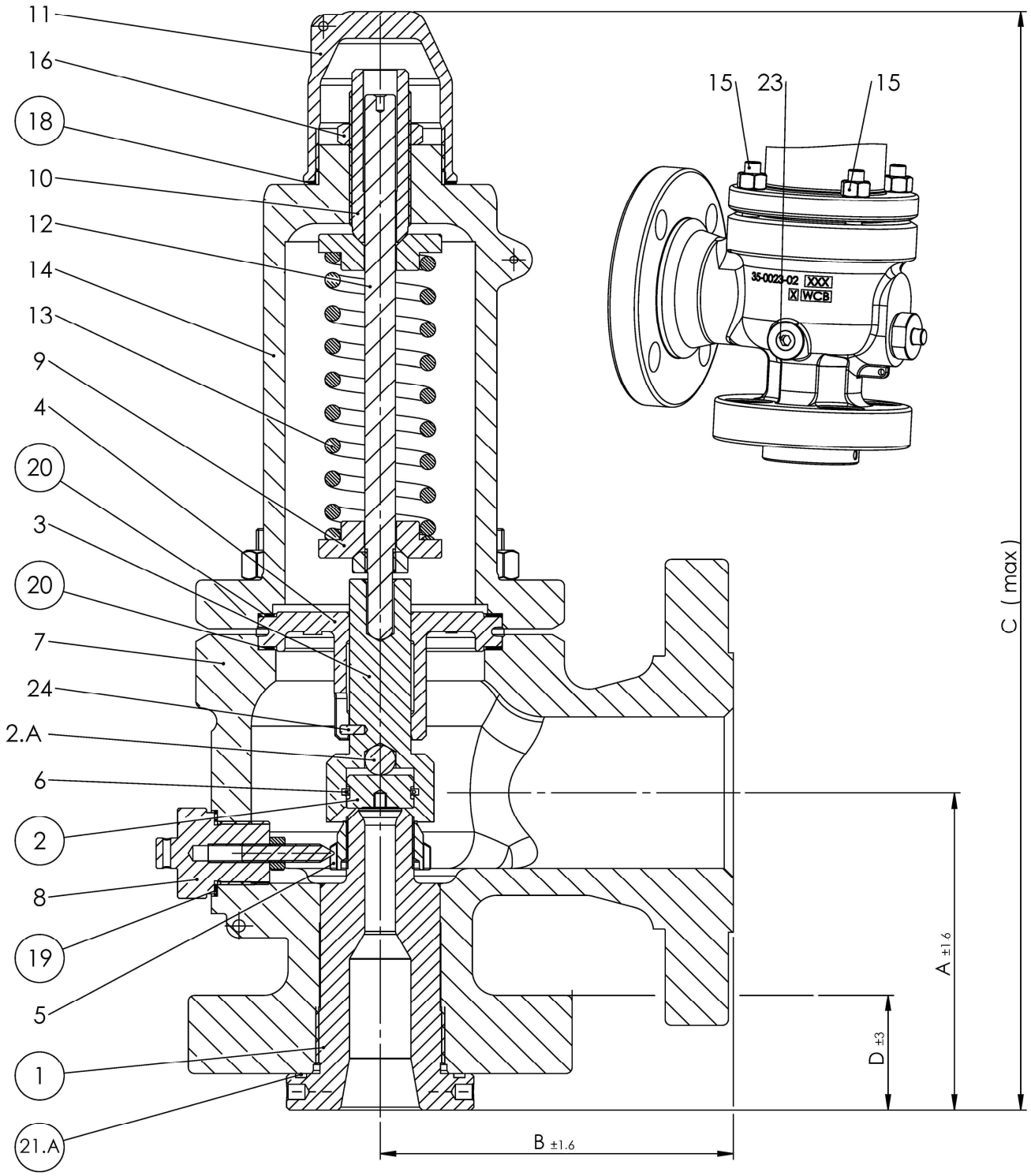
Quantity	Peening	LANGUAGE	IT/EN		TYPE	320	Accessori	0
		MATERIAL CLASS	5L	-	SPRING	36	AISI 316	
		DESCRIZIONE / PART DESCRIPTION			MATERIALE / PART MATERIAL			
	1	Boccaglio / Nozzle			A351 CF3M			
	2	Otturatore / Disc			A479 316L			
	2a	Sfera / Ball			SS 316			
	3	Portaotturatore / Disc-holder			A747 CB7Cu-1			
	4	Guida / Liner			SS 316L			
	5	Anello Blowdown / Blowdown ring			SS 316L			
	6	Anello otturatore / Disc ring			SS 316			
	7	Corpo / Body			A351 CF8M			
	8	Vite blowdown / Blowdown screw			SS 316L			
	9	Piattello molla / Spring washer			STAINLESS STEEL			
	10	Vite taratura / Adjusting screw			SS 431			
	11	Cappello / Cap			A351 CF3M			
	12	Stelo / Stem			SS 316L			
	13	Molla / Spring			AISI 316			
	14	Coperchio / Bonnet			A351 CF8M			
	15	Tiranteria / Bolting - nut			A193 B8M / A194 8M			
	16	Controdado / Lock nut			SS 316L			
	18	Guarnizione / Gasket			FKM			
	19	Guarnizione / Gasket			FKM			
	20	Guarnizione / Gasket			ARAMID FIBER			
	21a	Guarnizione boccaglio / Nozzle gasket			FKM			
	23	Tappo drenaggio / Drain plug			SS 316			
	24	Spina / Pin			SS 316			

Note / Remarks

Rev.	Date	Description	Prepared	Checked	Approved
1	23/07/2024	MODIFIED GASKETS 18-19-20-21a	DI VIRGILIO L.	TESA C.	BIANCHI R.
0	18/03/2024	ISSUED for ORDER	DI VIRGILIO L.	TESA C.	BIANCHI R.

recommended spare parts

Overall dimensions in accordance with API 526



Flange dimensions as per ASME B16.5 except for inlet flange thickness that may be higher than minimun specified.

Connections ASME B16.5			Dimensions (mm)						Orifice / area cm²	Weight
INLET	OUTLET	RF	A	B	C max	D	E	F	E	kg
1" 300 RF	2" 150 RF		105	115	380	37.5			1.389	15

Model: 320-E20-5L	Tag: 25-PSV-001A/B/C/D/E/F		Job. n°: 23/3962	
Customer: ROSETTI MARINO spa	Order. n°: 1724000518 123A90A		Doc. n°: 23/3962_DWG_2-3-4-5-6-7	

Rev.	Date	Description	Prepared	Checked	Approved
1	23/07/2024	MODIFIED GASKETS 18-19-20-21a	DI VIRGILIO L.	TESA C.	BIANCHI R.
0	18/03/2024	ISSUED for ORDER	DI VIRGILIO L.	TESA C.	BIANCHI R.

technical VIGNATE - MI - ITALY

Type: E2 1" 300 RF

jpg : 320-E20

tecHnical ITALIAN VALVES MANUFACTURER SINCE 1973	Safety valve - 30000 Series - Bill of material		Job. n° 23/3962
	Model 320-E20-5L	Tag 25PSV-001A/B/C/D/E/F	SPT-075

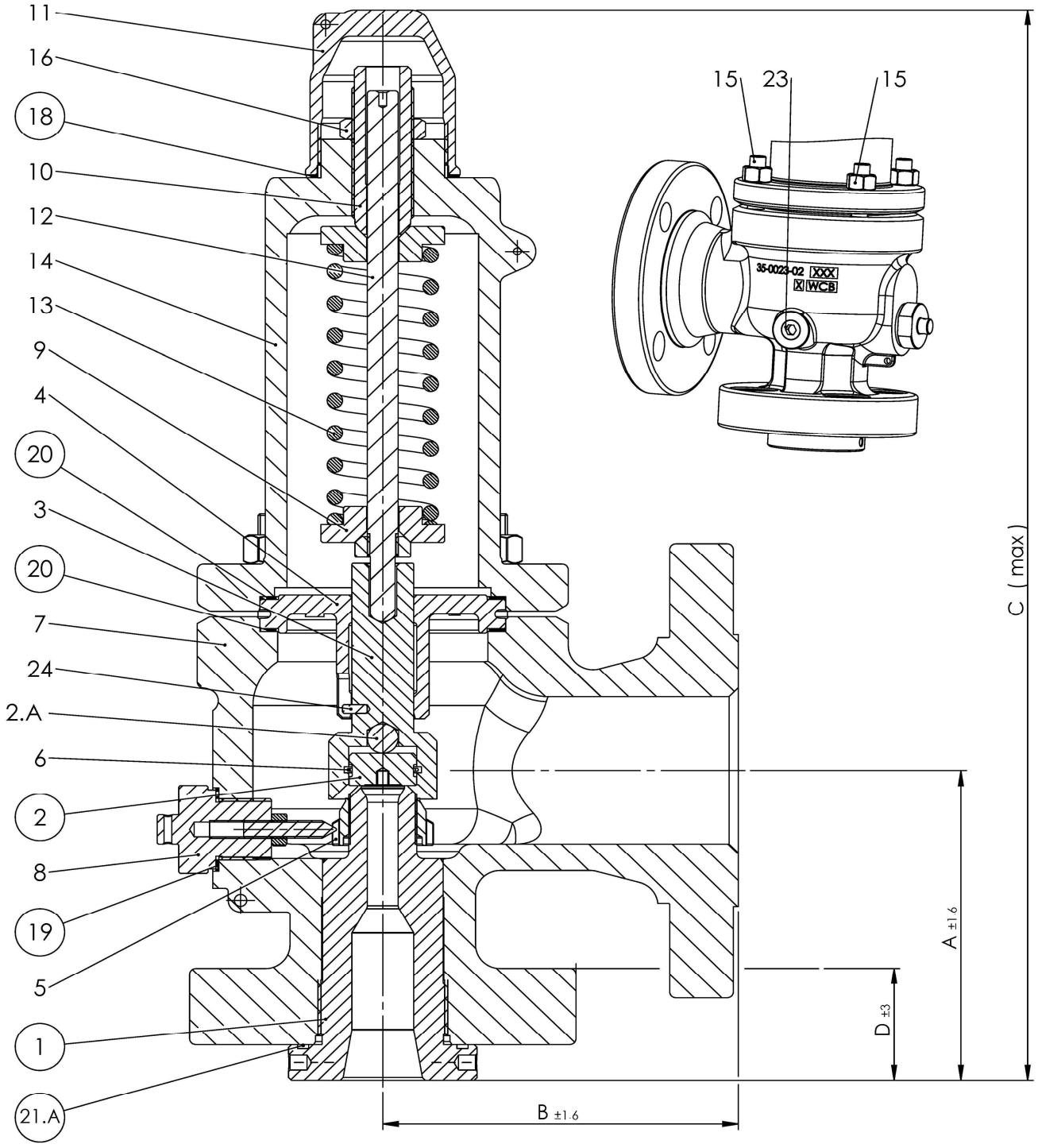
		LANGUAGE	IT/EN		TYPE	320	Accessori 0
		MATERIAL CLASS	5L	-	SPRING	36	AISI 316
Quantity	Peening	DESCRIZIONE / PART DESCRIPTION			MATERIALE / PART MATERIAL		
	1	Boccaglio / Nozzle			A479 316L		
	2	Otturatore / Disc			A479 316L		
	2a	Sfera / Ball			SS 316		
	3	Portaotturatore / Disc-holder			A747 CB7Cu-1		
	4	Guida / Liner			SS 316L		
	5	Anello Blowdown / Blowdown ring			SS 316L		
	6	Anello otturatore / Disc ring			SS 316		
	7	Corpo / Body			A351 CF8M		
	8	Vite blowdown / Blowdown screw			SS 316L		
	9	Piattello molla / Spring washer			STAINLESS STEEL		
	10	Vite taratura / Adjusting screw			SS 431		
	11	Cappello / Cap			A351 CF3M		
	12	Stelo / Stem			SS 316L		
	13	Molla / Spring			AISI 316		
	14	Coperchio / Bonnet			A351 CF8M		
	15	Tiranteria / Bolting - nut			A193 B8M / A194 8M		
	16	Controdado / Lock nut			SS 316L		
	18	Guarnizione / Gasket			FKM		
	19	Guarnizione / Gasket			FKM		
	20	Guarnizione / Gasket			ARAMID FIBER		
	21a	Guarnizione boccaglio / Nozzle gasket			FKM		
	23	Tappo drenaggio / Drain plug			SS 316		
	24	Spina / Pin			SS 316		

Note / Remarks

Rev.	Date	Description	Prepared	Checked	Approved
1	23/07/2024	MODIFIED GASKETS 18-19-20-21a	DI VIRGILIO L.	TESA C.	BIANCHI R.
0	18/03/2024	ISSUED for ORDER	DI VIRGILIO L.	TESA C.	BIANCHI R.

recommended spare parts

Overall dimensions in accordance with API 526



Flange dimensions as per ASME B16.5 except for inlet flange thickness that may be higher than minimun specified.

Connections ASME B16.5			Dimensions (mm)						Orifice / area cm²	Weight
INLET	OUTLET	RF	A	B	C max	D	E	F	D	kg
1" 150 RF	2" 150 RF		105	115	380	37.5			0.785	15

Model	Tag	Job. n°
320-D10-L2	64-PSV-001 64-PSV-001_S	23/3962
Customer	**Order. n°**	**Doc. n°**
ROSETTI MARINO spa	1724000518 123A90A	23/3962_DWG_8

Rev.	Date	Description	Prepared	Checked	Approved
1	17/04/2024	ADD. VALVE	DI VIRGILIO L.	PASQUALINI C.	BIANCHI R.
0	18/03/2024	ISSUED for ORDER	DI VIRGILIO L.	PASQUALINI C.	BIANCHI R.

technical VIGNATE - MI - ITALY

Type: D1 1" 150 RF

jpg : 320-D10

tecHnical ITALIAN VALVES MANUFACTURER SINCE 1973	Safety valve - 30000 Series - Bill of material	Job. n° 23/3962
	Model 320-D10-L2 / Tag 64-PSV-001 64-PSV-001_S	SPT-075

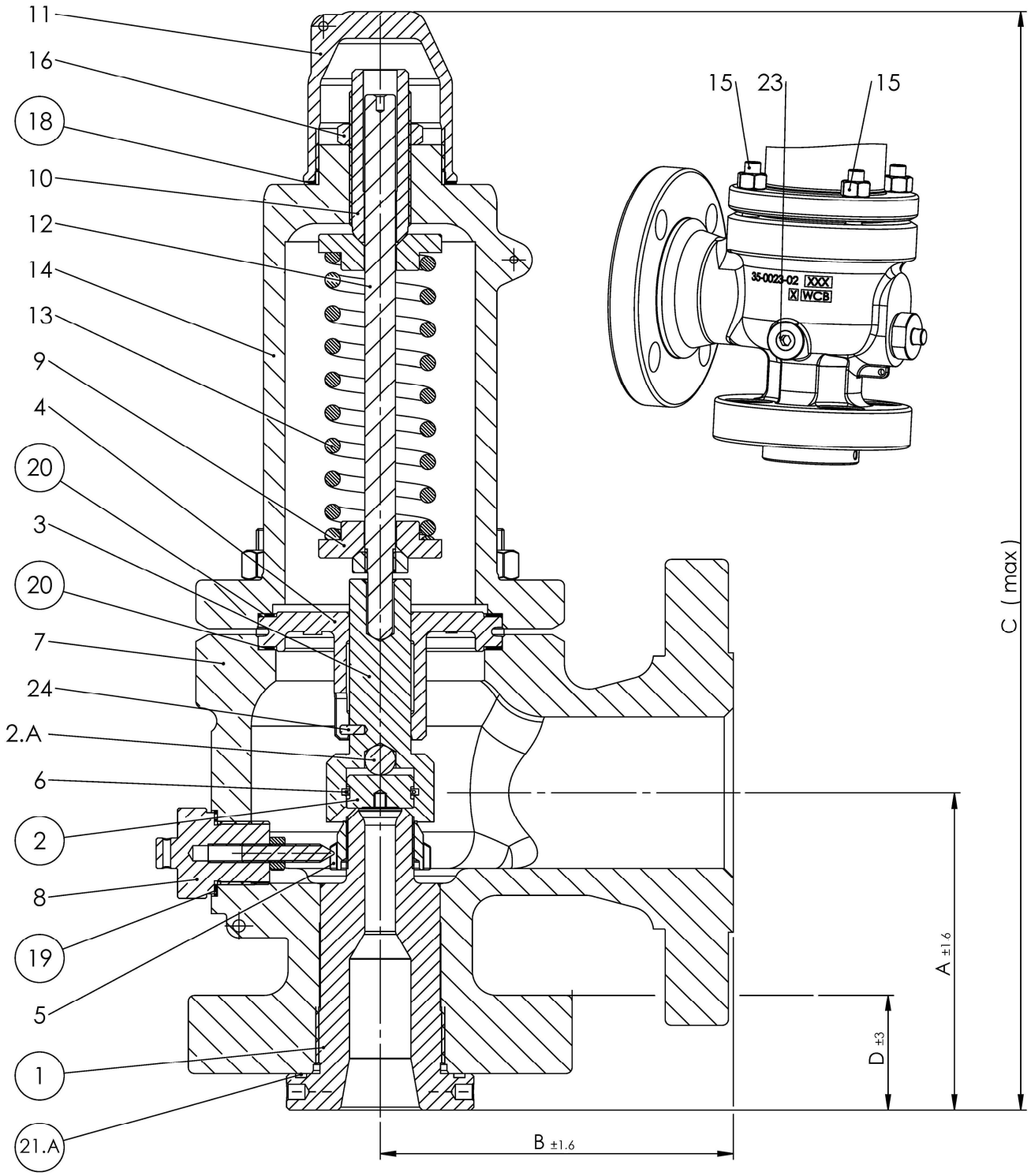
		LANGUAGE	IT/EN		TYPE	320	Accessori 0
		MATERIAL CLASS	L2	-	SPRING	36	AISI 316
Quantity	Peening	DESCRIZIONE / PART DESCRIPTION			MATERIALE / PART MATERIAL		
	1	Boccaglio / Nozzle			A479 316L		
	2	Otturatore / Disc			A479 316L		
	2a	Sfera / Ball			SS 420		
	3	Portaotturatore / Disc-holder			A747 CB7Cu-1		
	4	Guida / Liner			SS 316L		
	5	Anello Blowdown / Blowdown ring			SS 316L		
	6	Anello otturatore / Disc ring			SS 316		
	7	Corpo / Body			A352 LCB		
	8	Vite blowdown / Blowdown screw			SS 316L		
	9	Piattello molla / Spring washer			STAINLESS STEEL		
	10	Vite taratura / Adjusting screw			SS 431		
	11	Cappello / Cap			A352 LCB		
	12	Stelo / Stem			SS 316L		
	13	Molla / Spring			AISI 316		
	14	Coperchio / Bonnet			A352 LCB		
	15	Tiranteria / Bolting - nut			A193 B8M / A194 8M		
	16	Controdado / Lock nut			SS 316L		
	18	Guarnizione / Gasket			ARMED GRAPHITE		
	19	Guarnizione / Gasket			ARMED GRAPHITE		
	20	Guarnizione / Gasket			ARMED GRAPHITE		
	21a	Guarnizione boccaglio / Nozzle gasket			ARMED GRAPHITE		
	23	Tappo drenaggio / Drain plug			SS 316		
	24	Spina / Pin			SS 316		

Note / Remarks

Rev.	Date	Description	Prepared	Checked	Approved
1	17/04/2024	ADD. VALVE	DI VIRGILIO L.	PASQUALINI C.	BIANCHI R.
0	18/03/2024	ISSUED for ORDER	DI VIRGILIO L.	PASQUALINI C.	BIANCHI R.

recommended spare parts

Overall dimensions in accordance with API 526



Flange dimensions as per ASME B16.5 except for inlet flange thickness that may be higher than minimun specified.

Connections ASME B16.5			Dimensions (mm)						Orifice / area cm²	Weight
INLET	OUTLET	RF	A	B	C max	D	E	F	D	kg
1" 150 RF	2" 150 RF		105	115	380	37.5			0.785	15

Model: 320-D10-F1	Tag: 50-PSV-011			Job. n°: 24/3962	
Customer: ROSETTI MARINO spa	Order. n°: 1724000518 123A90A			Doc. n°: 24/3962_DWG_9	
0	19/06/2024	ISSUED for ORDER	DI VIRGILIO L.	TESA C.	BIANCHI R.
Rev.	Date	Description	Prepared	Checked	Approved

technical VIGNATE - MI - ITALY

Type: D1 1" 150 RF

jpg : 320-D10

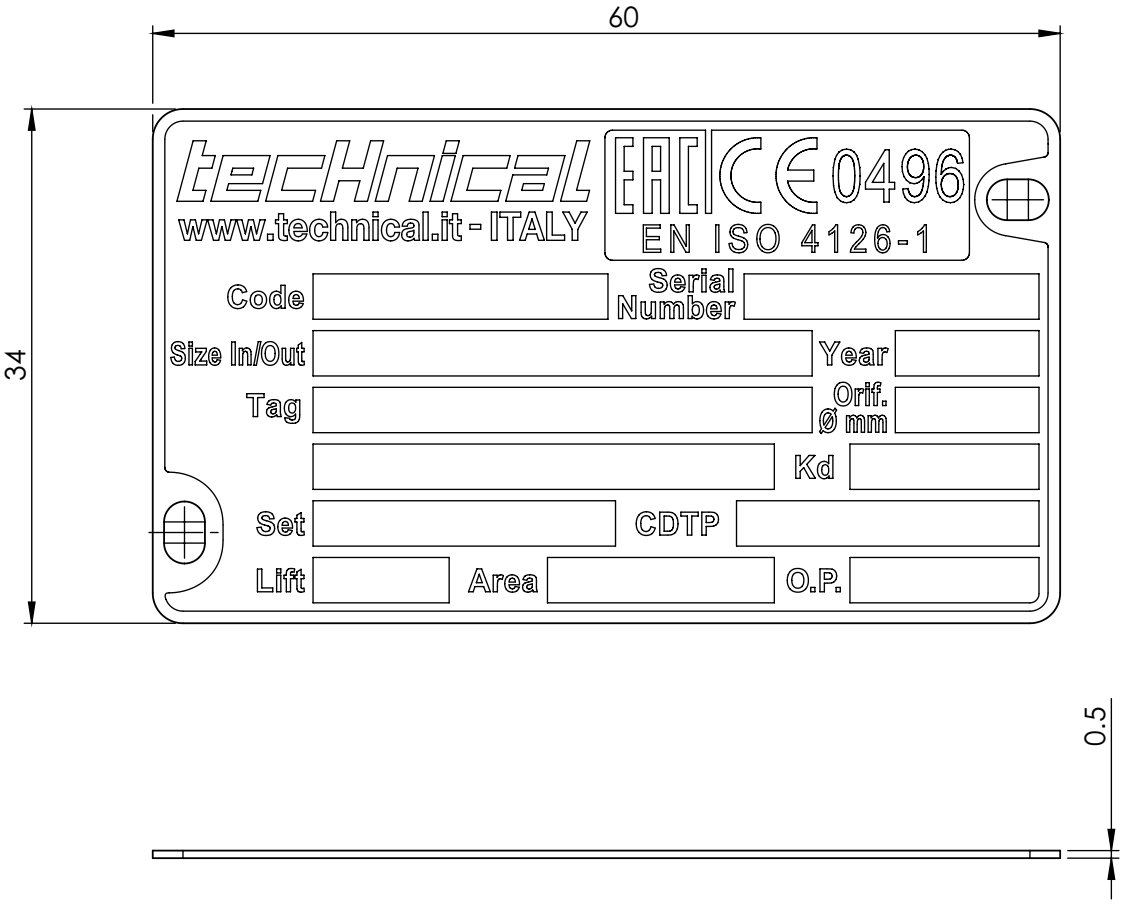
tecHnical ITALIAN VALVES MANUFACTURER SINCE 1973	Safety valve - 30000 Series - Bill of material		Job. n° 24/3962
	Model 320-D10-F1	Tag 50-PSV-011	SPT-075

		LANGUAGE	IT/EN		TYPE	320	Accessori	0
		MATERIAL CLASS	F1	-	SPRING	36	AISI 316	
Quantity	Peening	DESCRIZIONE / PART DESCRIPTION			MATERIALE / PART MATERIAL			
	1	Boccaglio / Nozzle			A479 S32750			
	2	Otturatore / Disc			A479 S32750			
	2a	Sfera / Ball			SS 316			
	3	Portaotturatore / Disc-holder			A995 5A / SAF 2507			
	4	Guida / Liner			A995 5A / SAF 2507			
	5	Anello Blowdown / Blowdown ring			SS 316L			
	6	Anello otturatore / Disc ring			SS 316			
	7	Corpo / Body			A995 5A			
	8	Vite blowdown / Blowdown screw			SAF 2507			
	9	Piattello molla / Spring washer			STAINLESS STEEL			
	10	Vite taratura / Adjusting screw			SAF 2507			
	11	Cappello / Cap			A995 5A			
	12	Stelo / Stem			SS 316L			
	13	Molla / Spring			AISI 316			
	14	Coperchio / Bonnet			A995 5A			
	15	Tiranteria / Bolting - nut			A193 B8M / A194 8M			
	16	Controdado / Lock nut			SS 316L			
	18	Guarnizione / Gasket			ARMED GRAPHITE			
	19	Guarnizione / Gasket			ARMED GRAPHITE			
	20	Guarnizione / Gasket			ARMED GRAPHITE			
	21a	Guarnizione boccaglio / Nozzle gasket			ARMED GRAPHITE			
	23	Tappo drenaggio / Drain plug			SS 316			
	24	Spina / Pin			SS 316			

Note / Remarks

Rev.	Date	Description	Prepared	Checked	Approved
0	19/06/2024	ISSUED for ORDER	DI VIRGILIO L.	TESA C.	BIANCHI R.

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Trattamento termico / *heat treatment*

Indicazioni Generali
General Notes

Protezione Superficiale / *surface treatment*

technical
VIGNATE - MI - ITALY

Indicazione Toll.Geometriche Geometrical tolerancing				Rugosità Superficiale Surface Roughness
//	⊥	◎		Ra 3 µm
0.2 %		Ø 0.1	0.1	

Tolleranze Generali
General tolerances: ISO 2768 - m

Dimensioni Dimension	to 6	from 6 to 30	from 30 to 120	over 120
Tolleranze Tolerances	± 0.1	± 0.2	± 0.3	± 0.5
Angoli Angles	± 30'	Raggi Angoli/Spigoli Corners/Edges Radii		0.2-0.5

Filettatura Profilo ISO
Threads ISO profile Tolerance: 6g/6H

MATERIALE
material

Pos.	Description Review	Signature	Date
1	[MT] invertite pos. scritte tag & size	Di Virgilio L.	24/05/2023
0			
0			
0			

Grezzo/*Rough*

Formato/*format*: A4

Scala/*scale*: 1:1

Peso/*weight*: Kg

	DESIGNER	CHECKED	APPROVED
DATE	22/05/2023	22/05/2023	22/05/2023
NAME	Di Virgilio L.	Di Virgilio L.	Delponte P.L.

Descrizione / *description*: TARG. PED ISO 4126-1 2023 20000 EN

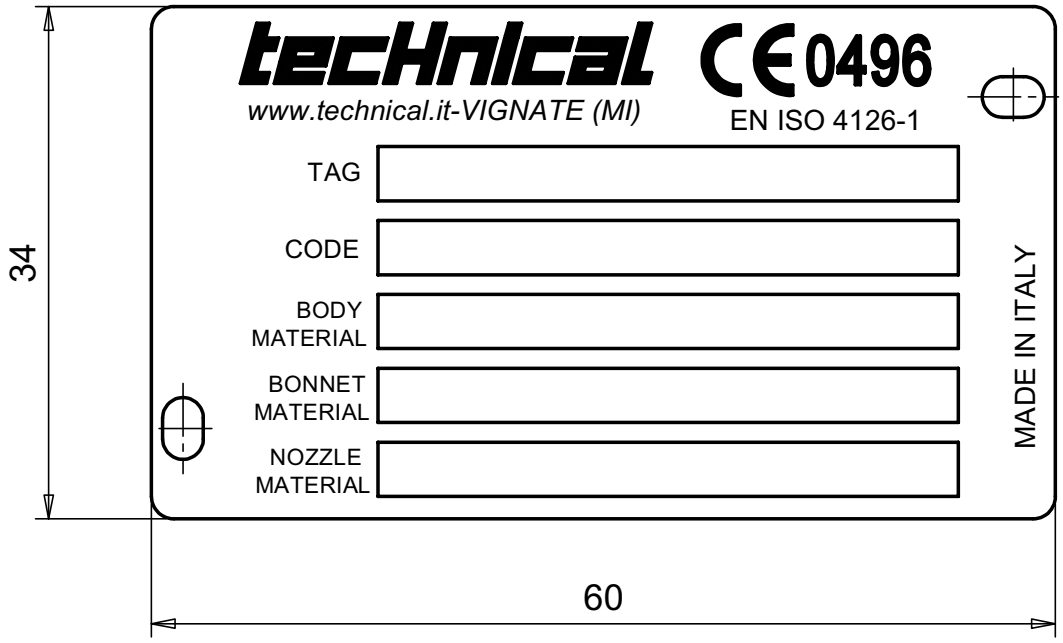
Codice disegno *code drawing*: 00-0227-00

REVISIONE *revision*: 1

MODULO: UTE 046 10/13

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ADDITIONAL NAMEPLATE



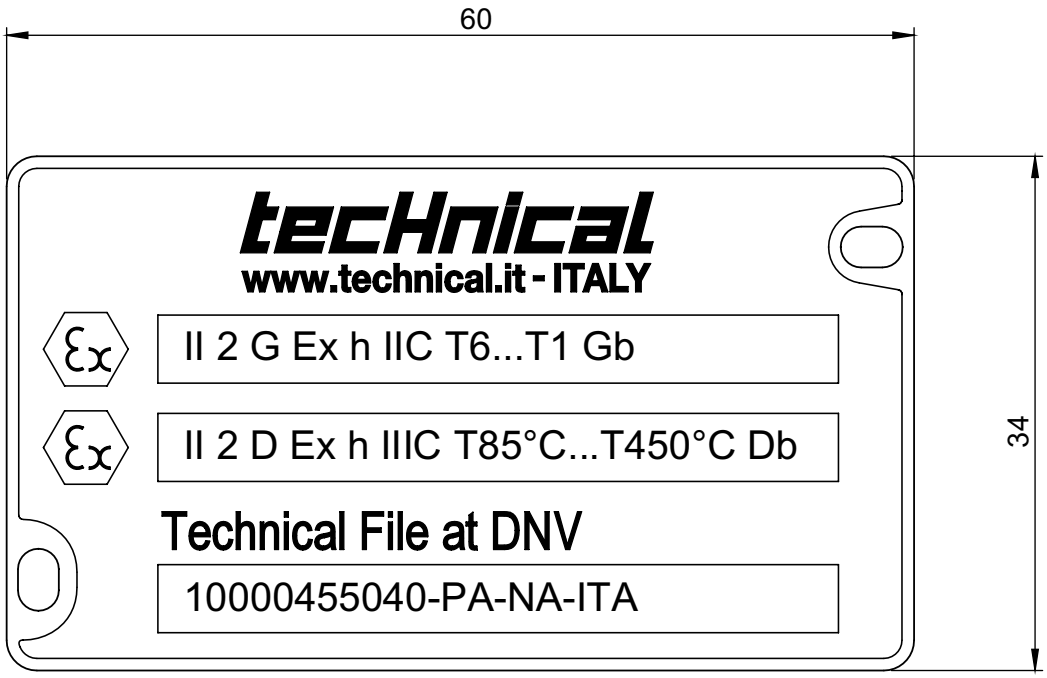
THICKNESS = 0.5 mm

TRATTAMENTO TERMICO *heat treatment*					technical VIGNATE - MI - ITALY	
	Indicazioni Generali General Notes			PROTEZIONE SUPERFICIALE - *surface treatment*		
Indicazione Toll.Geometriche Geometrical tolerancing UNI 7226			Rugosità Superficiale Surface Roughness	MATERIALE *material* AISI 316		
// ⊥	◎	⏥	Ra 3 µm			
0.2 %	ø 0.1	0.1				
Tolleranze Generali General tolerances ISO 2768 - m				POS. DESCRIPTION REVIEW	SIGNATURE	DATE

Dimensioni Dimension	to 6	from 6 to 30	from 30 to 120	over 120
Tolleranze Tolerances	± 0.1	± 0.2	± 0.3	± 0.5
Angoli Angles	± 30'	Raggi Angoli/Spigoli Corners/Edges Radii		0.2-0.5
Filettature Profilo ISO Threads ISO profile Tolerance	6g / 6H			

NOTE *note* 00-0220-00		DESIGNER	CHECKED	APPROVED
Formato *format* A4V	DATE	18/03/2024	18/03/2024	18/03/2024
SCALA *scale* 1:1	NAME	Di Virgilio L.	Di Virgilio L.	Delponte P.L.
PESO NETTO *weight* 0 kg	DESCRIZIONE *description* ADD.NAMEPLATE 60x34 BODY-BON-NOZ			
	Codice disegno *code drawing* 99-0391-00		VERSIONE *revision* 0	

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Trattamento termico / *heat treatment*

tecHnical
VIGNATE - MI - ITALY

Indicazioni Generali
General Notes

Protezione Superficiale / *surface treatment*

Indicazione Toll.Geometriche
Geometrical tolerancing UNI 7226

//	⊥	◎	⌯
0.2 %		Ø 0.1	0.1

Rugosità Superficiale
Surface Roughness
Ra 3 µm

Tolleranze Generali
General tolerances ISO 2768 - m

Dimensioni Dimension	to 6	from 6 to 30	from 30 to 120	over 120
Tolleranze Tolerances	± 0.1	± 0.2	± 0.3	± 0.5
Angoli Angles	± 30'	Raggi Angoli/Spigoli Corners/Edges Radii		0.2-0.5
Filettatura Profilo ISO Threads ISO profile Tolerance	6g/6H			

MATERIALE *material* Aisi 316

Pos.	Description Review	Signature	Date
0			
0			
0			
0			

Grezzo/*Rough*
00-0222-00

Formato/*format*
A4

Scala/*scale*
2:1

Peso/*weight*
0.01 Kg

	DESIGNER	CHECKED	APPROVED
DATE	14/04/2021	28/04/2021	28/04/2021
NAME	Di Virgilio L.	Di Virgilio L.	Santi C.

Descrizione / *description*
TARGA ATEX C VALVOLE SICUREZZA

Codice disegno *code drawing* 99-0362-30

REVISIONE *revision* 0

MODULO: UTE 046 10/13

PROJET PROCEDURES AND SPECIFICATIONS

SURFACE PREPARATION AND PAINTING PROCEDURE

Base Load Power Hub (BLPH)

SURFACE PREPARATION AND PAINTING PROCEDURE PSV

Document Number: 1724000518-MAT-PRO-00005

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	09/07/2024

Rev.	Date	Description	Prepared	Reviewed	Approved
02	03/07/2024	Accepted for construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
01	22/05/2024	Accepted for construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
00	12/04/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.

tecHnical

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

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 ÷ 12	PAINTING PROCEDURE PA-PRO_23/3962	X	X	X					
13 ÷ 28	PRODUCT DATA SHEET & TEST	X	X	X					

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Revision / Change Log

Rev.	Description
00	ISSUE FOR REVIEW (IFR)
01	ACCEPTED FOR CONSTRUCTION (AFC)
02	ACCEPTED FOR CONSTRUCTION (AFC)

HOLDS LIST

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1.	
2.	
3.	
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1.0 PURPOSE
2.0 STANDARDS
3.0 HEALTH AND SAFETY
4.0 AREAS NOT TO BE COATED
5.0 ENVIRONMENTAL CONDITIONS
6.0 SURFACES PREPARATION AND CLEANING
7.0 APPLICATION OF THE COATING
8.0 INSPECTION AND TESTING
9.0 REPAIR OF COATING
10.0 HANDLING, PACKING, SHIPPING
11.0 INSPECTION RECORDS AND REPORTS

- ANNEXES

2	03/07/24	REVISED AS PER CUSTOMER COMMENTS	RB	LDV	RB
1	22/05/24	REVISED AS PER CUSTOMER COMMENTS	RB	LDV	RB
0	02/04/24	FIRST EMISSION	RB	LDV	RB
REV	**DATE**	**DESCRIPTION**	**PREPARED**	**CHECKED**	**APPROVED**

1.0 PURPOSE

This Procedure provides details for:

- Preparation of metal surfaces.
- Application of the coating in the workshop.
- Inspection.
- Quality checks.
- Reports.
- Handling, packaging and shipment of the coated material.

This procedure is derived from specification **123A90-DDL-MAT-SP-60006 Rev 00** (and therefore also from NORSOK M5010 Rev 6) and has been modified to adapt to the specificity of safety valves in area ATEX Exd IIC

2.0 STANDARDS

For undated references, the latest edition of the referenced document shall be used unless otherwise agreed.

- ISO 4624	Paints and varnishes - Pull-Off Test for adhesion
- 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.
- ISO 8501-3	Preparation of steel substrates before application of paints and related products – Visual assessment of surface cleanliness – Part 3: Preparation grades of welds, edges and other areas with surface imperfections
- 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 – The Bresle method
- ISO 8502-9	Preparation of steel substrates before 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 8503-1 to 5	Preparation of steel substrates before application of paints and related products. Surface roughness characteristics of blast-cleaned steel substrates. Part 1 to 5.
- ISO 8504-2	Preparation of steel substrates before application of paints and related products — Surface preparation methods — Part 2: Abrasive blast-cleaning.
- ISO 19840	Measurement of, and acceptance criteria for, the thickness of dry

		films on rough surfaces
-	ISO 80079-36	Explosive atmospheres Part 36: Non-electrical equipment for explosive atmospheres — Basic method and requirements
-	SSPC-SP1	Surface Preparation Specification No.1 - Solvent Cleaning
-	SSPC-PA 2	Measurement of Dry Coating Thickness with Magnetic Gages
-	SSPC-SP7	Brush-Off blast cleaning.
-	SSPC-SP10	Near-white metal blast cleaning.

3.0 HEALTH AND SAFETY

The safety regulations must be duly observed during the execution of processes and during use of paint, of the thinner, of the materials and equipment required.

Paints can be toxic, corrosive and flammable, Safety Data sheets of the products being used must be available and understood.

Each worker must be equipped with appropriate Personal Protection Equipment.

Products in excess must be disposed of, according to the applicable environmental rules and laws and Safety Data sheets.

4.0 AREAS NOT TO BE COATED

The following areas should not be subjected to any processing: surfaces of aluminium, brass, glass, plastic surfaces plated, nameplates, stems, the facing profile of the flanges, bearings, electrical instrumentation (such as limit switches, junction boxes).

Those areas are covered with tape protection (or other suitable means) before work.

Due care must be taken to prevent the abrasive grit entering inside the valve.

5.0 ENVIRONMENTAL CONDITIONS

The application of the coatings shall NOT be done if the temperature, relative humidity, surface temperature weather conditions, moisture, dust and light condition are outside the limit imposed by the paint manufacturer, typically:

- Ambient temperature below 5°C
- Relative humidity above 85%,
- Metal surface temperature is less than 3°C above the ambient dew point
- Outside daylight hours on exterior locations.
- Valves shall be protected from rain.
- No surface preparation shall be done during raining.
- Painting application shall not be done when it is raining or with heavy winds.

6.0 SURFACES PREPARATION AND CLEANING

Before blast cleaning, metal surfaces are cleaned and degreased thoroughly with suitable solvents or biodegradable alkaline solutions for those areas showing oil stains or grease (as per SSPC-SP1).

Before blasting, the areas not to be coated, as described in previous section, must be protected.

Surface preparation of carbon steel, low alloy and stainless steel shall be in accordance to painting system. For stainless steel use non-metallic abrasive or stainless stell wire brushing to avoid contamination.

The abrasive used must be dry, clean, free of contaminants.

Compressed air used for blast cleaning shall be checked to ensure it is free from water and oil. (blotter test)

Blast cleaning is followed by a careful de-dusting of the surfaces using dry compressed air, free of oil and other impurities; if necessary soft non-metallic brushes will be used. Special care must be taken for pockets and corners.

Visual assessments of the clean and de-dusted surfaces show everywhere metal finish almost white equal to grade Sa 2 ½, according to ISO 8501-1.

Roughness Rz shall be as indicated in the painting system, according to ISO 8503.

7.0 APPLICATION OF THE COATING

Painting cycles are:

- System B for carbon steel valves
- System A for SS valves.

And are attached to this procedure.

The paintings must be provided by the paint manufacturer, in sealed containers clearly identifiable. The containers remain sealed until the time of their use. No paint will be used after the expiry date.

The interval between the cleaning of the surface and application of primer shall be minimized as much as possible and the two operations are always performed on the same day, before any traces of oxidation may show. Primer coat will be applied within 4 hours of blast cleaning.

At the time of application of the primer, the surfaces are clean and free of dust.

The coating is not applied at the ends that will be then subjected to welding.

The cut-back margins of the ends to be welded is about 50 mm.

The technical requirements for application are in accordance with the Product Data Sheets issued by the manufacturer of the paint.

Welds, corners, edges, bolts, nuts and all the hard-to-reach areas are coated by brush with the technique of stripe-coat for each layer of coating. In order to obtain the proper thickness

and to avoid visual holidays. The remaining surfaces are covered by the conventional system spray or airless spray.

During the application, the thickness of wet paint is controlled by using special tools. After complete drying, the thickness of the paint must be within the specified values.

Adhesion qualification test plates, if required by the Customer Specification and QCP, shall be prepared at the same time and under the same conditions as the production coating work.

8.0 INSPECTION AND TESTING

Inspection and tests shall be as per Specification 123A90-DDL-MAT-SP-60006 Rev 00 table 9-1 and doc. 1724000518-QC-ITP-00002

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/m2 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 m2	As specified	Reblasting
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
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	ISO 4624	Coating to be rejected

8.1 Final Surface condition

The surface to be coated shall be clean, dry, free from oil/grease, and have the specified roughness and cleanliness until the first coat is applied.

Dust, blast abrasives etc. shall be removed from the surface after blast cleaning such that the particle quantity and particle size do not exceed rating 2 of ISO 8502-3.

The maximum content of soluble impurities on the blasted surface as sampled using ISO 8502-6 and distilled water, shall not exceed a conductivity measured in accordance with ISO 8502-9 corresponding to a NaCl content of 20 mg/m2.

8.1 Roughness of Surfaces

The roughness of metal surfaces is measured according to standard ISO 8503, and the roughness Rz will be between 40-70 µm (grade fine-medium G).
Grade fine for stainless steel & medium for carbon steel.

8.2 Temperature - Relative humidity - Dew point

Ambient temperature, relative humidity and dew point, before and during the blasting and coating, are measured with a hygrothermal device.

8.3 Thickness of Coating

The wet thickness of all layers of the coating is controlled during application.
The test is performed according to either standard ISO 19840.
The range of acceptability for each measurement spot is between 0.8 x NDFT and 2x NDFT (Nominal Dry Film Thickness). The nominal DFT is shown in the painting cycle.

8.4 Visual Control

The visual inspection takes place during all phases of surface preparation and after applying each coat of paint. There must be no evidence of: drops, sagging, gaps, bubbles, orange peel, pin-holes, areas free of paint.

8.5 Adhesion Verification

Adhesion test according to ISO4624, pull-off test.

9.0 REPAIR OF COATING

Any damaged areas are repaired as follows:

a) Damage to coating with exposure of the metal surface

METAL SURFACE PREPARATION:

- SSPC-SP1 and ISO 8501-1 Sa 2 ½ - 3;
- Where the blasting is not possible, perform surface preparation according to ISO 8501 - St 3 (acceptable only for limited areas).

Reapply the full coatign system.

The total dry thickness shall be at least the required minimum.

Repeat the acceptance checks.

b) Damage Without exposing the metal surface

METAL SURFACE PREPARATION:

- SSPC-SP1 and cleaning of the damaged area and adjacent areas.

Reapply the full coatign system (or eventually only intermediate and finish).

The total dry thickness shall be at least the required minimum.

Repeat the acceptance checks.

10.0 HANDLING, PACKING, SHIPPING

The coated material is handled with appropriate precautions in order not to cause damage to parts or to the coating.

Individual pieces on the same pallet/box are separated from each other by strips of rubber or padding so that the pieces do not hit against each other.

If transport strips/ropes, chains are used, proper saddles/protection/partitions or other protective means must be used to prevent damages.

11.0 INSPECTION RECORDS AND REPORTS

The report shall show, as a minimum, the information about the paint used and the quality checks performed, in accordance to the QCP.

Annex 1

Painting cycles:

- System A
- System B

ANNEX 1

Table of Coating System A – *Tabella del Sistema di rivestimento A*			
Applicable to:	Surface Preparation	Soating System	Min DFT (µm)
Stainless Steel surfaces of: ATEX Exd IIC Safety Valves	Cleaning: Sweep Blasting Roughness: Rz 25-85 µm Fine / Medium Grade G	First Coat: Carbomastic 15LT ATEX Top coat: Carbothane 134 HP	100 50
		Complete Coating Sistem	150
Final Colour: RAL 9002			

Table of Coating System B – *Tabella del Sistema di rivestimento B*			
Applicable to:	Surface Preparation	Soating System	Min DFT (µm)
Carbon Steel surfaces of: ATEX Exd IIC Safety Valves	Cleaning: Sa 2 1/2 Roughness: Rz 25-85 µm Medium Grade G	First coat: Carbozinc 858 Second coat: Carbomastic 15LT ATEX Top coat: Carbothane 134 HP	60 100 50
		Complete Coating Sistem	210
Final Colour: RAL 9002			

Note:
-Carbozinc 858 and Carbomastic 15LT ATEX have a surface resistivity of less than 1 Giga Ohm as required by EN 80079-36 point 6.7.5 (Equipment -Group II) paragraph a) d)
-The top coat, although not having a surface resistivity of less than 1 Giga Ohm, being applied at a DFT of less than 200 microns, is in accordance with EN 80079-36 para. 6.7.5 paragraph a) d).

ANNEX 2

- Data Sheet of Carbomastic 15LT ATEX
- Data Sheet of carbothane 134 HP
- Data sheet of Carbozinc 858
- Test report of Carbomastic 15 LT ATEX

Carbomastic 15 LT ATEX

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	Two-components, modified Epoxymastic.
Description	Carbomastic 15 LT Atex is a high build coating with excellent adhesion and low temperature (ambient) curing. It is a modified epoxy mastic with antistatic and dissipative agents according to CEI EN 60079 (electric construction for explosive gas atmospheres).
Features	• Carbomastic 15 LT Atex has fast curing at Low Temperature (ambient). • High solid give good coverage and reduce solvent emissions. • In accorsance with CEI EN 60079.
Color	Black.
Finish	Semi-Gloss
Primer	It has to be applied over organic or inorganic zinc primers. A mist coat may be required to minimize bubbling over inorganic zinc primers.
Dry Film Thickness	100 - 300 microns (3.94 - 11.81 mils) per coat Normally 150µm.
Solids Content	By Volume 79% +/- 2%
Theoretical Coverage Rate	31.1 m²/l at 25 microns (1267 ft²/gal at 1.0 mils) 7.9 m²/l at 98 microns (322 ft²/gal at 3.9 mils) 2.6 m²/l at 295 microns (107 ft²/gal at 11.8 mils) Allow for loss in mixing and application.
Dry Temp. Resistance	Continuous: 70°C (158°F) Non-Continuous: 120°C (248°F)
Limitations	Epoxies lose gloss, discolor and eventually chalk in sunlight exposure. Not recommended for immersion service in acids, alkalies or solvents.
Topcoats	Carbocrylic 1290 Atex

SUBSTRATES & SURFACE PREPARATION

General	Surfaces must be clean and dry. Employ adequate methods to remove dirt, dust, oil and all other contaminants that could interfere with adhesion of the coating.
Stainless Steel	SSPC-SP16 with non metallic abrasive and surface profile roughness of 35-50 µm.(1.4-2.0 mils).

MIXING & THINNING

Mixing	Power mix separately, then combine and power mix. DO NOT MIX PARTIAL KITS.
Thinning	May be thinned up to 15% by volume with Thinner#2. Use of thinners other than those supplied by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.

MIXING & THINNING

Ratio	By volume: Carbomastic 15 LT Atex part A: 1 Carbomastic 15 LT Atex part B: 1
Pot Life	1,5 Hours at 20°C (68°F) and less at higher temperatures. Pot life ends when coating becomes too viscous to use.

APPLICATION EQUIPMENT GUIDELINES

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

General	The following spray equipment has been found suitable and is available from manufacturers such as Binks, DeVilbiss and Graco. Lap each pass 50%.
Conventional Spray	Pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, 0.070" I.D. fluid tip and appropriate air cap.
Airless Spray	Pump Ratio: *30:1 GPM Output: *11.5 liters/min (GPM Output: 3.0 (min)) Material Hose: 3/8" I.D. minimum Tip Size: * 0.023" - 0.027" Output PSI: * 2000 - 2400 Filter: *60 mesh * PTFE packings are recommended and available from equipment manufacturers.
Brush & Roller (General)	For touch up, small areas and strip-coat only.
Brush	Use a medium bristle brush. Avoid excessive rebrushing.
Roller	Use a medium nap roller cover with phenolic core. Avoid excessive rerolling.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	5°C (41°F)	2°C (36°F)	2°C (36°F)	0%
Maximum	35°C (95°F)	75°C (167°F)	40°C (104°F)	90%

Industry standards are for substrate temperatures during application to be 5 °F (3 °C) above the dew point. Condensation due to substrate temperatures below the dew point can cause flash rusting on prepared steel and interfere with proper adhesion to the substrate.
Normal Condition:
Material:15-30°C (59-86°F) Surface:15-30°C (59-86°F) Ambient:15-30°C (59-86°F) Humidity:35-80% Special application techniques may be required above or below normal application conditions.

CURING SCHEDULE

Surface Temp.	Dry to Recoat or Topcoat	Final Cure
5°C (41°F)	18 Hours	7 Days
10°C (50°F)	10 Hours	5 Days
20°C (68°F)	6 Hours	3 Days
30°C (86°F)	4 Hours	2 Days

These times are based on recommended DFT. Higher film thickness, insufficient ventilation or cooler temperatures (ambient) will require longer cure times and could result in solvent entrapment and premature failure.
Note 1: Carbomastic 15 LT ATEX contains conductive pigments and cannot be holiday tested.

CLEANUP & SAFETY

Cleanup | Use Thinner#2. In case of spillage, absorb and dispose of in accordance with local applicable regulations.

Safety | Read and follow all caution statements on this product data sheet and on the SDS for this product. Employ normal workmanlike safety precautions. Hypersensitive persons should wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.

Ventilation | When used as a tank lining or in enclosed areas, thorough air circulation must be used during and after application until the coating is cured. The ventilation system should be capable of preventing the solvent vapor concentration from reaching the lower explosion limit for the solvents used. In addition to ensuring proper ventilation, appropriate respirators must be used by all application personnel.

Caution | This product contains flammable solvents. Keep away from sparks and open flames. All electrical equipment and installations should be made and grounded in accordance with the National Electric Code. In areas where explosion hazards exist, workers should be required to use non-ferrous tools and wear conductive and non-sparking shoes.

PACKAGING, HANDLING & STORAGE

Shelf Life | Carbomastic 15 LT Atex part A: 12 months at 24°C (75°F)
Carbomastic 15 LT Atex part B: 12 months at 24°C (75°F)

Storage Temperature & Humidity | 5-38°C (41-100°F)
0-90% RH

Flash Point (Setaflash) | Carbomastic 15 LT Atex part A: 5°C (41°F)
Carbomastic 15 LT Atex part B: 24°C (75°F)

Storage | Store Indoors.

Packaging | Carbomastic 15 LT Atex part A: 10 liters
Carbomastic 15 LT Atex part B: 10 liters

WARRANTY

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Carbothane 134 HP

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	Aliphatic Acrylic Polyurethane
Description	Thin film, high gloss finish with exceptional weathering performance characteristics. Used extensively in virtually all industrial markets, it provides a smooth, durable finish that has superior resistance to corrosion, abrasion and chemical exposure.
Features	• High solids, low VOC content • Excellent weatherability • Exceeds SSPC Paint 36 specification for a Level 3 urethane • Available in custom colors • Excellent flow characteristics allow for application by spray or roller • Superior impact and abrasion resistance • Indefinite recoatability • VOC compliant
Color	Refer to Carboline Color Guide. Certain colors, particularly in non-leaded safety oranges, reds and yellows may require multiple coats for adequate hiding. Check color suitability before use.
Finish	Gloss
Primer	Refer to Substrates & Surface Preparation.
Dry Film Thickness	51 - 76 microns (2 - 3 mils) per coat
Solids Content	By Volume 65% +/- 2%
Theoretical Coverage Rate	25.6 m²/l at 25 microns (1043 ft²/gal at 1.0 mils) 12.8 m²/l at 50 microns (521 ft²/gal at 2.0 mils) 8.5 m²/l at 75 microns (348 ft²/gal at 3.0 mils) Allow for loss in mixing and application.
VOC Values	**As Supplied** : 2.5 lbs./gal (300 g/l) These are nominal values and may vary slightly with color.
Dry Temp. Resistance	Continuous: 93°C (200°F) Non-Continuous: 121°C (250°F) Discoloration and loss of gloss is observed above 200°F (93°C).
Limitations	*The alignment of aluminum flakes in aluminum-filled finishes is very dependent on application conditions and techniques. Care must be taken to keep conditions as constant as possible to reduce variations in final appearance. It is also advisable to work from a single batch of material since variations can occur from batch to batch. For more information consult Carboline Technical Service Department.
Topcoats	Carbothane® 134 Clear Coat when required

SUBSTRATES & SURFACE PREPARATION

General	Surfaces must be clean and dry. Employ adequate methods to remove dirt, dust, oil and all other contaminants that could interfere with adhesion of the coating. For all surfaces prime with specific Carboline primer as recommended by your Carboline sales representative. Refer to the specific primer's Product Data Sheet for detailed requirements.

SUBSTRATES & SURFACE PREPARATION

Galvanized Steel	Prime with specific Carboline primer as recommended by your Carboline Sales Representative. Refer to the specific primer's Product Data Sheet for substrate preparation requirements.
Previously Painted Surfaces	Lightly sand to roughen and degloss the surface. Existing paint must attain a minimum 3A rating in accordance with ASTM D3359 "X-Scribe" adhesion test.

MIXING & THINNING

Mixing	Power mix Part A separately, then combine with Part B and power mix. DO NOT MIX PARTIAL KITS.
Thinning	Consult your local Carboline representative for a proper thinner recommendation based on your local air permitting regulations and method of application. Use of thinners other than those supplied or recommended by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.
Ratio	4:1 Ratio (A to B)
Pot Life	4 Hours at 75°F (24°C) and less at higher temps. Pot life ends when coating becomes too viscous to use. MOISTURE CONTAMINATION WILL SHORTEN POT LIFE AND CAUSE GELLATION.

APPLICATION EQUIPMENT GUIDELINES

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

Spray Application (General)	This is a high solids coating and may require adjustments in spray techniques. Wet film thickness is easily and quickly achieved. Spray equipment is available from manufacturers such as Binks, DeVilbiss and Graco.
Conventional Spray	Pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, 0.070" I.D. fluid tip and appropriate air cap.
Airless Spray	*Pump Ratio: 30:1 (min.) GPM Output: 3.0 (min.) Material Hose: 3/8" I.D. (min.) Tip Size: 0.015-0.017" Output PSI: 2100-2400 Filter Size: 60 mesh *PTFE packings are recommended and available from the pump manufacturer.
Brush & Roller (General)	Multiple coats may be required to obtain desired appearance, recommended dry film thickness and adequate hiding. Avoid excessive re-brushing or rerolling. For best results, tie-in within 10 minutes at 75°F (24°C).
Brush	Recommended for touch-up only. Use a medium, natural bristle brush.
Roller	Use a short-nap mohair roller cover with phenolic core.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	10°C (50°F)	2°C (35°F)	2°C (35°F)	0%
Maximum	38°C (100°F)	49°C (120°F)	35°C (95°F)	80%

Industry standards are for substrate temperatures to be 5°F(3°C) above the dew point. Caution: This product is moisture sensitive in the liquid stage and until fully cured. Protect from high humidity, dew and moisture contact until fully cured. Application and/or curing in humidities above maximum, or exposure to moisture from rain or dew may result in a loss of gloss and/or micro-bubbling of the product.

CURING SCHEDULE

Surface Temp.	Dry to Handle	Dry to Recoat & Topcoat w/ other finishes	Final Cure General
2°C (35°F)	18 Hours	18 Hours	14 Days
10°C (50°F)	10 Hours	10 Hours	7 Days
24°C (75°F)	4 Hours	4 Hours	3 Days
32°C (90°F)	1 Hour	1 Hour	1 Day

These times are based on a 2.0 mil (50 micron) dry film thickness. Higher film thickness, insufficient ventilation or cooler temperatures will require longer cure times and could result in solvent entrapment and premature failure.
***Maximum recoat times are indefinite.** Surface must be clean and dry. As part of good painting practice it is recommended to test for adhesion by wiping the surface with thinner. If the film shows a slight "tack" the surface is suitable for recoating without extensive surface preparation such as abrading.

CLEANUP & SAFETY

Cleanup	Use Thinner 2 or Acetone. In case of spillage, dispose of in accordance with local applicable regulations.
Safety	Read and follow all caution statements on this product data sheet and on the MSDS for this product and use personal protective equipment as directed.
Ventilation	When used in enclosed areas, thorough air circulation must be used during and after application until the coating is cured. The ventilation system should be capable of preventing the solvent vapor concentration from reaching the lower explosion limit for the solvents used. User should test and monitor exposure levels to insure all personnel are below guidelines. If not able to monitor levels, use MSHA / NIOSH approved respirator.

PACKAGING, HANDLING & STORAGE

Shelf Life	Part A: Min. 24 months at 75°F (24°C) Part B: Min. 24 months at 75°F (24°C) *Shelf Life: when kept at recommended storage conditions and in original unopened containers.
Storage Temperature & Humidity	40° -110°F (4°-43°C) 0-80% Relative Humidity
Flash Point (Setaflash)	Carbothane 134 HP (Part A): 90°F (32°C) Urethane Converter (Part B): 127°F (53°C)
Storage	Store Indoors.

PACKAGING, HANDLING & STORAGE

This product is solvent based and not affected by excursions below these published storage temperatures, down to 10°F, for a duration of no more than 14 days. Always inspect the product prior to use to make sure it is smooth and homogeneous when properly mixed.

WARRANTY

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Carbozinc 858

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	Two-components zinc filled, cross-linked epoxy primer.
Description	Carbozinc 858 is a high solid, organic zinc epoxy primer designed for corrosion protection of structural steel in salt and weathering environments. The paint is easy to apply and protects steel galvanically. Provides tough and abrasion resistant film.
Features	• Outstanding application properties • Protects steel galvanically • Cures at low temperatures down to 2°C • Cured film is tough and abrasion resistant • Widely used within petrochemical-, offshore shipping- and other heavy industries in severe environments with appropriate topcoat • No induction time • Prequalified in accordance with NORSOK M-501, Rev.6 System 1. • **N.B. an applied film of 90 microns DFT of Carbozinc 858 achieved accredited test certification for NORSOK M-501, Rev 4 System 1.**
Color	Bluish grey Green
Finish	Flat
Wet Film Thickness	80 - 230 µm per coat.
Dry Film Thickness	50 - 150 microns (1.95 - 5.9 mils) per coat
Solid(s) Content	By volume: 65 ± 2% Zinc content in dry film: 84 %
Theoretical Coverage Rates	13 m²/l at 50 µm 4,3 m²/l at 150 µm Allow for loss in mixing and application.
Dry Temp. Resistance	Continuous: 150°C (302°F) Non-Continuous: 200°C (392°F)
Limitations	Not recommended for direct exposure to strong acids and alkalies.
Topcoats	May be topcoated with epoxy, polyurethane or others as recommended by Carboline.

SUBSTRATES & SURFACE PREPARATION

General	Surface must be clean and dry. Employ adequate methods to remove dirt, dust, oil and all other contaminants that could interfere with adhesion of the coating.
Steel	Surface preparation to be minimum St 3 (ISO 8501-1). Alternatively, ultra high pressure water jetting to Nace No. 7 min. C Vis WJ-2. Max flash rust; C Vis WJ-2M.

MIXING & THINNING

Mixing	Power mix separately, then add part B to Part A and power mix well. DO NOT MIX PARTIAL KITS.
Thinning	Normally not required. May be thinned up to 10 % with Carboline Thinner #2.

MIXING & THINNING

Ratio	3 : 1 (A to B) by volume
Pot Life	4 hours at 24°C and longer at lower temperatures.

APPLICATION EQUIPMENT GUIDELINES

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

Airless Spray	Pump ratio: 30:1 (min.) GPM Output: 3.0 (min.) Material Hose: 3/8" I.D. (min.) Tip Size: 0.017-0.021" Output PSI: 2000-2200 (140-160 kg/cm²) Filter Size: 60 mesh Teflon packings are recommended and available from the pump manufacturer
Brush & Roller (General)	Recommended for touch up, stripe coating and hard-to-reach areas
Brush	Recommended using a soft bristle brush.
Roller	Generally not recommended for priming purposes

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	4°C (39°F)	2°C (36°F)	2°C (36°F)	0%
Maximum	30°C (86°F)	50°C (122°F)	45°C (113°F)	95%

CURING SCHEDULE

Surface Temp.	Dry to Handle or Recoat	Final Cure
2°C (36°F)	8 Hours	10 Days
10°C (50°F)	5 Hours	5 Days
24°C (75°F)	2 Hours	3 Days
32°C (90°F)	1 Hour	2 Days

CLEANUP & SAFETY

Cleanup	Use Carboline Thinner #2 or Acetone. In case of spillage, absorb and dispose of in accordance with local applicable regulations.
Safety	Read and follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions. Hypersensitive persons should wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.
Ventilation	When used in enclosed areas, thorough air circulation must be used during and after application until the coating is cured. The ventilation system should be capable of preventing the solvent vapor concentration from reaching the lower explosion limit for the solvents used.

CLEANUP & SAFETY

Caution	This product contains flammable solvents. Keep away from sparks and open flames. All electrical equipment and installations should be made and grounded in accordance with applicable regulations. In areas where explosion hazards exist, workmen should be required to use non-ferrous tools and wear conductive and non-sparking shoes.

PACKAGING, HANDLING & STORAGE

Shelf Life	Part A: 9 months (24°C) Part B: 2 years (24°C)
Storage Temperature & Humidity	5° - 45°C 0 - 95% relative humidity
Storage	Store indoors.
Packaging	Part A 7,5 litres Part B 2,5 litres

WARRANTY

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Rapporto di prova n. R-AX-561-0711-02B

RESISTIVITA' SUPERFICIALE

Committente	**CARBOLINE ITALIA S.p.a.** Via Milano, 150 20093 Cologno Monzese
Oggetto	**Provini materiale metallico con rivestimento isolante** Marca: **----** Denominazione materiale: **CARBOMASTIC 15 LT ATEX** Riferimento: n. identificativo ELETTRA **11142 A-B-C**
Norme di riferimento	**EN 60079-0:2007**
Tipologia di prove	**Resistenza superficiale**

Revisione	**2°**	Data emissione	**06/12/2011**
Stesura:	**Ing. L. Spinelli**	Approvazione:	**Ing. L. Spinelli**

Timbro

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Certificate ISO 9001:2000; ISO 17025:2005

Notified Body Directive
2006/95/CE
2004/108/CE

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1. SCOPO

Il presente documento è stato redatto con lo scopo di documentare le prove di resistenza superficiale condotte sui provini in oggetto, in accordo ai requisiti della norma presa come riferimento.

Lo svolgimento delle prove è stato eseguito nelle condizioni e con le metodologie definite dalle normative applicabili ed i risultati da esse derivanti sono stati riportati nel presente documento. L'analisi qui svolta riguarda il provino nelle condizioni di consegna dal committente; in particolare sono stati utilizzati n.3 campioni per tipo di provino prelevati dal committente relativamente al materiale metallico verniciato

I risultati delle misure riportati nel presente documento si riferiscono esclusivamente all'esemplare esaminato e nelle condizioni di misura specificate. Qualsiasi estensione dei risultati ad altri campioni o ad altre condizioni di misura è fuori degli scopi di questo documento.

2. IDENTIFICAZIONE DELL'OGGETTO IN PROVA

- Provino:	**Materiale metallico verniciato**
- Costruttore:	**Carboline Italia s.p.a.**
- Tipo materiale:	**CARBOMASTIC 15 LT ATEX**
- Numero di riferimento:	**11142 A-B-C;**
- Spessore:	**3,6mm**
- Lunghezza e larghezza:	**100x200mm**
- N. provini:	**3 per tipo**
- Data ricevimento provini:	**27/07/2011**
- Data esecuzione prove:	**29/07/2011÷30/07/2011**

Foto provini

CARBOMASTIC 15 LT ATEX



3 . DIRETTIVE E NORMATIVE DI RIFERIMENTO

CEI EN 60079-0:2007	Costruzioni elettriche per atmosfere esplosive per la presenza di Gas Parte 0: Regole generali. 2° edizione. 2007

4. VERIFICHE ED ANALISI DI CONFORMITÀ

Le prove sono state condotte su n. 3 provini per tipo, di dimensioni 200x100 mm circa, spessore 3,6mm, di metallo verniciato, contraddistinti dal numero ELETTRA 11142A-B-C. I provini sono stati preventivamente puliti con acqua distillata, poi con alcool isopropilico e poi nuovamente con acqua distillata. I provini sono stati mantenuti in equilibrio con l'ambiente per 48h La temperatura e l'umidità ambiente di laboratorio si sono mantenute entro 23 ± 3°C - 45 ± 10% .

4.1 Prova resistenza superficiale

Norme di riferimento:
- Specifica di base: EN 60079-0 par. 26.13

Strumenti utilizzati
- Calibratore Fluke 5100B sn 4700010
Data scadenza taratura: 29/12/2011 (certificato Elettra 107/10)

- Multimetro Agilent Technologies 34401A sn US37028187
Data scadenza taratura: 14/07/2012 (Certificato di calibrazione ACCREDIA 8049_2011_ACCRT emesso da Tesi srl)

Modalità di prova
Dopo il precondizionamento sui provini sono stati appoggiati gli elettrodi di misura, a distanza 10mm l'uno dall'altro, disposti parallelamente lungo l'asse maggiore del provino. Ai provini è stata applicata la tensione di 500V in tensione continua e rilevato il valore di corrente. La prova è stata ripetuta invertendo la polarità delal tensione di prova ed assumendo il valore medio delle due letture.

Incertezze di misura (a 2σ)

5%

Risultati:

CARBOMASTIC 15 LT ATEX

Provino 1	Provino 2	Provino 3
0 MΩ	0 MΩ	0 MΩ

FACTORY ACCEPTANCE TEST POCEDURE INCLUDING HYDROSTATIC TEST PROCEDURE

Base Load Power Hub (BLPH)

FACTORY ACCEPTANCE TEST PROCEDURE including HYDROSTATIC TEST PROCEDURE

Document Number: 1724000518-QC-PRO-00006

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	15-07-2024

Rev.	Date	Description	Prepared	Reviewed	Approved
02	28/06/2024	Accepted for Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
01	21/05/2024	Accepted for Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
00	22/03/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.

technical

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		00	01						
1	Cover	X	X						
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3	Revision / Change Log	X	X						
4 ÷ 15	FACTORY ACCEPTANCE TEST PROCEDURE (il-42)	X	X						
16 ÷ 21	HYDROSTATIC TEST PROCEDURE (IL-10)	X	X						

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Revision / Change Log

Rev.	Description
00	ISSUE FOR REVIEW (IFR)
01	ACCEPTED FOR CONSTRUCTION (AFC)
02	ACCEPTED FOR CONSTRUCTION (AFC)

HOLDS LIST

No.	Description
1.	
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REV	DATA - *DATE*	DESCRIZIONE- *DESCRIPTION*	PREPARATO-*PREPARED*	EMESSO-*ISSUED*	APPROVATO -*APPROVED*
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1 SCOPO

La presente procedura ha lo scopo di regolare le attività di prova di taratura e tenuta delle valvole di sicurezza sia convenzionali che pilotate.
Le serie interessate sono le seguenti:

- 10000
- 20000
- 30000
- 30000P
- 4000
- SV 10001
- SV 5001

. *SCOPE*

The purpose of this procedure is to govern set pressure and tightness testing for both conventional and pilot operated safety valves.
The series of valves involved are as follows:

- 10000
- 20000
- 30000
- 30000P
- 4000
- SV 10001
- SV 5001

2 RIFERIMENTI

Di seguito vengono riportate le normative e i documenti considerati come riferimento.

. *REFERENCES*

The following standards and documents are to be considered for reference:

API 527	Seat Tightness of Pressure Relief Valves
API 526	Flanged Steel Pressure-Relief Valves
EN 4126-1	Safety devices for protection against excessive pressure – Part 1 Safety valves
EN 4126-4	Safety devices for protection against excessive pressure – Part 4 Pilot operated Safety valves
ASME BPVC VIII-1	Section VIII - Rules for Construction of Pressure Vessels – Division 1
ASME BPVC XIII	Section XIII – Rules for Overpressure Protection

3 SICUREZZA

Tutte le attività devono essere svolte da personale adeguatamente istruito sui rischi legati ai fluidi in pressione. Particolare attenzione va posta durante l'esecuzione dei test con aria compressa.

I test vengono comunque sempre svolti su componenti che hanno già superato le prove idrauliche a pressioni superiori di almeno il 50% rispetto alle massime pressioni delle prove di taratura.

. *SAFETY*

All activities must be carried out by personnel adequately trained in the risks of handling pressurised fluids. Special care and attention must be paid during the tests with compressed air.

The tests are, in any case, carried out on components that have already passed the hydraulic tests at pressures at least 50% higher than the maximum set pressures.

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4 CONTROLLI PRELIMINARI

4.1 DOCUMENTAZIONE

Tutti i dati relativi ai parametri di prova sono riportati nella Dichiarazione di Costruzione Interna di produzione (Dichiarazione). La Dichiarazione deve essere sempre a disposizione dell'operatore prima di procedere con le prove.

Prima di procedere con le prove della valvola, l'operatore deve indicare sulla Dichiarazione i numeri di colata dei particolari per garantirne la tracciabilità.

. *PRELIMINARY CHECKS*

. *DOCUMENTATION*

All data relating to test parameters are reported on Internal Construction Declaration (Declaration). The Declaration shall always be available to the operator before proceeding with the tests.

Before testing the valves, the operator shall write the heat number of the parts in the Declaration to ensure traceability.

4.2 CONFORMITÀ DEI DATI DELLA TARGHETTA

L'operatore deve verificare che la targhetta fissata sulle valvole sia stata correttamente compilata con dati che devono essere identici a quelli riportati sulla Dichiarazione.

. *NAMEPLATE CHECK*

The operator must check that the nameplate fixed on the valves has been correctly filled out with data-that must be identical to those written on the Declaration.

4.3 CONTROLLO VISIVO DIMENSIONALE

Dopo aver controllato i dati relativi alla targhetta e verificato la conformità con quanto scritto sulla Dichiarazione, si può procedere al controllo dimensionale verificando:

a) Le dimensioni di scartamento (in ingresso ed in uscita), come definito nel disegno dimensionale;

b) Dimensioni complessive, come definito nel disegno dimensionale;

c) Mancanza di danni o difetti sulla superficie delle valvole.

. *VISUAL AND DIMENSIONAL CHECK*

After checking the nameplate data and their compliance with the Declaration, the operator can proceed to the dimensional check by verifying:

a. The centre-to-face dimensions (input and output), as defined in dimensional drawing;

b. Total dimensions, as defined in the dimensional drawing;

c. Lack of damage or defects on the valve surface.

5 MANOMETRI

Il manometro indicato nella Dichiarazione è selezionato in modo da garantire la corretta precisione in relazione al valore della pressione da misurare, in accordo alla seguente tabella che definisce il manometro da usare per ciascun campo di pressione:

. *PRESSURE GAUGES*

The pressure gauge given in the Declaration is selected in order to guarantee the correct accuracy for the pressure value to be measured, in accordance with the following tables which defines the gauges to be used for each pressure range:

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CODICE MANOMETRO *PRESSURE GAUGE CODE*	FONDO SCALA *FULL-SCALE*	CLASSE *CLASS*	CAMPO DI PRESSIONE *PRESSURE RANGE*
-	bar	-	bar
C23-001-XX	0 – 2,5	0,5%	0,5 – 1,8
C23-002-XX	0 – 6	0,5%	1,8 – 4,5
C23-003-XX	0 – 16	0,5%	4,5 – 12
C23-004-XX	0 – 25	0,5%	12 – 18
C23-008-XX	0 – 60	0,5%	18 – 45
C23-007-XX	0 – 100	0,5%	45 – 75
C23-006-XX	0 – 250	0,5%	75 – 185
C23-005-XX	0 – 400	0,5%	185 – 300
C24-004-XX	0 – 600	1%	300 - 450
C24-005-XX	0 – 1000	1%	450 – 750
C24-006-XX	0-2500	1%	625-1870
C23-009-XX	0-3000	0.5%	750-2250

6 PROVA PRESSIONE DI TARATURA

6.1 DEFINIZIONE DI "PRESSIONE DI TARATURA"

I criteri per la definizione della pressione di taratura sono riassunti nella seguente tabella:

FLUIDO DI PROVA	PRESSIONE DI TARATURA
Gas	Primo scarico udibile
Vapore	Primo scarico udibile
Liquido	Primo flusso stabile

Primo scarico udibile:

È la pressione statica di ingresso alla quale l'operatore sente la prima perdita udibile.

Primo flusso stabile:

È la pressione statica di ingresso che genera un flusso stabile di acqua rilevabile all'uscita della valvola. Il flusso deve staccarsi perpendicolarmente del raccordo di uscita.

. *SET PRESSURE TEST*

. *SET PRESSURE DEFINITION*

Criteria for set pressure definition are summarized in the table below.

TEST MEDIUM	SET PRESSURE
Gas	Initial audible discharge
Vapour	Initial audible discharge
Liquid	First steady stream

Initial audible discharge:

It is the static inlet static pressure at which the operator hears the initial audible discharge.

Initial stable stream:

It is the static inlet pressure generates a stable flow of water detectable at the valve outlet. The flow must be perpendicular to the outlet connection.

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6.2 FLUIDO

Il fluido di prova viene selezionato in base alla seguente tabella. Il fluido di prova è riportato sulla Dichiarazione.

FLUIDO DI PROCESSO	FLUIDO DI PROVA
Gas	Aria
Vapore	Aria
Liquido	Acqua
Bifase	Acqua o aria secondo fluido riportato sulla Dichiarazione

. *MEDIUM*

The test medium is selected in accordance with the following table. The test medium is reported on the Declaration.

PROCESS MEDIUM	TEST MEDIUM
Gas	Air
Vapour	Air
Liquid	Water
Biphase	Water or Air according to the fluid stated in the Declaration

6.3 VALVOLE CON ANELLO DI BLOWDOWN

Nel caso la valvola di sicurezza fosse dotata di anello di regolazione (anello di blowdown), prima di tarare la valvola si dovrà svitare l'anello di blowdown effettuando almeno due giri. (si vedranno i denti dell'anello andare verso sinistra). Una volta eseguiti i test l'anello di blowdown dovrà essere regolato come da tabelle di prodotto, partendo dalla posizione a contatto con il portaotturatore.

. *VALVES WITH BLOWDOWN RING*

If the safety valve is provided with a blowdown ring, before setting test and tightness test, the blowdown ring must be unscrewed by making at least two turns. (you will see the teeth of the ring going to the left). Once the tests have been performed, the blowdown ring must be adjusted, according to the product tables, starting from the position in contact with the disc-holder.

6.4 TARATURA AL BANCO

La pressione di taratura al banco è definita come CDTP (Cold Differential Test Pressure). La CDTP tiene conto degli effetti della contropressione e/o della temperatura e viene riportata sulla Dichiarazione.

Dopo aver montato la valvola sul banco di prova, l'operatore aumenta la pressione statica in ingresso fino a raggiungere la pressione di taratura della valvola.

Se il valore della pressione di taratura rilevato è diverso da quello indicato nella Dichiarazione, l'operatore scarica la pressione, regola la vite di taratura e ripete l'operazione fino ad ottenere la giusta pressione di taratura.

Una volta ottenuta la pressione di taratura richiesta si procede con la prova della pressione di taratura

. *SETTING ON THE BENCH*

The set pressure on the bench is defined as CDTP (Cold Differential Test Pressure). The CDTP takes into account the effects of backpressure and/or temperature and it is reported on the Declaration.

After mounting the valve into the test bench, the operator increases the inlet static pressure until valve set pressure is reached.

If the measured set pressure value differs from that stated in the Declaration, the operator relieves the pressure, adjust the calibration screw and repeats the operation until the correct set pressure is obtained.

Once the required setpressure is obtained, proceed with the calibration pressure test

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6.5 PROVA DELLA PRESSIONE DI TARATURA E CRITERI DI ACCETTABILITA'

Se non è già sul banco di prova, l'operatore monta la valvola sul banco di prova.

L'operatore aumenta la pressione statica in ingresso fino a raggiungere la pressione di taratura della valvola e verifica che il valore misurato sia entro i limiti ammissibili indicati. L'operatore rilascia quindi la pressione e ripete altre due volte la stessa operazione per verificare la ripetibilità delle prestazioni.

Tutti i 3 valori misurati durante la prova devono rientrare nei limiti ammissibili calcolati rispetto al CDTP nominale, come sotto indicato:

PRESSIONE DI TARATURA	LIMITI AMMISSIBILI
Se CDTP < 4 bar	± 0,1 bar
Se CDTP ≥ 4 bar	±3% del CDTP

I valori misurati nella seconda e terza prova, oltre ai limiti sopra indicati, devono rientrare nei limiti ammissibili calcolati rispetto alla prima pressione di taratura rilevata come sotto indicato:

PRESSIONE DI TARATURA	LIMITI AMMISSIBILI
Se CDTP < 4 bar	± 0,1 bar
Se CDTP ≥ 4 bar	±1% del CDTP

Quando la prova viene eseguita su una valvola di sicurezza che non è stata pressurizzata per un lungo tempo, potrebbero verificarsi fenomeni di incollamento tra la sede dell'ugello e la sede del disco che falsano la prima apertura della valvola, risultando superiore alla pressione nominale di taratura. Per questo motivo, in questo caso, la prova di pressione di taratura deve essere eseguita almeno 4 volte e la prima apertura della valvola deve essere scartata.

. *SET PRESSURE TEST AND ACCEPTANCE CRITERIA*

If not already on the test bench, the operator mounts the valve on the test bench.

The operator increases the static inlet pressure until the valve set pressure is reached and verifies that the measured value is within the indicated allowable limits. The operator then releases the pressure and repeats the same operation twice more to verify repeatable performance.

All three values measured during the test shall be within the allowable limits calculated from nominal CDTP as shown below:

SET PRESSURE	ALLOWABLE LIMITS
If CDTP < 4 bar	± 0,1 bar
If CDTP ≥ 4 bar	±3% of the CDTP

The values measured in the second and third tests, in addition to the above limits, must be within the allowable limits calculated from the first measured set pressures indicated below:

SET PRESSURE	ALLOWABLE LIMITS
If CDTP < 4 bar	± 0,1 bar
If CDTP ≥ 4 bar	±1 % of the CDTP

When the test is carried out on a safety valve that has not been pressurized for a long time, there could be sticking phenomena between the nozzle seat and the disc seat which distort the first opening of the valve, resulting higher than the nominal set pressure. For this reason, in this case, the set pressure test shall be performed at least four times and the first valve opening shall be discarded.

7 PROVA DI TENUTA

7.1 FLUIDO

Il fluido è lo stesso usato per il test di taratura

. *SEAT TIGHTNESS TEST*

. *MEDIUM*

The medium is the same used for set pressure test.

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7.2 TENUTA DELLA SEDE CON ACQUA

La prova di tenuta della sede deve essere eseguita per controllare la tenuta tra boccaglio ed otturatore. Questa prova è applicabile sia alla sede metallica che alla sede soffice/resiliente.

La valvola deve essere montata verticalmente sul banco prova e la perdita deve essere valutata misurando la quantità d'acqua raccolta nel cilindro graduato nell'unità di tempo.

. *SEAT TIGHTNESS WITH WATER*

The seat tightness test must be performed to check the tightness between nozzle and disc. This test is applicable to both the metal to metal seat and the soft / resilient seat.

The valve must be mounted vertically on the test bench and the leakage must be calculated by measuring the water quantity collected in the graduated cylinder per unit of time.

7.3 TENUTA DELLA SEDE CON ARIA

La prova di tenuta della sede deve essere eseguita per controllare la tenuta tra boccaglio ed otturatore. Questa prova è applicabile sia alla sede metallica che alla sede soffice / resiliente.

La valvola deve essere montata verticalmente sul banco di prova; l'apparecchiatura di prova, descritta nella figura 1, deve essere collegata all'uscita della valvola e tutte le aperture (prese d'aria, foro di scarico, coperchio aperto) devono essere chiuse.

. *SEAT TIGHTNESS WITH AIR*

The seat tightness test shall be performed to check the tightness between nozzle and disc. This test is applicable to both metal to metal seat and the soft / resilient seat.

The valve shall be vertically mounted on the test bench; the test apparatus described in Figure 1 shall be connected to the valve outlet and all openings (vents, drain hole, open bonnet, yoke) shall be closed.

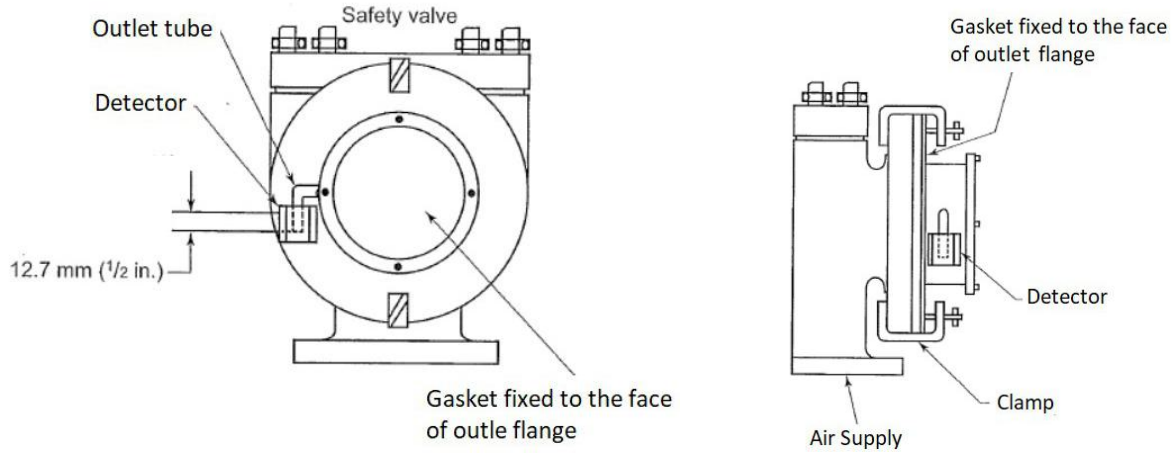


Figura 1 configurazione del test di tenuta con aria

Figure 1 *Test configuration for air leakage test*

Nel caso di una valvola di sicurezza convenzionale con coperchio aperto, il coperchio deve essere sigillato con una copertura di chiusura adeguata e tutte le aperture e le superfici di interfaccia devono essere controllate con un rilevatore di perdite.

Le perdite devono essere misurate utilizzando un tubo con

In case of conventional safety valve with open bonnet, the bonnet shall be sealed with a suitable sealing tape and all the openings and interface surfaces shall be checked with a leakage detector.

Leakage shall be measured using a tube with an outside diameter of 7.9 mm and wall thickness of 0.89

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un diametro esterno di 7,9 mm e spessore 0,89 mm. L'apertura del tubo deve trovarsi 12,7 mm al di sotto della superficie dell'acqua e deve essere perpendicolare alla superficie dell'acqua.

mm. The tube opening shall be 12,7 mm below the water surface and shall be perpendicular to the water surface.

7.4 PRESSIONE DI TENUTA

Dopo aver fissato la CDTP l'operatore verifica la tenuta al 90% della CDTP o, nel caso in cui la CDTP sia inferiore a 3,45 bar , ad una pressione pari alla CDTP meno 0,345 bar.

La prova di tenuta deve essere eseguita dopo la prova di taratura. L'operatore diminuisce la pressione in ingresso fino alla chiusura della valvola, successivamente aumenta la pressione fino a raggiungere la pressione stabilita per la prova di tenuta.

. *TEST PRESSURE*

After having fixed the CDTP the operator checks the tightness at 90% of CDTP or, in case of CDTP lower than 3,45 bar, at a pressure equal to CDTP minus 0,345 bar.

The tightness test shall be performed after the set pressure test. The operator shall decrease the inlet pressure until the valve closing and then shall increase the pressure up to the established test pressure for tightness test.

7.5 CRITERI DI ACCETTABILITÀ

I tempi minimi e le perdite accettabili sono in accordo alla API 527.

. *ACCEPTANCE CRITERIA*

The minimum time and the maximum leakage rate are according to API 527 .

TENUTA METALLO SU METALLO *METAL TO METAL SEAT*		
FLUIDO *MEDIUM*	**Orifizio "F" o inferiore** *Orifice equal to "F" and smaller*	**Orifizio superiore a "F"** *Orifice larger than "F"*
ARIA *AIR*	max 40 bolle/minuto (durata minima della prova: 1 minuto) *max 40 bubbles/minute (test duration minimum 1 minute)*	max 20 bolle/minuto (durata minima della prova: 1 minuto) *max 20 bubbles/minute (test duration minimum 1 minute)*
ACQUA *WATER*	Per la dimensione della flangia in ingresso < 1" → max 10 cm^3/h Per la dimensione della flangia in ingresso ≥ 1" → max 10 cm^3/h/pollici (*) (*) dimensione in pollici della flangia di ingresso (durata minima della prova: 1 minuto) *For inlet flange size < 1", max 10 cm^3/h* *For inlet flange size ≥ 1", max 10 cm^3/h/inch (*)* *(*) Outlet flange [inch] (test duration minimum 1 minute)*	
TENUTA SEDE SOFFICE *SOFT SEAT*		
FLUIDO *MEDIUM*	**Orifizio "F" o inferiore** *Orifice equal to "F" and smaller*	**Orifizio superiore a "F"** *Orifice larger than "F"*
ARIA *AIR*	0 bolle in 1 minuto *0 bubble in 1 minute*	
ACQUA *WATER*	Nessuna perdita rilevabile in 1 minuto *No detectable leakage in 1 minute*	

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Prima di contare le bolle, la pressione deve essere applicata come riportato in tabella:

Before bubble count, the set pressure shall be applied for the following duration:

ATTACCO DI USCITA DELLA VALVOLA *VALVE OUTLET CONNECTION*	DURATA *DURATION*
≤ 2”	1 min.
2” < x ≤ 4”	2 min.
>4”	5 min.

7.6 TEST SU GUARNIZIONI DI TENUTA (SOLO PER VALVOLE PILOTATE)

Nel caso di valvole di sicurezza pilotate, tutte le guarnizioni di pressione tra la valvola, la linea di carico/scarico e la linea di rilevamento devono essere sottoposte a prova di tenuta. Mantenere per 1 minuto al 90% del CDTP o 0,5 bar, a seconda di quale sia il valore maggiore, utilizzando aria. Le perdite non sono accettabili.

. *TEST ON PRESSURE SEALS (PILOT OPERATED VALVES ONLY)*

In case of pilot operated safety valves all pressure seals between valve, loading/unloading line sensing line shall be leak tested. Hold for 1 min at 90% of CDTP or 0.5 bar whichever is the greater, using air. No leakage is allowed.

8 PROVA DI TENUTA ZONA SECONDARIA

. *SECONDARY ZONE TEST*

8.1 ZONA DI PROVA SECONDARIA

La prova in pressione della zona secondaria verifica la tenuta dell'involucro della valvola. L'involucro è costituito da corpo, coperchio, cappello, boccaglio, otturatore e guarnizioni.

La pressione di prova viene applicata all'attacco di uscita

.

. *SECONDARY ZONE TEST*

Secondary zone test is performed to check the tightness of the valve envelope under pressure. The envelope includes nozzle, body, bonnet, cap and gaskets.

Pressure is applied to the outlet connection.

8.2 FLUIDO

Aria.

. *MEDIUM*

Air.

8.3 APPLICABILITÀ

La prova di tenuta della zona secondaria è applicabile solo per valvole con ingresso maggiore di DN 25 (1”) con coperchio chiuso o bilanciate.

. *APPLICABILITY*

Secondary zone test is applicable only to valves that have an inlet size exceeding DN25 (1”) with closed-bonnet or balanced.

8.4 PRESSIONE DI PROVA

La valvola viene pressurizzata, collegando l'attacco di uscita al banco prova, alla pressione indicata di seguito:

. *TEST PRESSURE*

Pressurize the outlet flange at the pressure indicated below:

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I. Se sulla Dichiarazione è riportato un valore di contropressione, la prova deve essere eseguita pressurizzando la flangia di uscita ad una pressione uguale alla contropressione indicata sul documento e comunque non inferiore a 2 bar

II. Se sulla Dichiarazione non è riportato nessun valore di contropressione, la prova deve essere eseguita con una pressione pari a 2 bar.

I. if backpressure value is reported on Declaration, test shall be performed pressurizing the outlet flange at a pressure equal to the backpressure value indicated on document and in any case not less than 2 bar.

II. If no backpressure value is reported on Declaration, test shall be performed with a pressure equal to 2 bar.

8.5 CRITERI DI ACCETTABILITÀ

La tenuta delle guarnizioni deve essere controllata per almeno un minuto con un rilevatore di perdite (ad esempio la soluzione spray di acqua e sapone). Nessuna perdita è ammessa.

. *ACCEPTANCE CRITERIA*

Gasket tightness shall be checked with leakage detector (for example soap solution spray) for a time of 1 minute. No leakage is permitted.

9 DICHIARAZIONE DI COSTRUZIONE

Dopo aver eseguito tutte le prove e tutti i controlli con risultati soddisfacenti, viene emessa la documentazione finale con tutte le informazioni rilevanti della valvola.

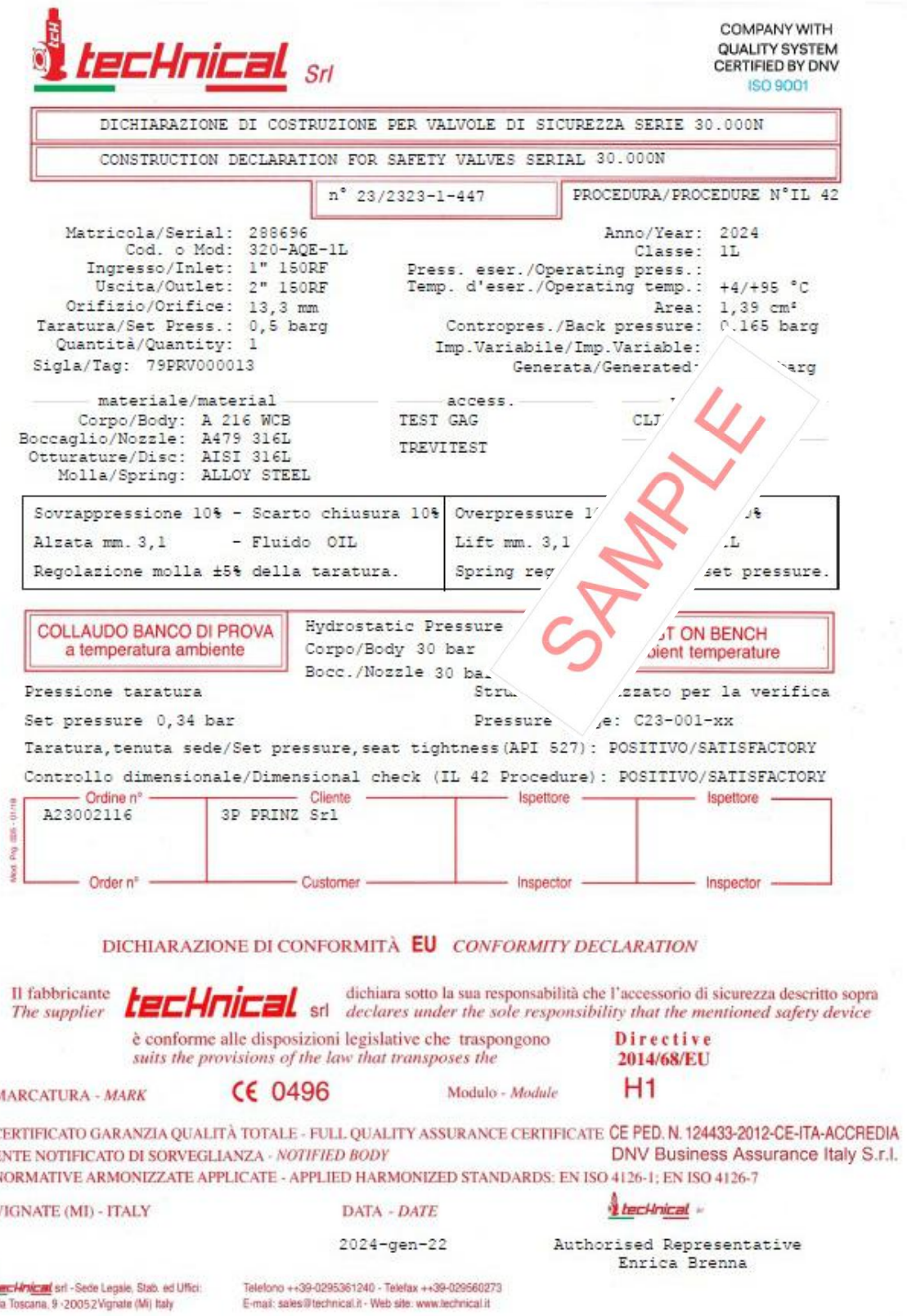
Questo documento è la Dichiarazione di Costruzione e Conformità, la quale ha due differenti formati a seconda della certificazione da fornire (Di seguito sono riportati gli esempi: figura 2 e 3).

. *CONSTRUCTION DECLARATION*

After performing all tests with satisfactory results, final documentation shall be issued with all the relevant valve info.

This document is the Construction and Conformity Declaration, which has two different formats depending on certification to be provided (samples here below provided, figures 2 & 3).

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tecHnical Srl

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001

DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 23/2323-1-447 — PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial: 288696 — Anno/Year: 2024
Cod. o Mod: 320-AQE-1L — Classe: 1L
Ingresso/Inlet: 1" 150RF — Press. eser./Operating press.:
Uscita/Outlet: 2" 150RF — Temp. d'eser./Operating temp.: +4/+95 °C
Orifizio/Orifice: 13,3 mm — Area: 1,39 cm²
Taratura/Set Press.: 0,5 barg — Contropres./Back pressure: 0.165 barg
Quantità/Quantity: 1 — Imp.Variabile/Imp.Variable:
Sigla/Tag: 79PRV000013 — Generata/Generated: barg

materiale/material — access.

Corpo/Body: A 216 WCB — TEST GAG — CLJ
Boccaglio/Nozzle: A479 316L — TREVITEST
Otturatore/Disc: AISI 316L
Molla/Spring: ALLOY STEEL

Sovrappressione 10% - Scarto chiusura 10%	Overpressure 1/ /%
Alzata mm. 3,1 - Fluido OIL	Lift mm. 3,1 .L
Regolazione molla ±5% della taratura.	Spring reg set pressure.

COLLAUDO BANCO DI PROVA a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 30 ba

T ON BENCH
ient temperature

Pressione taratura — Stru zzato per la verifica
Set pressure 0,34 bar — Pressure e: C23-001-xx
Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY
Controllo dimensionale/Dimensional check (IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n° / Order n°	Cliente / Customer	Ispettore / Inspector	Ispettore / Inspector
A23002116	3P PRINZ Srl		

SAMPLE

DICHIARAZIONE DI CONFORMITÀ EU *CONFORMITY DECLARATION*

Il fabbricante *The supplier* tecHnical srl dichiara sotto la sua responsabilità che l'accessorio di sicurezza descritto sopra *declares under the sole responsibility that the mentioned safety device*

è conforme alle disposizioni legislative che traspongono *suits the provisions of the law that transposes the* **Directive 2014/68/EU**

MARCATURA - *MARK* CE 0496 Modulo - *Module* H1

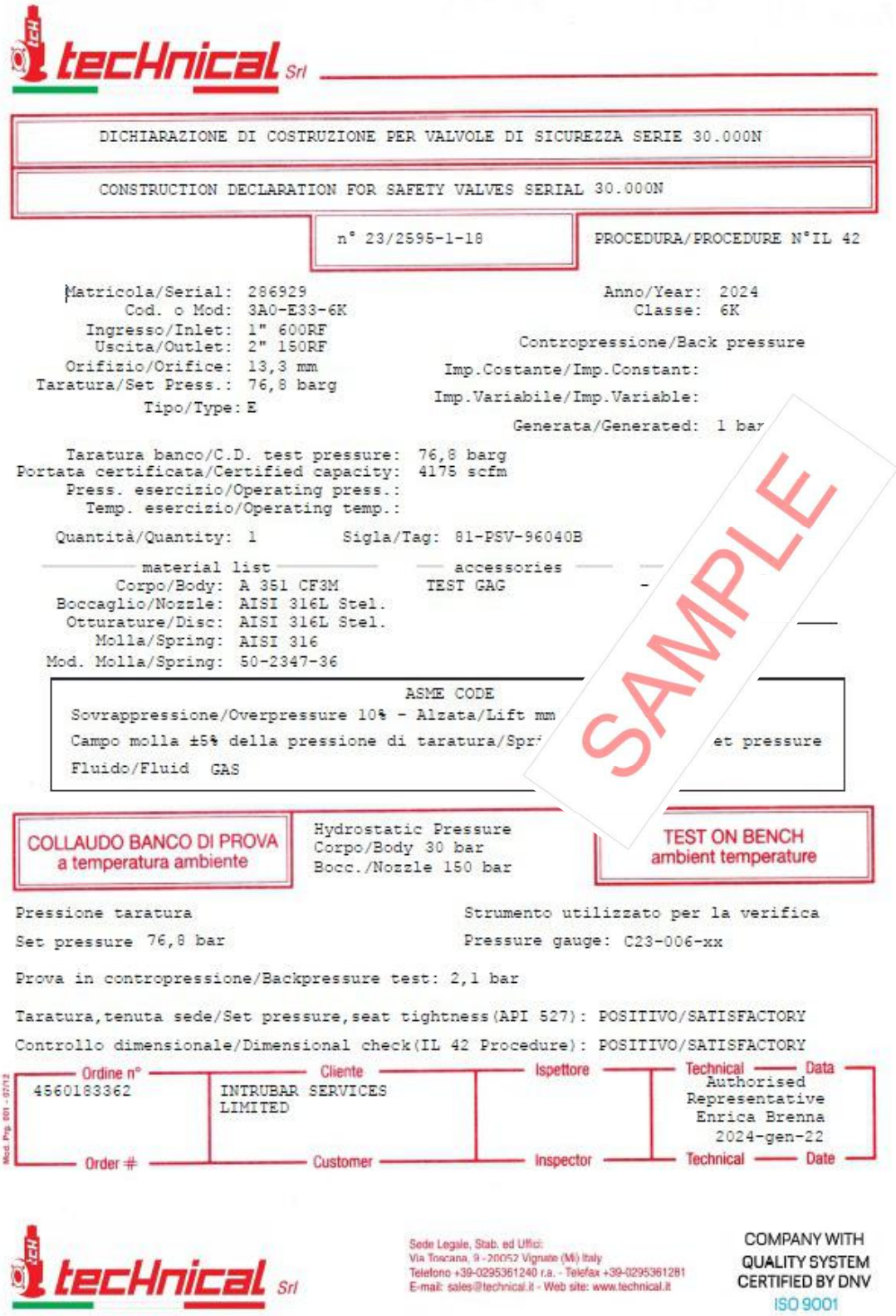
CERTIFICATO GARANZIA QUALITÀ TOTALE - FULL QUALITY ASSURANCE CERTIFICATE CE PED. N. 124433-2012-CE-ITA-ACCREDIA
ENTE NOTIFICATO DI SORVEGLIANZA - *NOTIFIED BODY* DNV Business Assurance Italy S.r.l.
NORMATIVE ARMONIZZATE APPLICATE - APPLIED HARMONIZED STANDARDS: EN ISO 4126-1; EN ISO 4126-7

VIGNATE (MI) - ITALY — DATA - *DATE* 2024-gen-22 — tecHnical srl Authorised Representative Enrica Brenna

tecHnical srl - Sede Legale, Stab. ed Uffici: Via Toscana, 9 - 20052 Vignate (Mi) Italy
Telefono ++39-0295361240 - Telefax ++39-029560273
E-mail: sales@technical.it - Web site: www.technical.it

Figura 2: Esempio della Dichiarazione di Costruzione e Conformità PED
Figure 2: *Sample of Declaration of Conformity and Construction (PED)*

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tecHnical Srl

DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 23/2595-1-18 — PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial: 286929 — Anno/Year: 2024
Cod. o Mod: 3A0-E33-6K — Classe: 6K
Ingresso/Inlet: 1" 600RF
Uscita/Outlet: 2" 150RF
Orifizio/Orifice: 13,3 mm
Taratura/Set Press.: 76,8 barg
Tipo/Type: E

Contropressione/Back pressure
Imp.Costante/Imp.Constant:
Imp.Variabile/Imp.Variable:
Generata/Generated: 1 bar

Taratura banco/C.D. test pressure: 76,8 barg
Portata certificata/Certified capacity: 4175 scfm
Press. esercizio/Operating press.:
Temp. esercizio/Operating temp.:

Quantità/Quantity: 1 — Sigla/Tag: 81-PSV-96040B

material list
Corpo/Body: A 351 CF3M
Boccaglio/Nozzle: AISI 316L Stel.
Otturature/Disc: AISI 316L Stel.
Molla/Spring: AISI 316
Mod. Molla/Spring: 50-2347-36

accessories
TEST GAG -

ASME CODE
Sovrappressione/Overpressure 10% - Alzata/Lift mm
Campo molla ±5% della pressione di taratura/Spri... et pressure
Fluido/Fluid GAS

SAMPLE

COLLAUDO BANCO DI PROVA a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 150 bar

TEST ON BENCH ambient temperature

Pressione taratura
Set pressure 76,8 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-006-xx

Prova in contropressione/Backpressure test: 2,1 bar

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY
Controllo dimensionale/Dimensional check(IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n° / Order #	Cliente / Customer	Ispettore / Inspector	Technical / Data
4560183362	INTRUBAR SERVICES LIMITED		Authorised Representative Enrica Brenna 2024-gen-22

tecHnical Srl
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Via Toscana, 9 - 20052 Vignate (Mi) Italy
Telefono +39-0295361240 r.a. - Telefax +39-0295361281
E-mail: sales@technical.it - Web site: www.technical.it
COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001

Figura 3: Esempio della Dichiarazione di Costruzione e Conformità ASME
Figure 3: *Sample of Declaration of Conformity and Construction (ASME)*

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- 9.2 SPT-069 Table for Hydrostatic Test Pressure of Nozzle
- 9.3 Hydrostatic Test Report

Issued by: **TECHNICAL MANAGER**	Issued by: **QUALITY ASSURANCE MANAGER**

1 SCOPE

Hydrostatic test of safety relief valve bodies, bonnets, caps and nozzles subject to pressure, according to ASME B16.34 Code or Pressure Equipment Directive.

2 EQUIPMENT AND AUXILIARY DOCUMENTATION

- Hydrostatic test bench.
- SPT-068 Table for Hydrostatic Test Pressure of Valve Bodies (attached).
- SPT-069 Table for Hydrostatic Test Pressure of Nozzle (attached).
- Hydrostatic Test Report (attached).

The enclosures are only for example, use the last revision SPT Procedures for testings.

3 WATER QUALITY

For all components the hydrostatic test fluid shall be demineralized water with anti-rust oil and must not contain chloride (maximum chloride content of 10 mg/l).
All components shall be drained immediately after the test and shall be thoroughly dried immediately after draining.

4 TEST METHOD

The operator proceeds as follows:

a) check the component to be tested for correct identification and marking;
b) verify that the component to be tested is clean and dry, otherwise wash and dry it;
c) install the part on the hydrostatic test bench;
d) close the free opening with the equipped flanges;
e) pressurize the component for at least 1 minute until the pressure is stable at the values shown on document SPT-068 (attached) for bodies, bonnets and on document SPT-069 for nozzles (see attached);
f) keep the component under pressure for the duration stated on the applicable SPT;
g) evaluate the acceptability of the component as per the criteria stated at point 4;
h) dry the component and for carbon steel components without surface protection (for example phosphatized, galvanized, nickel plated etc.) apply the protective oil.

5 ACCEPTANCE CRITERIA

It will be acceptable only those components that:
- have not shown deformations during the test
- have not shown leakage of any type, even minor.

6 MARKING

After having checked the component, the operator stamps “HT-A” if it is complying or stamps "HT-R" if it is not complying.

Every lot of tested material is identified with a progressive number, this identifier is put, where it is possible, near the HT number.

Technical identifies the operator who he did the test through the stamp (where it is possible) on the individual component tested, by a personal stamp, assigned through a specific letter.

7 NOT COMPLYING MATERIAL

The Not Complying material shall be segregated in the "MATERIALE NON CONFORME (not complying material)" area and managed according to PG 04 Procedure "CONTROLLO DEI PRODOTTI NON CONFORMI (management of not complying products)".

8 INSTRUMENTATION

The hydrostatic test pressure gauges must have a precision class maximum of 1% and are managed according to IT 03 Procedure "VERIFICA DELLA TARATURA DEGLI STRUMENTI DI MISURA IN UTILIZZO (inspection of the measuring tool calibration in use)".

9 ATTACHMENTS

9.1 SPT-068 Table for Hydrostatic Test Pressure of Valve Bodies

HYDRAULIC PRESSURE TABLE FOR BODIES, BONNETS AND CAPS
SPT – 068-ENG

OUTLET DIAMETER	THREADED		FLANGED 150# PN16		FLANGED 300# PN40	
INCHES - DN	PRESSURE bar	MINIMUM TEST TIME minutes	PRESSURE bar	MINIMUM TEST TIME minutes	PRESSURE bar	MINIMUM TEST TIME minutes
METALLIC MATERIAL						
1/4" - 6	30	1	30	1	80	1
3/8" - 10	30	1	30	1	80	1
1/2" - 15	30	1	30	1	80	1
1" - 25	30	1	30	1	80	1
1.1/2" - 40	30	1	30	1	80	1
2" - 50	30	1	30	1	80	1
2.1/2" - 65	-	-	30	2	80	2
3" - 80	-	-	30	2	80	2
4" - 100	-	-	30	2	80	2
6" - 150	-	-	30	2	80	2
8" - 200	-	-	30	2	-	-
10" - 250	-	-	30	3	-	-
12" - 300	-	-	30	3	-	-
PLASTIC MATERIALS						
3/8" - 1/2"	16	1	16	1	16	1
1"	12	1	12	1	12	1
1 ½" - 2"	8	1	8	1	8	1

DATE: 21/02/2023 **REV.** 04 Addition of PN16 and PN40 bodies	**CONTR. :** **Santi**	**APPR. :** **Delponte**

9.2 SPT-069 Table for hydrostatic test pressure of nozzle.

technical VIGNATE - MILANO

HYDRAULIC PRESSURE TABLE FOR NOZZLES SPT – 069-ENG

CONNECTIONS	MATERIALS					
	AISI 431 AISI 304 AISI 316 AISI 316L AISI 630 F 44 SAF	CUPRAL. MONEL INC.825 HASTEL . TITANIUM	BRONZE	PVC PVC-C PVDF PTFE/GLASS POLYPROPYLENE		
				3/8" 1/2"	1"	1.1/2" 2"
THREADED NPT / GAS up to 150 bar of setting	230 bar	230 bar	80 bar	16 bar	12 bar	8 bar
Over 150 bar of setting test at 1,5 times the set pressure						
FLANGED 150 # / PN 16	30 bar	30 bar	30 bar	16 bar	12 bar	8 bar
FLANGED 300 # / PN 40	80 bar	80 bar	80 bar	16 bar	12 bar	8 bar
FLANGED 600 # / PN 100	150 bar	150 bar	80 bar	16 bar	12 bar	8 bar
FLANGED 900 # / PN 160	230 bar	230 bar	-	-	-	-
FLANGED 1500 # / PN 250	380 bar	-	-	-	-	-
FLANGED PN 320	480 bar	-	-	-	-	-
FLANGED 2500 # / PN 400	630 bar	-	-	-	-	-

NOTE : - Time test 1 minute up to 2"
2 minutes from 2½" to 8"
3 minutes from 10"

DATE: 18/12/2019 REV. 04	CONTR. :	APPR. :

9.3 HYDROSTATIC TEST REPORT

technical VIGNATE - MI - ITALY	RAPPORTO PROVA IDROSTATICA *HYDROSTATIC TEST REPORT*	N° HT

SECONDO - *AS PER* ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
connection		

COLATA *HEAT No.*	
QUANTITA' *QUANTITY*	
SIGLA DELLA PROVA *TEST ITEM*	HT A XXXX 1 ÷ X

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	97 % ACQUA *WATER* 3 % PLURICOOL BIO
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	C26-004-01
PRESSIONE DI PROVA *TEST PRESSURE*	XXX BAR
DURATA DELLA PROVA *TEST DURATION*	XXX SECONDS
SPECIFICA N° *N° SPECIFICATION*	ANSI B16.34 / UNI EN ISO 4126-1
PUNZONE OPERATORE *OPERATOR PUNCH*	
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	IL 10
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//
ESITO DELLA PROVA *TEST RESULT*	☒ conforme *accepted* ☐ non conforme *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE È RISULTATO:
Visual and Dimensional check:

☒ CONFORME *(accepted)* ☐ NON CONFORME *(not accepted)*

NOTE -*NOTES* :

Technical Job:
Customer:
Customer order number:
Quantity for Customer Order:
Heat No. for Customer Order:

ISPETTORE *INSPECTOR* DATA *DATE*	DATA *DATE*

Modulo: QUA 013 11/2018

NON-DESTRUCTIVE EXAMINATIONS PROCEDURES (NDE) INCLUDING PMI TEST PROCEDURE, NDE OPERATORS LIST AND QUALIFICATIONS

Base Load Power Hub (BLPH)

NON-DESTRUCTIVE EXAMINATIONS PROCEDURES (NDE) including PMI TEST PROCEDURE, NDE OPERATORS LIST and QUALIFICATIONS

Document Number: 1724000518-NDT-PRO-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
Comandini Massimo Level III NDT EN - ISO9712 WI CSWIP 3.1	03-06-2024

Rev.	Date	Description	Prepared	Reviewed	Approved
02	27/05/2024	Accepted For Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
01	03/04/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.
00	26/03/2024	Issue for Information (IFI)	Di Virgilio L.	Delponte P.L.	Bianchi R.

technical

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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 ÷ 11	PMI TEST PROCEDURES & OPERATOR (IL-75)	X	X	X					
12 ÷ 16	FINAL VISUAL INSPECTION (IL-77)	X	X	X					
17 ÷ 26	LIQUID PENETRANT EXAMINATION & OPERATOR QUALIFICATION	X	X	X					
27 ÷ 30	LIST OF OPERATORS AND CERTIFICATES			X					
31 ÷ 32	ISO 45001 certificate for occupational health and safety management systems			X					

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Revision / Change Log

Rev.	Description
00	Issue for Information (IFI)
01	Issue for Review (IFR)
02	Accepted For Construction (AFC)

HOLDS LIST

No.	Description
1.	
2.	
3.	
4.	

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12 - ANNEXES

Issued by: QUALITY ASSURANCE DEPARTMENT	Verified by: TECHNICAL DEPARTMENT
Signature:	Signature:

1 – DOCUMENT SCOPE

This procedure describes how to perform the PMI (Positive Material Identification) test using a X-Ray fluorescence (XRF) analyzer.

2 – CODES AND STANDARDS

The chemical content for each element is verified in accordance to the applicable standards' requirements, such as ASTM, ASME, PMA, PED Directive and Clients' specifications.

3 - APPLICABILITY

This procedure applies to all materials shown in table in paragraph 11 .

Chemical analysis of elements with atomic number less than 15 cannot be performed.
Hence, Magnesium, Aluminum and Carbon are to be excluded from this examination.

On the other hand, the following elements are to be considered relevant and they are generally included into PMI test:

Chromium (Cr)	Cobalt (Co)	Copper (Cu)
Niobium (Nb)	Steel (Fe)	Manganese (Mn)
Tungsten (W)	Molybdenum (Mo)	Nickel (Ni)
Titanium (Ti)	Vanadium (V)	Columbium (Cb)

This test shall be performed before using the materials, in order to ensure that chemical elements typical of each alloy are those provided by reference regulation.

4 – EQUIPMENT

The device used to perform this test is the spectrometer AMETEK, model SPECTRO X-SORT, capable of self-calibration.
In case its calibration needs to be verified, it is possible to use the following sample:

n. 001 heat number 261070 material: ASTM A182/A182M 316
ASTM A182/A182M 316L
ASME SA479 S31603

4.1 – CALIBRATION

The SPECTRO X-SORT is a self-calibrating device.
Once you turn it on, the auto-calibration procedure begins.
Every year, the device is checked using the reference sample in paragraph 4.

Whenever during a test the operator suspects that the device is not properly working, the calibration check is to be performed.
In case materials and recorded values (± 3%) are those shown on the Reference Sample Certificate, the device is to be considered properly set.
If detected values are outside the above specified limits, it is necessary to perform a second level calibration (according to the equipment's working and maintenance instructions). Then, another calibration check is to be performed.

A sample of calibration report is attached in Annex 2.

The most recent calibration report is always available to be checked in case of inspections.

5 – SURFACE MATERIAL

The surface of material to be analyzed requires no particular preparation. It just needs to be clean and free from foreign bodies.

6 – ACCEPTABILITY CRITERIA

The material to be conformed shall contain the chemical elements according to table in paragraph 11.

To be accepted the part shall have the alloying elements, as indicated in the table in paragraph 11 of this Procedure, all within ± 10% of the specification range.

7 – NON CONFORMING MATERIAL

The material that is Non-Compliant is managed in accordance with the procedure PG04 " Control of Non-Conforming products".
Whenever a component of the percentage subject to control is found not to meet the required chemical characteristics, all remaining parts (100%) will be subject to the PMI control.

8 – IDENTIFICATION OF PARTS

Components are identified in order to grant the correspondence to the certification.
The components are identified in two ways: as a part to be kept on store or as a part to be used for assembling a specific product with a serial number.

8.1 – IDENTIFICATION OF COMPONENTS ON STORE

The components on store subject to PMI control are identified by a code made with two letters and a number.

8.2 – IDENTIFICATION OF COMPONENTS TO BE USED FOR A SPECIFIC PRODUCT

In this case components are identified with an alphabetical letter and a number which is combined with the serial number of the product. Both the letter and the number are reported on internal process sheet in order to issue the PMI report.

9 – PMI TEST REPORT

The PMI report includes:

- Customer name;
- Order or Customer Reference;
- Number of Technical Job;
- Product's serial number and product's TAG number, when available (just for those components that are used for a specific product);
- Identification of the part;
- Material, heat number;
- Element values and test results.

An example of the PMI report issued by Technical can be found in Annex 1.

10 – PMI AUTHORIZED PERSONNEL LIST

Only trained personnel are authorized to use the equipment.
A copy of the list of authorized personnel is available inside the equipment case.

11 – TABLE OF ELEMENTS REQUIRED FOR PMI TEST

ELEMENTS REQUIRED FOR PMI TEST				ELEMENTS										
	Description	Bar (FORGED) ASTM & UNS GRADE	Casting ASTM & UNS GRADE	Mn	Cr	Ni	Mo	Nb (or Cb)	Ti	Cu	Co	V	W	Fe
ALLOY STEEL	1 Cr - ½ Mo	A182-F12 UNS K11562			X		X							
	1 ¼ Cr - ½ Mo	A182-F11 UNS K11597	A217 – WC6 UNS J12072		X		X							
	2 ¼ Cr - ½ Mo	A182-F22 UNS K21590	A217 – WC9 UNS S21890		X		X							
	5 Cr - ½ Mo	A182-F5 UNS K41545	A217 – C5 UNS SJ42045		X		X							
	9 Cr - 1 Mo	A182-F9 UNS K90941	A217 – C12 UNS J82090		X		X							
STAINLESS STEEL	13 Cr	A182-F6A UNS S41000	A217 – CA15 UNS S J91150											
	TYPE 304	A182-F304 UNS S30400 A182-F304L UNS S30403	A351 CF8 UNS J92600 A351 CF3 UNS J92700		X	X								
	TYPE 309				X	X								
	TYPE 310	A182-F310 UNS S31000			X	X	X							
	TYPE 316	A182-F316 UNS S31600 A182-F316L UNS S31603 A276 316 UNS S31600 A276 F316L UNS S31603 A479 316 UNS S31600 A479 316L UNS S31603	A351 CF8M UNSJ92900 A351 CF3M UNS J92800		X	X	X							
	TYPE 317	A182 F317 UNS S31700			X	X	X							
	TYPE 321	A182-F321 UNS S32100 A276 321 UNS S32100 A479 321 UNS S32100			X	X			X					
	TYPE 347	A182-F347 UNS S34700 A276 347 UNS S34700 A479 347 UNS S34700	A351 – CF8C UNS J92710	X	X	X		X						
	410/410S	A479 UNS S41000		X	X	X			X					
	420	A276 UNS S42000		X	X	X								
	17-4 PH	A564 TYPE 630 UNS S17400	A747 CB7Cu-1 UNS J92180	X	X	X								
DUPLEX STEEL	SUPER DUPLEX	A182 F53 UNS S32750 A182 F55 UNS S32760 A276 UNS S32750 A276 UNS S32760 A479 UNS S32750 A479 UNS S32760	A995 5A (CE3MN) UNS J93404 A995 6A (CD3MWCuN) UNS J93380	X	X	X	X			X				
	DUPLEX	A182 F51 UNS S31803 A276 UNS S31803 A479 UNS S31803	A995 4A (CD3MN) UNS J92205	X	X	X	X							
	254 SMO	A182 F44 UNS S31254	A351 CK-3MCuN UNS J93254	X	X	X	X							

ELEMENTS REQUIRED FOR PMI TEST				ELEMENTS										
	Description	Bar *(FORGED)* *UNS GRADE*	Casting *UNS GRADE*	Mn	Cr	Ni	Mo	Nb (or Cb)	Ti	Cu	Co	V	W	Fe
NICKEL ALLOY	ALLOY 20		B473 UNS N08020		X	X	X	X	X	X				
	ALLOY 625	B446 N06625 *B564 N06625*	A494 CW6MC UNSN26625		X	X	X	X						X
	ALLOY 600	B166 N06600 *B564 N06600*	A494 CY40 UNS N06040		X	X								
	ALLOY 800	B408 N08800 *B564 N08810*	-		X	X			X	X				X
	ALLOY 825	B425 N08825	-		X	X	X		X					X
	ALLOY 400 (Monel 400)	B164 N04400 *B564 N04400*	A494 M35-1 UNS N24135			X				X				
	ALLOY C22	B574 N06022	A494 CX2MW UNS N26022		X	X	X						X	
	ALLOY C276	B574 N10276 *B564 N10276*	A494 CW12MW UNS N30002		X	X	X						X	
	ALLOY 330 (RA 330)	B512 UNS N08330			X	X								
	ALLOY 333 (RA 333)	B719 UNS N06333			X	X	X				X		X	
	Titanium	B348 Gr.2 *B381 F2* *UNS R50400*	B367 C2						X					

tecHnical	**POSITIVE MATERIAL IDENTIFICATION REPORT**	**Certificate n.** 0457 **Date:** XXXX-XX-XX **Sheet** 1 **of** 1

	Order/Job	**Procedure**
CUSTOMER	**CUSTOMER ORDER N.**	//
TECHNICAL S.r.l.	**TECHNICAL JOB**	**Il 75 Rev. 0**
INSTRUMENT: portable spectrometer XRF – Spectro X-sort AlloyPlus – type: XHH03 - Ametek S/N 12009592		

OBTAINED VALUES

Serial Number	Tag	Code	Description	Part	Material	Heat	Ident.	Elements			Result *
	PSV-CCCC	240-III-SS	Safety valves 20.000 series ¾" 1500RF x 1" 300RF	Body	CF3M	FNH9	A1	Cr% Min. 17,00 Max. 21,00: 16.70	Mo% Min. 2,00 Max. 3,00: 2.22	Ni% Min. 9,00 Max. 13,00: 9.65	Positive
				Nozzle	AISI 316L	271964	B1	Cr% Min. 16,00 Max. 18,00: 16.30	Mo% Min. 2,00 Max. 3,00: 2.02	Ni% Min. 10,00 Max. 14,00: 10.00	Positive
				Disc	AISI 316L	280835	C1	Cr% Min. 16,00 Max. 18,00: 16.50	Mo% Min. 2,00 Max. 3,00: 2.04	Ni% Min. 10,00 Max. 14,00: 9.78	Positive

* Alloys are acceptable if the alloying elements are each within ± 10% of the specified range of values

Test conducted by	Customer Inspector	Third Part Inspector

1 – APPLICATION

Safety relief valves

2 – TECHNICAL DOCUMENTATION

ALL VALVE SERIES: drawing taken out from the technical sheets

3 – EQUIPMENTS AND ACCESSORY MATERIALS

None

4 – CONSTRUCTION DECLARATION CHECK

Before beginning the valve control, the operator checks that the Construction Declaration would be filled in correctly and clearly in all its essential parts.

See the Construction Declaration sample to find the positions that must be always filled in and checked by the operator; other filled parts will be checked anyway.
See the nameplate drawing to find the corresponding position on the nameplate

5 – VISUAL INSPECTION

The control is performed looking for:

-damages or other defects on valve surface;
-damages on flange tightness face or screwed connections;
-defects on painted surface or rust presence;
-other defects

6 – CONFORMITY NAMEPLATE DATA

The nameplate must show the data equal to those reported on the Construction Declaration.
The nameplate varies depending on applicable standard (PED, ASME, UKCA) and on valve series.

7 – CONFORMITY DIMENSIONS CHECK

After having checked the valve surface and nameplate data check according to applicable documents (i.e declaration of conformity), verify:
-the inlet and outlet flange dimensions, according to norms or TecHnical's documents;
-centre-to-face dimensions (inlet and outlet);
-overall dimensions.

8 – EXAMPLE OF CONSTRUCTION DECLARATION

tecHnical Srl

Dich. interna SERIE: 20.000

Dichiarazione n° 20/0315-2-391

MARZO 2020 PROCEDURA N° IL 42

Matricola 248171 Anno 2020 Posizione: 391

Cod./Mod. 240-0C0-12 Classe 12

Ingresso 1" NPT-F Fluido: GAS

Uscita 1" NPT-F Corrispondenza aria

Orifizio Ø mm. 3/8"

Taratura 275 barg Tipo: d

Collaudo
P E D
CE 0496

Sigla DRRVO421322750

Lotto di n° 1 valvola

material list	n° colata	n° HTA
Corpo A216 WCB	SOLO X SERIE 4.000	
Nipplo A216 WCB		
Boccaglio AISI 431		
Otturatore 17-4PH		
Molla 50-1237-00 ACC. LEGATO		

note

banco prova

Press. Idr. Bocc. 420,00 bar
Press. Idr. Corpo 30,00 bar
Press. Taratura 275,00 bar

verniciatura

ZINCATURA VERDE

accessori

DA COMPILARE DA PARTE DEL COLLAUDO
Prova tenuta sede 90% pressione di taratura bolle/minuto _____

Strumento da utilizzare per la verifica della taratura C23-005-xx

Cliente CUBOGAS Srl Ordine 7700055122

Commessa 20/0315-2 Cons. prevista 06/03/2020 Processo 28/01/2020

ANNOTAZIONI INTERNE
RIPORTARE SU IMBALLO: PER COMMESSA 2807

Compilatore 28/01/2020 _____

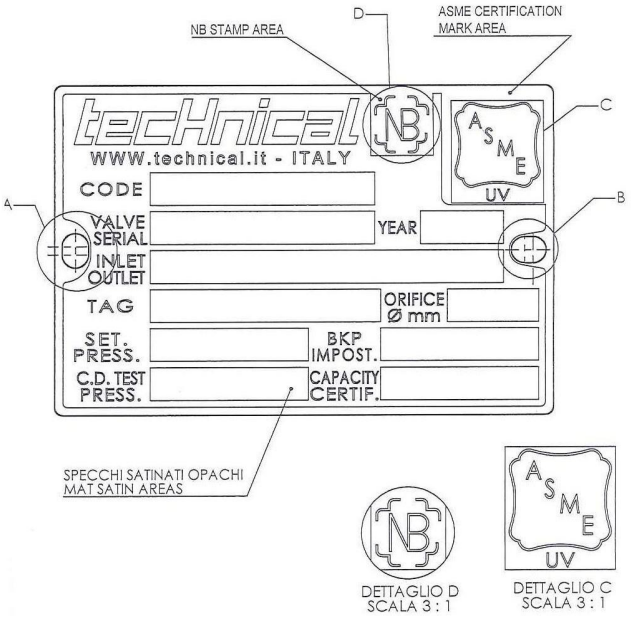
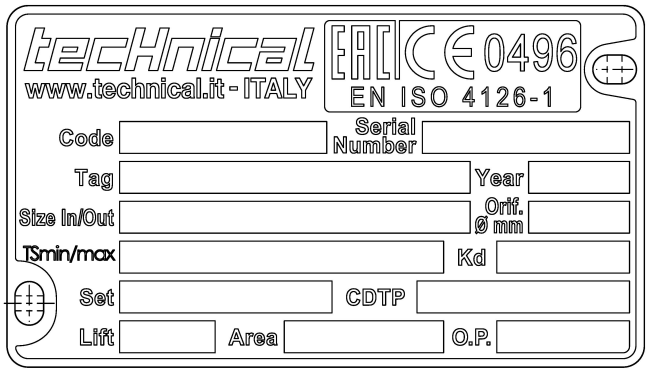
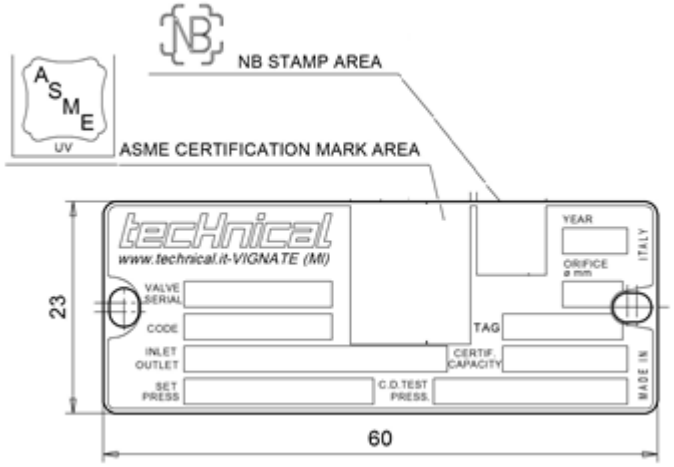
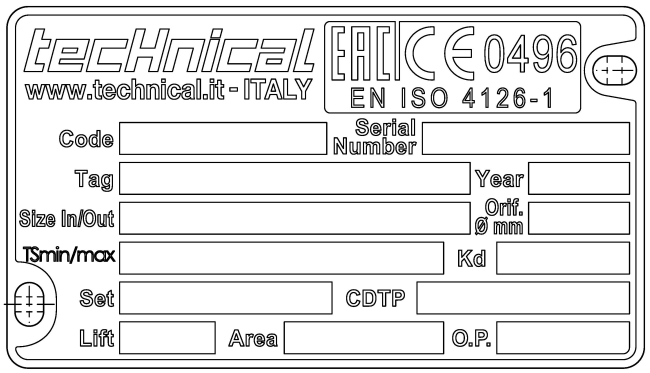
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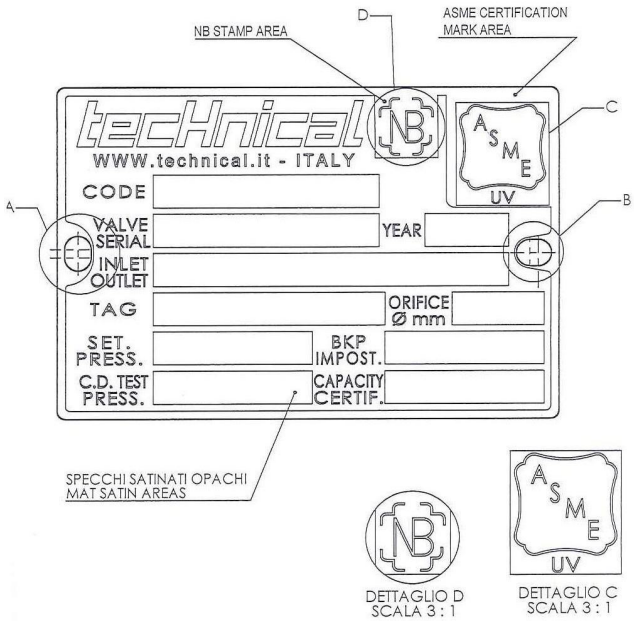
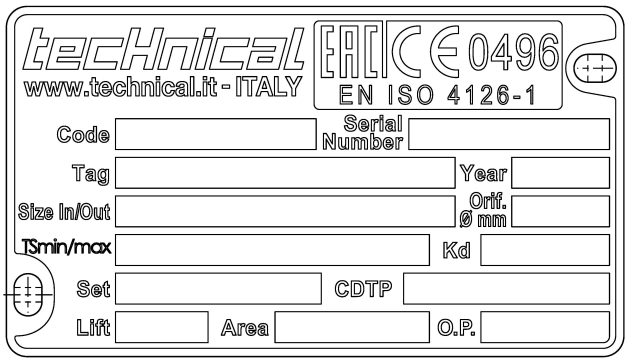
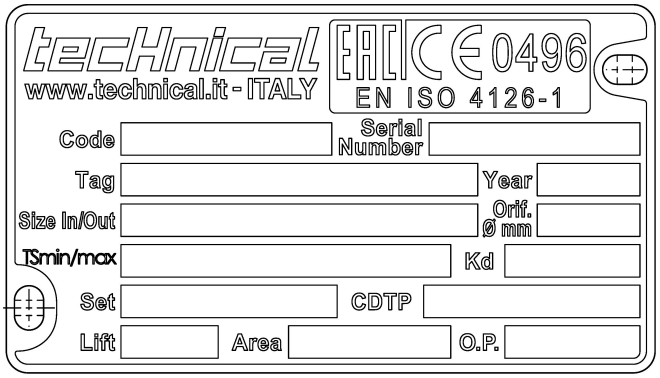
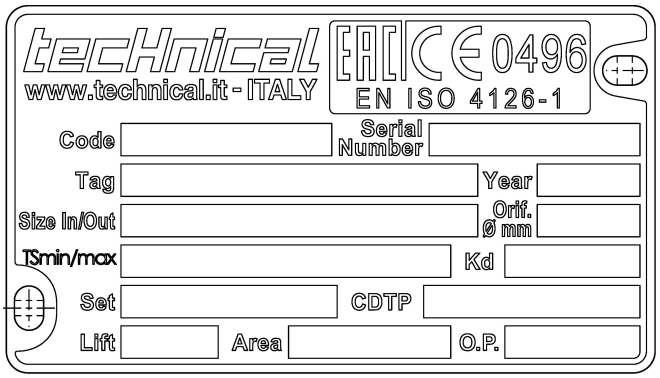
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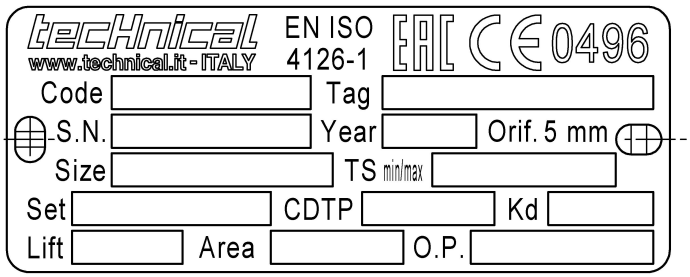
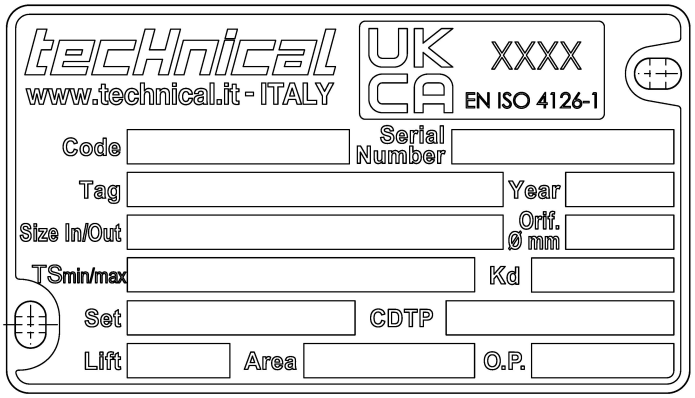
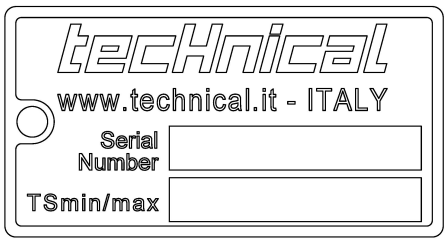
Collaudo __/__/____ _____

Imballaggio __/__/____ _____

9 – EXAMPLE OF NAMEPLATE

SERIE 30000 – ASME	**SERIE 30000 / 30000P – PED** (00-0217-00 Rev.5 60x34)
	
SERIE 20000 – ASME	**SERIE 20000 – PED** (00-0217-00 Rev.5 60x34)
	

SERIE 10000 – ASME	**SERIE 10000 – PED** (00-0217-00 Rev.5 60x34)
	
SERIE 4000 – PED (00-0217-00 Rev.5 60x34)	**SERIE SV10001 – PED** (00-0217-00 Rev.5 60x34)
	

SERIE SV-5001 – PED (00-0225-00 Rev.0 60x24)	**SERIE 30000 - 10000 - 20000 – UKCA** (00-0217-UK Rev.1 60x34)
	
TARGA AGGIUNTIVA **ADDITIONAL NAMEPLATE** (99-0383-00 Rev.0 40x21)	
	

LIQUID PENETRANT EXAMINATION
(WATER WASHABLE OR SOLVENT REMOVABLE PENETRANT)
ACCORDING TO ASME CODE

I.R.T.E.C. s.r.l.

LIQUID PENETRANT TESTING PROCEDURE

IR TEC SRL
SISTEMA DI QUALITA'
CERTIFICATO ISO 9001:2015

LIQUID PENETRANT EXAMINATION
(WATER WASHABLE OR SOLVENT REMOVABLE PENETRANT)
ACCORDING TO ASME CODE

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APPENDIX A
APPENDIX B

By signature and date on the front sheet of this Procedure by the relevant persons, the signature on each page of this Procedure are waived

Em.	Rev.	Data - Date	Descrizione - Description
4	7a	2020/03/17	Revised according to comments
4	6a	2020/01/15	Revised according to ASME BPVC.V-2019 and comments
4	5	2016/09/16	Revised according to ASME SECT. V – 2015 Ed.
4	4	2014/09/01	Revised according to ASME SECT. V – 2013 Ed.- Added acceptance standards according to ASME Sect. VIII Div. 2
4	3	2012/03/30	Revised according to ASME SECT. V – 2010 Ed. + 2011 Add.
4	2	2011/03/30	Revised according to ASME SECT. V – 2010 Ed.
4	1	2009/09/30	Valid according to ASME SECT. V – 2007 Ed. + A09
4	0	2009/01/15	Table B modified

REVISIONS

Issued by :

IRTEC S.R.L. ISTITUTO DI RICERCHE TECNOLOGIE E COLLAUDI

Checked/Approved by :
NDE LEVEL III
dott. Ing. G. GROSSI

LIQUID PENETRANT EXAMINATION (WATER WASHABLE OR SOLVENT REMOVABLE PENETRANT) ACCORDING TO ASME CODE

1. SCOPE (T-610)

1.1. This procedure describes the method to be followed for water washable or solvent removable, visible liquid penetrant examination

2. REFERENCE DOCUMENTS

2.1. This procedure satisfies the requirements of the following specifications :

2.2. NGWK-0001-QAQC-PRND-0001-D02; NGL3200 Liquid penetrant test Procedure

2.3. ASME Section V article 6 - 2019 edition

2.4. ASTM SE-165 – 12

2.5. ASNT – SNT-TC-1A Edition 2011. “Recommended Practice for Personnel Qualification and certification in nondestructive testing

1. APPLICABILITY

1.1. This procedure is applicable to :

1.2. Not sintered metallic materials.

1.3. Butt and fillet welds

1.4. Claddings by weld

1.5. This procedure is applicable to parts of any dimension

2. PERSONNEL

2.1. The personnel who are performing the liquid penetrant testing to this procedure shall be qualified and certified in accordance with the requirements of ASNT Recommended Practice No. SNT-TC-1A level I, as a minimum or UNI EN ISO 9712 level 1. Interpretation must be carried out by inspectors holding at least a valid certificate to SNT-TC-1A level II, UNI EN ISO level 2.

3. EQUIPMENT (T-630)

3.1. Penetrant materials (T-631)
The term “penetrant materials” is intended to include all penetrants, , solvents or cleaning agents, developers, etc., used in the examination process.

4. MISCELLANEOUS REQUIREMENTS (T-640)

4.1. Control of Contaminants (T-641)

4.1.1. All the penetrant materials shall be certified to satisfy the control of contaminant s. These certifications shall include the penetrant manufacturers’ batch numbers and the test results obtained in accordance with Mand a-tory Appendix II of ASME sect. V Article 6.

4.1.2. These certifications shall be available for review.

4.2. **Surface Preparation** (T-642)

4.2.1. In general, satisfactory results may be obtained when the surfaces of the part is in the as-welded, as-rolled, as-cast or as-forged condition. Surface preparation by grinding, machining, or other methods may be neces-sary where surface irregularities could mask indications.

4.2.2. Prior to each liquid penetrant examination, the surface to be examined and all adjacent areas within at least 25 mm shall be dry and free of all dirt, grease, lint, scale, welding flux, weld spatter, paint, oil and other ex-traneous matter that could obscure surface openings or otherwise interfere with the examination.

4.2.3. Typical cleaning agents which may be used are organic solvents.

4.2.4. leaning solvents shall meet the requirements of 5.1. The cleaning method employed is an important part of the examination process.

4.2.5. Solvent cleaning after machining is a correct method of cleaning.

4.2.6. Grinding is a correct method of cleaning

4.2.7. Is also correct perform examination after welding (it is only necessary to remove the slag and grind where necessary).

4.3. **Drying After Preparation** (T-643)

4.3.1. After cleaning, drying of the surface to be examined shall be accomplished in the following way :

4.3.1.1. Solvent cleaning – dry cloths and/or normal evaporation

4.3.1.2. Minimum evaporation time shall be 2 minutes.

5. **TECHNIQUE** (T-650)

5.1. **Techniques** (T-651)

5.1.1. A color contrast (daylight visible) penetrant shall be used (the penetrant materials to be used are listed in Table A).
The penetrant shall be used with one of the following penetrant processes :

5.1.1.1. Water washable

5.1.1.2. Solvent Removable

5.1.2. Welds and clads by welding shall be examined by means of medium sensitivity penetrant.

5.1.3. Materials shall be examined by means of high sensitivity penetrant.

5.1.4. The developing materials to be used are listed in Table A.

5.1.5. When solvent cleaning is required, the solvents in Table A shall be used.

5.2. **Techniques for Standard Temperatures** (T-652)

5.2.1. As a standard technique, the temperature of the penetrant and the surface of the part to be processed shall not be below 5°C nor above 52°C throughout the examination period. Local heating or cooling is permitted provided the temperature remains in the range 5 ÷ 52°C during the examination.

5.2.2. Where is not practical to comply with these temperature limitations, other temperatures and times may be used, provided the procedures are qualified as specified in 7.3.

5.3. **Techniques for Nonstandard Temperatures** (T-653)

5.3.1. When it is not practical to conduct a liquid penetrant examination within the temperature range of 5 to 52°C, the examination procedure at the proposed lower or higher temperature range requires qualification of the penetrant materials and processing in accordance with ASME Sect. V Art. 6 Mandatory Appendix III.

5.4. **Technique Restrictions** (T-654)

5.4.1. Intermixing of penetrant materials from different families or different manufacturers is not permitted.

6. EXAMINATION (T-670)

6.1. **Penetrant Application** (T-671)

6.1.1. The penetrant will be applied by a pressurized spray can, by brushing or by dipping.

6.2. **Penetration time** (T-672)

6.2.1. Penetration time is critical. The minimum penetration time shall be as required by TABLE B.

6.2.2. Regardless of the length of the dwell time, the penetrant shall not be allowed to dry. If for any reason the penetrant does dry, the examination procedure shall be repeated, beginning with a cleaning of the examination surface

6.3. **Excess penetrant removal** (T673)

6.3.1. **Water-Washable Penetrants** (T-673.1) – Excess water-washable penetrant shall be removed by wiping with a dry cloth repeating the operation until most traces of penetrant have been removed. The remaining traces shall be removed by lightly wiping the surface with wet clothes or by a water spray. The water pressure shall not exceed 3.5 bar. The water temperature shall not exceed 43°C.

6.3.2. **Solvent Removable Penetrants** (T673.3) - Excess solvent removable penetrants shall be removed by wiping with a dry cloth, repeating the operation until most traces of penetrant have been removed. The remaining traces shall be removed by lightly wiping the surface with cloth moistened with solvent. To minimize removal of penetrant from discontinuities, care shall be taken to avoid the use of excess solvent.

Flushing the surface with solvent, following the application of the penetrant and prior to developing, is prohibited.

6.4. **Drying After Excess Penetrant Removal** (T-674)

6.4.1. For the water washable technique, the surfaces may be dried by blotting with clean cloths and/or by using circulating air, provided the temperature of the surface is not raised above 52°C.

6.4.2. For the solvent removable technique, the surfaces may be dried by normal evaporation, blotting, wiping, or forced air.

6.4.3. For both 8.4.1 and 8.4.2 points the maximum allowable time is 20 minutes.

6.5. **Developing** (T-675)

6.5.1. The developer shall be applied by spraying as soon as possible after penetrant removal. In every case the time interval after drying shall be not less than 10 minutes and shall not exceed exceed 30 minutes.

6.5.2. Wet Developer Application (T-675.2) – Prior to applying solvent suspension type wet developer to the surface, the developer must be thoroughly agitated to ensure adequate dispersion of suspended particles.

6.5.3. Developer shall be applied only to a dry surface. It shall be applied by a pressurized spry can. Drying shall be by normal evaporation.

6.5.4. The developer shall be applied only to a dry surface in a thin and uniform layer.

6.5.5. The developer shall not be applied over a dry layer of developer.

6.5.6. (T-675.3) Developing time begins when the developer coating is dry.

6.5.7. The maximum permitted developing time is 1 hour (for solvent suspension developer)

6.6. **Interpretation** (T-676)

6.6.1. **Final Interpretation** (T-676.1) - Final interpretation shall be made within 10 to 60 minutes of developing time (see 8.5.6). If bleed out does not alter the examination results, longer periods are permitted. If the surface to be examined is large enough to preclude complete examination within the prescribed or established time, the examination shall be performed in increments.

6.6.2. **Characterizing Indication(s)** (T-676.2) – The type of discontinuities are difficult to evaluate if the penetrant diffuses excessively into the developer. If this condition occurs, close observation of the formation of indication(s) during application of the developer may assist in characterizing and determining the extent of the indication(s).

6.6.3. **Color Contrast Penetrants** (T-676.3) – With a color contrast penetrant, the developer forms a reasonably uniform white coating. Surface discontinuities are indicated by bleed-out of penetrant which is normally a deep red color that stains the developer. Indications with a light pink color may indicate excessive cleaning. Inadequate cleaning may leave an excessive background making interpretation difficult.

6.6.4. A minimum light intensity of 1076 lx is required on the surface to be examined to ensure adequate sensitivity during the examination and evaluation of indications. This light intensity may be obtained by :

6.6.4.1. Lamp BEGHELLI 8616 PROIETTORE SEF LED IP65 30W at a distance of not more than 1 meter

6.6.4.2. An incandescence bulb 220V 100W transparent glass at a distance not greater than 300 mm

6.6.4.3. Lighting has been actually measured by means of a calibrated luxmeter.

6.6.5. **Post-Examination Cleaning** (T-677) – When post-examination cleaning is required, it should be conducted as soon as practical after Examination and Documentation. Cleaning shall be performed by brushing and dry cloths.

7. EVALUATION (T-680)

7.1. All indications shall be evaluated in term of the acceptance standards of the referencing Code Section.

7.1.1. Acceptance criteria, if not otherwise specified, shall be in accordance with ASME Section VIII Division 1 Appendix 8. See the Appendix A of this procedure.

7.2. Broad areas of pigmentation which could mask indications of discontinuities are unacceptable. Such areas shall be cleaned and reexamined using the same type of penetrant.

7.3. Discontinuities at the surface will be indicated by bleed-out of penetrant; however, localized surface irregularities due to machining marks or other surface conditions may produce false indications.

7.4. Any indication which is believed non relevant shall be regarded as an imperfection unless it is shown by reexamination by the same method or by the use of other nondestructive methods or by surface conditioning that no unacceptable imperfection is present.

8. DOCUMENTATION (T-690)

8.1. **Recording of Indications** (T-691)

8.1.1. Nonrejectable Indications (T691.1) – Nonrejectable indications shall be recorded as specified by the referencing Code Section.

8.1.2. Rejectable Indications (T691.2) - Rejectable indications shall be recorded. As minimum, the type of indications (linear or rounded), location and extent (length or diameter or aligned) shall be recorded.

9. EXAMINATION RECORDS (T-692)

9.1. For each examination, the following information shall be recorded :

9.1.1. identification of the weld, part, or component examined including weld number, serial number, or other identifier

9.1.2. procedure identification and revision

9.1.3. liquid penetrant type : visible (color contrast)

9.1.4. type (number or letter designation) of each penetrant, penetrant remover, developer used

9.1.5. examination personnel identity, qualification level and signature

9.1.6. map or record of indications per 9.1

9.1.7. material and thickness

9.1.8. lighting equipment

9.1.9. date of examination

9.1.10. results of the examination

10. REPAIR REQUIREMENTS

10.1. Whenever a defect is removed and subsequent welding is not required because the removed material does not reduce the wall thickness below the drawing requirements, the affected area shall be blended into the surrounding surface so as to avoid sharp notches, crevices or corners.

10.2. If the welding is required, prior to weld repair the excavated area shall be examined again by this specification. The weld repair shall be performed, if necessary, by applicable welding specification and shall be authorized, if necessary, by Quality Control Department. In any case, after repair, the surface shall be examined by the methods required by this procedure with the same acceptance criteria.

11. PROCEDURE QUALIFICATION (T-621.2)

11.1. When procedure qualification is specified by the reference Code Section, a change of a requirement in table B (table T-621) identified as an essential variable shall require requalification of the written procedure by demonstration. A change of a requirement identified as a nonessential variable does not require requalification of the written procedure. All changes of essential or nonessential variables from those specified within the written procedure shall require revision of, or an addendum to, the written procedure.

LIQUID PENETRANT EXAMINATION
(WATER WASHABLE OR SOLVENT REMOVABLE PENETRANT)
ACCORDING TO ASME CODE

TABLE A		
PENETRANT MATERIALS	**C.G.M.**	**MET-L-CHECK**
SOLVENT (For cleaning and penetrant removal)	VELNET SOLNET	E 59 A
MEDIUM SENSITIVITY PENETRANT	RED W	//
HIGH SENSITIVITY PENETRANT	ROTVEL AVIO B	VP-30
DEVELOPER (solvent suspension)	ROTRIVEL U	D 70

TABLE B			
MINIMUM DWELL TIMES (minutes) For temperature range from 10 to 52°C			
Material	Form	Type of discontinuity	Penetrant
Aluminum, Magnesium, Steel, Brass, Bronze, Titanium, High temperature alloys	Castings and welds	Cold shuts, porosity, lack of fusion, cracks	5
	Wrought materials, extrusions, forgings, plates	Laps, cracks	10
Remark : For temperature range from 5° to 10°C, minimum penetrant dwell time shall be 2 times the value listed			

LIQUID PENETRANT EXAMINATION (WATER WASHABLE OR SOLVENT REMOVABLE PENETRANT) ACCORDING TO ASME CODE

APPENDIX A

EVALUATION OF LIQUID PENETRANT INDICATIONS ACCORDING TO ASME SECTION VIII DIVISION 1 APPENDIX 8

1. EVALUATION OF INDICATIONS

1.1. Only indications with major dimensions greater than 1.5 mm shall be considered relevant.

1.1.1. A linear indication is one having a length greater than three times the width.

1.1.2. A rounded indication is one of circular or elliptical shape with the length equal to or less than three times the width.

1.2. Any questionable or doubtful indications shall be reexamined to determine weather or not they are relevant.

2. ACCEPTANCE STANDARDS

2.1. All surfaces to be examined shall be free of :

2.1.1. Relevant linear indications.

2.1.2. Relevant rounded indications greater than 5 mm.

2.1.3. Four or more relevant rounded indications in a line separated by 1.5 mm or less (edge to edge).

LIQUID PENETRANT EXAMINATION
(WATER WASHABLE OR SOLVENT REMOVABLE PENETRANT)
ACCORDING TO ASME CODE

APPENDIX B

REQUIREMENTS OF THIS LIQUID PENETRANT EXAMINATION PROCEDURE

Requirement	Essential Variable	Non essential Variable	Paragraph
Identification of and any change in type or family group of penetrant materials including developers, emulsifiers, etc.	X		6.1.1
Surface preparation (finishing and cleaning, including type of cleaning solvent)	X		5.2, 6.1.1
Method of applying penetrant	X		7.1.1
Method of removing excess surface penetrant	X		7.3
Method of applying developer	X		7.5
Minimum and maximum time periods between steps and drying aids	X		5.3.1.2, 7.2, 7.4.3, 7.5.1, 7.5.6, 7.6.1
Decrease in penetrant dwell time	X		N.A.
Increase in developer dwell time (Interpretation Time)	X		7.6.1
Minimum light intensity	X		7.6.4
Surface temperature outside 5 to 52°C or as previously qualified	X		6.3.1
Performance demonstration, when required	X		13
Personnel qualification requirements		X	12
Materials, shapes,or sizes to be examined and the extent of examination		X	3, 7.6.1
Post examination cleaning technique		X	7.6.5

IR TEC SRL
SISTEMA DI QUALITA'
CERTIFICATO ISO 9001:2008

ISTITUTO DI RICERCHE TECNOLOGICHE E COLLAUDI

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Tel. 02.90.96.15.41 • 2 - Fax 02.90.96.32.92
E-mail : info@irtecsrl.com Web: www.irtecsrl.com

CERTIFICATO No. CERTIFICATE	//
RIF. REF.	//
DATA DATE	//
FOGLIO SHEET	1 DI 1 OF

// // // PT TESTING **CONTROLLO PT**

CLIENTE CUSTOMER	
COMMESSA JOB	
OGGETTO SUBJECT	
MATERIALE MATERIAL	**SPESSORE** THICKNESS
STADIO DI LAVORAZIONE WORKING STEP	**SUPERFICIE** SURFACE
SPECIFICA SPECIFICATION	**DESIGNAZIONE PRODOTTI** PRODUCTS DESIGNATION

PULITORE CLEANER	**LOTTO** BATCH
PENETRANTE PENETRANT	**LOTTO** BATCH
RIVELATORE DEVELOPER	**LOTTO** BATCH
FLUORESCENTE FLUORESCENT	**CONTRASTO DI COLORE** ☐ COLOUR CONTRAST
TEMPERATURA SUPERFICIE SURFACE TEMPERATURE	
PULITURA DELLA SUPERFICIE SURFACE CLEANING	
TEMPO ASCIUGATURA (≥ 2 minuti) DRYING TIME (≥ 2 minutes)	
APPLICAZIONE PENETRANTE PENETRANT APPLICATION **TEMPO DI PENETRAZIONE** PENETRATION TIME	
ASPORTAZIONE PENETRANTE PENETRANT REMOVAL	
TEMPO ASCIUGATURA (≤ 20 minuti) DRYING TIME (≤ 20 minutes)	
APPLICAZIONE RIVELATORE DEVELOPER APPLICATION	
TEMPO DI SVILUPPO DEVELOPMENT TIME	
LIGHT EQUIPMENT	

NOTE REMARKS
OPERATORE PERSONNEL
ESITO RESULT

68 LP1 REV. 2

PT REPORT FORM

PROVE ESEGUITE DA Test conducted by	PER IL LABORATORIO For the laboratory	L'ISPETTORE DEL CLIENTE Customer inspector	IL COLLAUDATORE The inspector

	NDE - LIST OF OPERATORS	23-3962-OPLI	
		Rev. 0	date 27/05/24

NDE	Operator	Level	Type of document No	Date of certiifcate
PMI	Adornato Elena	N.A.	Certificate of partecipation in the course for the use of the instrument	18/03/2024
RT -UT -MT - PT	Grossi Giuseppe	III	certificate No 34832/PND/C	23/12/2020
PT	Bianco Dimitri	II	certificate No 7	03/06/2022

ATTESTATO di PARTECIPAZIONE

Si attesta che

la Sig.ra Elena Adornato

Della TECHNICAL S.R.L.

ha partecipato al corso di formazione hardware & software su strumento

XSORT

tenuto dalla società AMETEK S.r.l. – Divisione Spectro

Vignate, 18/03/2024

AMETEK S.r.l

SPECTRO

Il Relatore del Corso

Amoruso Paolo

ISTITUTO DI RICERCHE TECNOLOGICHE E COLLAUDI
TREZZO SULL'ADDA (MI)

ATTESTATO DI CERTIFICAZIONE **No. 07**
CERTIFICATION

SI DICHIARA CHE THIS IS TO CERTIFY THAT	***BIANCO DIMITRI***
DIPENDENTE DELLA AN EMPLOYEE OF	IRTEC - ISTITUTO DI RICERCHE TECNOLOGICHE E COLLAUDI S.R.L. TREZZO SULL'ADDA
IN BASE ALLE CAPACITA' PERSONALI, ISTRUZIONE, ESAMI, ESPERIENZA ED IN ACCORDO CON QUANTO PRESCRITTO DA BY VERTUE OF HIS PERSONAL CAPABILITIES, INSTRUCTION, EXAMINATION, EXPERIENCE AND ACCORDING TO THE REQUIREMENTS OF	**IRTEC QUA-02 REV. 10 WRITTEN PRACTICE FOR PERSONNEL QUALIFICATION AND CERTIFICATION IN NON DESTRUCTIVE TESTING, PREPARED ON THE BASIS OF SNT-TC-1A RECOMMENDED PRACTICE, ED. 2016 + ASME BPVC.V-2021ARTICLE 1 – APPENDIX III**
E' QUALIFICATO AL LIVELLO IS QUALIFIED AS LEVEL	II (SECONDO) II (SECOND)
PER LA SEGUENTE TECNICA DI CONTROLLO NON DISTRUTTIVO FOR THE FOLLOWING NON DESTRUCTIVE TESTING TECHNIQUE	CONTROLLO CON LIQUIDI PENETRANTI (PT) LIQUID PENETRANT TESTING (PT)
DATA DI RILASCIO DEL CERTIFICATO DATE	03/06/2022
QUESTO ATTESTATO E' VALIDO FINO AL THIS CERTIFICATE IS VALID UP TO	03/06/2027

III Livello
NDE LEVEL III

Dott. Ing. G. Grossi
dott. Ing. G. GROSSI

IRTEC srl – TREZZO SULL'ADDA
General Manager Mrs. C. Salvi
03/06/2022

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CERTIFICATO DI LIVELLO 3
LEVEL 3 CERTIFICATE

N° 34832/PND/C

Si certifica la qualificazione per esami in Prove Non Distruttive al **LIVELLO 3**
*This is to certify qualification by examinations in Non-Destructive Testing at the **LEVEL 3***

di / of

Grossi Giuseppe

nato a / *born in* **Domodossola (VB)**

il / *on* **10 novembre 1941**

per i metodi seguenti / *for the following methods:*

RT (Radiografia) - UT (Ultrasuoni) - MT (Magnetoscopia) - PT

(Liquidi Penetranti)

Il presente certificato viene rilasciato in conformità alla Norma UNI EN ISO 9712.
This certificate is issued according to UNI EN ISO 9712.

Il Presidente del Comitato Tecnico
The President of Technical Committee
P. I. E. Tuberosa

L'Amministratore Unico
The Administrator
Dr. Ing. M. Crepaldi

Data Delibera: 23/12/2020
Approval Date

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WE HEREBY CERTIFY THAT THE HEALTH AND SAFETY MANAGEMENT SYSTEM OPERATED BY

TECHNICAL SRL

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UNITA' OPERATIVE / *OPERATIVE UNITS*

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ISO 45001:2018

PER LE SEGUENTI ATTIVITA' / *FOR THE FOLLOWING ACTIVITIES*

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Design and production of steel, special alloys and plastic valves by mechanical workings by chip machining and components assembly. Revision of safety valves

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	2016-07-26	2022-07-25	2025-07-25

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Management Systems Division - Flavio Ornago

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Base Load Power Hub (BLPH)

FUGITIVE EMISSION PROCEDURE

Document Number: 1724000518-QC-PRO-00014

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Sign	Date
V. Barratta	26-09-2024

Rev.	Date	Description	Prepared	Reviewed	Approved
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		00	01	02					
1	Cover	X	X	X					
2	Table of Contents	X	X	X					
3	Revision / Change Log	X	X	X					
4 ÷ 10	FUGITIVE EMISSION PROCEDURE (IL-84)	X	X	X					

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

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0	08/02/2024	First issue	RB	PLD	GS
REV	**DATE**	**DESCRIPTION**	**PREPARED**	**CHECKED**	**APPROVED**

1 SCOPO

Il presente documento definisce la procedura di prova per la valutazione delle perdite verso l'esterno delle guarnizioni del corpo di valvole di sicurezza destinate a servizi con fluidi pericolosi e sostanze volatili inquinanti. La metodologia adottata prevede l'uso di un rilevatore di perdite di elio, dotato di una sonda di rilevamento (sniffer), per la concentrazione di elio dovuta alle emissioni dalle guarnizioni.
Il fluido di prova è elio.
Le misurazioni sono effettuate, come indicato in ISO 15848-1 Section B1.1, secondo quanto descritto nel metodo EPA 21

. SCOPE

This document defines the testing procedure for evaluation of external leakage of body joints of the safety valves intended for application in volatile air polluants and hazardous fluids. The method specifies the use of a helium leak detector, fitted with a detector probe (sniffer), to measure helium concentration due to emissions from body seals.
The test fluidi s helium
The measurements are made, as indicated in ISO 15848-1 B1.1, according to the principle described in EPA method 21.

2 RIFERIMENTI

Di seguito vengono riportate le normative e i documenti considerati come riferimento.

ISO 15848-1 - Industrial valves – Measurement, test and qualification procedures for fugitive emissions

-

EPA –METHOD 21 Environmental Protection Aency,Determination of volatile organic compound leak. Federal Regulations, Title 40, Part 60, Appendix A Reference Method 21, Reference Method 21. Washingon,D.C. U.S. Governemnt Printing Office.

. REFERENCES

Here below is possible to find the standards and the documents used as a reference

3 TERMINI E DEFINIZIONI

- *Concentrazione di definizione della perdita*: concentrazione locale di elio sulla superficie di una fonte di perdita che indica la presenza della perdita. Essa è una lettura specifica dello strumento.
- *Gas di calibrazione*: concentrazione di elio approssimativamente uguale alla concentrazione di definizione della perdita.
- *Nessuna emissione rilevabile:* qualsiasi concentrazione di elio sulla superficie di una potenziale perdita (corretta dalla concentrazione locale di elio nell'ambiente) che è inferiore al valore corrispondente alla specifica di leggibilità dello strumento (il 2,5% della concentrazione di definizione della perdita specificata) e che indica che non è presente una perdita.
- *Precisione di calibrazione:* Grado di convergenza tra le misurazioni dello stesso valore noto, espresso come percentuale relativa della differenza media tra le letture dello strumento e la concentrazione nota rispetto alla concentrazione nota.
- *Tempo di risposta:* Intervallo di tempo che intercorre tra una variazione graduale della concentrazione di elio all'ingresso del sistema di campionamento e il momento in cui viene raggiunto il 90% del valore finale corrispondente, visualizzato sul master di lettura dello strumento.

. TERMS AND DEFINITIONS

- *Leak definition concentration:* local helium concentration at the surface of a leak source that indicates that the leak is present. The leak definition is a specified instrument meter reading.
- *Calibration gas:* concentration of helium approximately equal to the leak definition concentration.
- *No detectable emission*: any helium concentration as a potential leak surface (adjusted for local helium ambient concentration) that is less than a value corresponding to the instrument readability specification (the 2.5 percent of the specified leak definition concentration) and which indicated that a leak is not present
- *Calibration precision:* Degree of agreement between measurement of the same know value, expressed as the relative percentage of the average difference between the meter readings and the known concentration to the known concentration
- *Response time:* Time interval from a step change in helium concentration at the input of the sampling system to the time at which 90% of the corresponding final value is reached as displayed on the instrument readout master

4 STRUMENTO DI RILEVAMENTO DELLE PERDITE

Specifiche

Il tipo di strumento per la rilevazione dell'elio può includere, ma non solo, lo spettrometro di massa, assorbimento infrarosso e screening molecolare.

Sia l'intervallo di risposta lineare che l'intervallo misurabile dello strumento devono comprendere la concentrazione di definizione della perdita specificata in tabella 1.

È possibile utilizzare una sonda di diluizione per portare la concentrazione di elio all'interno di questo intervallo, tuttavia le specifiche relative al diametro della sonda del campione di elio devono essere rispettate.

La scala del misuratore dello strumento deve essere leggibile al ±2,5% della concentrazione di definizione della perdita specificata quando si esegue un'indagine sulle emissioni non rilevabili.

Lo strumento deve essere dotato di una pompa azionata elettricamente per garantire che il fluido campione venga fornito al rilevatore a una portata costante. La portata della sonda deve essere compresa tra 0,5 l min^{-1} e 1,5 l min^{-1}. Il valore tipico della portata della sonda per lo spettrometro di massa ad elio è di 1 cm^3 s^{-1}.

Lo strumento deve essere dotato di una sonda o di una prolunga della sonda per il campionamento con un diametro esterno non superiore a 6,4mm, con un'unica apertura terminale per l'ammissione del campione.

Criteri di prestazione

La pompa dello strumento, la sonda di diluizione, la sonda del campione e il filtro della sonda, utilizzati durante il test, devono essere sul posto durante la determinazione del tempo di risposta.

La precisione della calibrazione deve essere pari o inferiore al 10% del valore del gas di calibrazione.

Valutazione dello strumento

Un test di precisione dello strumento deve essere eseguito prima di utilizzare lo strumento di analisi, e, successivamente, ogni tre mesi o prima dell'utilizzo successivo, se l'utilizzo successivo non sarà entro i tre mesi.

5 GAS DI CALIBRAZIONE

Il rilevatore è calibrato in termini di parti per milione in volume (ppmv).

I gas di calibrazione richiesti per il monitoraggio e la valutazione delle prestazioni dello strumento sono:

- un gas di azzeramento (aria, meno di 10 ppmv di elio)
- una miscela di gas di calibrazione in aria approssimativamente uguale a quella indicata come definizione di perdita specificata nella tabella 1.

In alternativa, il rilevatore può anche essere calibrato in termini di Pa-m^3/s o mbar 1/s di elio. In questo caso, possono essere

. MONITORING INSTRUMENT

Specifications

The helium instrument detector type may include, but is not limited to, mass spectrometry, infrared absorption, and molecular screening.

Both the linear response range and the measurable range of the instrument shall encompass the leak definition concentration specified in table 1.

A dilution probe assembly can be used to bring the helium concentration within this range, however, the specification for helium sample probe diameter shall still met.

The scale of the instrument meter shall be readable to ±2.5% of the specified leak definition concentration when performing a no-detectable emission survey.

The instrument shall be equipped with an electrically driven pump to ensure that a sample is provided to the detector at a constant flow rate. The probe flow rate shall be between 0.5 l min^{-1} and 1.5 l min^{-1}. Typical value of probe flow rate for helium mass spectrometer is 1 cm^3 s^{-1}.

The instrument shall be equipped with a probe or probe extension for sampling not exceed 6.4mm in outside diameter, with a single end opening for admission of sample.

Performance criteria

The instrument pump, dilution probe, sample probe and probe filter, which is used during testing, shall be in place during the response time determination.

The calibration precision shall equal to or less than 10% of the calibration gas value.

Performance evaluation requirement

The calibration precision test shall be completed prior to placing the analyser into service, and at subsequent three-month intervals or at the next use, whichever is later.

. CALIBRATION GASES

The monitoring instrument is calibrated in terms of parts per million by volume (ppmv).

The calibration gases required for monitoring and instrument performance evaluation are:

- a zero gas (air, less than 10 ppmv helium)
- a calibration gas in air mixture approximately equal to the leak definition specified in table 1.

Alternatively, the monitoring instrument can also be calibrated in terms of Pa·m^3/s or mbar 1/s of helium. In this case, calibration leak standards can be either a permeation or

usati degli strumenti con perdita calibrata a permeazione o capillare.

La tipologia di perdita calibrata da utilizzare è scelta in base al tipo di rilevatore o dal requisito di sensibilità richiesto.

- Uno strumento con perdita calibrata di tipo a permeazione è uno strumento con perdita calibrata di tipo a permeazione attraverso vetro fuso o quarzo. Lo standard deve avere un tasso di perdita di elio nell'intervallo compreso tra $1x10^{-6}$ mbar l s^{-1} e $1x10^{-10}$mbar l s^{-1} (da $1x10^{-7}$ Pa m^3s^{-1} a $1x10^{-11}$ Pa-m^3s^{-1}).
- Uno strumento con perdita di tipo capillare deve avere una perdita calibrata di tipo capillare attraverso un tubo. Lo standard deve avere un tasso di perdita uguale o inferiore alla sensibilità di prova richiesta per la concentrazione percentuale effettiva di prova del gas tracciante selezionato.

Se si utilizzano miscele di gas di calibrazione in bombola, queste devono essere analizzate e certificate dal produttore con un'accuratezza di ±2% e devono essere analizzate nuovamente o sostituite al termine della durata di conservazione specificata. In alternativa, i gas di calibrazione possono essere preparati dall'utente secondo qualsiasi procedura di preparazione degli standard gassosi accettata che produca una miscela accurata entro il ±2 %. I campioni di gas preparati per la calibrazione devono essere sostituiti ogni volta che sono stati utilizzati in una giornata, a meno che non si possa dimostrare che la degradazione non si verifica durante la conservazione.

6 REQUISITI PER IL TEST

Effetto della temperatura

Più alta è la temperatura del componente, più alta è la pressione di vapore di saturazione. Di conseguenza, la temperatura può modificare la misurazione della concentrazione. La misurazione deve essere effettuata in un luogo in cui la temperatura rimanga stabile indipendentemente dalle condizioni climatiche esterne.

Effetto delle condizioni atmosferiche

Le misure di tenuta tramite sniffing sono particolarmente sensibili alle variazioni dell'atmosfera gassosa.
Ciò è particolarmente vero per:
- misure all'aperto e
- misure ad alta sensibilità

L'atmosfera all'interno del locale in cui avvengono le perdite deve essere tranquilla e le aperture devono rimanere chiuse per tutta la durata della misurazione.

Sicurezza

Livelli elevati di pressione dell'elio o condizioni di vuoto, insieme a temperature elevate, richiedono l'applicazione di regole di sicurezza da parte degli operatori durante le prove e le misurazioni.

capillary type standard.

The type of leak standard used shall be established by the instrument or system sensitivity requirement.

- A permeation type leak standard shall be a calibrated permeation type leak through fused glass or quartz. The standard shall have a helium leakage rate in the range of $1x10^{-6}$ mbar·l·s^{-1} to 1 x 10^{-10} mbar l s^{-1} ($1x10^{-7}$ Pa·m^3·s^{-1} to $1x10^{-11}$ Pa·m^3-s^{-1}).
- A capillary type leak standard shall be a calibrated capillary type leak through a tube. The standard shall have a leakage rate equal to or smaller than the required test sensitivity times the actual percent test concentration of the selected tracer gas.

If cylinder calibration gas mixtures are used, they shall be analysed and certified by the manufacturer to be within ±2 % accuracy, and a shelf life shall be either reanalysed or replaced at the end or the specified shelf life. Alternatively, calibration gases may be prepared by the user according to any accepted gaseous standards preparation procedure that yields a mixture accurate to within ±2 %.
Prepared standards shall be replaced each day of use unless it can be demonstrated that degradation does not occur during storage.

. REQUIREMENTS FOR THE TEST

Effect of the temperature

The higher the temperature of the component, the higher the saturating vapour pressure. Consequently, the temperature can modify the concentration measurement. This should be made in a place where the temperature remains stable whatever the external climatic conditions.

Weather effect

The leak measurements by sniffing are particularly sensitive to variations in the gaseous atmosphere.
This is more particularly true for:

- outdoor measurements, and
- low level measurements

The atmosphere within the room where the leaks take place shall be calm and the openings shall remain closed throughout the measurement.

Safety

High helium pressure levels or vacuum conditions in conjunction with high temperatures require safety rules to be applied by operators during testing and measurement.

7 PROCEDURA DI CALIBRAZIONE

Assemblare e mettere in funzione il rilevatore di elio secondo le istruzioni del produttore. Dopo l'appropriato periodo di riscaldamento e azzerata la precedente calibrazione, al momento opportuno, secondo quanto indicato dal produttore, introdurre il gas di calibrazione (Perdita calibrate) nella sonda campione dello strumento. Regolare la lettura del contatore dello strumento in modo che corrisponda al valore del gas di calibrazione.

Il sistema deve essere calibrato facendo passare la punta della sonda del rilevatore da una parte all'altra dell'orifizio dello standard di perdita. La punta della sonda deve essere mantenuta entro 3 mm dall'orifizio della perdita calibrata. La velocità di scansione non deve superare quella in grado di rilevare il tasso di perdita dallo standard di tenuta. Regolare la lettura dello strumento in modo che corrisponda al valore del gas di calibrazione (perdita calibrata). Annotare la lettura dello strumento.

Il tempo necessario per rilevare una perdita stabile dallo standard di perdita è il tempo di risposta e deve essere osservato durante la calibrazione del sistema.

Di solito è auspicabile che questo tempo sia il più breve possibile per ridurre il tempo necessario a individuare le perdite rilevate. Se la lettura del misuratore non può essere regolata sul valore corretto, il rilevatore non può funziona correttamente.

. CALIBRATION PROCEDURES

Assemble and start up the helium analyser according to the manufacturer's instructions. After the appropriate warm-up period and zero internal calibration procedure, introduce the calibration gas (leak standard) into the instrument sample probe. Adjust the instrument meter readout to correspond to the calibration gas value.

The system shall be calibrated by passing the detector probe tip across the orifice of the leak standard. The probe tip shall be kept within 3 mm of the orifice of the leak standard. The scanning rate shall not exceed that which can detect leakage rate from the leak standard. Adjust the instrument meter readout to correspond to the calibration gas (leak standard) value. The instrument meter readout shall be noted.

The time required to detect stable leakage from the leak standard is the response time and it should be observed during system calibration. It is usually desirable to keep this time as short as possible to reduce the time required to pinpoint detected leakage. If the meter readout cannot be adjusted to the proper value, a malfunction of the analyser is indicated.

8 PREPARAZIONE DELLA VALVOLA PER IL TEST

La valvola deve essere preparata per il test solo dopo essere stata montata completamente ed aver passato tutti i test di tenuta previsti.

La valvola non deve essere verniciata

Nell'ingresso della valvola deve essere montata una flangia cieca o se del caso, un tappo filettato sigillato.

Nell'uscita deve essere montata una flangia cieca o tappo sigillato con foro passante di entrata filettato adatto per il collegamento con la tubazione per l'immissione del gas (elio).

Il gas, elio ad una purezza minima pari 97% di volume, deve essere immesso nella valvola dal foro presente nella flangia/tappo di uscita ad una pressione di 1 bar.

. PREPARING THE VALVE FOR THE TEST

The valve shall be prepared for testing only after fully assembling and after passing all the required tightness tests.

The valve shall not be painted

A blind flange or, if applicable, a sealed threaded plug must be mounted at the valve inlet.

A blind flange or sealed plug with a threaded through-hole suitable for connection to the gas (helium) feed pipe shall be fitted at the outlet.

The gas, helium with a minimum purity of 97% by volume, must be fed into the valve through the hole in the outlet flange/plug at a pressure of 1 bar.

9 RILEVAMENTO DELLE PERDITE

Avviare lo spettrometro di massa ad elio secondo le istruzioni del produttore e il riscaldamento dell'elettronica. Eseguire le seguenti operazioni.

a) Calibrazione

b) Immettere nella valvola il gas (elio) ad una pressione di 1 bar ed attendere 10min per valvole con entrata DN ≤50(2") e 15min per valvole DN>50(2") prima di procedere con il punto d.

c) Misura di fondo: prima di ogni misurazione, la concentrazione di elio nell'ambiente intorno alla sorgente viene determinata spostando la sonda in modo casuale a una distanza di 1 o 2 m dalla sorgente. In caso di interferenze nella misurazione con una perdita nelle vicinanze, la concentrazione

. MEASUREMENT

Start the helium mass spectrometer as instructed by the manufacturer and electronics heating. Carry· out the following.

a) Calibration

b) Fill the valve with gas(helium) at a pressure of 1 bar and wait 10min for valves with inlet DN ≤50(2") and 15 min for valves DN>50(2") before proceeding with step d.

c) Background measurement: prior to each measurement, the ambient helium concentration around the source is determined by moving the probe randomly at a distance of 1m or 2m from the source. When there is interference in the measurement with a leak nearby, the ambient concentration

ambientale può essere determinata più vicino alla sorgente, ma la distanza non dovrà in nessun caso essere inferiore a 25 cm.
d) La sonda viene posizionata il più vicino possibile alla potenziale fonte di perdita, ossia sul bordo esterno delle guarnizioni.
e) La distanza della sonda dalla sorgente deve essere pari alla distanza utilizzata dalla procedura di calibrazione dell'analizzatore in ogni caso non superiore a 3 mm.
f) Muovere la sonda lungo la periferia dell'interfaccia osservando la lettura dello strumento. La velocità di scansione non deve superare la velocità di scansione determinata durante la calibrazione con lo standard di perdita (che dipende dal tempo di risposta, dalla portata della pompa e dalle dimensioni della sonda).
g) Se si osserva un aumento della lettura del misuratore, campionare lentamente l'interfaccia in cui è indicata la perdita fino a ottenere la lettura massima del misuratore.
h) Lasciare l'ingresso della sonda in questa posizione di massima lettura per circa due volte il tempo di risposta dello strumento.
i) L'operatore legge il valore massimo e lo registra facendo rimanere la sonda nello stesso punto per un periodo di tempo pari a circa il doppio del tempo di risposta dello strumento (ad esempio, alcuni secondi per una sonda standard da 5 metri).
j) La differenza tra questa misura e la misura di fondo determina se vi sono emissioni non rilevabili.
k) Le emissioni rilevabili dalla fonte di emissione impongono un livello di fondo inferiore al livello di emissione accettabile. Il livello di fondo deve essere inferiore a 50 ppmv.

can be determined closer to the source, but the distance should in no case be smaller than 25 cm.
d) The probe is positioned as close as possible to the potential leak source, namely at the outer edge of the seals.
e) The distance of the probe to the source shall be equal to the distance used by the calibration procedure for the analyser not exceeding 3 mm.
f) Move the probe along the interface periphery while observing the instrument readout. The scanning rate shall not exceed the scanning rate determined during calibration to the leak standard (which depends on the response time, the flow rate of the pump and the. probe dimension).
g) If an increased meter reading is observed, slowly sample the interface where leakage is indicated until the maximum meter reading is obtained.
h) Leave the probe inlet at this maximum reading location for approxi1narely two times the instrument response time.
i) The operator reads the maximum value and records it by making the probe remain in the same place during a period of time about twice the instrument response time (e.g. a few seconds for a 5·m standard probe).
j) The difference between this measurement and the background noise determines whether there are no detectable emissions.
k) Detectable emissions from emission source impose the background level to be lower than the acceptable emission level. Background level shall be lower than 50 ppmv.

Tabella 1

Definizione	***Reading***
Concentrazione di definizione della perdita *Leak definition concentration*	50 ppmv
Nessuna emissione rilevabile *No detectable emission*	≤ 48.75 ppmv

Annex 1
Fugitive emission test report

ANNEX 1

FUGITIVE EMISSION TEST REPORT
test according to IL 84

Via Toscana, 9 - Vignate (MI) Italy

mod. UTE-062 Rev. 0

Certificate No:

Customer: | Valve code:

Customer P.O.: | Valve model:

Internal Job Order | Item: | Tag No:

Monitoring instrument brand and model:

Calibration: ☐ a) with calibration gas ☐ b) with permeation type std ☐ c) with capillary type std

Calibration Gas reading: ☐ ppma ☐ mbar l s^{-1} ☐ Pa m^3 s^{-1}

Calibration Response time (CRS): sec Minimum testing response time(=2xCRS): sec

Valve testing

Item	Description of the potential leak source	Applicable for the tested valve		Background measurement (A) [ppmv]	Maximum reading value (B) [ppmv]	Difference (B-A) [ppmv]	The readings are conforming with no-detectable emission requirements: (B-A)≤ 48,75 ppmv	
1	Body / nozzle gasket	☐ YES	☐ NO				☐ YES	☐ NO
2	Bonnet/ cap gasket	☐ YES	☐ NO				☐ YES	☐ NO
3	Body / bonnet gasket	☐ YES	☐ NO				☐ YES	☐ NO
4	Blowdown screw gasket	☐ YES	☐ NO				☐ YES	☐ NO
5	Drain gasket	☐ YES	☐ NO				☐ YES	☐ NO
6	Body /nipple gasket	☐ YES	☐ NO				☐ YES	☐ NO

Date of certificate | Tested by | Verified by | Approved by

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

Base Load Power Hub (BLPH)

INSTALLATION, OPERATION AND MAINTENANCE MANUAL PSV

Document Number: 1724000518-IN-MAN-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	09-08-2024

Rev.	Date	Description	Prepared	Reviewed	Approved
03	01/08/2024	Accepted for Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
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technical

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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 ÷ 26	INSTALLATION, OPERATION AND MAINTENANCE MANUAL PSV	X	X	X	X				

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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)

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SAFETY VALVE
30000 SERIES
PED & ASME

INSTALLATION & OPERATION MANUAL

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THIS PRODUCT IS A SAFETY RELIEF DEVICE, INTENDED TO USE IN CRITICAL APPLICATIONS. IMPROPER APPLICATION, INSTALLATION OR MAINTENANCE OF THESE SAFETY VALVES OR THE USE OF COMPONENTS OR PARTS NOT MANUFACTURED OR AUTHORIZED BY MANUFACTURER MAY RESULT IN A FAILURE OF THE DEVICE.

SAFETY VALVES IN INAPPROPRIATE OPERATING CONDITIONS COULD EXPOSE THE PLANT TO EXPLOSIVE RISK WITH INJURIES TO PEOPLE AND DAMAGES TO THINGS.

PLEASE PAY ATTENTION TO THE INSTRUCTIONS OF THIS MANUAL AND FOLLOW THEM WITH CONSCIENTIOUSNESS.

PROCESS INFO USED FOR MATERIAL SELECTION AND VALVE SELECTION ARE UNDER CUSTOMER RESPONSIBILITY AND VALVE SELECTION IS BASED ON THE USER / CUSTOMER INFORMATION.

SAFETY VALVE MAINTENANCE SHALL BE CARRIED OUT BY TECHNICAL PERSONNEL OR BY PERSONS WHO HAVE SUITABLE TECHNICAL TRAINING AND THE NECESSARY EXPERIENCE OR WHO HAVE BEEN INSTRUCTED BY THE END-USER OF THE PRODUCT.

ANY INSTALLATION, MAINTENANCE, ADJUSTMENT, REPAIR OR TEST PERFORMED ON TECHNICAL SAFETY VALVE SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THIS DOCUMENT AS WELL AS APPLICABLE NATIONAL AND INTERNATIONAL CODES AND STANDARDS.

1 SAFETY INFORMATION

The following chapters report advices regarding the security and shall be read carefully to reduce the risk of serious consequences to the health of workers and to ensure the plant integrity. Recommendations and precautions mentioned can't be exhaustive of all the possible consequences of incorrectly performed actions. The following instruction shall be always respected.

- **Observe all safety regulations in force in the operation area.**
- **Take into account process data before operating on device. Take into account that metal surface of safety valves could be at high or low temperatures.**
- **Carefully consider the consequences of any action.**
- **Always use individual protection device.**
- **Never stand in front of safety valve outlet. Never be close to a valve in an attempt to hear or identify the source of a leakage/ discharge. Remember that hot gases and vapors are not always visible.**
- **Decrease the operative pressure before every work on the safety valve.**
- **Never hit a safety valve under pressure as this may cause unexpected opening at a pressure lower than set pressure.**
- **Disassembly shall be achieved only after the depressurization and drainage of the device.**
- **Be especially careful and protect yourselves from discharges of hazardous substances that may be trapped inside the safety valve.**



BEFORE ANY OPERATION ON VALVES, INDIVIDUAL PROTECTION DEVICES SHALL BE USED.

2 APPLICABILITY

This manual is applicable to Technical safety valves series 30000 for CE and ASME certification.

3 REFERENCE STANDARDS

The following codes and standards are applied:

ASME VIII Div.1	General manufacturing requirements
ASME B16.34	Valve body thickness
ASME B16.5 / UNI / DIN	Flange sizes
ASME B1.1	Body/bonnet threads
ASME B1.20.1	NPT threads
ASME II D	Maximum allowed stress for materials
UNI 4535	ISO threads
API 520	Valve sizing and installation for gas, steam and liquid service.
ISO EN 4126-7	Operative characteristics and sizing
API 527	Tightness test
ASTM	Material properties
ASME II A-B-D	Material properties

4 EXCEPTIONS and RESIDUAL RISK

Manufacturer analysis doesn't take into account the effects of the following factor on the device.

a) Wind loads.
b) Earthquakes
c) Fatigue stress.

Please contact the manufacturer for info about the effects of the above mentioned factors on device performance.
In addition take into account that:

- Fire: safety valves could operate in fire conditions only if they are not directly wrapped by flames and if the temperature limits are respected. Otherwise it is necessary the use of protection and cooling application equipment.
- Solidification/Polymerization: phenomena as polymerization, solidification, sedimentation or fluid freezing can compromise the normal safety performance of the valve.

Take into account that other possible remaining risks during the operating of the valves are:

a) Metal surface temperature of safety valve.
b) Discharge safety valve due to an unexpected pressure increase of the protected system. **NEVER BE IN FRONT OF VALVE OUTLET.**

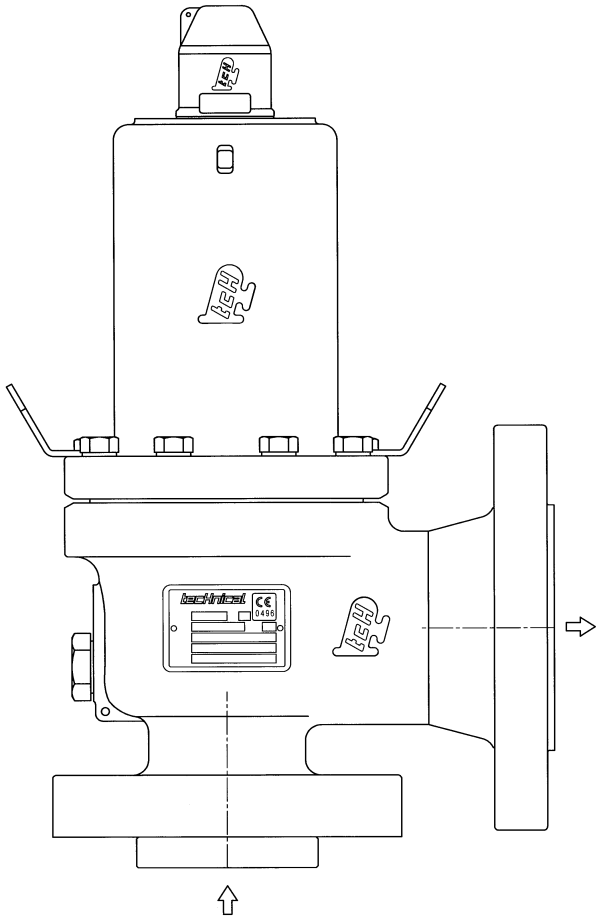
5 DEFINITIONS

In this manual following definitions are used:

BLOW-DOWN: Blowdown is considered as the difference between the set pressure of a pressure relief valve and actual reseating pressure expressed as a percentage of set pressure or in pressure units.
BUILT-UP BACKPRESSURE: static pressure generated by the discharge flow at the safety valve outlet.
CERTIFICATED CAPACITY: it is calculated multiplying the theoretic capacity by the discharge coefficient K_d and by the reducing coefficient 0,9, or multiplying the theoretic capacity by the certificated discharge coefficient K_{dr}.
COLD DIFFERENTIAL TEST PRESSURE: it is the set pressure on factory bench and could be different from set pressure for effects due to operating temperature or operating back pressure.
DERATED DISCHARGE COEFFICIENT K_{dr}: equal to the discharge coefficient K_d multiplied by the safety factor 0.9.
DISCHARGE AREA A: area used to calculate the theoretical capacity, without any deduction for possible obstructions. In case of a full lift valve, this area is equal to the minimum diameter of the valve nozzle (orifice).
DISCHARGE COEFFICIENT K_d: it is the ratio between valve measured capacity and valve theoretic capacity.
LIFT: lift of the valve disc.
RE-CLOSING PRESSURE: input pressure value necessary to the safety valve disk to re-establish the contact with the seat and to stop the continuous discharge as determined by seeing or hearing.
RELIEVING PRESSURE P_0: set pressure plus allowable overpressure.

ALLOWABLE OVERPRESSURE: allowable overpressure over the set pressure at which the valve attains the lift specified by the manufacturer. Usually overpressure is expressed as a percentage of the set pressure.
SET PRESSURE: it is defined by manufacturer. Technical defines the set pressure as the value of increasing inlet static pressure at which there is the first audible/visible discharge for gas and steam service and at which there is the first steady flow for liquid service.
SUPER IMPOSED BACKPRESSURE: static pressure that is found at the exit of the safety valve when it starts to open.
TOTAL BACKPRESSURE P_B: it is the combination of built-up and super imposed backpressure.

6 DESIGN



SAFETY VALVE FOR GASES, VAPOURS AND LIQUIDS

MAIN FEATURES

Spring loaded safety valve with:

- Conventional and balanced type.
- Full nozzle.
- Full lift type.
- Liquid, gas and vapour service.
- Orifice and overall dimensions according to API 526.
- Approval: CE, UV Stamp, EAC.
- Metal-to-Metal Seat

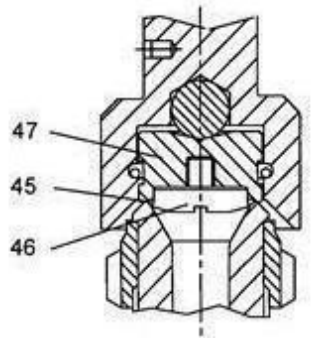
ACCESSORIES

- Soft
- Balancing Piston.
- Balancing Bellows.
- Test Gag.
- Jacket.
- Trevi Test Configuration.
- Packed Lever.
- Plain Lever.
- Limit Switch.

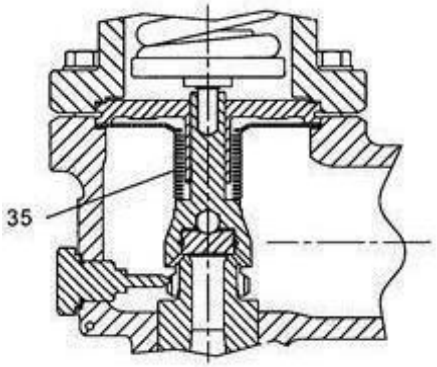
Safety valve **30000 Series,** designed and manufactured by **Technical s.r.l**. in accordance with **API 526** (overall dimensions)**,** are full nozzle and total lift type.
Safety valve 30000 series is suitable for liquid, gas and vapour services.
The bonnet contains the spiral spring that, depending on the use and type of fluid, can be assembled with closed cap or with open bonnet (vapour service).
The seat is plane and “metal to metal” type; soft sealing ring can be supplied on demand. Upon request, the valve is also available with accessories such as the packed or open lifting lever, test gag, balancing-isolation bellows, balancing piston, heating jacket, test gag, limit switch or/and Trevi test configuration.

CHARACTERISTICS AND PRESSURE LIMITS							
Type	ORIFICE ø mm	Area cm²	Area Sq. in	Lift mm	Max. set pressure bar	Max. backpressure without bellows bar	Max. backpressure with bellows bar
D	10	0.785	0.121	2.5	413	19 ÷ 41	10
E	13.3	1.389	0.215	3.1	413	19 ÷ 41	10
F	16.6	2.164	0.335	4.2	344	19 ÷ 51	15 ÷ 34
G	21.2	3.53	0.547	6.2	255	19 ÷ 51	15 ÷ 32
H	26.5	5.515	0.854	9.8	189	15 ÷ 28	19 ÷ 51
H1	30	7.068	1.095	10	189	15 ÷ 28	19 ÷ 51
J	34	9.079	1.407	11	186	19 ÷ 41	15
K	40.6	12.94	2.006	13	153	19 ÷ 41	10 ÷ 13
K1	45	15.9	2.465	14	153	19 ÷ 41	10 ÷ 13
L	50.6	20.1	3.116	16	103	19	7 ÷ 11
M	56.8	25.33	3.927	19	75	19	5 ÷ 11
N	62.4	30.58	4.74	20	68	19	5 ÷ 11
P	75.7	45	6.976	24	68	19	5 ÷ 10
P1	84.5	56.07	8.692	25	56	19	5 ÷ 10
Q	99.6	77.91	12.07	30	41	8	4 ÷ 8
R	119.8	112.7	17.47	36	20	4 ÷ 7	4 ÷ 7
T	152.8	183.3	28.42	46	20	2 ÷ 7	2 ÷ 7

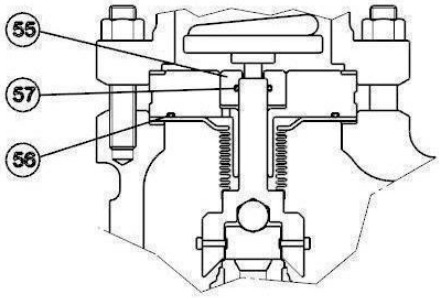
ACCESSORIES



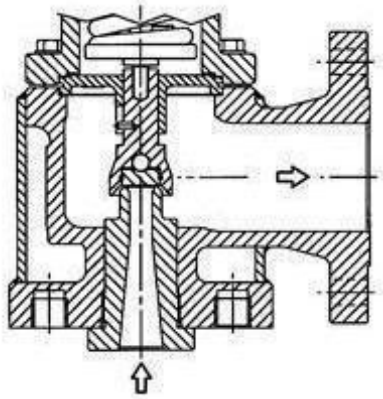
SOFT SEAT



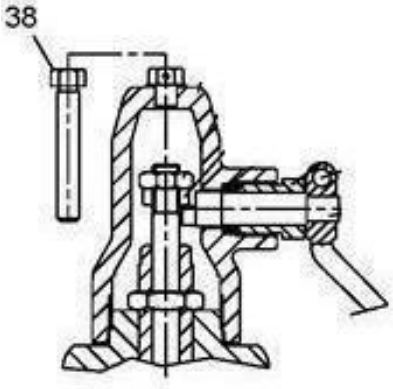
BELLOWS



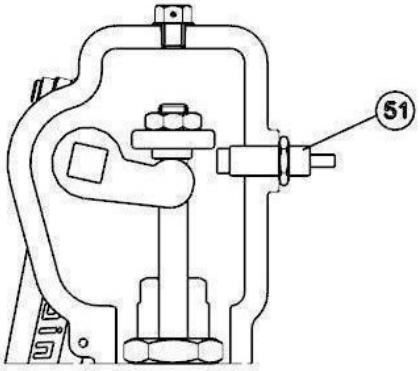
BALANCING PISTON



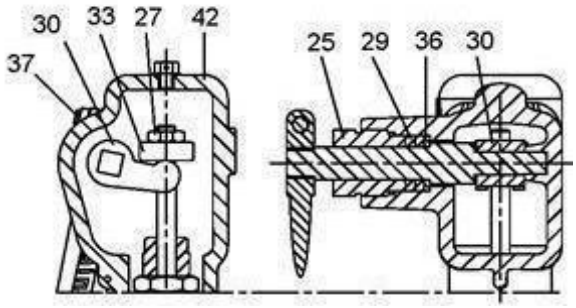
JACKET



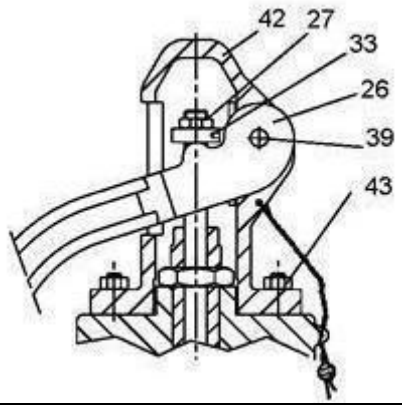
TEST GAG



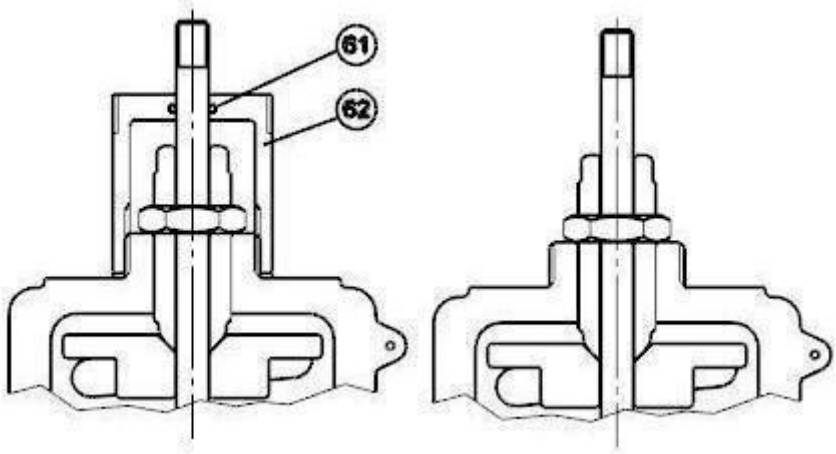
LIMIT SWITCH



PACKED LEVER



PLAIN LEVER



TREVI TEST CONFIGURATION

6.1 SOFT SEAT

Soft seat is design with an o-ring (45) fixed on the disc (47) screwing the seat screw (46).

O.ring material selection is in accordance with process data communicated by customer. Soft seat is particularly required when zero leakage tightness on seat is required.

6.2 BELLOWS

Balancing bellows (35) is applied to minimize the effect of back pressure on valve performance.

6.3 BALANCING PISTON

Balancing piston (55) is required when additional tool is required for minimize the effects of backpressure in case of bellows rupture. Balancing Piston slides inside a guide and requires 2 additional seal (56-57).

6.4 JACKET

Jacket (7a) is required for applications with high viscosity or crystallizing fluid.

6.5 TEST GAG

Test gag (38) is required to not damage the valve seat during transportation.

ATTENTION: REMOVE ALWAYS TEST GAG BEFORE INSTALLATION ON PLANT.

6.6 LIMIT SWITCH

Limit switch (51) is required to transmit a signal when valve is open.

6.7 PACKED LEVER

Packed lever (37) is required to test valve opening. Packed lever guarantees the tightness of the cap and could be supplied with threaded and flanged cap.

6.8 PLAIN LEVER

Plain lever (26) is required to test valve opening. Plain lever not guarantees the tightness of the cap and could be supplied with threaded and flanged cap.

6.9 TREVI TEST CONFIGURATION

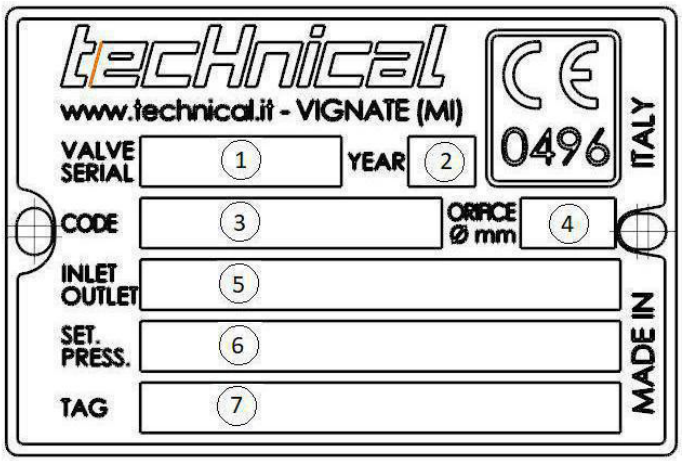
Trevi test configuration is required to verify on field the valve test pressure hooking the valve stem. In case of conventional valve, where the process fluid could damage the operator, an additional tool is required (62) with its seal (61) to perform the test.

7 NAMEPLATE

Nameplate is the first source of information about the device.

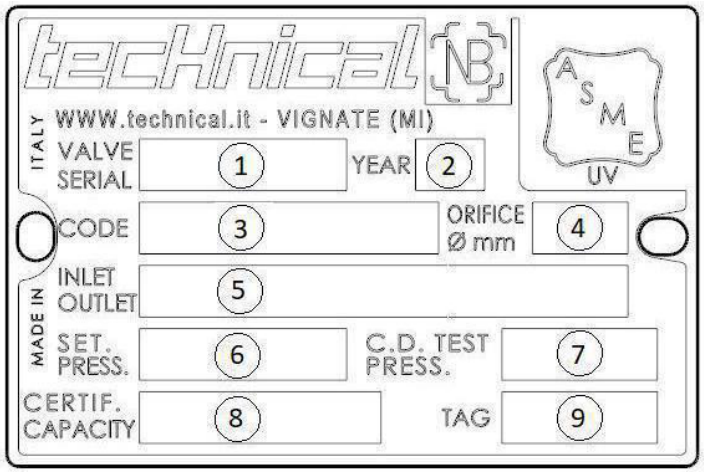
Any use not covered by this manual or outside the parameters as specified on the nameplate and on certificates provided together with the safety valve is not permitted and may compromise the health and safety of people as well as the integrity of the equipment.

7.1 PED NAMEPLATE



ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Unique serial number	5	Inlet and outlet dimension and rating
2	Production year	6	Set pressure with consistent unit
3	Technical identification model code	7	Valve Tag
4	Orifice diameter with consistent unit		

7.2 UV STAMP NAMEPLATE



ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Unique serial number	6	Set pressure with consistent unit
2	Production year	7	Cold differential test pressure
3	Technical identification model code	8	Certified capacity by National Board
4	Orifice diameter with consistent unit	9	Valve tag
5	Inlet and outlet dimension and rating		

7.3 ATEX NAMEPLATE

In case of application in explosive atmosphere an additional tag “Ex” is marked on nameplate in accordance with European Directive 2014/34/UE.



Equipment group: II
Equipment category: 2
Environment: Gas atmosphere [G]
Explosion protection: Intrinsic [c]
Gas group: IIC
Temperature Class: T6

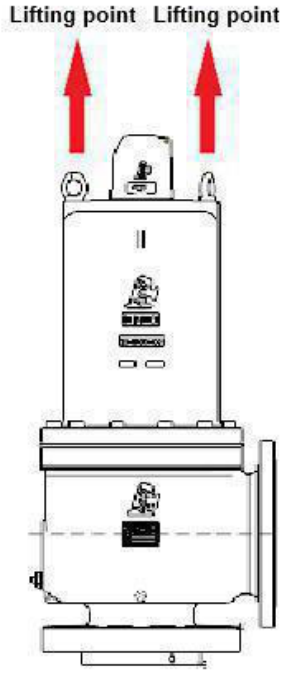
8 SETTING-UP

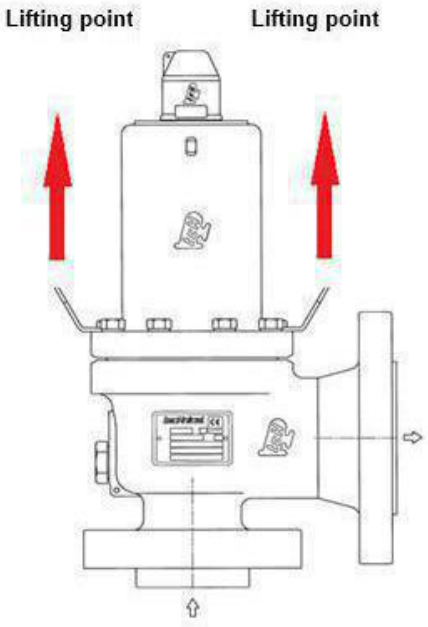
Before shipment all the safety valves are hydrostatically tested and set at the setting pressure required by the Client. The maximum setting deviation is less than 3% for pressure up to 2,1 MPa, with a minimum of 0,02 MPa; it is less than 0,07 MPa up to 7 MPa; it is less than 1% for pressure over 70 MPa.
If adjustment is required on field, please contact always the manufacturer.

9 STORAGE & HANDLING

We recommend to leave the valves in their original package till it is necessary to keep them operating.
Safety valves should be stored indoors, on pallets and away from dirt and other forms of contamination.
Safety valves should be handled with care and should not be subjected to shock. Some crashes or hard vibrations could create damages to seats endangering good valve operations.

Cleanness is determinant for a safety valve performance





10 INSTALLATION

Before installing the valve on the plant make sure that:

- the line fluid is indicated on the construction declaration or is compatible with the construction materials;
- the inlet piping in the valve are clean, impurities less, slag less etc. and eventually remove them.
- the inlet and discharge piping are dimensioned in such a way that they generate the minimum possible loss of pressure.

The mounting of the valve on the plant has to be carried out tightening the lock nuts in a crossed and uniform way.
Once the valve has been installed on the plant make sure that:

- the discharge is not positioned in such a way to result dangerous for people, for instruments or for things;
- the discharge is properly conveyed.

Before installation always verify that:

- **The maximum design pressure of the device protected by the safety valve should not be lower than the valve set pressure as reported on nameplate. For multiple installation, additional safety valves could have a set pressure above the design pressure.**

Proceed with installation only after verifying the integrity of manufacturer seals.
The original Technical guarantee is not valid if the seals are removed or damaged.

10.1 PIPING

Safety valve inlet piping shall have an internal diameter greater than or equal to the inner diameter of safety valve inlet flange. The connections between the valve and the vessel shall be as short as possible.
Inlet piping generates twisting moment and reaction forces during discharge. The inlet piping should be right sized and supported.

The downstream piping must be shortest and linear as possible. The exit connection of a safety valve must be connected to a pipe conveying in a safe area. The downstream piping shall have an internal diameter greater than or equal to the valve inner diameter outlet flange.
Actual backpressure on system/plant shall be consistent with data reported on sizing sheet.

A safety valve discharge must be conveyed in a safe and protected area, otherwise it could be dangerous for people and for the plant.

Using outlet piping with an inner diameter not consistent with the selected safety valve could generate hazardous situations and danger for people and things.

10.2 PRESSURE DROPS

Safety valve inlet piping (also curves and any isolating valves) shall be sized so that during fully open discharge the total pressure drop in the line does not exceed 3% of valve set pressure. Greater pressure drop could generate chattering and capacity reduction. Please contact manufacturer for additional info.

10.3 SUPPORTS

Inlet and outlet valve piping shall be sized and supported so that they can resist to reaction forces generated by the valve discharge.

Inlet and outlet piping shall be fixed in such a way to minimize/eliminate possible **vibrations**.

10.4 REACTION FORCES

Valve flow discharge generates stress due to the flow through the valve. If the downstream piping is not properly supported, the reactive loading due to valve operation will be transmitted to the valve and inlet piping.
Reference standard for reaction force calculation is usually API 520 Part II, for gas, vapors or mixture service.
For liquid service and additional information please contact the valve manufacturer.

10.5 ADDITIONAL FORCES

The safety valve outlet piping with conveyed discharge should be designed in order to prevent stresses which can be transferred to the valve or its inlet piping.
Such stresses can have thermal and/or mechanical nature.

- **Thermal stresses** are due to increase of temperature resulting from the flow of hot fluids during discharge, to prolonged sun exposure or to heat radiated from nearby equipment. These stresses should be minimized by means of flexible supports or anchorages, or providing expansion allowance.
- **Mechanical stresses** are mainly due to the weight of the discharge piping which could be not properly supported. Stresses caused by incorrect alignment of the valves piping must also be avoided.

10.6 DRAINAGES

30000 series are designed with drainage system on valve body. Please consider that during maintenance operations.

10.7 BELLOWS

In case of balanced safety valve, in presence on field of a very low ambient temperature during night and humidity in atmosphere during the day bellows could be damaged by the formation of ice during the nights. If this scenario is possible, please consider to keep in temperature the valve with electric tracking or something equal.

10.8 BLOWDOWN RING

Blowdown ring is fixed and sealed in factory by Technical. Any adjusting of blowdown ring shall be approved by Technical. Please contact us for info about blowdown ring adjustment.

10.9 PLANT HYDRAULIC TEST

If hydraulic test of the plant with mounted safety valve is required, take into account that valve could be damaged.

During the hydraulic test of the plant or of the device/vessel under pressure, the safety valves shall be disassembled or intercepted. The use of a blind flange is suggested.
For the use of test gag to block the valve lift please contact always the manufacturer.

11 START-UP

After following all the instructions reported on installation chapter, please proceed with start-up pressurizing the system protected by safety valve. Safety valve not required additional adjustment.
Manufacturer suggests to increase slowly the system pressure in order to evaluate eventual leakage from valve parts.

12 OPERATION

30000 safety valve is a spring loaded safety valve with full lift.
In case of overpressure scenario, 30000 safety valve fully opens relieving the flowrate necessary to restate the normal process condition.

13 MAINTENANCE

Maintenance and repair operations can be performed with a variable frequency based on operating conditions, process fluid and the frequency with which the valve discharges.
Normally, inspection frequency on the safety valves follows the same frequency of inspections on the protected pressure vessel or equipment.

Use always individual safe-protections tools, in particular hear protections and glasses.
Take care about the pressure system. Operate on the valve only with no pressure in the system.
Take care about the presence of toxic, noxious or dangerous fluids.
Take into account that severe service could be damaged the safety valve inner parts.
Maintenance and/or repair operations must be carried out by skilled personnel, which have received adequate training, according to the specifications and procedures of the manufacturer and also with respect to the laws in force in the country where the valve is installed.
Only use original spare parts supplied by manufacturer is permitted to guarantee PED conformity declaration, warranty and valve certificate void.

SUGGESTED ORDINARY MAINTENANCE PLAN	
Check of the seat and disc on the plant	Every valve opening / every 6-months of operation.
Check of the seal outwards in case of back pressure on the plant	Every 30 days.
Check of the painting condition on the plant.	Every 6 months.
Ordinary maintenance of the assembled on the plant, including the seal check and surface check of the movable components.	Every 12 months.
General maintenance of the valve removed from the plant including the disassembling, the seat and the disc check, the possible seat and disc lapping, gaskets substitution, painting restoration and inspection on the test bench.	Every 24 months of operation.

If no regulations exist, follow the guidance given in ORDINARY MAINTENANCE PLAN table reported above.
In case of valve leakage, inspection and maintenance shall be done as soon as possible.
For damage on seat, disc and nozzle could be repaired by skilled personnel.
For valve full repair, valve shall be removed by the plant and fixed on a test bench.
Some possible damage and relate solution are summarized on the table below.
For any other additional information or in case of no solution, please contact our Service Department.
The use of a “service manual” to archive all maintenance operations is strongly recommended.

14 DAMAGE TABLE

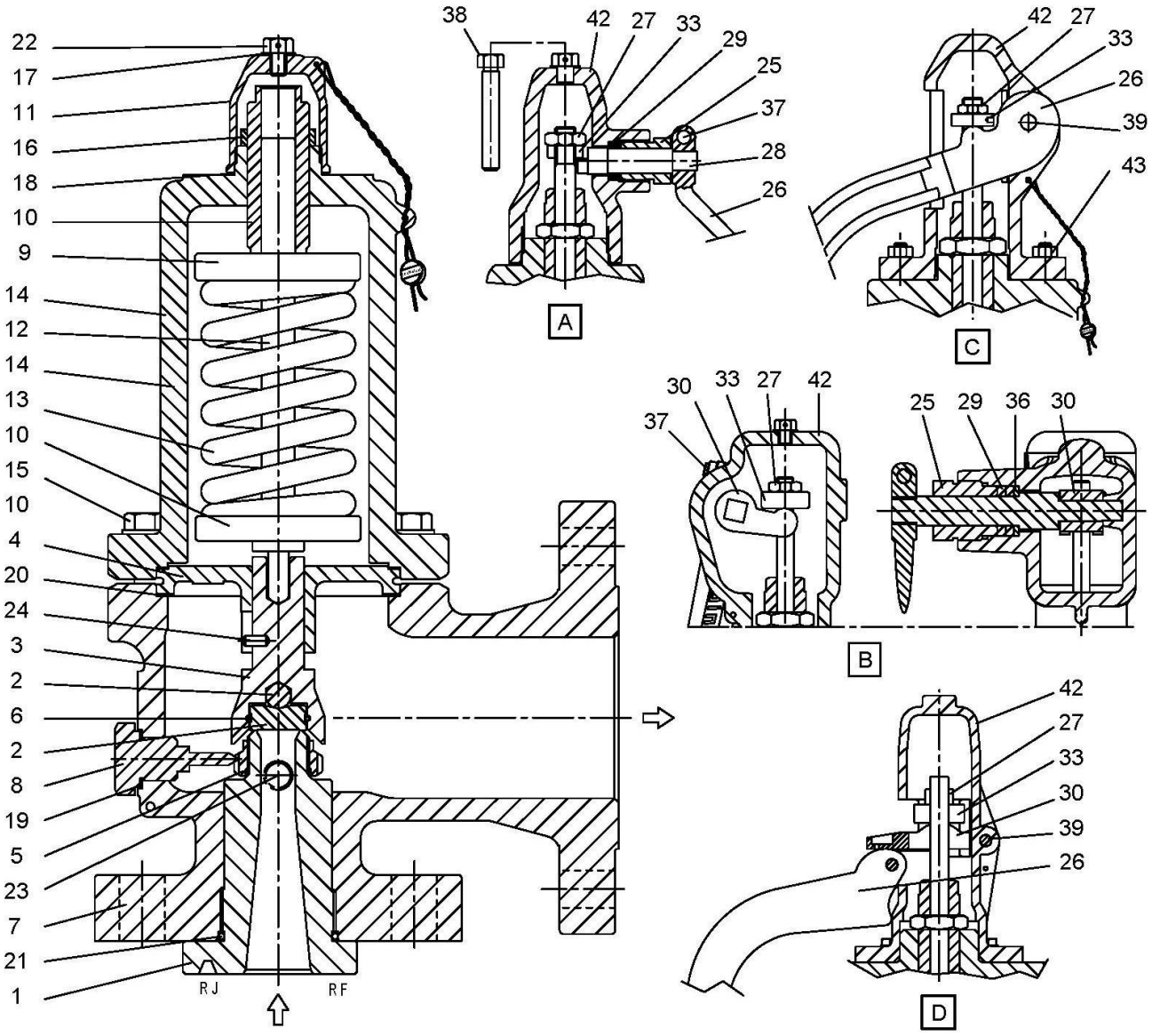
DAMAGE TABLE		
INCONVENIENT	***POSSIBLE DAMAGE***	***ACTION TO BE CARRIED OUT***
Fluid leakage in-line	*Seat wear and tear*	*Nozzle substitution or repair*
	Disc wear and tear	*Disc substitution or repair*
	Seat and disc damaging	*Nozzle and disc repair*
	Impurities presence between seat and disc	*Nozzle and disc cleaning and repair*
	Valve-use with fluid different from the one stated in the purchase order	*Nozzle and disc repair*
External back pressure fluid leakage.	*Valve gaskets damaging*	*Gaskets substitution*
	Valve body-bonnet damaging	*Valve repair or substitution*
	Cap or blowdown screw loosen	*Check and setting-up of the cap and of the blowdown screw.*
Opening at pressure value different form setting valve	*Back pressure variable*	*Check of dimensioning and of the discharge piping working conditions and possible valve substitution with another type.*
	Spring release	*Spring substitution and check compatibility of the material with the fluid.*
	Setting screw withdraw	*Resetting the valve and tighten very well the lock nut*
Valve intervention with quick opening and re-closures repeated in the time	*Strong pressure loss in the inlet piping*	*Check the inlet piping length*
	Pulsating flow rate to be discharged	*Check plant regulation.*
	Over dimensioned valve	*Substitute the valve with one correctly dimensioned.*

15 VALVE DISASSEMBLY

In order to execute disassembling carry out progressively the following operations:

Before disassembling the valve make sure that the plant on which it is mounted is not "under pressure" and that no pressure inside the valve itself has remained.

Before disassembling the bonnet of the valve body make sure that the spring (13) is totally released using the adjusting screw (10).



ITEM	PARTS	ITEM	PARTS	ITEM	PARTS
1	NOZZLE	17	GASKET	37	LEVER SCREW
2	DISC	18	GASKET	38	TEST GAG
2	BALL	19	GASKET	39	SCREW
3	DISC HOLDER	20	GASKET	42	LEVER CAP
4	STEM GUIDE	21	GASKET	43	NUT / SCREW
5	BLOWDOWN RING	22	SCREW	45	GASKET
6	RING	23	PLUG	46	SOFT SEAT SCREW
7	BODY	24	PIN	47	SOFT SEAT DISC
8	BLOWDOWN SCREW	25	RING NUT	51	
9	SPRING GUIDE	26	LEVER	55	
10	ADJUSTING SCREW	27	LOCK NUT LEVER	56	
11	CAP	28	CAMSHAFT	57	
12	STEM	29	PACKING RING	61	
13	SPRING	30	FORK	62	
14	BONNET	33	SPACER		
15	SCREW /	35	BELLOWS		
16	LOCK NUT	36	SPACER		

15.1 VALVE WITHOUT ACCESSORIES

- *remove the valve from the plant;*
- *remove the cap (11) and unloosen the lock nut (16) and the adjusting screw (10);*
- *remove the screws (15), the bonnet (14) and remove all the internal parts.*

15.2 VALVE WITH PACKED LEVER

15.2.1 Type “A”

- *unloosen the screw (37) and remove the lever (26);*
- *remove the nut (25) and remove the packing rings (29) and camshaft (28);*
- *remove the lever cap (42) from the valve turning it counter clockwise;*
- *unloosen the lock nut (27) and remove it together with the disc (33);*
- *unloosen the lock nut (16) and the adjusting screw (10);*
- *remove the screws (15), the bonnet (14) and remove all the internal parts.*

15.2.2 Type “B”

- *remove the nuts/screws (43) if any;*
- *turn the camshaft (28) counter clockwise, putting the fork (30) at the end of stroke, and remove the lever cap (42) from the valve*
- *unloosen the* screw (37) *and remove the lever (26);*
- *remove the nut (25) and remove the packing rings (29), the spacer, the camshaft (28) and the fork (30);*
- *unloosen the lock nut (27) and remove it together with the disc (33);*
- *unloosen the lock nut (16) and the adjusting screw (10);*
- *remove the screws (15), the bonnet (14) and remove all the internal parts.*

15.3 VALVE WITH OPEN LEVER

15.3.1 Type “C”

- *remove the self-locking nuts with the screw (39) and remove the lever (26);*
- *remove the nuts/screws (43)*
- *remove the lever cap (42);*
- *unloosen the lock nut (27) and remove it together with the disc (33);*
- *unloosen the lock nut (16) and the adjusting screw (10);*
- *remove the screws (15), the bonnet (14) and remove all the internal parts.*

15.3.2 Type “D”

- *remove the self-locking nuts with the screws (39) and remove the lever (26) and the fork (30);*
- *remove the nuts/screws (43)*
- *remove the lever cap (42);*
- *unloosen the lock nut (27) and remove it together with the disc (33);*
- *unloosen the lock nut (16) and the adjusting screw (10);*
- *remove the screws (15), the bonnet (14) and remove all the internal parts.*

16 VALVE ASSEMBLY

16.1 VALVE WITHOUT ACCESSORIES

*For assembling carry out the same operations of point **15.1)** but in reverse order, tightening first the nozzle (1) into the valve body (7). Before pushing the spring (13), make sure that the blowdown ring (5) is free and does not touch the disc holder (3).*

16.2 VALVE WITH PACKING LEVER

16.2.1 Type “A”

*For assembling carry out the same operations of point **15.2.1** but in reverse order, tightening first of all the nozzle (1) into the valve body (7). Before pushing the spring (13), make sure that the blowdown ring (5) is free and does not touch the disc holder (3).*
Once assembled the valve and tightened the lock nut (16) it is necessary to put the disc (33) and the lock nut (27) at the end of the thread and tightening one against the other.
After assembling make sure that the lever can turn easily with no efforts and without interferences.

16.2.2 Type “B”

*For assembling carry out the same operations of point **15.2.2** but in reverse order, tightening first of all the nozzle (1) into the valve body (7). Before pushing the spring (13), make sure that the blowdown ring (5) is free and does not touch the disc holder (3).*
Once assembled the valve and tightened the lock nut (16) it is necessary to put the disc (33) and the lock nut (27) at the end of the thread and tightening one against the other.
After assembling make sure that the lever can turn easily with no efforts and without interferences.

16.3 VALVE WITH OPEN LEVER

16.3.1 Type “C”

*For assembling carry out the same operations of point **15.3.1** but in reverse order, tightening first of all the nozzle (1) into the valve body (7). Before pushing the spring (13), make sure that the blowdown ring (5) is free and does not touch the disc holder (3).*
Once assembled the valve and tightened the lock nut (16) it is necessary to put the disc (33) and the lock nut (27) at the end of the thread and tightening one against the other.
After assembling make sure that the lever can turn easily with no efforts and without interferences

16.3.2 Type “D”

*For assembling carry out the same operations of point **15.3.2** but in reverse order, tightening first of all the nozzle (1) into the valve body (7). Before pushing the spring (13), make sure that the blowdown ring (5) is free and does not touch the disc holder (3).*
Once assembled the valve and tightened the lock nut (16) it is necessary to put the disc (33) and the lock nut (27) at the end of the thread and tightening one against the other.
After assembling make sure that the lever can turn easily with no efforts and without interferences.

17 VALVE TESTING

17.1 HYDROSTATIC TEST

Before shipment all the safety valves are hydrostatically tested and set at the setting pressure required by the Client.

17.2 SET PRESSURE

The maximum setting deviation is:

SET PRESSURE	MAXIMUM ACCEPTABLE DEVIATION
Set pressure <= 0,5 MPa	0,015 MPa
0,5 MPa < Set pressure <= 7 MPa	3%
Set pressure > 7 MPa	1%

In case it should be necessary to modify the set pressure or the re-closure pressure of the valve (blowdown), it should be necessary proceed as follows:

- remove the cap (15) and unloosen the lock nut (17);
- turn the adjusting screw (12) clockwise in case the set pressure should be increased;
- turn the adjusting screw (12) counter-clockwise in case the set pressure should be decreased.

The adjustment range of the spring setting is ± 5 % of the set pressure indicated on the label of the valve.
Once the valve setting is regulated tighten the lock nut (17) and re-screw the cap (15).
Set pressure calibration shall be performed on field by authorized and appropriately skilled people.
Set pressure calibration requires the seal removal and original warranty expire.

17.3 SEAT TIGHTNESS TEST

Using a leak detection system apply a blind flange for leak testing to the main valve outlet flange and slowly increase the supply inlet pressure until 90% of set pressure. For set pressure lower than 0,345 MPa g, the test pressure shall be equal to 0,0345 MPa less than set pressure. Check the seat tightness and verify the leakage in accordance with API 527.Minimum waiting times for leakage evaluation are:

SERVICE	MINIMUM WAITING TIME
GAS – STEAM – VAPOR	2 minutes
LIQUID	1 minute

18 SPARE PARTS

For spare parts for 2 years please refer always to the valve drawing supplied during order.

19 SERVICE LIFE

Technical provides full traceability of product documentation for a maximum of 30 years. Valve service life strictly depends on operating conditions and maintenance plan.Severe service could reduce the estimated period of life.
Warranty period is, in any case, defined in contractual documents.

20 SEALS & WARRANTY

Warranty period is always defined in contractual documents.
Seal removing from not authorized personnel declares the warranty expire.

21 DECOMMISSIONING & DISPOSAL

Safety valve is made by metal parts and plastic and rubber parts (gasket, o-ring, lip-seal) and in some cases from painting parts. Before operating with disposal, end-user shall deeply evaluate the history of the device and the process conditions at which the device operated during its service life.
Disposal of safety valve shall be always in accordance with local laws.



20060 Vignate (MI) - Italy

ADDENDUM AL MANUALE D'USO E MANUTENZIONE	ADDENDUM TO OPERATING AND MAINTENANCE MANUAL
ATEX	
DIRETTIVA EUROPEA	**EU DIRECTIVE**
2014/34/EU	
IN ACCORDO A / ACCORDING TO	
UNI CEI EN ISO 80079-36:2016 & UNI CEI EN ISO 80079-37:2016 [para.]	

1. Classe di temperatura [Part 36, par. 6.2]

La temperatura superficiale della valvola dipende delle condizioni operative e non dalla valvola in sé (vedi UNI CEI EN ISO 80079-36:2016, par. 6.2.5 e 6.2.7); le valvole assumono la temperatura del fluido che le attraversa o la temperatura ambientale o una temperatura intermedia tra le due pertanto la classe di temperatura applicabile è definita come:

Valvole con corpo e coperchio metallici
T6...T1
T85°C…T450

Valvole con corpo e/o coperchio in plastica
T6
T85°C

L'effettiva temperatura superficiale della valvola viene quindi determinata dall'applicazione (temperatura del fluido) e dall'installazione (temperatura ambiente). Inoltre a valvola chiusa, quindi con valvola non percorsa dal fluido, la temperatura superficiale si riduce notevolmente in base a fattori quali la lunghezza del tronchetto di installazione a monte della valvola e l'eventuale coibentazione.

Nel caso di Gas, le Classi di temperatura applicabili secondo UNI CEI EN ISO 80079-36:2016 sono le seguenti (par. 6.2.5 Table 2):

Classe	Temperature del fluido = Temperatura della valvola °C
T1	≤ 450
T2	≤ 300
T3	≤ 200
T4	≤ 135
T5	≤ 100
T6	≤ 85

1. Temperature class [Part 36, par. 6.2]

The surface temperature of the valve depends on the operating conditions and not on the valve itself (see UNI CEI EN ISO 80079-36:2016, par. 6.2.5 and 6.2.7); the valves reach the temperature of the fluid passing through them or the ambient temperature or an intermediate temperature between the two. Therefore, the applicable temperature class is defined as follow:

Valves with metal body and bonnet
T6... T1
T85°C...T450

Valves with plastic body and/or bonnet
T6
T85°C

The actual surface temperature of the valve is therefore determined by the application (fluid temperature) and installation (ambient temperature). In addition, when the valve is closed and therefore not crossed by fluid, the surface temperature is greatly reduced according to factors such as the length of upstream piping of the valve and the possible insulation.

In the case of Gas, the temperature classes applicable according to UNI CEI EN ISO 80079-36:2016 are as follows (par. 6.2.5 Table 2):

Class	Fluid Temperature = Valve Temperature °C
T1	≤ 450
T2	≤ 300
T3	≤ 200
T4	≤ 135
T5	≤ 100
T6	≤ 85

2. Scintilla da singolo urto e per frizione [Part 36, par. 6.4.2 - 6.4.3] Il rischio di innesco per scintilla da singolo urto è considerato non applicabile perché le parti in movimento hanno velocità inferiore a 1 m/s, i materiali utilizzati non sono alluminio, titanio, magnesio; i materiali contengono magnesio, titanio e zinco per un totale inferiore al 7.5%; i componenti mobili in contatto tra loro (guide, boccagli otturatori) hanno durezza differenziate.	**2. Single impact spark and friction [Part 36, par. 6.4.2 - 6.4.3]** The risk of single impact spark ignition is considered not applicable because moving parts have speeds less than 1 m/s, the materials used are not aluminium, titanium, magnesium; materials contain magnesium, titanium and zinc for a total of less than 7.5%; the mobile components in contact with each other (guides, nozzle, disc) have different hardness.
3. Guarnizioni per parti mobili [Part 37 par 5.3 - 5.5 - 5.6 - 5.7] Sulla valvola possono essere presenti guarnizioni sulle parti in movimento. Le guarnizioni sono realizzate in materiali autoestinguenti. La velocità reciproca tra i componenti è inferiore a 1 m/s. Non è possibile l'innesco per temperature elevate. Inoltre non sono presenti guarnizioni lubrificate e parti lubrificanti, le valvole non sono soggette a vibrazioni e non ci sono cuscinetti e sistemi di trasmissione di potenza.	**3. Gaskets for moving parts [Part 37 par 5.3 - 5.5 - 5.6 - 5.7]** There may be gaskets on the moving parts of the valve. The seals are made of self-extinguishing materials. The reciprocal velocity between components is less than 1 m/s. The ignition is not possible due to high temperatures. In addition, there are no lubricated gaskets, lubricating parts and the valves are not subject to vibration and there are no bearings and power transmission systems.
4. Molle [Part 37 par 5.12] Le molle sono tutte calcolate secondo un foglio di calcolo realizzato da TECHNCIAL che poi viene verificato dal fornitore delle molle. In caso di rottura della molla non si creano scintille e/o sovratemperature che innescano l'atmosfera.	**4. Springs [Part 37 par 5.12]** All the springs are calculated according to a spreadsheet made by TECHNCIAL and verified by the supplier of the springs afterwards. In the event of spring failure, no sparks and/or over-temperature are created that could trigger the atmosphere.
5. Componenti elettrici montati come accessori [Part 36, par. 6.5] Normalmente le valvole non sono equipaggiate con componenti elettrici. Qualora il cliente richieda accessori elettrici particolari, quali ad esempio fine corsa di prossimità e relative cassette di derivazione, le stesse saranno acquistate con il grado di protezione e la certificazione richieste dal cliente per la zona di applicazione.	**5. Electrical components mounted as accessories [Part 36, par. 6.5]** Valves are not normally equipped with electrical components. If the customer requests special electrical accessories, such as proximity sensors and related junction boxes, they will be purchased with the protection degree and certification required by the customer for the application area.
6. Fulmini [Part 36, par. 6.6] Eventuale protezione dai fulmini è demandata alle installazioni circostanti alla valvola. La valvola in sé, laddove installata in posizioni più alte rispetto alle strutture circostanti, non ha una protezione dai fulmini.	**6. Lighting [Part 36, par. 6.6]**: Possible protection from lightning is left to the installations surrounding the valve. The valve itself, when installed in higher positions than the surrounding structures, does not have lightning protection.

7. Elettricità statica e correnti parassite [Part 36, par. 6.6 - 6.7] Dopo l'installazione va verificata la **continuità elettrica** tra le flange di accoppiamento valvola e tubazione al fine di evitare differenze di potenziale che possano provocare scintille. Inoltre va verificata la necessità di **messa a terra**, in funzione dell'impianto dove la valvola è installata. Queste verifiche sono ad opera e responsabilità dell'istallatore.	**7. Static electricity and eddy current [Part 36, par. 6.6 - 6.7]** After installation, **electrical continuity** between the valve and pipe coupling flanges must be checked in order to avoid potential differences that may cause sparks. In addition, the need for grounding should be checked, depending on the system where the valve is installed. These checks must be carried out by the installer and are under his responsibility.
8. Cariche elettrostatiche, verniciatura e gruppi di fluido ISO 800079 [Part 36, par. 6.7.5] - Le valvole sono idonee per l'uso con gas del **gruppo IIC** (idrogeno e acetilene) purché la verniciatura delle valvole sia inferiore a 200 micron oppure venga fatta con vernici conduttive. Una vernice spessa oltre i 200 micron e non conduttiva potrebbe generare una differenza di potenziale tale da rendere la valvola non idonea ai fluidi del gruppo IIC (NOTA: Una valvola idonea per il gruppo IIC è idonea anche per i gruppi IIA e IIB). - Verniciature fino a 2 mm (2000 micron) rendono la valvola idonea ai gas dei **gruppi IIB e IIA**. - Per verniciature oltre i 2 mm necessita fare un'analisi specifica per determinare il gruppo dei fluidi applicabile. - Non è ammessa la **riverniciatura** delle valvole dopo la consegna a meno che non si garantisca che lo spessore totale non aumenti.	**8. Electrostatic charges, painting and fluid groups ISO 800079 [Part 36, par. 6.7.5]** - The valves are suitable for use with gas of **group IIC** (hydrogen and acetylene) if the paint of the valves is less than 200 microns or made with conductive paints. A paint that is over 200 microns thick and non-conductive could generate a potential difference such as to make the valve unsuitable for IIC group fluids. (NOTE: a valve suitable for the IIC group is also suitable for groups IIA and IIB.) - Paintings up to 2 mm (2000 micron) make the valve suitable for gases of **groups IIB and IIA.** - For paintings over 2 mm, it is necessary to make a specific analysis to determine the applicable fluid group. - Valve **repainting** after delivery is not allowed unless it is ensured that the total thickness does not increase.
9. Gruppo III Polveri - Scariche elettrostatiche [Part 36, par. 6.7.6] Le valvole vanno tenute pulite evitando l'accumulo di polvere; per la **pulizia** usare strumenti che non generino scintille quali ad esempio stracci umidi.	**9. Group III Powders - Electrostatic discharges [Part 36, par. 6.7.6]** The valves must be kept clean while avoiding the accumulation of dust; for cleaning use tools that do not generate sparks such as damp rags.

10. Onde d'urto [Part 36, par. 6.8] La valvola mette in comunicazione due zone con differenza di pressione che può essere elevata. Il funzionamento stesso della valvola prevede che alla bocca di uscita si generino onde di pressione, delle quali va tenuto conto convogliando opportunamente il fluido in uscita dalla valvola.	**Shock waves**: The valve connects two zones with a pressure difference that can be high. The operation of the valve requires pressure waves to be generate at the outlet, which must be taken into account by appropriately conveying the fluid downstream of the valve.
11. Gruppo III Polveri - Deposito di polveri nelle parti in movimento [Part 36, par. 7.1] È possibile l'ingresso di polvere nella guida con rischio di blocco della valvola o apertura ritardata, per questo motivo sono previsti l'installazione di soffietti di protezione e/o il convogliamento dello scarico in zona protetta dalla polvere. Nel caso di installazione di soffietto viene installato un filtro antipolvere sulla connessione di sfiato del coperchio.	**11. Group III Dust - Dust deposit in moving parts [Part 36, par. 7.1]** It could happen that dust settles in the guide with the risk of valve blocking or delayed opening, for this reason protective bellows are provided and/or the drain is conveyed to a dust-protected area. In the case of bellows installation, a dust filter is installed on the vent connection of the bonnet.
12. Uso Improprio [Part 36, par. 10] La valvola viene fornita con il manuale d'uso e manutenzione, corredato del presente "Addendum ATEX" che è redatto in base all'analisi dei rischi (IHA Ignition Hazard Assessment) depositato presso l'Ente Notificato.	**12. Improper use [Part 36, par. 10]** The valve is supplied with the user and maintenance manual, accompanied by this "Addendum ATEX" which is drawn up based on the risk analysis (IHA Ignition Hazard Assessment) deposited with the Notified Body.
13. ESCLUSIONI Il malfunzionamento che provoca l'apertura e chiusura della valvola ad alta frequenza, con contatto (urto) tra boccaglio ed otturatore (in inglese "chatter") è considerato raro e quindi escluso dal Livello di Protezione dell'Apparecchiatura **(EPL) Gb**. Inoltre il "chatter" è una condizione fortemente condizionata dall'installazione e quindi fuori dalla diretta responsabilità del costruttore della valvola.	**13. EXCLUSIONS** The malfunction that causes the valve to open and close at high frequency, with contact (impact) between the disc and the nozzle seat (the so called chatter phenomenon), is considered rare and therefore excluded from the Equipment Protection Level **(EPL) Gb**. In addition, the chatter is mainly conditioned by the installation and therefore out of the direct responsibility of the valve manufacturer.

14. AVVERTIMENTI [Part 36, par. 11.3] Il rischio di Elettricità statica è presente per le VALVOLE IN MATERIALI PLASTICI (per esempio ma non solo, PVC, PVC-C, PVC-U, PP, PVDF, PTFE) qualora vengano strofinate (ad esempio con l'intento di pulirle). È un rischio legato all'utilizzatore e non alla valvola in sé. Sono presenti una "X" in marcatura ed una targa aggiuntiva di avvertimento sul prodotto: **ATTENZIONE - POTENZIALE RISCHIO PER CARICHE ELETTROSTATICHE**	**14. WARNINGS [Part 36, par. 11.3]** The risk of Static Electricity is present for PLASTIC VALVES (e.g. but not only, PVC, PVC-C, PVC-U, PP, PVDF, PTFE) when they are rubbed (e.g. with the intention of cleaning them). It is a risk related to the user and not to the valve itself. There is an "X" in the marking and an additional warning plate on the product: **WARNING - POTENTIAL ELECTROSTATIC CHARGING HAZARD**
15. MARCATURA [Part 36, par. 11] La targhetta con la marcatura viene fissata saldamente alla valvola con filo metallico o tramite rivetti (in funzione dello spazio disponibile). **La marcatura sarà come segue:**	**MARKING** The marking plate is securely attached to the valve with wire or rivets (depending on the available space). **Marking will be as follow:**
Valvole con corpo e coperchio metallici, non verniciate o con spessore di vernice (DFT) fino a 0,2 mm (200 micron):	Valves with metal body and bonnet, unpainted or with paint thickness (DFT) up to 0.2 mm (200 microns):
II 2G Ex h IIC T6...T1 Gb **II 2D Ex h IIIC T85°C…T450°C Db** **Tech. file at DNV 10000455040-PA-NA-ITA**	
Valvole con corpo e coperchio metallici e con spessore di vernice (DFT) fino a 2 mm (2000 micron):	Valves with metal body and bonnet and with paint thickness (DFT) up to 2 mm (2000 micron):
II 2G Ex h IIB T6...T1 Gb **II 2D Ex h IIIC T85°C…T450°C Db** **Tech. file at DNV 10000455040-PA-NA-ITA**	
Valvole con corpo e/o coperchio in plastica (per esempio ma non solo, PVC, PVC-C, PVC-U, PP, PVDF, PTFE):	Valves with plastic body and/or bonnet (e.g. but not only, PVC, PVC-C, PVC-U, PP, PVDF, PTFE):
II 2G Ex h IIB T6 Gb X **II 2D Ex IIIC T85°C Db X** **Tech. file at DNV 10000455040-PA-NA-ITA** *In aggiunta, targhetta di avvertimento con la dicitura* *In addition, a warning plate with the following wording:* **ATTENZIONE - POTENZIALE RISCHIO PER CARICHE ELETTROSTATICHE** **WARNING - POTENTIAL ELECTROSTATIC CHARGING HAZARD**	

PACKING, HANDLING, SHIPPING, PRESERVATION AND STORAGE PROCEDURES

Base Load Power Hub (BLPH)

PACKING, HANDLING, SHIPPING, PRESERVATION AND STORAGE PROCEDURES

Document Number: 1724000518-QC-PRO-00012

Document Class: 3

ROSETTI MARINO

1	APPROVED - WORK MAY PROCEED
2N	REVISE AND RE-SUBMIT - DO NOT PROCEED
2Y	REVISE AND RE-SUBMIT - WORK MAY PROCEED
3	REJECTED
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
Rosati Leonardo	23/05/2024

Rev.	Date	Description	Prepared	Reviewed	Approved
02	21/05/2024	Issue for Information (IFI)	Di Virgilio L.	Delponte P.L.	Bianchi R.
01	11/04/2024	Issue for Information (IFI)	Di Virgilio L.	Delponte P.L.	Bianchi R.
00	22/03/2024	Issue for Information (IFI)	Di Virgilio L.	Delponte P.L.	Bianchi R.

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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	AMENDMENT TO PROCEDURE PP-17 FOR JOB 23-3962			X					
5 ÷ 9	PACKING, HANDLING, SHIPPING PROCEDURES (PP-17)	X	X	X					
10 ÷ 11	PRESERVATION AND STORAGE PROCEDURES (SPT-080)	X	X	X					

This document undergoes an issuance cycle within EDMS "Fusionlive".
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Revision / Change Log

Rev.	Description
00	Issue for Information (IFI)
01	Issue for Information (IFI)
02	Issue for Information (IFI)

HOLDS LIST

No.	Description
1.	
2.	
3.	
4.	

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1 - GENERAL

This amendment to the Packing procedure PP17 is issued in response to questions raised up by the customer regarding certain packaging details

2 - AMENDMENTS

Substitute the chapter 3.1 third paragraph:

"- Check threaded and/or flanged connections; that are free of dents or damages and put the protective caps."

with

"- Flange and thread ends must be protected with firmly attached plastic caps to prevent dirt from entering the valve. Unless otherwise agreed, the machined surfaces of carbon steel flanges (the raised face with not painted surfaces) must be protected with Tectyl 800D or equivalent. Threfore, check that flanges and threaded ends are free of dents or damages, check that the machined surfaces (the raised face with not painted surfaces) of carbon steel flanges are protected with Tectyl 800D or equivalvent, and put on all the ends the relevant plastic caps."

Substitute the chapter 3.1 last sentence:

"Before proceeding with the packaging of the material should be spread a layer of foam on the bottom of the case; just the foam sets, place the material on the layer and secure it with another layer of foam above up to the brim of the case."

with

"All valves must be adequately secured with bolts, clamps, support beams, cardboard or self-modelling protective foam, depending on the type of box, the weight and size of the valve and the number of valves in the box, so as to prevent internal movement and/or loosening. Valve parts and materials which may be subject to damage by vibration and/or shock, must be protected using shock-absorbing material."

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3.5 - Maximum stacking
3.6 - Identification
3.7 - Priority of choice for the packaging
3.8 - Anchor of the material on the mean of transport

ISSUED BY: DIREZIONE TECNICA SIGNATURE:	APPROVED BY: QUALITY ASSURANCE SIGNATURE:

1 - GENERAL

The procedure takes care of the arrangements and requirements that govern the packaging. The task of this procedure is to ensure that packages are suited to protect the material sent in the manner required in the order.

2 - DEFINITIONS

2.1 - Cardboard box
Packaging consists of triple pack cardboard box with adhesive tape, assembly made at the shipment of the material.

2.2 - Plywood case
Packaging consists of plywood walls combined with plastic metal hinges plywood bottom and lid with wooden straigthedges; assembly made at the shipment of the material.

2.3 - Wooden case
Packaging consists of walls, bottom and lid wooden boards thick enough to withstand the weight of packaging material; raised floor with wooden beams high 10 cm, walls and cover reinforced with wooden boards of equal thickness, dimensions as dimensions of the material be packaged.

2.4 - Case for sea packaging
Packaging with features like the "wooden case" but with the addition of tarred paper on the inside walls and a sealant barrier bag when required in order.

2.5 - Case for air packaging
Packaging consists of walls, bottom and lid of plywood; raised floor with wooden beams high 10 cm lid with wooden straigthedges.

2.6 - Pallet
Packaging consists of base in wooden boards having 2 cm thickness fixed on wooden beams high 10 cm , with traverse wooden boards for stiffening; dimensions 80x120 cm.

2.7 - Polythene bag
Packaging consists of heat sealed polythene bag at the shipment of the material.

3 - CONTENTS

3.1 - Material preparation

Packers when receive the product ready to be dispatched proceed as follows:

- Check the correct product-identification, comparing data stated on the internal certificate with data engraved on the metal label of the valve;
- Carry out visual check of the product that is free of dents or damages; any adjustments with the same paint color shown on the internal certificate;
- Check threaded and/or flanged connections; that are free of dents or damages and put the protective caps;
- Divide products as per Job number, referring to internal certificate.

Before proceeding with the packaging of the material should be spread a layer of foam on the bottom of the case; just the foam sets, place the material on the layer and secure it with another layer of foam above up to the brim of the case.

3. 2 - Standard packaging

Weight	Packaging type
up to 25 kg	Cardboard box
from 25 to 50 kg	Plywood case
over 50 kg	Wooden case

3.3 - Dimensions

– Use cardboard boxes for sizes within their capacity.

– For sizes over the capacity of the cardboard boxes and up to the capacity of plywood case use them.

– For sizes over the capacity of plywood case use wooden case.

3.4 - Closing

– For national forwarding of cardboard box packaging use an adhesive plasticized tape and, if necessary, reinforce with straps.

– For forwarding in plywood case use protective material in paper or wooden strips to lock the products and steel nails to close the lid.

– For forwarding in wooden case use wooden strips of wood to lock the products and steel nails to close the lid.

3.5 - Maximum stacking

Packaging type	Number of packages stacked
Cardboard box	5
Plywood case	4
Wooden case	3

3.6 - Identification

– For cardboard box use the adhesive label supplied by Commercial Department along with the delivery note; while waiting for the label, it is necessary to informally write on packages, using a permanent marker, Customer name, job number, quantity of products inside.

– For plywood box use the adhesive label supplied by Commercial Department along with the delivery note; while waiting for the label it is necessary to informally write on packages, using a permanent marker, Customer name, job number, quantity of products inside.

– For wooden case, use the adhesive label supplied by Commercial Department along with the delivery note; while waiting for the label, it is necessary to informally write on packages, using a permanent marker, Customer name, job number, quantity of products inside. In case of shipments towards non-European market, packing lists provided by Commercial Department are posted on the four sides and on the top of the case.

3.7 - Priority of choice for the packaging

Weight (Kg.)	Dimensions (cm)	Packaging type
up to25	max 36x27x23	Cardboard box
from 25 to 50	max 33x46x26	Plywood case
over 50	max 150x200x100	Wooden case

For voluminous products may be used cardboard boxes that are larger than that indicated in the table.

3.8 – Anchor of the material on the mean of transport

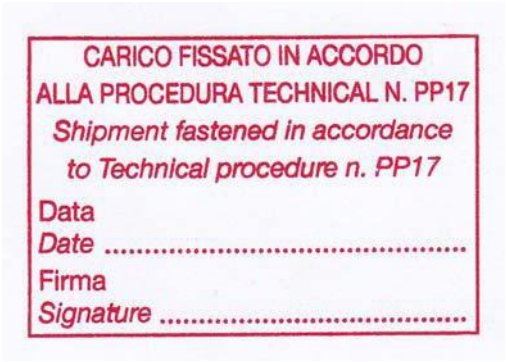
Technical for security purposes requires truck drivers that loads, wider than 90x60x70 cm., should be fixed to the loader-bottom of the vehicle with ratchet straps of suitable capacity and in good conditions.



Ratchet Strap example


Fixing Example

For loads that have dimensions for which loader-bottom fixing is necessary, it is stated on the shipping document the below stamp.



When truck driver has finished to set the load, has also to sign the dedicated space in the stamp place, in order to attest that the load has been anchored to the vehicle as described in this paragraph.

1. Le valvole vanno lasciate nel loro imballo originale fino al momento dell'installazione.

2. Se gli imballaggi vengono aperti per ispezionare le valvole, allora vanno accuratamente richiusi dopo l'attività, ripristinando che condizioni originarie dell'imballo.

3. Le scatole o casse contenenti le valvole vanno conservate al coperto, protette dagli agenti atmosferici e dalla polvere in modo da evitare il formarsi di condensa all'interno delle valvole.

4. Qualora le valvole vengano rimosse dal loro imballaggio originale, allora la loro conservazione deve avvenire in locali chiusi e asciutti e protette dagli agenti atmosferici e dalla polvere.

1. *Valves must be left in their original packaging until the moment of installation.*

2. *If the packages are opened to inspect the valves, then they must be carefully closed after the activity, restoring the original conditions of the packaging*

3. *The boxes or crates containing the valves must be stored under a roof, protected from atmospheric agents and dust in order to avoid the formation of condensation inside the valves.*

4. *If the valves are removed from their original packaging, then their storage must be done in closed and dry rooms and protected from atmospheric agents and dust.*

REV	DATE	DESCRIPTION	PREP.	CHECK	APPR.
3	05/05/2022	General revision.	CS	LDV	CS
2	02/11/2017	Reference to INAIL added; point 4 added	PD	LDV	PD
1	29/04/2009	Revision and addition of distribution list	PD	LDV	PD
0	28/04/2002	First issue	PD	LDV	PD

5. Gli attacchi di ingresso e uscita delle valvole devono essere tenuti chiusi e protetti dall'ingresso di sporcizia e corpi estranei.

6. È fortemente raccomandato di controllare la corretta taratura delle valvole di sicurezza dopo 2 anni di immagazzinamento (ATTENZIONE: normative locali possono stabilire il controllo della taratura secondo intervalli diversi).

NOTA PER L'ITALIA: La durata della conservazione influisce sulla validità certificativa di taratura INAIL delle valvole di sicurezza: se le valvole non vengono installate entro i sei mesi, il tecnico INAIL può chiedere il ricollaudo delle valvole (salvo diverse norme locali o esenzioni dell'impianto specifico). La durata massima di validità della certificazione delle valvole di sicurezza è di due anni dopo i quali occorre sottoporle a revisione.

5. *The inlet and outlet connections of the valves must be kept closed and protected from the ingress of dirt and foreign particles.*

6. *It is strongly recommended to check the correct set pressure of the safety valves after 2 years of storage (ATTENTION: local regulations may establish the set pressure verification at different intervals).*

NOTE FOR ITALY: *The duration of storage affects the validity of the INAIL set pressure certification of the safety valves: if the valves are not installed within six months, the INAIL technician can request the valves to be retested (unless otherwise specified in local regulations or exemptions of the specific plant). The maximum duration of validity of the certification of safety valves is two years after which they must be overhauled.*

DATA SHEET

INSTRUMENT DATA SHEETS

Base Load Power Hub (BLPH)

INSTRUMENTS DATA SHEETS PSV (INCLUDING SIZING CALCULATION SHEETS)

Document Number: 1724000518-IN-DS-00004

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	08-10-2024

Rev.	Date	Description	Prepared	Reviewed	Approved
05	18/09/2024	Accepted for construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
04	30/07/2024	Accepted for construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
03	19/06/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.
02	29/05/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.
01	11/04/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.
00	22/03/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.

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2	Table of Contents	X	X	X	X	X	X		
3	Revision / Change Log	X	X	X	X	X	X		
4	DATA SHEET 80-PSV-001 + 80-PSV-001_S	X	X	X	X	X	X		
5	DATA SHEET 25-PSV-001A + 25-PSV-00X_S	X	X	X	X	X	X		
6	DATA SHEET 25-PSV-001B	X	X	X	X	X	X		
7	DATA SHEET 25-PSV-001C	X	X	X	X	X	X		
8	DATA SHEET 25-PSV-001D	X	X	X	X	X	X		
9	DATA SHEET 25-PSV-001E	X	X	X	X	X	X		
10	DATA SHEET 25-PSV-001F	X	X	X	X	X	X		
11	DATA SHEET 64-PSV-001 + 64-PSV-001_S	X	X	X	X	X	X		
12	DATA SHEET 50-PSV-011				X	X	X		
13	CALCULATION SHEET 80-PSV-001 + 80-PSV-001_S	X	X	X	X	X	X		
14	CALCULATION SHEET 25-PSV-001A + 25-PSV-00X_S	X	X	X	X	X	X		
15	CALCULATION SHEET 25-PSV-001B	X	X	X	X	X	X		
16	CALCULATION SHEET 25-PSV-001C	X	X	X	X	X	X		
17	CALCULATION SHEET 25-PSV-001D	X	X	X	X	X	X		
18	CALCULATION SHEET 25-PSV-001E	X	X	X	X	X	X		
19	CALCULATION SHEET 25-PSV-001F	X	X	X	X	X	X		
20	CALCULATION SHEET 64-PSV-001 + 64-PSV-001_S	X	X	X	X	X	X		
21	CALCULATION SHEET 50-PSV-011				X	X	X		

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Revision / Change Log

Rev.	Description
00	ISSUE FOR REVIEW (IFR)
01	ISSUE FOR REVIEW (IFR)
02	ISSUE FOR REVIEW (IFR)
03	ISSUE FOR REVIEW (IFR)
04	ACCEPTED FOR CONSTRUCTION (AFR)
05	ACCEPTED FOR CONSTRUCTION (AFR)

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SAFETY VALVE
DATASHEET

GENERAL INFO

1	TECHNICAL Ref. / Item	23-3962 / 10	4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA
2	Valve Code	320-K10-5L	5	Quantity	2	
3	Tag Number	**80-PSV-001 + 80-PSV-001_S**				

BASIS OF SELECTION

6	Basis	Upstream fail open	10	Fire Case	No
7	Sizing Code	API Std 520	11	Rupture Disc	No
8	Valve Stamp	CE	12	Governing Case	Yes
9	Other Approval	-	13	NACE Compliance	NONE

DESIGN DATA

14	Inlet	3" 150# RF	20	Outlet	4" 150# RF
15	Valve Model	30000	21	Orifice Designation/Area	K - 12.94 cm²
16	Valve Type	CONVENTIONAL	22	Lift Type / Value	FULL LIFT / 13 mm
17	Seat Type	METAL-TO-METAL	23	Bonnet Type	CLOSED
18	Overall Dimensions	Acc. to API 526	24	Body Type	CAST
19	Seat Tightness Test Code	Acc. To API 527	25	Cap Type	SCREWED CAP

SERVICE CONDITION

26	Design Pressure	Pd	16.2	bar g	42	Design Temp.		100	°C
27	Operating Pressure	Pop	6.5	bar g	43	Operating Temp.		25	°C
28	Ambient Pressure	Patm	1.013	bar a	44	Ambient Temp.		-8.4/+25	°C
29	Set Pressure	Ps	10	bar g	45	Relieving Temperature		25	°C
30	CDTP		10	bar g	46	Phase / Medium	GAS / Hydrogen		
31	Overpressure	Overp	10	%	47	Required Flow Rate	W	2678	kg/h
32	Relieving Pressure	P0	12.01	bar a	48	Discharge Coefficient	KD	0.94	-
33	Superimposed Bkp				49	Maximum Flow Rate	WT	2921.12	kg/h
34	Constant	Pbvs	0	bar g	50	Molecular Weight	M	2.02	kg/kmol
35	Variable	Pbcs	0	bar g	51	Compressibility Factor	Z	1.00	-
36	Total	Pbs	0	bar g	52	Ratio of Specific Heats	k	1.41	-
37	Built-up Backpressure	Pbb	0.17	bar g	53	Density	ρ	-	kg/m³
38	Total BackPressure	Pb	0.17	bar g	54	Specific Gravity	G	-	-
39	Calculated Area	A	11.8631	cm²	55	Specific Volume	v	-	m³/kg
40	Selected Area	As	12.94	cm²	56	Dynamic Viscosity	μ	0.01	cP
41	Area Gain	-	9.00	%	57	Blowdown		7-10%	

MATERIALS

58	Body	A351 CF8M	65	Stem	SS 316L
59	Bonnet	A351 CF8M	66	Blowdown Ring	SS 316L
60	Cap	A351 CF3M	67	Disc-Holder	A747 CB7Cu-1
61	Nozzle	A351 CF3M / A479 316L	68	Spring	SS 316
62	Disc	A479 316L / A182 F316L	69	Spring Washer	STAINLESS STEEL
63	Seat	N/A	70	Gaskets	ARAMID FIBER / FKM
64	Guide	SS 316L	71	Bolting / Nut	A193 B8M / A194 8M

ACCESSORIES

72	Bellows	N/A	78	Bug Screen	N/A
73	Balanced Piston	N/A	79	Weather Hood	N/A
74	Lifting Lever	N/A	80	Grease Injection	N/A
75	Test Gag	NO	81	Body Spacer	N/A
76	Jacket	N/A	82	Trevi Test (coupling)	N/A
77	Flushing Nozzle	N/A	83	Bearing	N/A

PAINTING / COATING

84	Valve Painting	System A + RAL 9002	85		

REMARKS

Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

Valve opening time ≤ 100 msec

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE
DATASHEET

GENERAL INFO

1	TECHNICAL Ref. / Item	23-3962 / 20	4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA
2	Valve Code	320-E20-5L	5	Quantity	2	
3	Tag Number	**25-PSV-001A + 25-PSV-00X_S**				

BASIS OF SELECTION

6	Basis	Fire case	10	Fire Case	Yes
7	Sizing Code	API Std 520	11	Rupture Disc	No
8	Valve Stamp	CE	12	Governing Case	Yes
9	Other Approval	-	13	NACE Compliance	NONE

DESIGN DATA

14	Inlet	1" 300# RF	20	Outlet	2" 150# RF
15	Valve Model	30000	21	Orifice Designation/Area	E - 1.389 cm²
16	Valve Type	CONVENTIONAL	22	Lift Type / Value	FULL LIFT / 3.1 mm
17	Seat Type	METAL-TO-METAL	23	Bonnet Type	CLOSED
18	Overall Dimensions	Acc. to API 526	24	Body Type	CAST
19	Seat Tightness Test Code	Acc. To API 527	25	Cap Type	SCREWED CAP

SERVICE CONDITION

26	Design Pressure	Pd	40	bar g	42	Design Temp.		80	°C
27	Operating Pressure	Pop	30	bar g	43	Operating Temp.		25	°C
28	Ambient Pressure	Patm	1.013	bar a	44	Ambient Temp.		-8.4/+25	°C
29	Set Pressure	Ps	40	bar g	45	Relieving Temperature		201.9	°C
30	CDTP		40	bar g	46	Phase / Medium	GAS / Hydrogen		
31	Overpressure	Overp	21	%	47	Required Flow Rate	W	736.4	kg/h
32	Relieving Pressure	P0	49.41	bar a	48	Discharge Coefficient	KD	0.94	-
33	Superimposed Bkp				49	Maximum Flow Rate	WT	1016.22	kg/h
34	Constant	Pbvs	0	bar g	50	Molecular Weight	M	2.02	kg/kmol
35	Variable	Pbcs	0	bar g	51	Compressibility Factor	Z	1.02	-
36	Total	Pbs	0	bar g	52	Ratio of Specific Heats	k	1.41	-
37	Built-up Backpressure	Pbb	1	bar g	53	Density	ρ	-	kg/m^3
38	Total BackPressure	Pb	1	bar g	54	Specific Gravity	G	-	-
39	Calculated Area	A	1.0066	cm²	55	Specific Volume	v	-	m^3/kg
40	Selected Area	As	1.389	cm²	56	Dynamic Viscosity	μ	0.01	cP
41	Area Gain	-	38.00	%	57	Blowdown		7-10%	

MATERIALS

58	Body	A351 CF8M	65	Stem	SS 316L
59	Bonnet	A351 CF8M	66	Blowdown Ring	SS 316L
60	Cap	A351 CF3M	67	Disc-Holder	A747 CB7Cu-1
61	Nozzle	A351 CF3M / A479 316L	68	Spring	SS 316
62	Disc	A479 316L / A182 F316L	69	Spring Washer	STAINLESS STEEL
63	Seat	N/A	70	Gaskets	ARAMID FIBER / FKM
64	Guide	SS 316L	71	Bolting / Nut	A193 B8M / A194 8M

ACCESSORIES

72	Bellows	N/A	78	Bug Screen	N/A
73	Balanced Piston	N/A	79	Weather Hood	N/A
74	Lifting Lever	N/A	80	Grease Injection	N/A
75	Test Gag	NO	81	Body Spacer	N/A
76	Jacket	N/A	82	Trevi Test (coupling)	N/A
77	Flushing Nozzle	N/A	83	Bearing	N/A

PAINTING / COATING

84	Valve Painting	System A + RAL 9002	85		

REMARKS

Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE
DATASHEET

GENERAL INFO

1	TECHNICAL Ref. / Item	23-3962 / 30	4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA
2	Valve Code	320-E20-5L	5	Quantity	1	
3	Tag Number	**25-PSV-001B**				

BASIS OF SELECTION

6	Basis	Fire case	10	Fire Case	Yes
7	Sizing Code	API Std 520	11	Rupture Disc	No
8	Valve Stamp	CE	12	Governing Case	Yes
9	Other Approval	-	13	NACE Compliance	NONE

DESIGN DATA

14	Inlet	1" 300# RF	20	Outlet	2" 150# RF
15	Valve Model	30000	21	Orifice Designation/Area	E - 1.389 cm²
16	Valve Type	CONVENTIONAL	22	Lift Type / Value	FULL LIFT / 3.1 mm
17	Seat Type	METAL-TO-METAL	23	Bonnet Type	CLOSED
18	Overall Dimensions	Acc. to API 526	24	Body Type	CAST
19	Seat Tightness Test Code	Acc. To API 527	25	Cap Type	SCREWED CAP

SERVICE CONDITION

26	Design Pressure	Pd	40	bar g	42	Design Temp.		80	°C
27	Operating Pressure	Pop	30	bar g	43	Operating Temp.		25	°C
28	Ambient Pressure	Patm	1.013	bar a	44	Ambient Temp.		-8.4/+25	°C
29	Set Pressure	Ps	40	bar g	45	Relieving Temperature		201.9	°C
30	CDTP		40	bar g	46	Phase / Medium	GAS / Hydrogen		
31	Overpressure	Overp	21	%	47	Required Flow Rate	W	736.4	kg/h
32	Relieving Pressure	P0	49.41	bar a	48	Discharge Coefficient	KD	0.94	-
33	Superimposed Bkp				49	Maximum Flow Rate	WT	1016.22	kg/h
34	Constant	Pbvs	0	bar g	50	Molecular Weight	M	2.02	kg/kmol
35	Variable	Pbcs	0	bar g	51	Compressibility Factor	Z	1.02	-
36	Total	Pbs	0	bar g	52	Ratio of Specific Heats	k	1.41	-
37	Built-up Backpressure	Pbb	1	bar g	53	Density	ρ	-	kg/m^3
38	Total BackPressure	Pb	1	bar g	54	Specific Gravity	G	-	-
39	Calculated Area	A	1.0066	cm²	55	Specific Volume	v	-	m^3/kg
40	Selected Area	As	1.389	cm²	56	Dynamic Viscosity	μ	0.01	cP
41	Area Gain	-	38.00	%	57	Blowdown		7-10%	

MATERIALS

58	Body	A351 CF8M	65	Stem	SS 316L
59	Bonnet	A351 CF8M	66	Blowdown Ring	SS 316L
60	Cap	A351 CF3M	67	Disc-Holder	A747 CB7Cu-1
61	Nozzle	A351 CF3M / A479 316L	68	Spring	SS 316
62	Disc	A479 316L / A182 F316L	69	Spring Washer	STAINLESS STEEL
63	Seat	N/A	70	Gaskets	ARAMID FIBER / FKM
64	Guide	SS 316L	71	Bolting / Nut	A193 B8M / A194 8M

ACCESSORIES

72	Bellows	N/A	78	Bug Screen	N/A
73	Balanced Piston	N/A	79	Weather Hood	N/A
74	Lifting Lever	N/A	80	Grease Injection	N/A
75	Test Gag	NO	81	Body Spacer	N/A
76	Jacket	N/A	82	Trevi Test (coupling)	N/A
77	Flushing Nozzle	N/A	83	Bearing	N/A

PAINTING / COATING

84	Valve Painting	System A + RAL 9002	85		

REMARKS

Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE
DATASHEET

GENERAL INFO

1	TECHNICAL Ref. / Item	23-3962 / 40	4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA
2	Valve Code	320-E20-5L	5	Quantity	1	
3	Tag Number	**25-PSV-001C**				

BASIS OF SELECTION

6	Basis	Fire case	10	Fire Case	Yes
7	Sizing Code	API Std 520	11	Rupture Disc	No
8	Valve Stamp	CE	12	Governing Case	Yes
9	Other Approval	-	13	NACE Compliance	NONE

DESIGN DATA

14	Inlet	1" 300# RF	20	Outlet	2" 150# RF
15	Valve Model	30000	21	Orifice Designation/Area	E - 1.389 cm²
16	Valve Type	CONVENTIONAL	22	Lift Type / Value	FULL LIFT / 3.1 mm
17	Seat Type	METAL-TO-METAL	23	Bonnet Type	CLOSED
18	Overall Dimensions	Acc. to API 526	24	Body Type	CAST
19	Seat Tightness Test Code	Acc. To API 527	25	Cap Type	SCREWED CAP

SERVICE CONDITION

26	Design Pressure	Pd	40	bar g	42	Design Temp.		80	°C
27	Operating Pressure	Pop	30	bar g	43	Operating Temp.		25	°C
28	Ambient Pressure	Patm	1.013	bar a	44	Ambient Temp.		-8.4/+25	°C
29	Set Pressure	Ps	40	bar g	45	Relieving Temperature		201.9	°C
30	CDTP		40	bar g	46	Phase / Medium	GAS / Hydrogen		
31	Overpressure	Overp	21	%	47	Required Flow Rate	W	736.4	kg/h
32	Relieving Pressure	P0	49.41	bar a	48	Discharge Coefficient	KD	0.94	-
33	Superimposed Bkp				49	Maximum Flow Rate	WT	1016.22	kg/h
34	Constant	Pbvs	0	bar g	50	Molecular Weight	M	2.02	kg/kmol
35	Variable	Pbcs	0	bar g	51	Compressibility Factor	Z	1.02	-
36	Total	Pbs	0	bar g	52	Ratio of Specific Heats	k	1.41	-
37	Built-up Backpressure	Pbb	1	bar g	53	Density	ρ	-	kg/m^3
38	Total BackPressure	Pb	1	bar g	54	Specific Gravity	G	-	-
39	Calculated Area	A	1.0066	cm²	55	Specific Volume	v	-	m^3/kg
40	Selected Area	As	1.389	cm²	56	Dynamic Viscosity	μ	0.01	cP
41	Area Gain	-	38.00	%	57	Blowdown		7-10%	

MATERIALS

58	Body	A351 CF8M	65	Stem	SS 316L
59	Bonnet	A351 CF8M	66	Blowdown Ring	SS 316L
60	Cap	A351 CF3M	67	Disc-Holder	A747 CB7Cu-1
61	Nozzle	A351 CF3M / A479 316L	68	Spring	SS 316
62	Disc	A479 316L / A182 F316L	69	Spring Washer	STAINLESS STEEL
63	Seat	N/A	70	Gaskets	ARAMID FIBER / FKM
64	Guide	SS 316L	71	Bolting / Nut	A193 B8M / A194 8M

ACCESSORIES

72	Bellows	N/A	78	Bug Screen	N/A
73	Balanced Piston	N/A	79	Weather Hood	N/A
74	Lifting Lever	N/A	80	Grease Injection	N/A
75	Test Gag	NO	81	Body Spacer	N/A
76	Jacket	N/A	82	Trevi Test (coupling)	N/A
77	Flushing Nozzle	N/A	83	Bearing	N/A

PAINTING / COATING

84	Valve Painting	System A + RAL 9002	85		

REMARKS

Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE
DATASHEET

ITALIAN VALVES MANUFACTURER SINCE 1973

GENERAL INFO

1	TECHNICAL Ref. / Item	23-3962 / 50	4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA
2	Valve Code	320-E20-5L	5	Quantity	1	
3	Tag Number	**25-PSV-001D**				

BASIS OF SELECTION

6	Basis	Fire case	10	Fire Case	Yes
7	Sizing Code	API Std 520	11	Rupture Disc	No
8	Valve Stamp	CE	12	Governing Case	Yes
9	Other Approval	-	13	NACE Compliance	NONE

DESIGN DATA

14	Inlet	1" 300# RF	20	Outlet	2" 150# RF
15	Valve Model	30000	21	Orifice Designation/Area	E - 1.389 cm²
16	Valve Type	CONVENTIONAL	22	Lift Type / Value	FULL LIFT / 3.1 mm
17	Seat Type	METAL-TO-METAL	23	Bonnet Type	CLOSED
18	Overall Dimensions	Acc. to API 526	24	Body Type	CAST
19	Seat Tightness Test Code	Acc. To API 527	25	Cap Type	SCREWED CAP

SERVICE CONDITION

26	Design Pressure	Pd	40	bar g	42	Design Temp.		80	°C
27	Operating Pressure	Pop	30	bar g	43	Operating Temp.		25	°C
28	Ambient Pressure	Patm	1.013	bar a	44	Ambient Temp.		-8.4/+25	°C
29	Set Pressure	Ps	40	bar g	45	Relieving Temperature		201.9	°C
30	CDTP		40	bar g	46	Phase / Medium	GAS / Hydrogen		
31	Overpressure	Overp	21	%	47	Required Flow Rate	W	736.4	kg/h
32	Relieving Pressure	P0	49.41	bar a	48	Discharge Coefficient	KD	0.94	-
33	Superimposed Bkp				49	Maximum Flow Rate	WT	1016.22	kg/h
34	Constant	Pbvs	0	bar g	50	Molecular Weight	M	2.02	kg/kmol
35	Variable	Pbcs	0	bar g	51	Compressibility Factor	Z	1.02	-
36	Total	Pbs	0	bar g	52	Ratio of Specific Heats	k	1.41	-
37	Built-up Backpressure	Pbb	1	bar g	53	Density	ρ	-	kg/m^3
38	Total BackPressure	Pb	1	bar g	54	Specific Gravity	G	-	-
39	Calculated Area	A	1.0066	cm²	55	Specific Volume	v	-	m^3/kg
40	Selected Area	As	1.389	cm²	56	Dynamic Viscosity	μ	0.01	cP
41	Area Gain	-	38.00	%	57	Blowdown		7-10%	

MATERIALS

58	Body	A351 CF8M	65	Stem	SS 316L
59	Bonnet	A351 CF8M	66	Blowdown Ring	SS 316L
60	Cap	A351 CF3M	67	Disc-Holder	A747 CB7Cu-1
61	Nozzle	A351 CF3M / A479 316L	68	Spring	SS 316
62	Disc	A479 316L / A182 F316L	69	Spring Washer	STAINLESS STEEL
63	Seat	N/A	70	Gaskets	ARAMID FIBER / FKM
64	Guide	SS 316L	71	Bolting / Nut	A193 B8M / A194 8M

ACCESSORIES

72	Bellows	N/A	78	Bug Screen	N/A
73	Balanced Piston	N/A	79	Weather Hood	N/A
74	Lifting Lever	N/A	80	Grease Injection	N/A
75	Test Gag	NO	81	Body Spacer	N/A
76	Jacket	N/A	82	Trevi Test (coupling)	N/A
77	Flushing Nozzle	N/A	83	Bearing	N/A

PAINTING / COATING

84	Valve Painting	System A + RAL 9002	85		

REMARKS

Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE
DATASHEET

GENERAL INFO

1	TECHNICAL Ref. / Item	23-3962 / 60	4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA
2	Valve Code	320-E20-5L	5	Quantity	1	
3	Tag Number	**25-PSV-001E**				

BASIS OF SELECTION

6	Basis	Fire case	10	Fire Case	Yes
7	Sizing Code	API Std 520	11	Rupture Disc	No
8	Valve Stamp	CE	12	Governing Case	Yes
9	Other Approval	-	13	NACE Compliance	NONE

DESIGN DATA

14	Inlet	1" 300# RF	20	Outlet	2" 150# RF
15	Valve Model	30000	21	Orifice Designation/Area	E - 1.389 cm²
16	Valve Type	CONVENTIONAL	22	Lift Type / Value	FULL LIFT / 3.1 mm
17	Seat Type	METAL-TO-METAL	23	Bonnet Type	CLOSED
18	Overall Dimensions	Acc. to API 526	24	Body Type	CAST
19	Seat Tightness Test Code	Acc. To API 527	25	Cap Type	SCREWED CAP

SERVICE CONDITION

26	Design Pressure	Pd	40	bar g	42	Design Temp.		80	°C
27	Operating Pressure	Pop	30	bar g	43	Operating Temp.		25	°C
28	Ambient Pressure	Patm	1.013	bar a	44	Ambient Temp.		-8.4/+25	°C
29	Set Pressure	Ps	40	bar g	45	Relieving Temperature		201.9	°C
30	CDTP		40	bar g	46	Phase / Medium	GAS / Hydrogen		
31	Overpressure	Overp	21	%	47	Required Flow Rate	W	736.4	kg/h
32	Relieving Pressure	P0	49.41	bar a	48	Discharge Coefficient	KD	0.94	-
33	Superimposed Bkp				49	Maximum Flow Rate	WT	1016.22	kg/h
34	Constant	Pbvs	0	bar g	50	Molecular Weight	M	2.02	kg/kmol
35	Variable	Pbcs	0	bar g	51	Compressibility Factor	Z	1.02	-
36	Total	Pbs	0	bar g	52	Ratio of Specific Heats	k	1.41	-
37	Built-up Backpressure	Pbb	1	bar g	53	Density	ρ	-	kg/m^3
38	Total BackPressure	Pb	1	bar g	54	Specific Gravity	G	-	-
39	Calculated Area	A	1.0066	cm²	55	Specific Volume	v	-	m^3/kg
40	Selected Area	As	1.389	cm²	56	Dynamic Viscosity	μ	0.01	cP
41	Area Gain	-	38.00	%	57	Blowdown		7-10%	

MATERIALS

58	Body	A351 CF8M	65	Stem	SS 316L
59	Bonnet	A351 CF8M	66	Blowdown Ring	SS 316L
60	Cap	A351 CF3M	67	Disc-Holder	A747 CB7Cu-1
61	Nozzle	A351 CF3M / A479 316L	68	Spring	SS 316
62	Disc	A479 316L / A182 F316L	69	Spring Washer	STAINLESS STEEL
63	Seat	N/A	70	Gaskets	ARAMID FIBER / FKM
64	Guide	SS 316L	71	Bolting / Nut	A193 B8M / A194 8M

ACCESSORIES

72	Bellows	N/A	78	Bug Screen	N/A
73	Balanced Piston	N/A	79	Weather Hood	N/A
74	Lifting Lever	N/A	80	Grease Injection	N/A
75	Test Gag	NO	81	Body Spacer	N/A
76	Jacket	N/A	82	Trevi Test (coupling)	N/A
77	Flushing Nozzle	N/A	83	Bearing	N/A

PAINTING / COATING

84	Valve Painting	System A + RAL 9002	85		

REMARKS

Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE
DATASHEET

GENERAL INFO

1	TECHNICAL Ref. / Item	23-3962 / 70	4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA
2	Valve Code	320-E20-5L	5	Quantity	1	
3	Tag Number	**25-PSV-001F**				

BASIS OF SELECTION

6	Basis	Fire case	10	Fire Case	Yes
7	Sizing Code	API Std 520	11	Rupture Disc	No
8	Valve Stamp	CE	12	Governing Case	Yes
9	Other Approval	-	13	NACE Compliance	NONE

DESIGN DATA

14	Inlet	1" 300# RF	20	Outlet	2" 150# RF
15	Valve Model	30000	21	Orifice Designation/Area	E - 1.389 cm²
16	Valve Type	CONVENTIONAL	22	Lift Type / Value	FULL LIFT / 3.1 mm
17	Seat Type	METAL-TO-METAL	23	Bonnet Type	CLOSED
18	Overall Dimensions	Acc. to API 526	24	Body Type	CAST
19	Seat Tightness Test Code	Acc. To API 527	25	Cap Type	SCREWED CAP

SERVICE CONDITION

26	Design Pressure	Pd	40	bar g	42	Design Temp.		80	°C
27	Operating Pressure	Pop	30	bar g	43	Operating Temp.		25	°C
28	Ambient Pressure	Patm	1.013	bar a	44	Ambient Temp.		-8.4/+25	°C
29	Set Pressure	Ps	40	bar g	45	Relieving Temperature		201.9	°C
30	CDTP		40	bar g	46	Phase / Medium	GAS / Hydrogen		
31	Overpressure	Overp	21	%	47	Required Flow Rate	W	736.4	kg/h
32	Relieving Pressure	P0	49.41	bar a	48	Discharge Coefficient	KD	0.94	-
33	Superimposed Bkp				49	Maximum Flow Rate	WT	1016.22	kg/h
34	Constant	Pbvs	0	bar g	50	Molecular Weight	M	2.02	kg/kmol
35	Variable	Pbcs	0	bar g	51	Compressibility Factor	Z	1.02	-
36	Total	Pbs	0	bar g	52	Ratio of Specific Heats	k	1.41	-
37	Built-up Backpressure	Pbb	1	bar g	53	Density	ρ	-	kg/m^3
38	Total BackPressure	Pb	1	bar g	54	Specific Gravity	G	-	-
39	Calculated Area	A	1.0066	cm²	55	Specific Volume	v	-	m^3/kg
40	Selected Area	As	1.389	cm²	56	Dynamic Viscosity	μ	0.01	cP
41	Area Gain	-	38.00	%	57	Blowdown		7-10%	

MATERIALS

58	Body	A351 CF8M	65	Stem	SS 316L
59	Bonnet	A351 CF8M	66	Blowdown Ring	SS 316L
60	Cap	A351 CF3M	67	Disc-Holder	A747 CB7Cu-1
61	Nozzle	A351 CF3M / A479 316L	68	Spring	SS 316
62	Disc	A479 316L / A182 F316L	69	Spring Washer	STAINLESS STEEL
63	Seat	N/A	70	Gaskets	ARAMID FIBER / FKM
64	Guide	SS 316L	71	Bolting / Nut	A193 B8M / A194 8M

ACCESSORIES

72	Bellows	N/A	78	Bug Screen	N/A
73	Balanced Piston	N/A	79	Weather Hood	N/A
74	Lifting Lever	N/A	80	Grease Injection	N/A
75	Test Gag	NO	81	Body Spacer	N/A
76	Jacket	N/A	82	Trevi Test (coupling)	N/A
77	Flushing Nozzle	N/A	83	Bearing	N/A

PAINTING / COATING

84	Valve Painting	System A + RAL 9002	85		

REMARKS

Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE
DATASHEET

ITALIAN VALVES MANUFACTURER SINCE 1973

GENERAL INFO							
1	TECHNICAL Ref. / Item	23-3962 / 80	4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA	
2	Valve Code	320-D10-L2	5	Quantity	2		
3	Tag Number	**64-PSV-001 + 64-PSV-001_S**					
BASIS OF SELECTION							
6	Basis	Upstream fail open	10	Fire Case	No		
7	Sizing Code	API Std 520	11	Rupture Disc	No		
8	Valve Stamp	CE	12	Governing Case	Yes		
9	Other Approval	-	13	NACE Compliance	NONE		
DESIGN DATA							
14	Inlet	1" 150# RF	20	Outlet	2" 150# RF		
15	Valve Model	30000	21	Orifice Designation/Area	D - 0.785 cm²		
16	Valve Type	CONVENTIONAL	22	Lift Type / Value	FULL LIFT / 2.5 mm		
17	Seat Type	METAL-TO-METAL	23	Bonnet Type	CLOSED		
18	Overall Dimensions	Acc. to API 526	24	Body Type	CAST		
19	Seat Tightness Test Code	Acc. To API 527	25	Cap Type	SCREWED CAP		

SERVICE CONDITION										
26	Design Pressure	Pd	17.7	bar g	42	Design Temp.			100	°C
27	Operating Pressure	Pop	7	bar g	43	Operating Temp.			25	°C
28	Ambient Pressure	Patm	1.013	bar a	44	Ambient Temp.			-8.4/+25	°C
29	Set Pressure	Ps	10	bar g	45	Relieving Temperature			25	°C
30	CDTP		10	bar g	46	Phase / Medium	GAS / Nitrogen			
31	Overpressure	Overp	10	%	47	Required Flow Rate	W		61.34	kg/h
32	Relieving Pressure	P0	12.01	bar a	48	Discharge Coefficient	KD		0.94	-
33	Superimposed Bkp				49	Maximum Flow Rate	WT		662.42	kg/h
34	Constant	Pbvs	0	bar g	50	Molecular Weight	M		28.00	kg/kmol
35	Variable	Pbcs	0	bar g	51	Compressibility Factor	Z		1.00	-
36	Total	Pbs	0	bar g	52	Ratio of Specific Heats	k		1.40	-
37	Built-up Backpressure	Pbb	0.1	bar g	53	Density	ρ		-	kg/m^3
38	Total BackPressure	Pb	0.1	bar g	54	Specific Gravity	G		-	-
39	Calculated Area	A	0.0727	cm²	55	Specific Volume	v		-	m^3/kg
40	Selected Area	As	0.785	cm²	56	Dynamic Viscosity	μ		0.02	cP
41	Area Gain	-	980.00	%	57	Blowdown			7-10%	

MATERIALS					
58	Body	A352 LCB	65	Stem	SS 316L
59	Bonnet	A352 LCB	66	Blowdown Ring	SS 316L
60	Cap	A352 LCB	67	Disc-Holder	A747 CB7Cu-1
61	Nozzle	A351 CF3M / A479 316L	68	Spring	SS 316
62	Disc	A479 316L / A182 F316L	69	Spring Washer	STAINLESS STEEL
63	Seat	N/A	70	Gaskets	ARMED GRAPHITE
64	Guide	SS 316L	71	Bolting / Nut	A193 B8M / A194 8M
ACCESSORIES					
72	Bellows	N/A	78	Bug Screen	N/A
73	Balanced Piston	N/A	79	Weather Hood	N/A
74	Lifting Lever	N/A	80	Grease Injection	N/A
75	Test Gag	NO	81	Body Spacer	N/A
76	Jacket	N/A	82	Trevi Test (coupling)	N/A
77	Flushing Nozzle	N/A	83	Bearing	N/A
PAINTING / COATING					
84	Valve Painting	System B + RAL 9002	85		

REMARKS

Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE
DATASHEET

ITALIAN VALVES MANUFACTURER SINCE 1973

GENERAL INFO

1	TECHNICAL Ref. / Item	23-3962 / 90	4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA
2	Valve Code	320-D10-F1	5	Quantity	1	
3	Tag Number	**50-PSV-011**				

BASIS OF SELECTION

6	Basis	blocked outlet	10	Fire Case	No
7	Sizing Code	API Std 520	11	Rupture Disc	No
8	Valve Stamp	CE	12	Governing Case	Yes
9	Other Approval	-	13	NACE Compliance	NONE

DESIGN DATA

14	Inlet	1" 150# RF	20	Outlet	2" 150# RF
15	Valve Model	30000	21	Orifice Designation/Area	D - 0.785 cm²
16	Valve Type	CONVENTIONAL	22	Lift Type / Value	FULL LIFT / 2.5 mm
17	Seat Type	METAL-TO-METAL	23	Bonnet Type	CLOSED
18	Overall Dimensions	Acc. to API 526	24	Body Type	CAST
19	Seat Tightness Test Code	Acc. To API 527	25	Cap Type	SCREWED CAP

SERVICE CONDITION

26	Design Pressure	Pd	17.7	bar g	42	Design Temp.		100	°C
27	Operating Pressure	Pop	5	bar g	43	Operating Temp.		1.3/ 20.2	°C
28	Ambient Pressure	Patm	1.013	bar a	44	Ambient Temp.		-8.4/+25	°C
29	Set Pressure	Ps	6	bar g	45	Relieving Temperature		20	°C
30	CDTP		6	bar g	46	Phase / Medium	LIQUID / Sea water		
31	Overpressure	Overp	10	%	47	Required Flow Rate	W	2500	kg/h
32	Relieving Pressure	P0	7.61	bar a	48	Discharge Coefficient	KD	0.8	-
33	Superimposed Bkp				49	Maximum Flow Rate	WT	7407.00	kg/h
34	Constant	Pbvs	0	bar g	50	Molecular Weight	M	-	kg/kmol
35	Variable	Pbcs	0.1	bar g	51	Compressibility Factor	Z	-	-
36	Total	Pbs	0.1	bar g	52	Ratio of Specific Heats	k	-	-
37	Built-up Backpressure	Pbb	0	bar g	53	Density	ρ	1025.00	kg/m^3
38	Total BackPressure	Pb	0.1	bar g	54	Specific Gravity	G	1.03	-
39	Calculated Area	A	0.265	cm²	55	Specific Volume	v	0.001	m^3/kg
40	Selected Area	As	0.785	cm²	56	Dynamic Viscosity	μ	1.00	cP
41	Area Gain	-	196.00	%	57	Blowdown		7-10%	

MATERIALS

58	Body	A995 5A	65	Stem	SS 316L
59	Bonnet	A995 5A	66	Blowdown Ring	SS 316L
60	Cap	A995 5A	67	Disc-Holder	A995 5A / SAF 2507
61	Nozzle	A995 5A / A182 F53 / A479 S32750	68	Spring	SS 316
62	Disc	A182 F53 / A479 S32750	69	Spring Washer	STAINLESS STEEL
63	Seat	N/A	70	Gaskets	ARMED GRAPHITE
64	Guide	A995 5A / SAF 2507	71	Bolting / Nut	A193 B8M / A194 8M

ACCESSORIES

72	Bellows	N/A	78	Bug Screen	N/A
73	Balanced Piston	N/A	79	Weather Hood	N/A
74	Lifting Lever	N/A	80	Grease Injection	N/A
75	Test Gag	N/A	81	Body Spacer	N/A
76	Jacket	N/A	82	Trevi Test (coupling)	N/A
77	Flushing Nozzle	N/A	83	Bearing	N/A

PAINTING / COATING

84	Valve Painting	not painted	85		

REMARKS

Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE
SIZING SHEET

GENERAL INFO								
1	TECHNICAL Ref. / Item	23-3962 / 10		4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA	
2	Valve Code	320-K10-5L		5	Quantity	2		
3	Tag Number	**80-PSV-001 + 80-PSV-001_S**						
DESIGN DATA								
6	Operating Pressure	6.5	bar g	10	Operating Temperature	25	°C	
7	Ambient Pressure	1.013	bar a	11	Sizing Code	API Std 520		
8	Basis	Upstream fail open		12	Fire Case	No		
9	Governing Case	Yes		13	Rupture Disc	No		
INSTALLATION DATA								
14	Inlet	3" 150# RF		22	Outlet	4" 150# RF		
15	**Valve Model**	**30000**		23	Valve Type	CONVENTIONAL		
16	Superimposed Bkp			24	Seat Type	METAL-TO-METAL		
17	Constant	Pbcs 0	bar g	25	Set Pressure	Ps	10.000	bar g
18	Variable	Pbvs 0	bar g	26	CDTP		10.000	bar g
19	Total	Pbs 0	bar g	27	Overpressure	Overp	10	%
20	Built-up Backpressure	Pbb 0.17	bar g	28	Relieving Temperature	T_0	25.0	°C
21	Total BackPressure	Pb 0.17	bar g	29	Required Flow Rate	W	2678.00	kg/h
FLUID PROPERTIES								
30	Phase	GAS		35	Density	ρ	-	kg/m^3
31	Medium	Hydrogen		36	Specific Volume	v	-	m^3/kg
32	Ratio of Specific Heats	k 1.405	-	37	Specific Gravity	G	-	-
33	Molecular Weight	M 2.02	kg/kmol	38	Dynamic Viscosity	μ	0.008754	cP
34	Compressibility Factor	Z 1.004	-	39	Dryness Steam Factor	x0	-	-

SIZING	**CRITICAL FLOW - GAS&VAPOURS - API 520**			
40	Critical / Subcritical Flow	CRITICAL		
41	Relieving Pressure	P_0	12.013	bar a
42	C Factor	C	2.7066	-
43	Discharge Coefficient	K_D	**0.940**	-
44	Backpressure Corr. Factor	K_{BP}	1	-
45	Subcritical Corr. Factor	Kb	-	-
46	Rupture Disk Corr. Factor	K_C	1	-
47	Steam Correction Factor EN	ks	-	-
48	Superheat Corr. Factor	ksh	-	-
49	Supercritical Corr. Factor	ksc	-	-
50	Napier Factor	kn	-	-
51	Viscosity Corr. Factor	K_V	-	-
52	Reynolds Number	Re	-	-
53	Calculated Area	A	11.8631	cm^2
54	Orifice Designation	-	**K**	-
55	Selected Area	A_S	**12.940**	cm^2
56	Area Gain	-	9	%
57	Maximum Flow Rate	W_T	2921.12	kg/h
58				

$$A = \frac{W}{0{,}9\ C\ P_0\ K_D K_{BP} K_C}\sqrt{\frac{Z T_0}{M}}$$

$$C = 3{,}948\sqrt{k\left(\frac{2}{k+1}\right)^{\frac{(k+1)}{(k-1)}}}$$

$$W_T = \frac{W\ \ A_S}{A}$$

Units of measure
A [mm^2]; W [kg/h]; P [kPa]; T [K]; M [kg/kg mole]

REACTION FORCE	**API 520 PART II**			**OPEN DISCHARGE TO ATMOSPHERE**	
59	Reaction force (Flow)	FF	1081	N	$F_F = \frac{129 W_{MAX}}{0{,}9 * 3600}\sqrt{\frac{k\ T_0}{(k+1)M}}$; $F_B = \frac{A_2 P_b}{10}$; $F_T = F_F + F_B$
60	Reaction force (Static Bkp)	FB	133	N	
61	Total Reaction Force	FT	1215	N	

NOISE EVALUATION	**API 521**			**Not Applicable for Liquid**	
62	Noise Level @ 30m	L30	116.6	dB	$L_{30} = L + 10 log_{10}\left(\frac{W_{M-MAX}\ c^2}{3600 * 0{,}9 * 2}\right)$; $c = 91{,}2\left(\frac{k\ T_0}{M}\right)^{0{,}5}$
63	Distance d	d	1	m	$L_p = L_{30} - 20 log_{10}\left(\frac{d}{30}\right)$
64	Outlet Tube Diameter	da	0.1	m	
65	Noise Level @ distance d	Ld	146.2	dB	

REMARKS: Process data are under customer responsibility.
Testing according to Doc. 1724000518-QC-ITP-00002
Valve opening time ≤ 100 msec

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE
SIZING SHEET

GENERAL INFO									
1	TECHNICAL Ref. / Item	23-3962 / 20			4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA	
2	Valve Code	320-E20-5L			5	Quantity	2		
3	Tag Number	**25-PSV-001A + 25-PSV-00X_S**							
DESIGN DATA									
6	Operating Pressure	30		bar g	10	Operating Temperature		25	°C
7	Ambient Pressure	1.013		bar a	11	Sizing Code		API Std 520	
8	Basis	Fire case			12	Fire Case		Yes	
9	Governing Case	Yes			13	Rupture Disc		No	
INSTALLATION DATA									
14	Inlet	1" 300# RF			22	Outlet	2" 150# RF		
15	**Valve Model**	**30000**			23	Valve Type	CONVENTIONAL		
16	Superimposed Bkp				24	Seat Type	METAL-TO-METAL		
17	Constant	Pbcs	0	bar g	25	Set Pressure	Ps	40.000	bar g
18	Variable	Pbvs	0	bar g	26	CDTP		40.000	bar g
19	Total	Pbs	0	bar g	27	Overpressure	Overp	21	%
20	Built-up Backpressure	Pbb	1	bar g	28	Relieving Temperature	T_0	201.9	°C
21	Total BackPressure	Pb	1	bar g	29	Required Flow Rate	W	736.40	kg/h
FLUID PROPERTIES									
30	Phase	GAS			35	Density	ρ	-	kg/m^3
31	Medium	Hydrogen			36	Specific Volume	v	-	m^3/kg
32	Ratio of Specific Heats	k	1.405	-	37	Specific Gravity	G	-	-
33	Molecular Weight	M	2.02	kg/kmol	38	Dynamic Viscosity	μ	0.01272	cP
34	Compressibility Factor	Z	1.015	-	39	Dryness Steam Factor	x0	-	-

	SIZING	**CRITICAL FLOW - GAS&VAPOURS - API 520**			
40	Critical / Subcritical Flow		CRITICAL		
41	Relieving Pressure	P_0	49.413	bar a	
42	C Factor	C	2.7066	-	
43	Discharge Coefficient	K_D	**0.940**	-	
44	Backpressure Corr. Factor	K_{BP}	1	-	
45	Subcritical Corr. Factor	Kb	-	-	
46	Rupture Disk Corr. Factor	K_C	1	-	
47	Steam Correction Factor EN	ks	-	-	
48	Superheat Corr. Factor	ksh	-	-	
49	Supercritical Corr. Factor	ksc	-	-	
50	Napier Factor	kn	-	-	
51	Viscosity Corr. Factor	K_V	-	-	
52	Reynolds Number	Re	-	-	
53	Calculated Area	A	1.0066	cm^2	
54	Orifice Designation	-	**E**	-	
55	Selected Area	A_S	**1.389**	cm^2	
56	Area Gain	-	38	%	
57	Maximum Flow Rate	W_T	1016.22	kg/h	
58					

$$A = \frac{W}{0{,}9\ C\ P_0\ K_D K_{BP} K_C}\sqrt{\frac{Z T_0}{M}}$$

$$C = 3{,}948\sqrt{k\left(\frac{2}{k+1}\right)^{\frac{(k+1)}{(k-1)}}}$$

$$W_T = \frac{W\ \ A_S}{A}$$

Units of measure
A [mm^2]; W [kg/h]; P [kPa]; T [K]; M [kg/kg mole]

	REACTION FORCE	**API 520 PART II**		**OPEN DISCHARGE TO ATMOSPHERE**	
59	Reaction force (Flow)	FF	475	N	
60	Reaction force (Static Bkp)	FB	196	N	
61	Total Reaction Force	FT	671	N	

$$F_F = \frac{129 W_{MAX}}{0{,}9 * 3600}\sqrt{\frac{k\ T_0}{(k+1)M}}\ ;\ F_B = \frac{A_2 P_b}{10}\ ;\ F_T = F_F + F_B$$

	NOISE EVALUATION	**API 521**		**Not Applicable for Liquid**	
62	Noise Level @ 30m	L30	114.7	dB	
63	Distance d	d	1	m	
64	Outlet Tube Diameter	da	0.05	m	
65	Noise Level @ distance d	Ld	143.7	dB	

$$L_{30} = L + 10 log_{10}\left(\frac{W_{M-MAX}\ c^2}{3600 * 0{,}9 * 2}\right);\ c = 91{,}2\left(\frac{k\ T_0}{M}\right)^{0{,}5}$$

$$L_p = L_{30} - 20 log_{10}\left(\frac{d}{30}\right)$$

REMARKS: Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE

SIZING SHEET

ITALIAN VALVES MANUFACTURER SINCE 1973

GENERAL INFO

1	TECHNICAL Ref. / Item	23-3962 / 30	4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA	
2	Valve Code	320-E20-5L	5	Quantity	1		
3	Tag Number	**25-PSV-001B**					

DESIGN DATA

6	Operating Pressure	30	bar g	10	Operating Temperature	25	°C
7	Ambient Pressure	1.013	bar a	11	Sizing Code	API Std 520	
8	Basis	Fire case		12	Fire Case	Yes	
9	Governing Case	Yes		13	Rupture Disc	No	

INSTALLATION DATA

14	Inlet	1" 300# RF			22	Outlet	2" 150# RF		
15	**Valve Model**	**30000**			23	Valve Type	CONVENTIONAL		
16	Superimposed Bkp				24	Seat Type	METAL-TO-METAL		
17	Constant	Pbcs	0	bar g	25	Set Pressure	Ps	40.000	bar g
18	Variable	Pbvs	0	bar g	26	CDTP		40.000	bar g
19	Total	Pbs	0	bar g	27	Overpressure	Overp	21	%
20	Built-up Backpressure	Pbb	1	bar g	28	Relieving Temperature	T_0	201.9	°C
21	Total BackPressure	Pb	1	bar g	29	Required Flow Rate	W	736.40	kg/h

FLUID PROPERTIES

30	Phase	GAS		35	Density	ρ	-	kg/m^3
31	Medium	Hydrogen		36	Specific Volume	v	-	m^3/kg
32	Ratio of Specific Heats	k	1.405	-	37	Specific Gravity	G	-	-
33	Molecular Weight	M	2.02	kg/kmol	38	Dynamic Viscosity	μ	0.01272	cP
34	Compressibility Factor	Z	1.015	-	39	Dryness Steam Factor	x0	-	-

SIZING — CRITICAL FLOW - GAS&VAPOURS - API 520

40	Critical / Subcritical Flow		CRITICAL	
41	Relieving Pressure	P_0	49.413	bar a
42	C Factor	C	2.7066	-
43	Discharge Coefficient	K_D	**0.940**	-
44	Backpressure Corr. Factor	K_{BP}	1	-
45	Subcritical Corr. Factor	Kb	-	-
46	Rupture Disk Corr. Factor	K_C	1	-
47	Steam Correction Factor EN	ks	-	-
48	Superheat Corr. Factor	ksh	-	-
49	Supercritical Corr. Factor	ksc	-	-
50	Napier Factor	kn	-	-
51	Viscosity Corr. Factor	K_V	-	-
52	Reynolds Number	Re	-	-
53	Calculated Area	A	1.0066	cm^2
54	Orifice Designation	-	**E**	-
55	Selected Area	A_S	**1.389**	cm^2
56	Area Gain	-	38	%
57	Maximum Flow Rate	W_T	1016.22	kg/h
58				

$$A = \frac{W}{0{,}9\ C\ P_0\ K_D K_{BP} K_C}\sqrt{\frac{Z T_0}{M}}$$

$$C = 3{,}948\sqrt{k\left(\frac{2}{k+1}\right)^{\frac{(k+1)}{(k-1)}}}$$

$$W_T = \frac{W\ \ A_S}{A}$$

Units of measure

A [mm^2]; W [kg/h]; P [kPa]; T [K]; M [kg/kg mole]

REACTION FORCE — API 520 PART II — OPEN DISCHARGE TO ATMOSPHERE

59	Reaction force (Flow)	FF	475	N	$F_F = \frac{129 W_{MAX}}{0{,}9 * 3600}\sqrt{\frac{k\ T_0}{(k+1)M}}$; $F_B = \frac{A_2 P_b}{10}$; $F_T = F_F + F_B$
60	Reaction force (Static Bkp)	FB	196	N	
61	Total Reaction Force	FT	671	N	

NOISE EVALUATION — API 521 — Not Applicable for Liquid

62	Noise Level @ 30m	L30	114.7	dB
63	Distance d	d	1	m
64	Outlet Tube Diameter	da	0.05	m
65	Noise Level @ distance d	Ld	143.7	dB

$$L_{30} = L + 10 log_{10}\left(\frac{W_{M-MAX}\ c^2}{3600 * 0{,}9 * 2}\right);\ c = 91{,}2\left(\frac{k\ T_0}{M}\right)^{0{,}5}$$

$$L_p = L_{30} - 20 log_{10}\left(\frac{d}{30}\right)$$

REMARKS: Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE
SIZING SHEET

GENERAL INFO

1	TECHNICAL Ref. / Item	23-3962 / 40	4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA	
2	Valve Code	320-E20-5L	5	Quantity	1		
3	Tag Number	**25-PSV-001C**					

DESIGN DATA

6	Operating Pressure	30	bar g	10	Operating Temperature		25	°C
7	Ambient Pressure	1.013	bar a	11	Sizing Code		API Std 520	
8	Basis	Fire case		12	Fire Case		Yes	
9	Governing Case	Yes		13	Rupture Disc		No	

INSTALLATION DATA

14	Inlet	1" 300# RF		22	Outlet	2" 150# RF			
15	**Valve Model**	**30000**		23	Valve Type	CONVENTIONAL			
16	Superimposed Bkp			24	Seat Type	METAL-TO-METAL			
17	Constant	Pbcs	0 bar g	25	Set Pressure	Ps	40.000	bar g	
18	Variable	Pbvs	0 bar g	26	CDTP		40.000	bar g	
19	Total	Pbs	0 bar g	27	Overpressure	Overp	21	%	
20	Built-up Backpressure	Pbb	1 bar g	28	Relieving Temperature	T_0	201.9	°C	
21	Total BackPressure	Pb	1 bar g	29	Required Flow Rate	W	736.40	kg/h	

FLUID PROPERTIES

30	Phase	GAS		35	Density	ρ	-	kg/m^3	
31	Medium	Hydrogen		36	Specific Volume	v	-	m^3/kg	
32	Ratio of Specific Heats	k	1.405 -	37	Specific Gravity	G	-	-	
33	Molecular Weight	M	2.02 kg/kmol	38	Dynamic Viscosity	μ	0.01272	cP	
34	Compressibility Factor	Z	1.015 -	39	Dryness Steam Factor	x0	-	-	

SIZING — **CRITICAL FLOW - GAS&VAPOURS - API 520**

40	Critical / Subcritical Flow		CRITICAL	
41	Relieving Pressure	P_0	49.413	bar a
42	C Factor	C	2.7066	-
43	Discharge Coefficient	K_D	**0.940**	-
44	Backpressure Corr. Factor	K_{BP}	1	-
45	Subcritical Corr. Factor	Kb	-	-
46	Rupture Disk Corr. Factor	K_C	1	-
47	Steam Correction Factor EN	ks	-	-
48	Superheat Corr. Factor	ksh	-	-
49	Supercritical Corr. Factor	ksc	-	-
50	Napier Factor	kn	-	-
51	Viscosity Corr. Factor	K_V	-	-
52	Reynolds Number	Re	-	-
53	Calculated Area	A	1.0066	cm^2
54	Orifice Designation	-	**E**	-
55	Selected Area	A_S	**1.389**	cm^2
56	Area Gain	-	38	%
57	Maximum Flow Rate	W_T	1016.22	kg/h
58				

$$A = \frac{W}{0{,}9\ C\ P_0\ K_D K_{BP} K_C}\sqrt{\frac{Z T_0}{M}}$$

$$C = 3{,}948\sqrt{k\left(\frac{2}{k+1}\right)^{\frac{(k+1)}{(k-1)}}}$$

$$W_T = \frac{W\ \ A_S}{A}$$

Units of measure
A [mm^2]; W [kg/h]; P [kPa]; T [K]; M [kg/kg mole]

REACTION FORCE — **API 520 PART II** — **OPEN DISCHARGE TO ATMOSPHERE**

59	Reaction force (Flow)	FF	475	N
60	Reaction force (Static Bkp)	FB	196	N
61	Total Reaction Force	FT	671	N

$$F_F = \frac{129 W_{MAX}}{0{,}9 * 3600}\sqrt{\frac{k\ T_0}{(k+1)M}}\ ;\ F_B = \frac{A_2 P_b}{10}\ ;\ F_T = F_F + F_B$$

NOISE EVALUATION — **API 521** — **Not Applicable for Liquid**

62	Noise Level @ 30m	L30	114.7	dB
63	Distance d	d	1	m
64	Outlet Tube Diameter	da	0.05	m
65	Noise Level @ distance d	Ld	143.7	dB

$$L_{30} = L + 10 log_{10}\left(\frac{W_{M-MAX}\ c^2}{3600 * 0{,}9 * 2}\right);\ c = 91{,}2\left(\frac{k\ T_0}{M}\right)^{0{,}5}$$

$$L_p = L_{30} - 20 log_{10}\left(\frac{d}{30}\right)$$

REMARKS: Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE
SIZING SHEET

GENERAL INFO

1	TECHNICAL Ref. / Item	23-3962 / 50	4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA	
2	Valve Code	320-E20-5L	5	Quantity	1		
3	Tag Number	**25-PSV-001D**					

DESIGN DATA

6	Operating Pressure	30	bar g	10	Operating Temperature	25	°C		
7	Ambient Pressure	1.013	bar a	11	Sizing Code	API Std 520			
8	Basis	Fire case		12	Fire Case	Yes			
9	Governing Case	Yes		13	Rupture Disc	No			

INSTALLATION DATA

14	Inlet	1" 300# RF		22	Outlet	2" 150# RF			
15	**Valve Model**	**30000**		23	Valve Type	CONVENTIONAL			
16	Superimposed Bkp			24	Seat Type	METAL-TO-METAL			
17	Constant	Pbcs	0 bar g	25	Set Pressure	Ps	40.000	bar g	
18	Variable	Pbvs	0 bar g	26	CDTP		40.000	bar g	
19	Total	Pbs	0 bar g	27	Overpressure	Overp	21	%	
20	Built-up Backpressure	Pbb	1 bar g	28	Relieving Temperature	T_0	201.9	°C	
21	Total BackPressure	Pb	1 bar g	29	Required Flow Rate	W	736.40	kg/h	

FLUID PROPERTIES

30	Phase	GAS		35	Density	ρ	-	kg/m^3	
31	Medium	Hydrogen		36	Specific Volume	v	-	m^3/kg	
32	Ratio of Specific Heats	k	1.405 -	37	Specific Gravity	G	-	-	
33	Molecular Weight	M	2.02 kg/kmol	38	Dynamic Viscosity	μ	0.01272	cP	
34	Compressibility Factor	Z	1.015 -	39	Dryness Steam Factor	x0	-	-	

SIZING — **CRITICAL FLOW - GAS&VAPOURS - API 520**

40	Critical / Subcritical Flow		CRITICAL	
41	Relieving Pressure	P_0	49.413	bar a
42	C Factor	C	2.7066	-
43	Discharge Coefficient	K_D	**0.940**	-
44	Backpressure Corr. Factor	K_{BP}	1	-
45	Subcritical Corr. Factor	Kb	-	-
46	Rupture Disk Corr. Factor	K_C	1	-
47	Steam Correction Factor EN	ks	-	-
48	Superheat Corr. Factor	ksh	-	-
49	Supercritical Corr. Factor	ksc	-	-
50	Napier Factor	kn	-	-
51	Viscosity Corr. Factor	K_V	-	-
52	Reynolds Number	Re	-	-
53	Calculated Area	A	1.0066	cm^2
54	Orifice Designation	-	**E**	-
55	Selected Area	A_S	**1.389**	cm^2
56	Area Gain	-	38	%
57	Maximum Flow Rate	W_T	1016.22	kg/h
58				

$$A = \frac{W}{0{,}9\ C\ P_0\ K_D K_{BP} K_C}\sqrt{\frac{Z T_0}{M}}$$

$$C = 3{,}948\sqrt{k\left(\frac{2}{k+1}\right)^{\frac{(k+1)}{(k-1)}}}$$

$$W_T = \frac{W\ \ A_S}{A}$$

Units of measure
A [mm^2]; W [kg/h]; P [kPa]; T [K]; M [kg/kg mole]

REACTION FORCE — **API 520 PART II** — **OPEN DISCHARGE TO ATMOSPHERE**

59	Reaction force (Flow)	FF	475	N	$F_F = \frac{129 W_{MAX}}{0{,}9 * 3600}\sqrt{\frac{k\ T_0}{(k+1)M}}$; $F_B = \frac{A_2 P_b}{10}$; $F_T = F_F + F_B$
60	Reaction force (Static Bkp)	FB	196	N	
61	Total Reaction Force	FT	671	N	

NOISE EVALUATION — **API 521** — **Not Applicable for Liquid**

62	Noise Level @ 30m	L30	114.7	dB
63	Distance d	d	1	m
64	Outlet Tube Diameter	da	0.05	m
65	Noise Level @ distance d	Ld	143.7	dB

$$L_{30} = L + 10 log_{10}\left(\frac{W_{M-MAX}\ c^2}{3600 * 0{,}9 * 2}\right);\ c = 91{,}2\left(\frac{k\ T_0}{M}\right)^{0{,}5}$$

$$L_p = L_{30} - 20 log_{10}\left(\frac{d}{30}\right)$$

REMARKS: Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE
SIZING SHEET

GENERAL INFO									
1	TECHNICAL Ref. / Item	23-3962 / 60		4	Project	HOLLANDSE KUST NOORD WIND PARK		ROSETTI MARINO SPA	
2	Valve Code	320-E20-5L		5	Quantity	1			
3	Tag Number	**25-PSV-001E**							
DESIGN DATA									
6	Operating Pressure	30	bar g	10	Operating Temperature			25	°C
7	Ambient Pressure	1.013	bar a	11	Sizing Code			API Std 520	
8	Basis	Fire case		12	Fire Case			Yes	
9	Governing Case	Yes		13	Rupture Disc			No	
INSTALLATION DATA									
14	Inlet	1" 300# RF		22	Outlet	2" 150# RF			
15	**Valve Model**	**30000**		23	Valve Type	CONVENTIONAL			
16	Superimposed Bkp			24	Seat Type	METAL-TO-METAL			
17	Constant	Pbcs 0	bar g	25	Set Pressure	Ps	40.000		bar g
18	Variable	Pbvs 0	bar g	26	CDTP		40.000		bar g
19	Total	Pbs 0	bar g	27	Overpressure	Overp	21		%
20	Built-up Backpressure	Pbb 1	bar g	28	Relieving Temperature	T_0	201.9		°C
21	Total BackPressure	Pb 1	bar g	29	Required Flow Rate	W	736.40		kg/h
FLUID PROPERTIES									
30	Phase	GAS		35	Density	ρ	-		kg/m^3
31	Medium	Hydrogen		36	Specific Volume	v	-		m^3/kg
32	Ratio of Specific Heats	k 1.405	-	37	Specific Gravity	G	-		-
33	Molecular Weight	M 2.02	kg/kmol	38	Dynamic Viscosity	μ	0.01272		cP
34	Compressibility Factor	Z 1.015	-	39	Dryness Steam Factor	x0	-		-
	SIZING	**CRITICAL FLOW - GAS&VAPOURS - API 520**							
40	Critical / Subcritical Flow	CRITICAL							
41	Relieving Pressure	P_0 49.413	bar a						
42	C Factor	C 2.7066	-						
43	Discharge Coefficient	K_D **0.940**	-						
44	Backpressure Corr. Factor	K_{BP} 1	-						
45	Subcritical Corr. Factor	Kb -	-						
46	Rupture Disk Corr. Factor	K_C 1	-						
47	Steam Correction Factor EN	ks -	-						
48	Superheat Corr. Factor	ksh -	-						
49	Supercritical Corr. Factor	ksc -	-						
50	Napier Factor	kn -	-						
51	Viscosity Corr. Factor	K_V -	-						
52	Reynolds Number	Re -	-						
53	Calculated Area	A 1.0066	cm^2						
54	Orifice Designation	- **E**	-						
55	Selected Area	A_S **1.389**	cm^2						
56	Area Gain	- 38	%						
57	Maximum Flow Rate	W_T 1016.22	kg/h						
58									
	REACTION FORCE	**API 520 PART II**		**OPEN DISCHARGE TO ATMOSPHERE**					
59	Reaction force (Flow)	FF 475	N						
60	Reaction force (Static Bkp)	FB 196	N						
61	Total Reaction Force	FT 671	N						
	NOISE EVALUATION	**API 521**		**Not Applicable for Liquid**					
62	Noise Level @ 30m	L30 114.7	dB						
63	Distance d	d 1	m						
64	Outlet Tube Diameter	da 0.05	m						
65	Noise Level @ distance d	Ld 143.7	dB						

$$A = \frac{W}{0{,}9\ C\ P_0\ K_D K_{BP} K_C}\sqrt{\frac{Z T_0}{M}}$$

$$C = 3{,}948\sqrt{k\left(\frac{2}{k+1}\right)^{\frac{(k+1)}{(k-1)}}}$$

$$W_T = \frac{W\ \ A_S}{A}$$

Units of measure
A [mm^2]; W [kg/h]; P [kPa]; T [K]; M [kg/kg mole]

$$F_F = \frac{129 W_{MAX}}{0{,}9 * 3600}\sqrt{\frac{k\ T_0}{(k+1)M}}\ ;\ F_B = \frac{A_2 P_b}{10}\ ;\ F_T = F_F + F_B$$

$$L_{30} = L + 10 log_{10}\left(\frac{W_{M-MAX}\ c^2}{3600 * 0{,}9 * 2}\right);\ c = 91{,}2\left(\frac{k\ T_0}{M}\right)^{0{,}5}$$

$$L_p = L_{30} - 20 log_{10}\left(\frac{d}{30}\right)$$

REMARKS: Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE

SIZING SHEET

GENERAL INFO									
1	TECHNICAL Ref. / Item	23-3962 / 70		4	Project	HOLLANDSE KUST NOORD WIND PARK		ROSETTI MARINO SPA	
2	Valve Code	320-E20-5L		5	Quantity	1			
3	Tag Number	**25-PSV-001F**							
DESIGN DATA									
6	Operating Pressure	30	bar g	10	Operating Temperature		25	°C	
7	Ambient Pressure	1.013	bar a	11	Sizing Code		API Std 520		
8	Basis	Fire case		12	Fire Case		Yes		
9	Governing Case	Yes		13	Rupture Disc		No		
INSTALLATION DATA									
14	Inlet	1" 300# RF		22	Outlet	2" 150# RF			
15	**Valve Model**	**30000**		23	Valve Type		CONVENTIONAL		
16	Superimposed Bkp			24	Seat Type		METAL-TO-METAL		
17	Constant	Pbcs 0	bar g	25	Set Pressure	Ps	40.000	bar g	
18	Variable	Pbvs 0	bar g	26	CDTP		40.000	bar g	
19	Total	Pbs 0	bar g	27	Overpressure	Overp	21	%	
20	Built-up Backpressure	Pbb 1	bar g	28	Relieving Temperature	T_0	201.9	°C	
21	Total BackPressure	Pb 1	bar g	29	Required Flow Rate	W	736.40	kg/h	
FLUID PROPERTIES									
30	Phase	GAS		35	Density	ρ	-	kg/m^3	
31	Medium	Hydrogen		36	Specific Volume	v	-	m^3/kg	
32	Ratio of Specific Heats	k 1.405	-	37	Specific Gravity	G	-	-	
33	Molecular Weight	M 2.02	kg/kmol	38	Dynamic Viscosity	μ	0.01272	cP	
34	Compressibility Factor	Z 1.015	-	39	Dryness Steam Factor	x0	-	-	

	SIZING	**CRITICAL FLOW - GAS&VAPOURS - API 520**		
40	Critical / Subcritical Flow	CRITICAL		
41	Relieving Pressure	P_0	49.413	bar a
42	C Factor	C	2.7066	-
43	Discharge Coefficient	K_D	**0.940**	-
44	Backpressure Corr. Factor	K_{BP}	1	-
45	Subcritical Corr. Factor	Kb	-	-
46	Rupture Disk Corr. Factor	K_C	1	-
47	Steam Correction Factor EN	ks	-	-
48	Superheat Corr. Factor	ksh	-	-
49	Supercritical Corr. Factor	ksc	-	-
50	Napier Factor	kn	-	-
51	Viscosity Corr. Factor	K_V	-	-
52	Reynolds Number	Re	-	-
53	Calculated Area	A	1.0066	cm^2
54	Orifice Designation	-	**E**	-
55	Selected Area	A_S	**1.389**	cm^2
56	Area Gain	-	38	%
57	Maximum Flow Rate	W_T	1016.22	kg/h
58				

$$A = \frac{W}{0{,}9\ C\ P_0\ K_D K_{BP} K_C}\sqrt{\frac{Z T_0}{M}}$$

$$C = 3{,}948\sqrt{k\left(\frac{2}{k+1}\right)^{\frac{(k+1)}{(k-1)}}}$$

$$W_T = \frac{W\ \ A_S}{A}$$

Units of measure

A [mm^2]; W [kg/h]; P [kPa]; T [K]; M [kg/kg mole]

	REACTION FORCE	**API 520 PART II**		**OPEN DISCHARGE TO ATMOSPHERE**	
59	Reaction force (Flow)	FF	475	N	
60	Reaction force (Static Bkp)	FB	196	N	
61	Total Reaction Force	FT	671	N	

$$F_F = \frac{129 W_{MAX}}{0{,}9 * 3600}\sqrt{\frac{k\ T_0}{(k+1)M}}\ ;\ F_B = \frac{A_2 P_b}{10}\ ;\ F_T = F_F + F_B$$

	NOISE EVALUATION	**API 521**		**Not Applicable for Liquid**	
62	Noise Level @ 30m	L30	114.7	dB	
63	Distance d	d	1	m	
64	Outlet Tube Diameter	da	0.05	m	
65	Noise Level @ distance d	Ld	143.7	dB	

$$L_{30} = L + 10 log_{10}\left(\frac{W_{M-MAX}\ c^2}{3600 * 0{,}9 * 2}\right);\ c = 91{,}2\left(\frac{k\ T_0}{M}\right)^{0{,}5}$$

$$L_p = L_{30} - 20 log_{10}\left(\frac{d}{30}\right)$$

REMARKS: Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE
SIZING SHEET

GENERAL INFO

1	TECHNICAL Ref. / Item	23-3962 / 80	4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA	
2	Valve Code	320-D10-L2	5	Quantity	2		
3	Tag Number	**64-PSV-001 + 64-PSV-001_S**					

DESIGN DATA

6	Operating Pressure	7		bar g	10	Operating Temperature		25	°C
7	Ambient Pressure	1.013		bar a	11	Sizing Code		API Std 520	
8	Basis	Upstream fail open			12	Fire Case		No	
9	Governing Case	Yes			13	Rupture Disc		No	

INSTALLATION DATA

14	Inlet	1" 150# RF			22	Outlet	2" 150# RF		
15	**Valve Model**	**30000**			23	Valve Type	CONVENTIONAL		
16	Superimposed Bkp				24	Seat Type	METAL-TO-METAL		
17	Constant	Pbcs	0	bar g	25	Set Pressure	Ps	10.000	bar g
18	Variable	Pbvs	0	bar g	26	CDTP		10.000	bar g
19	Total	Pbs	0	bar g	27	Overpressure	Overp	10	%
20	Built-up Backpressure	Pbb	0.1	bar g	28	Relieving Temperature	T_0	25.0	°C
21	Total BackPressure	Pb	0.1	bar g	29	Required Flow Rate	W	61.34	kg/h

FLUID PROPERTIES

30	Phase	GAS			35	Density	ρ	-	kg/m^3
31	Medium	Nitrogen			36	Specific Volume	v	-	m^3/kg
32	Ratio of Specific Heats	k	1.399	-	37	Specific Gravity	G	-	-
33	Molecular Weight	M	28.00	kg/kmol	38	Dynamic Viscosity	μ	0.01851	cP
34	Compressibility Factor	Z	0.995	-	39	Dryness Steam Factor	x0	-	-

SIZING — **CRITICAL FLOW - GAS&VAPOURS - API 520**

40	Critical / Subcritical Flow		CRITICAL	
41	Relieving Pressure	P_0	12.013	bar a
42	C Factor	C	2.7027	-
43	Discharge Coefficient	K_D	**0.940**	-
44	Backpressure Corr. Factor	K_{BP}	1	-
45	Subcritical Corr. Factor	Kb	-	-
46	Rupture Disk Corr. Factor	K_C	1	-
47	Steam Correction Factor EN	ks	-	-
48	Superheat Corr. Factor	ksh	-	-
49	Supercritical Corr. Factor	ksc	-	-
50	Napier Factor	kn	-	-
51	Viscosity Corr. Factor	K_V	-	-
52	Reynolds Number	Re	-	-
53	Calculated Area	A	0.0727	cm^2
54	Orifice Designation	-	**D**	-
55	Selected Area	A_S	**0.785**	cm^2
56	Area Gain	-	980	%
57	Maximum Flow Rate	W_T	662.42	kg/h
58				

$$A = \frac{W}{0{,}9\ C\ P_0\ K_D K_{BP} K_C}\sqrt{\frac{Z T_0}{M}}$$

$$C = 3{,}948\sqrt{k\left(\frac{2}{k+1}\right)^{\frac{(k+1)}{(k-1)}}}$$

$$W_T = \frac{W\ \ A_S}{A}$$

Units of measure

A [mm^2]; W [kg/h]; P [kPa]; T [K]; M [kg/kg mole]

REACTION FORCE — **API 520 PART II** — **OPEN DISCHARGE TO ATMOSPHERE**

59	Reaction force (Flow)	FF	66	N	$F_F = \frac{129 W_{MAX}}{0{,}9 * 3600}\sqrt{\frac{k\ T_0}{(k+1)M}}$; $F_B = \frac{A_2 P_b}{10}$; $F_T = F_F + F_B$
60	Reaction force (Static Bkp)	FB	20	N	
61	Total Reaction Force	FT	85	N	

NOISE EVALUATION — **API 521** — **Not Applicable for Liquid**

62	Noise Level @ 30m	L30	90.5	dB	$L_{30} = L + 10 log_{10}\left(\frac{W_{M-MAX}\ c^2}{3600 * 0{,}9 * 2}\right)$; $c = 91{,}2\left(\frac{k\ T_0}{M}\right)^{0{,}5}$
63	Distance d	d	1	m	$L_p = L_{30} - 20 log_{10}\left(\frac{d}{30}\right)$
64	Outlet Tube Diameter	da	0.05	m	
65	Noise Level @ distance d	Ld	128.0	dB	

REMARKS: Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

SAFETY VALVE
SIZING SHEET

GENERAL INFO

1	TECHNICAL Ref. / Item	23-3962 / 90	4	Project	HOLLANDSE KUST NOORD WIND PARK	ROSETTI MARINO SPA	
2	Valve Code	320-D10-F1	5	Quantity	1		
3	Tag Number	**50-PSV-011**					

DESIGN DATA

6	Operating Pressure	5	bar g	10	Operating Temperature	1.3/ 20.2	°C
7	Ambient Pressure	1.013	bar a	11	Sizing Code	API Std 520	
8	Basis	blocked outlet		12	Fire Case	No	
9	Governing Case	Yes		13	Rupture Disc	No	

INSTALLATION DATA

14	Inlet	1" 150# RF		22	Outlet	2" 150# RF		
15	**Valve Model**	**30000**		23	Valve Type	CONVENTIONAL		
16	Superimposed Bkp			24	Seat Type	METAL-TO-METAL		
17	Constant	Pbcs	0 bar g	25	Set Pressure	Ps	6.000	bar g
18	Variable	Pbvs	0.1 bar g	26	CDTP		6.000	bar g
19	Total	Pbs	0.1 bar g	27	Overpressure	Overp	10	%
20	Built-up Backpressure	Pbb	0 bar g	28	Relieving Temperature	T_0	20.0	°C
21	Total BackPressure	Pb	0.1 bar g	29	Required Flow Rate	W	2500.00	kg/h

FLUID PROPERTIES

30	Phase	LIQUID		35	Density	ρ	1025	kg/m^3
31	Medium	Sea water		36	Specific Volume	v	0.001	m^3/kg
32	Ratio of Specific Heats	k	- -	37	Specific Gravity	G	1.025	-
33	Molecular Weight	M	- kg/kmol	38	Dynamic Viscosity	μ	1	cP
34	Compressibility Factor	Z	- -	39	Dryness Steam Factor	x0	-	-

SIZING — **LIQUID FLOW - API 520**

40	Critical / Subcritical Flow		-	
41	Relieving Pressure	P_0	7.613	bar a
42	C Factor	C	-	-
43	Discharge Coefficient	K_D	**0.800**	-
44	Backpressure Corr. Factor	K_{BP}	1	-
45	Subcritical Corr. Factor	F2	-	-
46	Rupture Disk Corr. Factor	K_C	1	-
47	Steam Correction Factor EN	ks	-	-
48	Superheat Corr. Factor	ksh	-	-
49	Supercritical Corr. Factor	ksc	-	-
50	Napier Factor	kn	-	-
51	Viscosity Corr. Factor	K_V	0.997	-
52	Reynolds Number	Re	88412	-
53	Calculated Area	A	0.2650	cm²
54	Orifice Designation	-	**D**	-
55	Selected Area	A_S	**0.785**	cm²
56	Area Gain	-	196	%
57	Maximum Flow Rate	W_T	7407.00	kg/h
58				

$$A = \frac{11{,}78\,W}{0{,}9\;K_D\;K_C\;K_B\;K_V}\sqrt{\frac{G}{P_0 - P_B}}$$

$$Re = \frac{18{,}8\;G\;W}{\mu\sqrt{A}}$$

$$K_V = \left(0{,}9935 + \frac{2{,}878}{Re^{0{,}5}} + \frac{342{,}75}{Re^{1{,}5}}\right)^{-1}$$

$$W_T = \frac{W\;A_S}{A}$$

Units of measure
A [mm^2]; W [L/min]; P [kPag]

REACTION FORCE — **API 520 PART II** — **CLOSED DISCHARGE SYSTEM**

59	Reaction force (Flow)	FF	0	N	$F_F = \frac{(W_{MAX})^2}{0{,}81*12{,}96\rho A_2}$; $F_B = \frac{A_2 P_b}{10}$; $F_T = F_F + F_B$
60	Reaction force (Static Bkp)	FB	20	N	
61	Total Reaction Force	FT	20	N	

NOISE EVALUATION — **API 521** — **Not Applicable for Liquid**

62	Noise Level @ 30m	-	-	dB	$L_{30} = L + 10log_{10}\left(\frac{W_{M-MAX}\,c^2}{3600 * 0{,}9 * 2}\right)$; $c = 91{,}2\left(\frac{k\,T_0}{M}\right)^{0{,}5}$
63	Distance d	d	1	m	
64	Outlet Tube Diameter	da	0.05	m	$L_p = L_{30} - 20log_{10}\left(\frac{d}{30}\right)$
65	Noise Level @ distance d	-	-	dB	

REMARKS: Process data are under customer responsibility.

Testing according to Doc. 1724000518-QC-ITP-00002

REV	DATE	DESCRIPTION	PREP.	CHECK.	APPROV.
5	18/09/2024	MODIFIED ACCORDING TO CUSTOMER COMMENTS	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
4	29/07/2024	MODIFIED GASKET MAT ON POS 1 TO 7	R. BIANCHI	P.L.DELPONTE	R. BIANCHI
3	20/06/2024	ADD. VALVE	TCH	L. DI VIRGILIO	P.L.DELPONTE

FILE: 23-3962_ROSETTI MARINO_CLC_STD_R18.xlsm

VENDOR ASSET AND TAG REGISTER

Base Load Power Hub (BLPH)

PRESSURE SAFETY VALVES

VENDOR ASSET AND TAG REGISTER

Document Number: 1724000518-IN-LIS-00015

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	18-07-2024

Rev.	Date	Description	Prepared	Reviewed	Approved
02	08/07/2024	Accepted for Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
01	03/06/2024	Accepted for Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
00	09/05/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.

technical

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4	VENDOR ASSET AND TAG REGISTER	X	X	X					

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02	Accepted for Construction (AFC)

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Tag Number	Purchase Order Number	Vendor Company Name	Manufacturer Company Name	Model Number	Equipment Manufacturer Serial Number	Model Part No	Hazardous Area Certificate Standard	Hazardous Area Certifying Authority	Hazardous Area Certificate Number	Atex Classification	Explosion Protection Examination Certificate Document Number	Layout Drawing	Datasheet	Assembly/Dimensional Drawing	General Arrangement	Operating & Maintenance Manual	Wiring Diagram	Spare Parts List	Lubricant Document Reference	Criticality	Remarks
80-PSV-001	1724000518 123A90A	Technical srl	Technical srl	30000 SERIES	SAFETY VALVES S/N. 291496	320-K10-5L	Council Directive 2014/34/EU	DNV Product Assurance AS	N / A	ZONE 2	Acknowledgement Number 10000455040-PA-NA-ITA	23/3962_DWG_1	1724000518-IN-DS-00004	1724000518-IN-DA-00003	1724000518-IN-DA-00003	1724000518-IN-MAN-00010	N / A	1724000518-COM-LIS-00011	N / A	as per 1724000518-IN-MAN-00010	
80-PSV-001_S	1724000518 123A90A	Technical srl	Technical srl	30000 SERIES	SAFETY VALVES S/N. 291497	320-K10-5L	Council Directive 2014/34/EU	DNV Product Assurance AS	N / A	ZONE 2	Acknowledgement Number 10000455040-PA-NA-ITA	23/3962_DWG_1	1724000518-IN-DS-00004	1724000518-IN-DA-00003	1724000518-IN-DA-00003	1724000518-IN-MAN-00010	N / A	1724000518-COM-LIS-00011	N / A	as per 1724000518-IN-MAN-00010	
25-PSV-001A	1724000518 123A90A	Technical srl	Technical srl	30000 SERIES	SAFETY VALVES S/N. 291498	320-E20-5L	Council Directive 2014/34/EU	DNV Product Assurance AS	N / A	ZONE 2	Acknowledgement Number 10000455040-PA-NA-ITA	23/3962_DWG_2-3-4-5-6-7	1724000518-IN-DS-00004	1724000518-IN-DA-00003	1724000518-IN-DA-00003	1724000518-IN-MAN-00010	N / A	1724000518-COM-LIS-00011	N / A	as per 1724000518-IN-MAN-00010	
25-PSV-00X_S	1724000518 123A90A	Technical srl	Technical srl	30000 SERIES	SAFETY VALVES S/N. 291499	320-E20-5L	Council Directive 2014/34/EU	DNV Product Assurance AS	N / A	ZONE 2	Acknowledgement Number 10000455040-PA-NA-ITA	23/3962_DWG_2-3-4-5-6-7	1724000518-IN-DS-00004	1724000518-IN-DA-00003	1724000518-IN-DA-00003	1724000518-IN-MAN-00010	N / A	1724000518-COM-LIS-00011	N / A	as per 1724000518-IN-MAN-00010	
25-PSV-001B	1724000518 123A90A	Technical srl	Technical srl	30000 SERIES	SAFETY VALVES S/N. 291500	320-E20-5L	Council Directive 2014/34/EU	DNV Product Assurance AS	N / A	ZONE 2	Acknowledgement Number 10000455040-PA-NA-ITA	23/3962_DWG_2-3-4-5-6-7	1724000518-IN-DS-00004	1724000518-IN-DA-00003	1724000518-IN-DA-00003	1724000518-IN-MAN-00010	N / A	1724000518-COM-LIS-00011	N / A	as per 1724000518-IN-MAN-00010	
25-PSV-001C	1724000518 123A90A	Technical srl	Technical srl	30000 SERIES	SAFETY VALVES S/N. 291501	320-E20-5L	Council Directive 2014/34/EU	DNV Product Assurance AS	N / A	ZONE 2	Acknowledgement Number 10000455040-PA-NA-ITA	23/3962_DWG_2-3-4-5-6-7	1724000518-IN-DS-00004	1724000518-IN-DA-00003	1724000518-IN-DA-00003	1724000518-IN-MAN-00010	N / A	1724000518-COM-LIS-00011	N / A	as per 1724000518-IN-MAN-00010	
25-PSV-001D	1724000518 123A90A	Technical srl	Technical srl	30000 SERIES	SAFETY VALVES S/N. 291502	320-E20-5L	Council Directive 2014/34/EU	DNV Product Assurance AS	N / A	ZONE 2	Acknowledgement Number 10000455040-PA-NA-ITA	23/3962_DWG_2-3-4-5-6-7	1724000518-IN-DS-00004	1724000518-IN-DA-00003	1724000518-IN-DA-00003	1724000518-IN-MAN-00010	N / A	1724000518-COM-LIS-00011	N / A	as per 1724000518-IN-MAN-00010	
25-PSV-001E	1724000518 123A90A	Technical srl	Technical srl	30000 SERIES	SAFETY VALVES S/N. 291503	320-E20-5L	Council Directive 2014/34/EU	DNV Product Assurance AS	N / A	ZONE 2	Acknowledgement Number 10000455040-PA-NA-ITA	23/3962_DWG_2-3-4-5-6-7	1724000518-IN-DS-00004	1724000518-IN-DA-00003	1724000518-IN-DA-00003	1724000518-IN-MAN-00010	N / A	1724000518-COM-LIS-00011	N / A	as per 1724000518-IN-MAN-00010	
25-PSV-001F	1724000518 123A90A	Technical srl	Technical srl	30000 SERIES	SAFETY VALVES S/N. 291504	320-E20-5L	Council Directive 2014/34/EU	DNV Product Assurance AS	N / A	ZONE 2	Acknowledgement Number 10000455040-PA-NA-ITA	23/3962_DWG_2-3-4-5-6-7	1724000518-IN-DS-00004	1724000518-IN-DA-00003	1724000518-IN-DA-00003	1724000518-IN-MAN-00010	N / A	1724000518-COM-LIS-00011	N / A	as per 1724000518-IN-MAN-00010	
64-PSV-001	1724000518 123A90A	Technical srl	Technical srl	30000 SERIES	SAFETY VALVES S/N. 291505	320-D10-L2	Council Directive 2014/34/EU	DNV Product Assurance AS	N / A	ZONE 2	Acknowledgement Number 10000455040-PA-NA-ITA	23/3962_DWG_8	1724000518-IN-DS-00004	1724000518-IN-DA-00003	1724000518-IN-DA-00003	1724000518-IN-MAN-00010	N / A	1724000518-COM-LIS-00011	N / A	as per 1724000518-IN-MAN-00010	
64-PSV-001_S	1724000518 123A90A	Technical srl	Technical srl	30000 SERIES	SAFETY VALVES S/N. 291506	320-D10-L2	Council Directive 2014/34/EU	DNV Product Assurance AS	N / A	ZONE 2	Acknowledgement Number 10000455040-PA-NA-ITA	23/3962_DWG_8	1724000518-IN-DS-00004	1724000518-IN-DA-00003	1724000518-IN-DA-00003	1724000518-IN-MAN-00010	N / A	1724000518-COM-LIS-00011	N / A	as per 1724000518-IN-MAN-00010	

SPARE PART INDEX REGISTER

Base Load Power Hub (BLPH)

SPARE PART INDEX REGISTER (COMMISSIONING, 2-YEAR's OPERATION, CAPITAL)

Document Number: 1724000518-COM-LIS-00011

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	26-09-2024

Rev.	Date	Description	Prepared	Reviewed	Approved
02	16/09/2024	Accepted For Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
01	17/07/2024	Accepted For Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
00	10/06/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.

tecHnical

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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°	1724000518-COM-LIS-00011	Rev. 2	Rev. Date 16-Sep-24	Status ACF	Class 2

The equipment consists of the following units/components

1	Tag no.	80-PSV-001/001_S	25-PSV-001A/00X_S; 25-PSV-001B-F	64-PSV-001/001_S	50-PSV-011	
2	Tag description	SAFETY VALVES 3"x4"150RF c K	SAFETY VALVES 1"x2"300x150RF c E	SAFETY VALVES 1"x2"300x150RF c E	SAFETY VALVE 1"x2" 150RF c D	
3	Manufacturer mode/type no.	320-K10-5L	320-E20-5L	320-D10-L2	320-D10-F1	
4	Manufacturer serial no.	291496÷497	291498÷504	291505÷506	293112	
5	No. of units	2	7	2	1	

Supplier:

TECHNICAL S.R.L.
Via Toscana 9
20052 - Vignate - MI

Purchase order n: 1724000518 123A90A
Commissioning and 2 years spare parts list
Lead time: 7/8 working weeks from order receipt

PO description: SAFETY VALVES

Contact name: Ing. Cavalieri Bernardo

Supplier telephone no: + 39 02 95361240

Contact mobile no:

E-mail: cavalieri.bernardo@technical.it

WEBSITE: www.technical.it

General Information:

								MATERIALS DATA																Commissioning spares	2 Years spares	
									Parts/drawing ref.																	
						Item Number	Total number of identical spares installed	Description of recommended spare parts	Project Datasheet no.	Project Detail dwg. no.	Item 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.	Manufacturername	Quantity ordered	Quantity ordered	Remarks
								7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
6	Quantity of parts FITTED / INSTALLED per unit/component	1					1	2	DISC	1724000518-IN-DA-00004	1724000518-IN-DA-00003	2	A479 316L	(1)	(1)	10	0.19 Kg	(2)	(2)	8481 9000	2B350G.3	0	IT	02-0294-37	02-0294-37	TECHNICAL SRL		1	(1) if not requested, no certification will be supplied; (2) It depends on the quantity and packaging
		1					2	2	NOZZLE	1724000518-IN-DA-00004	1724000518-IN-DA-00003	1	A351 CF3M	(1)	(1)	10	3.8 Kg	(2)	(2)	8481 9000	2B350G.3	0	IT	42-1149-G1	42-1149-G1	TECHNICAL SRL		1	(1) if not requested, no certification will be supplied; (2) It depends on the quantity and packaging
		1					3	2	GASKET KIT	1724000518-IN-DA-00004	1724000518-IN-DA-00003	17÷21a	ARAMID FIBER/FKM	(1)	(1)	5	0.01 Kg	(2)	(2)	8481 9000	2B350G.3	0	IT	50-0197-DB	50-0197-DB	TECHNICAL SRL	1	2	(1) if not requested, no certification will be supplied; (2) It depends on the quantity and packaging
			1	1			4	9	DISC	1724000518-IN-DA-00004	1724000518-IN-DA-00003	2	A479 316L	(1)	(1)	10	0.03 Kg	(2)	(2)	8481 9000	2B350G.3	0	IT	02-0279-37	02-0279-37	TECHNICAL SRL		2	(1) if not requested, no certification will be supplied; (2) It depends on the quantity and packaging
			1				5	7	NOZZLE	1724000518-IN-DA-00004	1724000518-IN-DA-00003	1	A479 316L	(1)	(1)	10	0.78 Kg	(2)	(2)	8481 9000	2B350G.3	0	IT	42-1141-37	42-1141-37	TECHNICAL SRL		1	(1) if not requested, no certification will be supplied; (2) It depends on the quantity and packaging
				1	1		6	3	GASKET KIT	1724000518-IN-DA-00004	1724000518-IN-DA-00003	17÷21a	ARMED GRAPHITE	(1)	(1)	5	0.01 Kg	(2)	(2)	8481 9000	2B350G.3	0	IT	50-1312-9S	50-1312-9S	TECHNICAL SRL	2	3	(1) if not requested, no certification will be supplied; (2) It depends on the quantity and packaging
				1			7	2	NOZZLE	1724000518-IN-DA-00004	1724000518-IN-DA-00003	1	A479 316L	(1)	(1)	10	0.8 Kg	(2)	(2)	8481 9000	2B350G.3	0	IT	42-1140-37	42-1140-37	TECHNICAL SRL		1	(1) if not requested, no certification will be supplied; (2) It depends on the quantity and packaging
					1		8	1	DISC	1724000518-IN-DA-00004	1724000518-IN-DA-00003	2	A479 S32750	(1)	(1)	10	0.03 Kg	(2)	(2)	8481 9000	2B350G.3	0	IT	02-0279-50	02-0279-50	TECHNICAL SRL		1	(1) if not requested, no certification will be supplied; (2) It depends on the quantity and packaging
					1		9	1	NOZZLE	1724000518-IN-DA-00004	1724000518-IN-DA-00003	1	A479 S32750	(1)	(1)	10	0.8 Kg	(2)	(2)	8481 9000	2B350G.3	0	IT	42-1140-50	42-1140-50	TECHNICAL SRL		1	(1) if not requested, no certification will be supplied; (2) It depends on the quantity and packaging
			1				10	7	GASKET KIT	1724000518-IN-DA-00004	1724000518-IN-DA-00003	17÷21a	ARAMID FIBER/FKM	(1)	(1)	5	0.01 Kg	(2)	(2)	8481 9000	2B350G.3	0	IT	50-1312-DB	50-1312-DB	TECHNICAL SRL	2	7	(1) if not requested, no certification will be supplied; (2) It depends on the quantity and packaging

PART 2 - CERTIFICATION DOSSIER

MANUFACTURING AND TESTING RECORD

INSPECTION TEST PLAN

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.	06/08/2024

Base Load Power Hub (BLPH)

INSPECTION AND TEST PLAN PSV

~~Accepted For Construction (AFC)~~

Document Number: 1724000518-QC-ITP-00002

Document Class: 2

Rev.	Date	Description	Prepared	Reviewed	Approved
03	05/07/2024	Accepted For Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
02	06/06/2024	Accepted For Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
01	09/05/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.
00	12/04/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.

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technical	**QUALITY CONTROL PLAN**	Job:	23/3962
		Document:	QCP-23/3962
		Page:	1 of 2

SAFETY AND RELIEF VALVES

Customer	**ROSETTI MARINO**
Project	**123A90A - Base Load Power Hub Platform**
Order	**1724000518 123A90A**

CODICI DI INTERVENTO / Intervention codes

H	**Hold point**
	Works may not proceed until the inspection has been carried out or the Purchaser / Third Party has informed the Supplier in writing about renunciation of the inspection.
W	**Witness point**
	Inspection Authority witness; notifications will be issued as per agreements and the activity will proceed even if Inspectors / Third Party are not attending on the notified date.
R	**Doc and certification control**
	Review of documentation

Inspection Authority

(1) TECHNICAL

(2) CUSTOMER

(3) COMPANY

Remarks

Customer Approvals

REV	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
3	05/07/2024	REVISED APPLICABILITY OF FET	RB	LDV	RB
2	06/06/2024	REVISED ACCORDING TO CUSTOMER COMMENTS	RB	LDV	RB
1	09/05/2024	add. Comment	RB	LDV	RB
0	02/04/2024	FIRST EMISSION	RB	LDV	RB

SAFETY AND RELIEF VALVES

No.	Inspection & Test	Reference Parts	Applicability %	Reference Standard and Documentation	Document Type	INSPECTION AUTHORITY (1)	(2)	(3)	
1	MATERIAL CERTIFICATE	BODY-NOZZLE-DISC -BONNET-BOLTING	100%	ASME II A-B / ASTM UNI EN EN 10204 3.1	MATERIAL TEST CERTIFICATE	R	R	R	
2	HYDROSTATIC TEST	BODY-NOZZLE-BONNET	100%	ASME B16.34 ASME VIII-Div.1 & XIII MSS-SP61 1724000518-QC-PRO-00006	TEST REPORT	H	W	W	
3	DYE PENENTRANT TESTING (DP)	BODY-BONNET-NOZZLE	(1)	ASME B16.34 ASTM E165	TEST REPORT	R	R	R	
4	POSITIVE MATERIAL IDENTIFICATION (PMI)	BODY-BONNET-DISC-NOZZLE	(2)	1724000518-NDT-PRO-00007	TEST REPORT	H	R	R	
5	SET PRESSURE TEST	ASSEMBLED VALVE	100%	1724000518-QC-PRO-00006 ASME VIII-Div.1 & XIII EN ISO 4126	CONSTRUCTION DECLARATION	H	W	W	
6	SEAT LEAKAGE TEST	ASSEMBLED VALVE	100%	API 527 1724000518-QC-PRO-00006	CONSTRUCTION DECLARATION	H	W	W	
7	FUGITIVE EMISSION TEST	ASSEMBLED VALVE	(3)	ISO 15848-1 1724000518-QC-PRO-00014	CONSTRUCTION DECLARATION	H	W	W	
8	ACCESSORY CHECK	ASSEMBLED VALVE	100%	1724000518-IN-DA-00003 TCH BOM / ODL	CONSTRUCTION DECLARATION	H	W	R	
9	VISUAL AND DIMENSIONAL CHECK	ASSEMBLED VALVE	100%	1724000518-IN-DA-00003 1724000518-QC-PRO-00006	CONSTRUCTION DECLARATION	H	W	W	
10	MEASURE TOOL CERTIFICATE VERIFICATION	PRESSURE GAUGES	-	TCH PROC. IT03	CALIBRATION CERTIFICATE	R	R	R	
11	PAINTING CHECK (NOTE 4)	ASSEMBLED VALVE	100%	**1724000518-MAT-PRO-00005** Final inspections: - Appearance check - Control of colour code - Final thickness test - Adhesion test - Check of the documentation	REPORT	R	W	W	
12	VALVE NAMEPLATE & marking check	ASSEMBLED VALVE	100%	PED , ATEX 1724000518-IN-LIS-00013 1724000518-QC-PRO-00006	CONSTRUCTION DECLARATION	H	W	W	
13	PACKING CHECK	ASSEMBLED VALVE	100%	1724000518-QC-PRO-00012	REPORT	H	W	R	
14	RELEASE NOTE	ASSEMBLED VALVE	100%	-	CUSTOMER'S RELEASE NOTE	R	H	R	
15	FINAL DOCUMENTATION	ASSEMBLED VALVE	100%	1724000518-QC-DB-00008	MRB	H	R	R	

NOTES:

(1) APPLICABLE ONLY FOR HYDROGEN SERVICE VALVES, THE DP SHALL BE MADE ON SEALING GROOVES FOR NON-METALLIC SEALS.

(2) PMI IS APPLICABLE ONLY ON STAINLESS STEEL AND DUPLEX / SUPERDUPLEX PARTS. CARBON CONTENT IS EXCLUDED.

(3) 100% OF HYDROGEN SERVICE VALVES ONLY. NOT APPLICABLE FOR VALVES WITH OTHER THAN HYDROGEN SERVICE.

(4) POROSITY TEST IS NOT APPLICABLE, SEE NOTE 7 CAP.9 SHEET 22 OF 30 SPEC. 123A90-DDL-MAT-SP-60006 REV.00

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. Technical Direct Quality Control Dept.	06/08/2024

Base Load Power Hub (BLPH)

INSPECTION AND TEST PLAN PSV

~~Accepted For Construction (AFC)~~

Document Number: 1724000518-QC-ITP-00002

Document Class: 2

03	05/07/2024	Accepted For Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
02	06/06/2024	Accepted For Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
01	09/05/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.
00	12/04/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.
Rev.	Date	Description	Prepared	Reviewed	Approved
technical					

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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 ÷ 5	INSPECTION TEST PLAN	X	X	X	X				

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

Revision / Change Log

Rev.	Description
00	ISSUE FOR REVIEW (IFR)
01	ISSUE FOR REVIEW (IFR)
02	Accepted For Construction (AFC)
03	Accepted For Construction (AFC)

HOLDS LIST

No.	Description
1.	
2.	
3.	
4.	

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technical	**QUALITY CONTROL PLAN**	Job:	23/3962
		Document:	QCP-23/3962
		Page:	1 of 2

SAFETY AND RELIEF VALVES

Customer	ROSETTI MARINO
Project	123A90A - Base Load Power Hub Platform
Order	1724000518 123A90A

CODICI DI INTERVENTO / Intervention codes

	Hold point
H	Works may not proceed until the inspection has been carried out or the Purchaser / Third Party has informed the Supplier in writing about renunciation of the inspection.
	Witness point
W	Inspection Authority witness; notifications will be issued as per agreements and the activity will proceed even if Inspectors / Third Party are not attending on the notified date.
	Doc and certification control
R	Review of documentation

Inspection Authority

(1) TECHNICAL

(2) CUSTOMER

(3) COMPANY

Remarks

ITEM: 50-PSV-011



CROSSWIND

Customer Approvals

13/09/24

REV	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
3	05/07/2024	REVISED APPLICABILITY OF FET	RB	LDV	RB
2	06/06/2024	REVISED ACCORDING TO CUSTOMER COMMENTS	RB	LDV	RB
1	09/05/2024	add. Comment	RB	LDV	RB
0	02/04/2024	FIRST EMISSION	RB	LDV	RB

technical	**QUALITY CONTROL PLAN**	Job	23/3962
		Document	QCP-23/3962
		Revision	3
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SAFETY AND RELIEF VALVES

No.	Inspection & Test	Reference Parts	Applicability %	Reference Standard and Documentation	Document Type	INSPECTION AUTHORITY (1)	(2)	(3)
1	MATERIAL CERTIFICATE	BODY-NOZZLE-DISC -BONNET-BOLTING	100%	ASME II A-B / ASTM UNI EN EN 10204 3.1	MATERIAL TEST CERTIFICATE	R	R	R
2	HYDROSTATIC TEST	BODY-NOZZLE-BONNET	100%	ASME B16.34 ASME VIII-Div.1 & XIII MSS-SP61 1724000518-QC-PRO-00006	TEST REPORT	H	W	W
3	DYE PENENTRANT TESTING (DP)	BODY-BONNET-NOZZLE	(1)	ASME B16.34 ASTM E165	TEST REPORT	R N.A	R	R
4	POSITIVE MATERIAL IDENTIFICATION (PMI)	BODY-BONNET-DISC-NOZZLE	(2)	1724000518-NDT-PRO-00007	TEST REPORT	H	R	R
5	SET PRESSURE TEST	ASSEMBLED VALVE	100%	1724000518-QC-PRO-00006 ASME VIII-Div.1 & XIII EN ISO 4126	CONSTRUCTION DECLARATION	H	W	W
6	SEAT LEAKAGE TEST	ASSEMBLED VALVE	100%	API 527 1724000518-QC-PRO-00006	CONSTRUCTION DECLARATION	H	W	W
7	FUGITIVE EMISSION TEST	ASSEMBLED VALVE	(3)	ISO 15848-1 1724000518-QC-PRO-00014	CONSTRUCTION DECLARATION	H N.A.	W	W
8	ACCESSORY CHECK	ASSEMBLED VALVE	100%	1724000518-IN-DA-00003 TCH BOM / ODL	CONSTRUCTION DECLARATION	H N.A	W	R
9	VISUAL AND DIMENSIONAL CHECK	ASSEMBLED VALVE	100%	1724000518-IN-DA-00003 1724000518-QC-PRO-00006	CONSTRUCTION DECLARATION	H	W	W
10	MEASURE TOOL CERTIFICATE VERIFICATION	PRESSURE GAUGES	-	TCH PROC. IT03	CALIBRATION CERTIFICATE	R	R	R
11	PAINTING CHECK (NOTE 4)	ASSEMBLED VALVE	100%	**1724000518-MAT-PRO-00005** Final Inspections: - Appearance check - Control of colour code - Final thickness test - Adhesion test - Check of the documentation	REPORT	R N.A.	W	W
12	VALVE NAMEPLATE & marking check	ASSEMBLED VALVE	100%	PED , ATEX 1724000518-IN-LIS-00013 1724000518-QC-PRO-00006	CONSTRUCTION DECLARATION	H	W	W
13	PACKING CHECK	ASSEMBLED VALVE	100%	1724000518-QC-PRO-00012	REPORT	H	W	R
14	RELEASE NOTE	ASSEMBLED VALVE	100%	-	CUSTOMER'S RELEASE NOTE	R	H	R
15	FINAL DOCUMENTATION	ASSEMBLED VALVE	100%	1724000518-QC-DB-00008	MRB	H	R	R

NOTES:

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(3) 100% OF HYDROGEN SERVICE VALVES ONLY. NOT APPLICABLE FOR VALVES WITH OTHER THAN HYDROGEN SERVICE.

(4) POROSITY TEST IS NOT APPLICABLE, SEE NOTE 7 CAP.9 SHEET 22 OF 30 SPEC. 123A90-DDL-MAT-SP-60006 REV.00

technical	**QUALITY CONTROL PLAN**	Job:	23/3962
		Document:	QCP-23/3962
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SAFETY AND RELIEF VALVES

Customer	ROSETTI MARINO
Project	123A90A - Base Load Power Hub Platform
Order	1724000518 123A90A

CODICI DI INTERVENTO / Intervention codes

	Hold point
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(1) TECHNICAL

(2) CUSTOMER

(3) COMPANY

Remarks

Customer Approvals

REV	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
2	06/06/2024	REVISED ACCORDING TO CUSTOMER COMMENTS	RB	LDV	RB
1	09/05/2024	add. Comment	RB	LDV	RB
0	02/04/2024	FIRST EMISSION	RB	LDV	RB

technical	**QUALITY CONTROL PLAN**	Job	23/3962
		Document	QCP-23/3962
		Revision	2
		Page	2 of 2

SAFETY AND RELIEF VALVES

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3	DYE PENENTRANT TESTING (DP)	BODY-BONNET-NOZZLE	(1)	ASME B16.34 ASTM E165	TEST REPORT	R	R	R	
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7	FUGITIVE EMISSION TEST	ASSEMBLED VALVE	(3)	ISO 15848-1 1724000518-QC-PRO-00014	CONSTRUCTION DECLARATION	H	W	W	
8	ACCESSORY CHECK	ASSEMBLED VALVE	100%	1724000518-IN-DA-00003 TCH BOM / ODL	CONSTRUCTION DECLARATION	H N.A	W	R	
9	VISUAL AND DIMENSIONAL CHECK	ASSEMBLED VALVE	100%	1724000518-IN-DA-00003 1724000518-QC-PRO-00006	CONSTRUCTION DECLARATION	H	W	W	
10	MEASURE TOOL CERTIFICATE VERIFICATION	PRESSURE GAUGES	-	TCH PROC. IT03	CALIBRATION CERTIFICATE	R	R	R	
11	PAINTING CHECK (NOTE 4)	ASSEMBLED VALVE	100%	**1724000518-MAT-PRO-00005** Final inspections: - Appearance check - Control of colour code - Final thickness test - Adhesion test - Check of the documentation	REPORT	R	W	W	
12	VALVE NAMEPLATE & marking check	ASSEMBLED VALVE	100%	PED , ATEX 1724000518-IN-LIS-00013 1724000518-QC-PRO-00006	CONSTRUCTION DECLARATION	H	W	W	
13	PACKING CHECK	ASSEMBLED VALVE	100%	1724000518-QC-PRO-00012	REPORT	H	W	R	
14	RELEASE NOTE	ASSEMBLED VALVE	100%	-	CUSTOMER'S RELEASE NOTE	R	H	R	
15	FINAL DOCUMENTATION	ASSEMBLED VALVE	100%	1724000518-QC-DB-00008	MRB	H	R	R	

NOTES:

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(3) APPLICABLE ONLY FOR HYDROGEN SERVICE VALVES, ONE TESTED VALVE PER MODEL CODE (TECHNICAL P/N)

(4) POROSITY TEST IS NOT APPLICABLE, SEE NOTE 7 CAP.9 SHEET 22 OF 30 SPEC. 123A90-DDL-MAT-SP-60006 REV.00

MATERIAL CERTIFICATES

tecHnical

VIGNATE- MI - ITALY

RIEPILOGO CERTIFICATI *- CERTIFICATE SUMMERY*

CLIENTE - *CUSTOMER*	**N° ORDINE** - *ORDER N°*	**Ns. COMMESSA** - *JOB N°*
ROSETTI MARINO S.p.A.	***1724000518 123A90A***	***23/3962***

PARTICOLARE *DENOMINATION*	**N° COLATA** *CASTING N°*	**N° CERTIFICATO** *CERTIFICATE N°*	**MATERIALE** *MATERIAL*	**FORNITORE** *SUPPLER*	**PAGINA** *PAGE*	**MATRICOLA** *SERIAL N°*	**MODELLO VALVOLA** VALVE TYPE	**NUMERO PARTE COMPONENTE CON RIFERIMENTO AL DISEGNO** COMPONENT PART NUMBER WITH DRAWING REFERENCE
CORPO *BODY*	38324	56/23-24	ASTM A351 CF8M	AMEXMALLOYS PRIVATE LIMITED	3	291496÷497	320-K10-5L	7 23/3962_DWG_1
COPERCHIO *BONNET*	JMD2	N310/U	ASTM A351 CF8M	SANDORI CASTINGS PVT. LTD.	4	291496÷497	320-K10-5L	14 23/3962_DWG_1
BOCCAGLIO *NOZZLE*	ENP3	P115/W	ASTM A351 CF3M	SANDORI CASTINGS PVT. LTD.	5	291496÷497	320-K10-5L	1 23/3962_DWG_1
OTTURATORE *DISC*	284467	MEST033326/2024	A479 316L - AISI 316L	ACCIAIERIE VALBRUNA	6 - 8	291496÷497	320-K10-5L	2 23/3962_DWG_1
PRIGIONIERO *STUD*	639123	1362517	ASTM A/SA 193 B8M	COMVITEA S.R.L.	9 -10	291496÷497	320-K10-5L	15 23/3962_DWG_1
DADO *NUT*	1112150	1351968	ASTM A194 8M	COMVITEA S.R.L.	11	291496÷497	320-K10-5L	15 23/3962_DWG_1
ALTRE PARTI *OTHER PARTS*	-	18	SEE CONFORMITY DECLARATION	-	25	291496÷497	320-K10-5L	2a-4-3-5-3-6-23-8-10-11-12-16-18-19-20-21a-24-13-9 23/3962_DWG_1
CORPO *BODY*	JHP2	N270/B1	ASTM A351 CF8M	SANDORI CASTINGS PVT. LTD.	12	291498÷504	320-E20-5L	7 23/3962_DWG_2-3-4-5-6-7
COPERCHIO *BONNET*	GN3	P147/S	ASTM A351 CF8M	SANDORI CASTINGS PVT. LTD.	13	291498÷504	320-E20-5L	14 23/3962_DWG_2-3-4-5-6-7
BOCCAGLIO *NOZZLE*	291150	MEST013770/2024	A479 316L - AISI 316L	ACCIAIERIE VALBRUNA	14 - 16	291498÷504	320-E20-5L	1 23/3962_DWG_2-3-4-5-6-7
OTTURATORE *DISC*	292463	MEST132199/2023	A479 316L - AISI 316L	ACCIAIERIE VALBRUNA	17 - 19	291498÷504	320-E20-5L	2 23/3962_DWG_2-3-4-5-6-7
PRIGIONIERO *STUD*	327643	1365488	ASTM A/SA 193 B8M	COMVITEA S.R.L.	20	291498÷504	320-E20-5L	15 23/3962_DWG_2-3-4-5-6-7
DADO *NUT*	S088	1369283	ASTM A194 8M	COMVITEA S.R.L.	21	291498÷504	320-E20-5L	15 23/3962_DWG_2-3-4-5-6-7
ALTRE PARTI *OTHER PARTS*	-	18	SEE CONFORMITY DECLARATION	-	25	291498÷504	320-E20-5L	2a-4-3-5-3-6-23-8-10-11-12-16-18-19-20-21a-24-13-9 23/3962_DWG_2-3-4-5-6-7
CORPO *BODY*	B9BA	D010/A	ASTM A352 GR LCB	HELIOS SYSCOM PVT.LTD.	22	291505÷506	320-D10-L2	7 23/3962_DWG_8
COPERCHIO *BONNET*	EFP2	302/I_A1	ASTM A352 GR LCB	SANDORI CASTINGS PVT. LTD.	23	291505÷506	320-D10-L2	14 23/3962_DWG_8
BOCCAGLIO *NOZZLE*	291150	MEST013770/2024	A479 316L - AISI 316L	ACCIAIERIE VALBRUNA	14 - 16	291505÷506	320-D10-L2	1 23/3962_DWG_8
OTTURATORE *DISC*	292463	MEST132199/2023	A479 316L - AISI 316L	ACCIAIERIE VALBRUNA	17 - 19	291505÷506	320-D10-L2	2 23/3962_DWG_8
PRIGIONIERO *STUD*	327643	1365488	ASTM A/SA 193 B8M	COMVITEA S.R.L.	20	291505÷506	320-D10-L2	15 23/3962_DWG_8
DADO *NUT*	S088	1369283	ASTM A194 8M	COMVITEA S.R.L.	21	291505÷506	320-D10-L2	15 23/3962_DWG_8
ALTRE PARTI *OTHER PARTS*	-	17	SEE CONFORMITY DECLARATION	-	24	291505÷506	320-D10-L2	2a-4-3-5-3-6-23-8-10-11-12-16-18-19-20-21a-24-13-9 23/3962_DWG_8

ISPETTORE CLIENTE / *CUSTOMER INSPECTOR*

ISPETTORE TECHNICAL / *TECHNICAL INSPECTOR*

VIGNATE- MI - ITALY

RIEPILOGO CERTIFICATI - *CERTIFICATE SUMMERY*

CLIENTE - *CUSTOMER*	**N° ORDINE** - *ORDER N°*	**Ns. COMMESSA** - *JOB N°*
ROSETTI MARINO S.p.A.	***1724000518 123A90A***	***23/3962***

PARTICOLARE *DENOMINATION*	**N° COLATA** *CASTING N°*	**N° CERTIFICATO** *CERTIFICATE N°*	**MATERIALE** *MATERIAL*	**FORNITORE** *SUPPLER*	**PAGINA** *PAGE*	**MATRICOLA** *SERIAL N°*
CORPO *BODY*	38324	56/23-24	ASTM A351 CF8M	AMEX ALLOYS PRIVATE LIMITED	3	291496÷497
COPERCHIO *BONNET*	JMD2	N310/U	ASTM A351 CF8M	SANDORI CASTINGS PVT. LTD.	4	291496÷497
BOCCAGLIO *NOZZLE*	ENP3	P115/W	ASTM A351 CF3M	SANDORI CASTINGS PVT. LTD.	5	291496÷497
OTTURATORE *DISC*	284467	MEST033326/2024	A479 316L - AISI 316L	ACCIAIERIE VALBRUNA	6 - 8	291496÷497
PRIGIONIERO *STUD*	639123	1362517	ASTM A/SA 193 B8M	COMVITEA S.R.L.	9 - 10	291496÷497
DADO *NUT*	1112150	1351968	ASTM A194 8M	COMVITEA S.R.L.	11	291496÷497
CORPO *BODY*	JHP2	N270/B1	ASTM A351 CF8M	SANDORI CASTINGS PVT. LTD.	12	291498÷504
COPERCHIO *BONNET*	GN3	P147/S	ASTM A351 CF8M	SANDORI CASTINGS PVT. LTD.	13	291498÷504
BOCCAGLIO *NOZZLE*	291150	MEST013770/2024	A479 316L - AISI 316L	ACCIAIERIE VALBRUNA	14 - 16	291498÷504
OTTURATORE *DISC*	292463	MEST132199/2023	A479 316L - AISI 316L	ACCIAIERIE VALBRUNA	17 - 19	291498÷504
PRIGIONIERO *STUD*	327643	1365488	ASTM A/SA 193 B8M	COMVITEA S.R.L.	20	291498÷504
DADO *NUT*	S088	1369283	ASTM A194 8M	COMVITEA S.R.L.	21	291498÷504
CORPO *BODY*	B9BA	D010/A	ASTM A352 GR LCB	HELIOS SYSCOM PVT.LTD.	22	291505÷506
COPERCHIO *BONNET*	EFP2	302/I_A1	ASTM A352 GR LCB	SANDORI CASTINGS PVT. LTD.	23	291505÷506
BOCCAGLIO *NOZZLE*	291150	MEST013770/2024	A479 316L - AISI 316L	ACCIAIERIE VALBRUNA	14 - 16	291505÷506
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ISPETTORE CLIENTE / *CUSTOMER INSPECTOR*

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS
02/07/2024

ISPETTORE TECHNICAL / *TECHNICAL INSPECTOR*

technical SRL
Quality Assurance
Elena Adornato

Cross x CROSSWIND
2/7/24 R

technical
VIGNATE- MI - ITALY

RIEPILOGO CERTIFICATI - *CERTIFICATE SUMMERY*

CLIENTE - *CUSTOMER*	**N° ORDINE** - *ORDER N°*	**Ns. COMMESSA** - *JOB N°*
ROSETTI MARINO S.p.A.	***1724000518 123A90A***	***23/3962***

PARTICOLARE *DENOMINATION*	**N° COLATA** *CASTING N°*	**N° CERTIFICATO** *CERTIFICATE N°*	**MATERIALE** *MATERIAL*	**FORNITORE** *SUPPLER*	**PAGINA** *PAGE*	**MATRICOLA** *SERIAL N°*
DADO *NUT*	S088	1369283	ASTM A194 8M	COMVITEA S.R.L.	21	291505÷506

ISPETTORE CLIENTE / *CUSTOMER INSPECTOR*

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS
02/07/2024

ISPETTORE TECHNICAL / *TECHNICAL INSPECTOR*

technical SRL
Quality Assurance
Elena Adornato

Pollini x CROSSWIND
2/7/24 R

FLAB - 07 R5

AMEX ALLOYS PRIVATE LIMITED
SF NO.289/2,KUNNATHUR PUDUR (PO),SATHY ROAD,COIMBATORE - 641 107. INDIA.
Phone : +91-422-2654162 | Fax : +91-422-2653121 | E-Mail : sales@amexalloys.com

ISO 9001:2015 CERTIFIED BY: TÜV NORD, GERMANY., CERT.NO.:04 100 047163

INSPECTION CERTIFICATE EN 10204 - ' Type 3.1 '

Customer	: TECHNICAL S.R.L.	TC No.	: 56 / 23-24 A
P.O.Reference	: 000050 Dt. 23/01/2023	TC Date	: 07/07/2023
		Heat No.	: 38324
Specification	: ASME SA 351 Gr. CF8M - 21	Pouring Date	: 28/01/2023
Casting Processed by	: Induction Melting	Foundry Identification	AX

CHEMICAL COMPOSITION

ASTM A751

Elements	Heat No.	C	Si	Mn	S	P	Cr	Ni	Mo					
Required (%)	Min	--	--	--	--	--	18.000	9.000	2.000					
	Max	0.080	1.500	1.500	0.040	0.040	21.000	12.000	3.000					
Actuals (%)	38324	0.057	0.961	1.098	0.003	0.035	18.523	9.698	2.182					

HEAT TREATMENT

Type of Heat Treatment	Temperature	Soaking Time	Cooling Medium
SOLUTION ANNEALING	1090°C	5 Hrs	WATER

MECHANICAL PROPERTIES

(TESTED WITH SEPERATELY CASTED ROUND TEST COUPONS)

ASTM A370 & ISO 6892 - 1								ISO 148 - 1			
Properties		Rp 0.2% Y.S Mpa	UTS Mpa	%EL GL 4d	%EL GL 5d	% Reduction Area	Hardness HBW	Bend Test	Impact Test in (Joules) (10mm X 10mm X 55mm) CVN 2mm 45 °			
Required	Min	205	485	30	--	--	--		@-196°C Min Avg: 60 J			
	Max	--	--	--	--	--	237		1	2	3	Avg.
Actual		274	529	60.64	--	--	162		76	94	82	84.00

ITEM DESCRIPTION

Sl. No.	Heat No.	PO Pos. No.	Description	Drawing No. / Article No.	Model No.	Quantity (Nos.)	Raw Casting Weight/Pc (Kgs.)
1	38324	3	BODY 3" 150X 4" 150 RF DIA K-L	07-0358-D R.00 / 35-0199-D R.01 / 07-0358-D6	--	5	41.000
2	38324	2	BODY 3" 300 X 4" 150 RF DIA K-L	07-0440-D R.00 / 35-0199-D REV.01 / 07-0440-D6	--	5	41.000

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Remarks:
Castings are dimensionally acceptable.
Castings are Pickled & Phosphated.
Visual inspections are carried out as per MSS SP 55.
Casting Meets the Requirements of NACE MR 0175/ISO 15156.
Quality Conforms to ASME B16.34 APP - III.
Castings are Hydro tested, and the Test pressure is 30 bar @ +32 °C.
Approved acc. to AD 2000-Merkblatt W0 and certified acc. to PED (2014/68/EU) by Certification Body for Pressure Equipment of TÜV NORD Systems (notified body, reg. no.:0045).
Radioactivity level measured, delivered materials are free of radioactive contamination..

We here by certify that the items mentioned above have been tested, inspected and found to be in accordance with customer's drawing, specification, purchase order and satisfy the requirements of **ASME SA 351 Gr. CF8M - 21.**

For AMEX ALLOYS PRIVATE LIMITED

M.JANAKARATHINAM
Asst.MANAGER - QA

AX 01

K.BOMMAYAN
Work Expert

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L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS
02/07/2024

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Elena Adornato

CROSSMIND
2/7/24

SANDORI CASTINGS PVT. LTD.

Works : Survey No. 188, Gondal NH 8-B, Plot No. 1, Veraval (Shapar), Tal. Kotda Sangani, Dist. Rajkot. Gujarat (India)
Tel. : +91 2827 253400, 254282 Email : sales@sandoricastings.com

INSPECTION CERTIFICATE

THIS CERTIFICATE HAS BEEN PREPARED AS PER DIN EN 10204 3.1

TC No. : **000563 / 3 / SA351 CF8M / JMD2 / N310**

Name of Customer : **TECHNICAL S.R.L**
Certificate Confirms To : EN 10204 3.1
Material Specification : **ASME SA351/SA351M -15 GR. : SA351 CF8M**

DC No. : N310/U - 31/01/2023
Invoice No. : N310 - 31/01/2023

Purchase Order No. : 000563 - 15/07/2022
Order Acceptance No. : 0558/22-23 - 16/07/2022

SPECTRO CHEMICAL ANALYSIS

Heat No.	Pouring Date	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Wp					HTB No.
Min.	--						18.000	9.000	2.000	60.000					
Max.	--	0.080	1.500	1.500	0.040	0.040	21.000	12.000	3.000						
JMD2	29/10/2022	0.043	0.900	0.870	0.014	0.008	18.940	9.710	2.220	64.222					04/671/22

MECHANICAL PROPERTIES

	ASTM A370				ASTM A370	ASTM A370					
Heat No.	YS MPa 0.2 %	UTS MPa	Elgn. % GL 25mm	R.A. %	Hardness HB	Charpy V-Notch Impact Test at -196 °C (Min. J)				Part Description / Drg. No.	Qty. (Dispatch)
Min.	205.00	485.00	30.00			1	2	3	Avg		
Max.					237.00	60J	60J	60J	60J		
JMD2	313.83	532.85	47.40	--	150-156	104	110	94	102.67	BONNET 3"X 4" Cust. Drg. No. : 35-0044-36 Rev. No. : 05 Mach. Drg. No. : 10-0242-A Rev. No. : 02 Customer Part ID : 10-0242-36 PO Line No. : 3 Wt./Pc. : 14.30	17

Casting Process : Melting By Electric Induction Furnace
Dimensional Inspection : Accepted as per respective component drawing
Visual Inspection : 100% Checked and Found Satisfactory as per MSS SP 55 & BS ISO 19959:2005 STD
Heat Treatment : Solution Annealed 1100°C, 1 Hour per Inch Soaking, Water Quenched
Surface Condition : Acid Pickled & Passivated
Foundry Identification : Castings are identified by Heat No. / Material Grade / Foundry Logo "S" and Other Requirements of Customer

Note : Materials Are Free From Radioactive Contamination

VERIFIED BY Technical 2023 APR 12 QUALITY ASSURANCE

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS
02/07/2024

Robin x CROSSWIND
2/4/24 IR

Conclusion : Material Confirms to ASME SA351/SA351M -15 GR. : SA351 CF8M Specification.

This alloy meets basic requirement of ASME SA351/SA351M -15 GR. : SA351 CF8M. Casting Confirms to NACE MR0175-2003/ISO15156. Approved according to AD 2000 Merblatt W0 and Certified according to PED (2014/68/EU) by Certification body for Pressure Equipment of TUV NORD System, Notified Body Reg. No. 0045.

JALPESH KAPADIYA (Laboratory Incharge)	RAJESH VACHHANI (Engineer - QA)	V.M.BARIYA (Authorised Inspector)

MET-FO-06 Rev. 00 dtd. 01.12.15 | Page 1 of 1 | Sandori Castings Pvt. Ltd., Veraval (Shapar)

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Elena Adornato

SANDORI CASTINGS PVT. LTD.

Works : Survey No. 188, Gondal NH 8-B, Plot No. 1, Veraval (Shapar), Tal. Kotda Sangani, Dist. Rajkot. Gujarat (India)
Tel. : +91 2827 253400, 254282 Email : sales@sandoricastings.com

INSPECTION CERTIFICATE

THIS CERTIFICATE HAS BEEN PREPARED AS PER DIN EN 10204 3.1

TC No. : **000252 / 13 / SA351 CF3M / ENP3 / P115**

Name of Customer : **TECHNICAL S.R.L**
Certificate Confirms To : EN 10204 3.1
Material Specification : **ASME SA351/SA351M -15 GR. : SA351 CF3M**

DC No. : P115/W - 25/07/2023
Invoice No. : P115 - 25/07/2023

Purchase Order No. : 000252 - 13/04/2023
Order Acceptance No. : 0048/23-24 - 15/04/2023

SPECTRO CHEMICAL ANALYSIS

Heat No.	Pouring Date	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %						HTB No.
Min.	--						17.000	9.000	2.000						
Max.	--	0.030	1.500	1.500	0.040	0.040	21.000	13.000	3.000						
ENP3	29/05/2023	0.024	0.960	0.930	0.034	0.015	18.630	9.760	2.250						02/476/23

MECHANICAL PROPERTIES

	ASTM A370				ASTM A370	ASTM A370					
Heat No.	YS MPa 0.2 %	UTS MPa	Elgn. % GL 25mm	R.A. %	Hardness HB	Charpy V-Notch Impact Test at -196 °C (Min. J)				Part Description / Drg. No.	Qty. (Dispatch)
						1	2	3	Avg		
Min.	205.00	485.00	30.00								
Max.					237.00	60J	60J	60J	60J		
ENP3	302.63	536.18	46.24	--	150-156	108	110	98	105.33	NOZZLE 3" 150-300RF ØK Cust. Drg. No. : 35-0289-37 Rev. No. : 01 Mach. Drg. No. : 42-1149-A Rev. No. : 00 Customer Part ID : 42-1149-G1 PO Line No. : 13 Wt./Pc. : 3.84	22

Casting Process : Melting By Electric Induction Furnace
Dimensional Inspection : Accepted as per respective component drawing
Visual Inspection : 100% Checked and Found Satisfactory as per MSS SP 55 & BS ISO 19959:2005 STD
Heat Treatment : Solution Annealed 1100°C, 1 Hour per Inch Soaking, Water Quenched
Surface Condition : Acid Pickled & Passivated
Foundry Identification : Castings are identified by Heat No. / Material Grade / Foundry Logo "S" and Other Requirements of Customer

Note : Materials Are Free From Radioactive Contamination

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS
02/07/2024

2/7/24

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2023 OTT 23
QUALITY ASSURANCE

Conclusion : Material Confirms to ASME SA351/SA351M -15 GR. : SA351 CF3M Specification.

This alloy meets basic requirement of ASME SA351/SA351M -15 GR. : SA351 CF3M. Casting Confirms to NACE MR0175-2003/ISO15156. Approved according to AD 2000 Merblatt W0 and Certified according to PED (2014/68/EU) by Certification body for Pressure Equipment of TUV NORD System, Notified Body Reg. No. 0045.

JALPESH KAPADIYA (Laboratory Incharge)	RAJESH VACHHANI (Engineer - QA)	V.M.BARIYA (Authorised Inspector)

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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: MEST033326 / 2024 /

Cliente / Besteller/Purchaser/Client:
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: AGGIUNTA ORDINE 132
Bestell / Your order / Commande

Conferma ordine nr: MI24001955
Werks/Our Order/Rif nr.

Avviso di Spedizione: A-MI24001553
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 Werksachverständigen / Inspector's stamp/Poinçon de l'assayeur

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

SPECIFICHE : / Anforderungen / Requirements / Exigences

ASME SA479 2023 S31600/03 A (0)
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

Note: / Aufzeichnungen / Notes / Notes

(0)Section II Part A 2023 EDITION

Tolleranza: k12
Toleranz/Allowance/Tolerance

Pos. nr.	Oggetto	Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
0020	Tondo	50,000	5815/ 5845	284467		372,0	320903700

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüfung auf lieferbereitem produkt / test a l'etat de fourniture / Prueba sobre el material asi 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 Prüfstelle 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 Härte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs demandées		min max			200	235	500 700	40	-	-	-	-			- 215		
A	10	20	L		256	295	586	54		68					159		
G	10	20	L		265	297	589	55		67					160		

TEST ALLO STATO DI FORNITURA

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

TEST		min	max	
G	Dimensioni grano x ASTM E112			5

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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 Prüfstelle 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 Härte Hardness Durete		
Valori richiesti Anforderungen/Required values Valeurs demandées		min max			205	-	515	-	30	-	40	-			-		
C	12,5	20	L		251		585		57		69						

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

Vicenza, 08/03/2024	Direzione Qualità / Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto / Produktmanagement/Product Management/Direction Produit	Pagina
VCQ012 - MEST033326	R.BERTELLI	P.MESSORI	1 di 3

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☑ REVIEW ☐ WITNESS
02/07/2024

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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: MEST033326 / 2024 /

Cliente / Besteller/Purchaser/Client:
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: AGGIUNTA ORDINE 132
Bestell / Your order / Commande

Conferma ordine nr: MI24001955
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24001553
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'assyeur

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

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 Prüflage Location Emplacement 1)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs demandées		min / max		100	100	100	-	-	-	-	-	-
F	10X10	20	L	230	229	235						
H	10X10	20	L	235	230	233						

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 %							
284467	0,016	0,50	1,50	16,82	2,00	10,14	0,029	0,025	0,055							

VERIFIED BY ... 2024 MAR 08 CE ... ASSURANCE

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

Solution annealing by process annealing 1040°C min /
/ cooling rapidly
Reduction ratio = 15,3 : 1
SURFACE QUALITY COMPLIANT TO EN 10088-3 TAB.1 COND. 1X equivalent to EN 10277-1 Cl.3

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.

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS
02/07/2024

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

Vicenza, 08/03/2024	Direzione Qualità / Qualitätmanagement/Quality Management/Gestion Qualité	Direzione Prodotto / Produktmanagement/Product Management/Direction Produit	Pagina
VCQ012 - MEST033326	R.BERTELLI	P.MESSORI	2 di 3

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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: MEST033326 / 2024 /

Cliente / Besteller/Purchaser/Client:
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: AGGIUNTA ORDINE 132
Bestell / Your order / Commande

Conferma ordine nr: MI24001955
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24001553
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: 316/316L/1.4401
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.

VERIFIED BY technical
2024 MAR 00
QUALITY ASSURANCE

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS
02/07/2024

Rotti + CROSSWIND
2/7/24

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

Vicenza, 08/03/2024 VCQ012 - MEST033326	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 3 di 3

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Quality Assurance
Elena Adornato

COMVITEA s.r.l.
Via Isonzo 32/C - 20078 Turate (CO) Tel 02 9697121 - Fax 02 96754113

CERTIFICATO DI COLLAUDO EN 10204
INSPECTION CERTIFICATE EN 10204

Azienda CERTIFICATA - UNI EN ISO 9001:2015
3.1 AD 2000 MERKBLATT W0 - PED Directive 2014/68/EU

Certificato/Certificate N°	1362517	Pag. 1 / 2	Cliente/Customer	TECHNICAL SRL	
Data cert /Date cert.	04/04/2023		Vs. ordine/Order.	000070	
d.d.t./Delivery note n.	2122	04/04/2023	Ns.rif./Int. ref.	1026	16/02/2023

Descrizione Materiale / Material Description

Item	Qty	Articolo / Article	Materiale / Material	Pos-Rifer / Your pos-ref.
1	1500	Dado ASTM/ASME A/SA 194 2H UNI 5587 H=ø PG M10 ZNB 12µ	ASTM/ASME A/SA 194 2H	16-0023-19
2	10	Dado ASTM/ASME A/SA 194 2H UNI 5587 H=ø PG M22 ZNB 5-8µ	ASTM/ASME A/SA 194 2H	TELEF.FUMAGALLI
3	1033	Prigioniero ASTM/ASME A/SA 193 B7 UNI 5911 M10x35 ZNB deidr. 12µ	ASTM/ASME A/SA 193 B7	06-0471-18
4	503	Prigioniero ASTM/ASME A/SA 193 B7 UNI 5911 M10x40 ZNB deidr. 12µ	ASTM/ASME A/SA 193 B7	06-0492-18
5	26	Prigioniero ASTM/ASME A/SA 193 B7M UNI 5911 M10x55 Zincato giallo 25µ	ASTM/ASME A/SA 193 B7M	06-0520-EG
6	213	Prigioniero ASTM/ASME A/SA 193 B8M cl.1 UNI 5911 M10x40	ASTM/ASME A/SA 193 B8M cl.1	06-0492-36
7	22	Prigioniero ASTM/ASME A/SA 193 B8M cl.1 UNI 5911 M14x110	ASTM/ASME A/SA 193 B8M cl.1	06-0518-36
8	50	Prigioniero ASTM/ASME A/SA 193 B8M cl.1 UNI 5911 M16x45	ASTM/ASME A/SA 193 B8M cl.1	06-0525-36

COLATA-ANALISI CHIMICA come da certificato di acciaieria / HEAT-CHEMICAL ANALYSIS according to mill certificate

Item	Colata/Heat	C	Cr	Mn	Mo	Ni	P	S	Si	NORME/STANDARDS
1	G931007264	0,4300		0,6600			0,0150	0,0050	0,1900	ASME II Part A ed. 2021
2	G932007685	0,4400		0,6400			0,0140	0,0040	0,1800	ASME II Part A ed. 2021
3	BA7559	0,4350	1,0900	0,7700	0,1800		0,0110	0,0240	0,2100	ASME II Part A ed. 2021
4	BA7559	0,4350	1,0900	0,7700	0,1800		0,0110	0,0240	0,2100	ASME II Part A ed. 2021
5	141418	0,4300	1,0100	0,7400	0,2400		0,0100	0,0260	0,1700	ASME II Part A ed. 2021
6	327643	0,0180	16,5500	1,6800	2,0500	10,0500	0,0360	0,0290	0,3000	ASME II Part A ed. 2021
7	327643	0,0180	16,5500	1,6800	2,0500	10,0500	0,0360	0,0290	0,3000	ASME II Part A ed. 2021
8	639123	0,0590	16,5940	1,2990	2,0310	10,1390	0,0267	0,0243	0,3810	ASME II Part A ed. 2021

PROPRIETA' MECCANICHE / MECHANICAL PROPERTIES

	OTTENUTE / OBTAINED							RICHIESTE / REQUIRED							
	Rm	Re	A	Z	Dur/hard.	Resilienza/Impact test		Rm (N/mm²)		Re (N/mm²)		A %	Z %	Dur/hard.	Resilienza/Impact test	
Item	N/mm²	N/mm²	%	%	HB	KV - Joule	°C	min	max	min	max	min	min	HB min max	KV - Joule	°C
1					286 294		20							327		20
2					280 300		20							327		20
3	949	753	23,50	61,00	283 287		20	860		720		16	50	321		20
4	949	753	23,50	61,00	283 287		20	860		720		16	50	321		20
5	745	605	23,90	57,50	218 223		20	690		550		18	50	235		20
6	632	428	46,00	71,00	192 197		20	515		205		30	50	223		20
7	632	428	46,00	71,00	192 197		20	515		205		30	50	223		20
8	726	583	38,00	69,00	200 208		20	515		205		30	50	223		20

Item	Trattamento Termico Tempering - °C	Dur./Hard. HB dadi/nuts h	°C	>=	HB	Prova allarg. per dadi Cone stripping on nuts		ESAME VISIVO-VIS.EXAM
1	Quenched and tempered macro etch examination: positive 455°	24h	540		255	Positive	Proof load positive	Positivo / Positive
2	Quenched and tempered macro etch examination: positive 455°	24h	540		261	Positive	Proof load positive	Positivo / Positive
3	Quenched and tempered macro etch examination: positive 593°							Positivo / Positive
4	Quenched and tempered macro etch examination: positive 593°							Positivo / Positive
5	Quenched and tempered macro etch examination: positive 620°							Positivo / Positive
6	Carbide solution treated 1060°							Positivo / Positive
7	Carbide solution treated 1060°							Positivo / Positive
8	Carbide solution treated 1060°							Positivo / Positive

VERIFIED BY technical 2023 APR 06 QUALITY ASSURANCE

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS
02/07/2024

Note:

Certifichiamo che i materiali sono stati fabbricati, campionati, testati e ispezionati in conformità alle specifiche e conformi alle prescrizioni degli ordini.
We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.

Oscar Uboldi - Quality Assurance

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Quality Assurance
Elena Adornato

CROSWIND
2/7/24

Modulo: **PRG 002 07/2005**

COMVITEA ...
Via Isonzo 32/C - 20078 Turate (CO) Tel 02.9697121 - Fax 02 96754113

CERTIFICATO DI COLLAUDO EN 10204
INSPECTION CERTIFICATE EN 10204

Azienda CERTIFICATA - UNI EN ISO 9001:2015
3.1 AD 2000 MERKBLATT W0 - PED Directive 2014/68/EU

Certificato/Certificate N°	1362517	Pag. 2 / 2	Cliente/Customer	TECHNICAL SRL	
Data cert /Date cert.	04/04/2023		Vs. ordine/Order.	000070	
d.d.t./Delivery note n.	2122	04/04/2023	Ns.rif./Int. ref.	1026	16/02/2023

Descrizione Materiale / Material Description

Item	Qty	Articolo / Article	Materiale / Material	Pos-Rifer / Your pos-ref.
9	20	Prigioniero ASTM/ASME A/SA 193 B8M cl.1 UNI 5911 M16x85	ASTM/ASME A/SA 193 B8M cl.1	06-0523-36

COLATA-ANALISI CHIMICA come da certificato di acciaieria / HEAT-CHEMICAL ANALYSIS according to mill certificate

Item	Colata/Heat	C	Cr	Mn	Mo	Ni	P	S	Si
9	639123	0,0590	16,5940	1,2990	2,0310	10,1390	0,0267	0,0243	0,3810

NORME/STANDARDS

ASME II Part A ed. 2021

PROPRIETA' MECCANICHE / MECHANICAL PROPERTIES

	OTTENUTE / OBTAINED							RICHIESTE / REQUIRED							
	Rm	Re	A	Z	Dur/hard.		Resilienza/Impact test	Rm (N/mm²)		Re (N/mm²)		A %	Z %	Dur/hard. HB		Resilienza/Impact test	
Item	N/mm²	N/mm²	%	%	HB		KV - Joule °C	min	max	min	max	min	min	min	max	KV - Joule	°C
9	726	583	38,00	69,00	200	208	20	515		205		30	50	223			20

Item	Trattamento Termico Tempering - °C	Dur./Hard. HB dadi/nuts h	°C	>=	HB	Prova allarg. per dadi Cone stripping on nuts	ESAME VISIVO-VIS.EXAM
9	Carbide solution treated 1060°						Positivo / Positive

VERIFIED BY technical 2023 APR 06 QUALITY ASSURANCE

L. FONTANA
ON BEHALF OF ROSETTI MARINO

Note: ☑ REVIEW ☐ WITNESS
02/07/2024

Certifichiamo che i materiali sono stati fabbricati, campionati, testati e ispezionati in conformità alle specifiche e conformi alle prescrizioni degli ordini.
We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.

Oscar Uboldi - Quality Assurance

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Quality Assurance
Elena Adornato

CROSSWIND

COMVITEA s.r.l.
Via Isonzo 32/C - 20078 Turate (CO) Tel 02 9697121 - Fax 02 96754113

CERTIFICATO DI COLLAUDO EN 10204
INSPECTION CERTIFICATE EN 10204

Azienda CERTIFICATA - UNI EN ISO 9001:2015
3.1 AD 2000 MERKBLATT W0 - PED Directive 2014/68/EU

Certificato/Certificate N°	1351968	Pag. 1 / 1	Cliente/Customer	TECHNICAL SRL	
Data cert /Date cert.	08/04/2021		Vs. ordine/Order.	000237	
d.d.t./Delivery note n.	2352	08/04/2021	Ns.rif./Int. ref.	2137	24/03/2021

Descrizione Materiale / Material Description

Item	Qty	Articolo / Article	Materiale / Material	Rif. Cliente / Your ref.
1	200	Dado ASTM/ASME A/SA 194 gr.8M UNI 5587 H=ø PG M14	ASTM/ASME A/SA 194 gr.8M	16-0037-36
2	300	Dado ASTM/ASME A/SA 194 gr.8M UNI 5587 H=ø PG M16	ASTM/ASME A/SA 194 gr.8M	16-0007-36

COLATA-ANALISI CHIMICA come da certificato di acciaieria / HEAT-CHEMICAL ANALYSIS according to mill certificate

Item	Colata/Heat	C	Cr	Mn	Mo	Ni	P	S	Si
	750075	0,0200	16,8700	0,5000	2,0200	11,1600	0,0280	0,0010	0,5070
2	1112150	0,0400	16,7500	0,7700	2,0400	10,1200	0,0310	0,0030	0,4400

NORME/STANDARDS

ASME II Part A ed. 2019
ASME II Part A ed. 2019

PROPRIETA' MECCANICHE / MECHANICAL PROPERTIES

	OTTENUTE / OBTAINED							RICHIESTE / REQUIRED							
	Rm	Re	A	Z	Dur/hard.		Resilienza/Impact test	Rm (N/mm²)		Re (N/mm²)		A %	Z %	Dur/hard. HB		Resilienza/Impact test
Item	N/mm²	N/mm²	%	%	HB		KV - Joule °C	min	max	min	max	min	min	min	max	KV - Joule °C
1					266	278	20							126	300	20
2					230	235	20							126	300	20

Item	Trattamento Termico Tempering - °C	Dur./Hard. HB dadi/nuts h	°C	>=	HB	Prova allarg. per dadi Cone stripping on nuts		ESAME VISIVO-VIS.EXAM
1	Carbide solution treated					Positive	Proof load positive	Positivo / Positive
2	Carbide solution treated					Positive	Proof load positive	Positivo / Positive

VERIFIED BY TECHNICAL QUALITY ASSURANCE 2021 APR 08

L. FONTANA
ON BEHALF OF Rosetti Marino

Note: ☒ REVIEW ☐ WITNESS
02/07/2024

Certifichiamo che i materiali sono stati fabbricati, campionati, testati e ispezionati in conformità alle specifiche e conformi alle prescrizioni degli ordini.
We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.

Oscar Uboldi - Quality Assurance

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SANDORI CASTINGS PVT. LTD.

Works : Survey No. 188, Gondal NH 8-B, Plot No. 1, Veraval (Shapar), Tal. Kotda Sangani, Dist. Rajkot. Gujarat (India)
Tel. : +91 2827 253400, 254282 Email : sales@sandoricastings.com

INSPECTION CERTIFICATE

THIS CERTIFICATE HAS BEEN PREPARED AS PER DIN EN 10204 3.1

TC No. : **000548. / 17 / SA351 CF8M / JHP2 / N270**

Name of Customer	: **TECHNICAL S.R.L**	DC No. : N270/B1 - 15/12/2022
Certificate Confirms To	: EN 10204 3.1	Invoice No. : N270 - 15/12/2022
Material Specification	: **ASME SA351/SA351M -15 GR. : SA351 CF8M**	

Purchase Order No. : 000548. - 12/07/2022
Order Acceptance No. : 0559/22-23 - 16/07/2022

SPECTRO CHEMICAL ANALYSIS

Heat No.	Pouring Date	C %	Sl %	Mn %	P %	S %	Cr %	Ni %	Mo %	Wp					HTB No.
Min.	--						18.000	9.000	2.000	60.000					
Max.	--	0.080	1.500	1.500	0.040	0.040	21.000	12.000	3.000						
JHP2	16/10/2022	0.038	0.870	0.900	0.014	0.014	18.980	9.810	2.180	64.018					03/1092/22

MECHANICAL PROPERTIES

	ASTM A370				ASTM A370	ASTM A370					
Heat No.	YS MPa 0.2 %	UTS MPa	Elgn. % GL 25mm	R.A. %	Hardness HB	Charpy V-Notch Impact Test at -196 °C (Min. J)				Part Description / Drg. No.	Qty. (Dispatch)
Min.	205.00	485.00	30.00			1	2	3	Avg		
Max.					237.00	60J	60J	60J	60J		
JHP2	307.29	542.66	45.68	--	150-156	116	102	98	105.33	BODY 1" 150-300-600 X 2"150/DIN Cust. Drg. No. : 35-0023-A Rev. No. : 01 Customer Part ID : 35-0023-36 PO Line No. : 17 Wt./Pc. : 13.99	22

Casting Process : Melting By Electric Induction Furnace
Dimensional Inspection : Accepted as per respective component drawing
Visual Inspection : 100% Checked and Found Satisfactory as per MSS SP 55 & BS ISO 19959:2005 STD
Heat Treatment : Solution Annealed 1100°C, 1 Hour per Inch Soaking, Water Quenched
Surface Condition : Acid Pickled & Passivated
Foundry Identification : Castings are identified by Heat No. / Material Grade / Foundry Logo "S" and Other Requirements of Customer

Note : Materials Are Free From Radioactive Contamination

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS
02/02/2024

VERIFIED BY technical
2023 FEB 06
QUALITY ASSURANCE

CROSSWIND
2/11/24 R

Conclusion : Material Confirms to ASME SA351/SA351M -15 GR. : SA351 CF8M Specification.

This alloy meets basic requirement of ASME SA351/SA351M -15 GR. : SA351 CF8M. Casting Confirms to NACE MR0175-2003/ISO15156. Approved according to AD 2000 Merblatt W0 and Certified according to PED (2014/68/EU) by Certification body for Pressure Equipment of TUV NORD System, Notified Body Reg. No. 0045.

JALPESH KAPADIYA (Laboratory Incharge)	RAJESH VACHHANI (Engineer - QA)	V.M.BARIYA (Authorised Inspector)

MET-FO-06 Rev. 00, dtd. 01.12.15 — Page 1 of 1 — Sandori Castings Pvt. Ltd., Veraval (Shapar)

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SANDORI CASTINGS PVT. LTD.

Works : Survey No. 188, Gondal NH 8-B, Plot No. 1, Veraval (Shapar), Tal. Kotda Sangani, Dist. Rajkot. Gujarat (India)
Tel. : +91 2827 253400, 254282 Email : sales@sandoricastings.com

INSPECTION CERTIFICATE

THIS CERTIFICATE HAS BEEN PREPARED AS PER DIN EN 10204 3.1

TC No. : **000354 / 3 / SA351 CF8M / GN3 / P147**

Name of Customer : **TECHNICAL S.R.L**
Certificate Confirms To : EN 10204 3.1
Material Specification : **ASME SA351/SA351M -15 GR. : SA351 CF8M**

DC No. : P147/S - 31/08/2023
Invoice No. : P147 - 31/08/2023

Purchase Order No. : 000354 - 31/05/2023
Order Acceptance No. : 0235/23-24 - 01/06/2023

SPECTRO CHEMICAL ANALYSIS

Heat No.	Pouring Date	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Wp					HTB No.
Min.	--						18.000	9.000	2.000	60.000					
Max.	--	0.080	1.500	1.500	0.040	0.040	21.000	12.000	3.000						
GN3	01/07/2023	0.035	0.960	0.920	0.025	0.015	18.770	9.820	2.250	64.025					02/594/23

MECHANICAL PROPERTIES

	ASTM A370				ASTM A370	ASTM A370					
Heat No.	YS MPa 0.2 %	UTS MPa	Elgn. % GL 25mm	R.A. %	Hardness HB	Charpy V-Notch Impact Test at -196 °C (Min. J)				Part Description / Drg. No.	Qty. (Dispatch)
						1	2	3	Avg		
Min.	205.00	485.00	30.00								
Max.					237.00	60J	60J	60J	60J		
GN3	307.29	526.32	45.68	--	144-150	108	106	90	101.33	BONNET 1¼"X2" Cust. Drg. No. : 35-0035-36 Rev. No. : 04 Mach. Drg. No. : 10-0350-A Rev. No. : 01 Customer Part ID : 10-0350-36 PO Line No. : 3 Wt./Pc. : 2.99	71

Casting Process : Melting By Electric Induction Furnace
Dimensional Inspection : Accepted as per respective component drawing
Visual Inspection : 100% Checked and Found Satisfactory as per MSS SP 55 & BS ISO 19959:2005 STD
Heat Treatment : Solution Annealed 1100°C, 1 Hour per Inch Soaking, Water Quenched
Surface Condition : Acid Pickled & Passivated
Foundry Identification : Castings are identified by Heat No. / Material Grade / Foundry Logo "S" and Other Requirements of Customer

Note : Materials Are Free From Radioactive Contamination

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☑ REVIEW ☐ WITNESS
02/07/2024

2/7/24 R

VERIFIED BY technical 2023 QTT 20 QUALITY ASSURANCE

Conclusion : Material Confirms to ASME SA351/SA351M -15 GR. : SA351 CF8M Specification.

This alloy meets basic requirement of ASME SA351/SA351M -15 GR. : SA351 CF8M. Casting Confirms to NACE MR0175-2003/ISO15156. Approved according to AD 2000 Merblatt W0 and Certified according to PED (2014/68/EU) by Certification body for Pressure Equipment of TUV NORD System, Notified Body Reg. No. 0045.

JALPESH KAPADIYA (Laboratory Incharge)	RAJESH VACHHANI (Engineer - QA)	V.M.BARIYA (Authorised Inspector)

MET-FO-06 Rev. 00, dtd. 01.12.15 — Page 1 of 1 — Sandori Castings Pvt. Ltd., Veraval (Shapar)

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Elena Adornato

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: MEST013770 / 2024 /

Cliente / Besteller/Purchaser/Client:
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: AGGIUNTA ORDINE 45
Bestell / Your order / Commande

Conferma ordine nr: MI24000781
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000700
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 Werksachverständigen / Inspector's stamp/Poinçon de l'assayeur

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

SPECIFICHE : / Anforderungen / Requirements / Exigences

ASME SA479 2023 S31600/03 A (0)
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

Note: / Aufzeichnungen / Notes / Notes

(0)Section II Part A 2023 EDITION

Tolleranza: k12 — Toleranz/Allowance/Tolerance

Pos. nr.	Oggetto	Dimensioni - mm	Lunghezza - mm	Colata	Pezzi	Peso - KG	Lotto nr.
0010	Tondo	65,000	6130/ 6143	291150		164,0	215210120

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/		°C		Snervamento	Snervamento	Resistenza	Allungamento		Strizione		Resilienza			Durezza		
	Specimen/Eprouvette			Posiz. Saggio	Stretgrenze Yield Stress Limite elastique	Stretgrenze Yield Stress Limite elastique	Zugfestigkeit Tensile strength Resistance à traction	Bruchdehnung Elongation Allongement		Einschnürung Reduction of area Striction		Kerbschlagarbeit Impact Value Resilience			Härte Hardness Dureté		
	Larg./Diam. Spess. Dicke Width/Diam. Thickness Larg. diam. epais mm				Rp 0,2% N/mm2	Rp 1% N/mm2	Rm N/mm2	A5 %		Z %					HB		
Valori richiesti / Anforderungen/Required values / Valeurs demandées			min max		200	235	500 700	40	-	-	-	-			- 215		
A	10	20	L		280	328	595	50		69					173		
G	10	20	L		284	331	602	49		68					175		

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	
G	Dimensioni grano x ASTM E112			6

VERIFIED BY TECHNICAL 2024 FEB 29 QUALITY ASSURANCE

Test allo stato di fornitura per ASTM A370

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

TEST	Provetta/		°C		Snervamento	Snervamento	Resistenza	Allungamento		Strizione		Resilienza			Durezza		
	Specimen/Eprouvette			Posiz. Saggio	Stretgrenze Yield Stress Limite elastique	Stretgrenze Yield Stress Limite elastique	Zugfestigkeit Tensile strength Resistance à traction	Bruchdehnung Elongation Allongement		Einschnürung Reduction of area Striction		Kerbschlagarbeit Impact Value Resilience			Härte Hardness Dureté		
	Larg./Diam. Spess. Dicke Width/Diam. Thickness Larg. diam. epais mm				Rp 0,2% N/mm2		Rm N/mm2	E 4d %		RA %							
Valori richiesti / Anforderungen/Required values / Valeurs demandées			min max		205	-	515	-	30	-	40	-			-		
C	12,5	20	L		280		592		53		68						

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

Vicenza, 02/02/2024	Direzione Qualità / Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto / Produktmanagement/Product Management/Direction Produit	Pagina
VCQ012 - MEST013770	R.BERTELLI	P.MESSORI	1 di 3

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L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS
02/03/2024

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Quality Assurance
Elena Adornato

CROSSWIND
2/7/24

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: MEST013770 / 2024 /

Cliente / Besteller/Purchaser/Client:
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr. / Bestell/Your order/Commande: AGGIUNTA ORDINE 45

Conferma ordine nr. / Works/Our Order/Ref nr.: MI24000781

Avviso di Spedizione / Lieferanzeige/Packing list/D.L.: A-MI24000700

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/Signes de l'usine productrice: AV

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

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

Charpy per ISO 148-1

I) 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 Probelage Location Emplacement I)	Resilienza Kerbschlagarbeit Impact Value Resilience KV2 J			Espansione laterale Lateral Expansion			Shear Shear		
Valori richiesti Anforderungen/Required values Valeurs demandées		min max		100	100	100	-	-	-	-	-	-
F	10X10	20	L	249	258	255						
H	10X10	20	L	245	242	244						

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
291150	0,017	0,35	1,47	16,67	2,03	10,03	0,030	0,028	0,058

VERIFIED BY technical 2024 FEB 20 QUALITY ASSURANCE

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

Solution annealing by process annealing 1040°C min /
/ cooling rapidly
Controlled rolled
Reduction ratio = 9,2 : 1
SURFACE QUALITY COMPLIANT TO EN 10088-3 TAB.1 COND. 1X

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

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/OES Gerät geprüft : 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.

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☑ REVIEW ☐ WITNESS
02/07/2024

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

Vicenza, 02/02/2024 VCQ012 - MEST013770	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 2 di 3

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Elena Adornato

CONFORME

2/7/24

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. MEST013770 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: AGGIUNTA ORDINE 45
Bestell
Your order
Commande

Conferma ordine nr: MI24000781
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI24000700
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 Werksachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: 316/316L/1.4401
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.

VERIFIED BY technical
2024 FEB 20
QUALITY ASSURANCE

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS
02/07/2024

Rotta + CROSSWIND
2/7/24

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

Vicenza, 02/02/2024 VCQ012 - MEST013770	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 3 di 3

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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: MEST132199 / 2023 /

Cliente / Besteller/Purchaser/Client:
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr. / Bestell/Your order/Commande: ORDINE 647

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI23007992

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI23006163

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

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: 316/316L/1.4401

SPECIFICHE / Anforderungen / Requirements / Exigences:

ASME SA479 2021 S31600/03 A (0)
EN 10088 PART 3 2014 1.4401 A,CF
EN 10088 PART 3 2014 1.4404 A,CF
EN 10272 2016. 1.4401 A,CF
EN 10272 2016. 1.4404 A,CF

Note / Aufzeichnungen / Notes:
(0)Section II Part A 2021 EDITION

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS
02/07/2024

Tolleranza / Toleranz/Allowance/Tolerance: k12

Pos. nr. / Pos. nr./Item nr./N. 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. / Los-nr./Lot nr./Lot nr.
0010	Tondo	25,000	5970/ 5980	292463	2	47,0	231809520

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	20	-	-	-	-			-		
		max				900								315		
A	12.5	20	L	440	519	669	45		67					222		
G	12.5	20	L	448	526	675	43		66					221		

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			5

VERIFIED BY technical
2023 DIC 18
QUALITY ASSURANCE

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	-	30	-	40	-			-		
		max														
C	12,5	20	L	458		670		47		69						

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

Vicenza, 02/11/2023 VCQ052 - MEST132199	Direzione Qualità / Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto / Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 1 di 3

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Elena Adornato

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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. MEST132199 / 2023 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: ORDINE 647
Bestell
Your order
Commande

Conferma ordine nr: MI23007992
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI23006163
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato - Solubilizzato Trafilato
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: 316/316L/1.4401
Kennzeichnung
Marking
Marquage

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 demandées		min / max		100	100	100	-	-	-	-	-	-
F	10X10	20	L	200	205	200						
K	10X10	20	L	193	195	195						

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	
292463	0,017	0,47	1,48	16,69	2,04	10,07	0,033	0,025	0,064

VERIFIED BY technical 2023 DIC 18 QUALITY ASSURANCE

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 = 61,1 : 1
Solution annealed 1040°C for 135'(total time)/water cooled.
SURFACE QUALITY COMPLIANT TO EN 10088-3 TAB.1 COND. 2H

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.

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS
02/07/2024

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

Vicenza, 02/11/2023	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto Produktmanagement/Product Management/Direction Produit	Pagina 2 di 3
VCQ052 - MEST132199	R.BERTELLI	P.MESSORI	

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Quality Assurance
Elena Adornato

Crosswind
2/7/24

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: MEST132199 / 2023 /

Cliente / Besteller/Purchaser/Client:
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr. / Bestell / Your order / Commande: ORDINE 647

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI23007992

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI23006163

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

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/Iten/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: 316/316L/1.4401

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.

VERIFIED BY technical 2023 DIC 18 QUALITY ASSURANCE

L. FONTANA
ON BEHALF OF Rosotti Marino
☒ REVIEW ☐ WITNESS
02/07/2024

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

Vicenza, 02/11/2023 VCQ052 - MEST132199	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 3 di 3

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Quality Assurance
Elena Adornato

CROSSWIND

2/7/24

COMVITEA s.r.l.
Via Isonzo 32/C - 20078 Turate (CO) Tel 02 9697121 - Fax 02 96754113

CERTIFICATO DI COLLAUDO EN 10204
INSPECTION CERTIFICATE EN 10204

Azienda CERTIFICATA - UNI EN ISO 9001:2015
3.1 AD 2000 MERKBLATT W0 - PED Directive 2014/68/EU

Certificato/Certificate N°	1365488	Pag. 1 / 1	Cliente/Customer	TECHNICAL SRL	
Data cert /Date cert.	26/10/2023		Vs. ordine/Order.	000533	
d.d.t./Delivery note n.	6341	26/10/2023	Ns.rif./Int. ref.	5703	20/09/2023

Descrizione Materiale / Material Description

Item	Qty	Articolo / Article	Materiale / Material	Pos-Rifer / Your pos-ref.
1	800	Prigioniero ASTM/ASME A/SA 193 B8M cl.1 UNI 5911 M10x35	ASTM/ASME A/SA 193 B8M cl.1	08-0471-36

COLATA-ANALISI CHIMICA come da certificato di acciaieria / HEAT-CHEMICAL ANALYSIS according to mill certificate

Item	Colata/Heat	C	Cr	Mn	Mo	Ni	P	S	Si
1	327643	0,0180	16,5500	1,6800	2,0500	10,0500	0,0360	0,0290	0,3000

NORME/STANDARDS

ASME II Part A ed. 2021

PROPRIETA' MECCANICHE / MECHANICAL PROPERTIES

	OTTENUTE / OBTAINED							RICHIESTE / REQUIRED							
	Rm	Re	A	Z	Dur/hard.		Resilienza/Impact test	Rm (N/mm²)		Re (N/mm²)		A %	Z %	Dur/hard.		Resilienza/Impact test	
Item	N/mm²	N/mm²	%	%	HB		KV - Joule °C	min	max	min	max	min	min	min HB	max	KV - Joule	°C
1	632	428	46,00	71,00	192	197	20	515		205		30	50		223	20	

Item	Trattamento Termico Tempering - °C	Dur./Hard. HB dadi/nuts h	°C	>=	HB	Prova allarg. per dadi Cone stripping on nuts	ESAME VISIVO-VIS.EXAM
1	Carbide solution treated 1060°						Positivo / Positive

VERIFIED BY technical
2023 OTT 27
QUALITY ASSURANCE

L. FONTANA
ON BEHALF OF ROSETTI MARINO

Note:
☒ REVIEW ☐ WITNESS
02/07/2024

Certifichiamo che i materiali sono stati fabbricati, campionati, testati e ispezionati in conformità alle specifiche e conformi alle prescrizioni degli ordini.
We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.

Oscar Uboldi - Quality Assurance

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Quality Assurance
Elena Adornato

CROSSWIND
2/7/24

COMVITEA ...
Via Isonzo 32/C - 20076 Turate (CO) Tel 02.9697121 - Fax 02 96784113

CERTIFICATO DI COLLAUDO EN 10204
INSPECTION CERTIFICATE EN 10204

Azienda CERTIFICATA - UNI EN ISO 9001:2015
3.1 AD 2000 MERKBLATT W0 - PED Directive 2014/68/EU

Certificato/Certificate N°	1369283	Pag. 1 / 1	Cliente/Customer	TECHNICAL SRL	
Data cert /Date cert.	11/12/2023		Vs. ordine/Order.	000616	
d.d.t./Delivery note n.	7269	11/12/2023	Ns.rif./Int. ref.	6298	16/10/2023

Descrizione Materiale / Material Description

Item	Qty	Articolo / Article	Materiale / Material	Pos-Rifer / Your pos-ref.
1	200	Dado ASTM/ASME A/SA 194 gr.8M UNI 5587 H=ø PG M8	ASTM/ASME A/SA 194 gr.8M	16-0001-36
2	1500	Dado ASTM/ASME A/SA 194 gr.8M UNI 5587 H=ø PG M10	ASTM/ASME A/SA 194 gr.8M	16-0023-36
3	40	Dado ASTM/ASME A/SA 194 gr.8M UNI 5587 H=ø PG M20	ASTM/ASME A/SA 194 gr.8M	16-0091-36

COLATA-ANALISI CHIMICA come da certificato di acciaieria / HEAT-CHEMICAL ANALYSIS according to mill certificate

Item	Colata/Heat	C	Cr	Mn	Mo	Ni	P	S	Si	NORME/STANDARDS
1	134101	0,0200	16,6800	0,5800	2,0270	11,1000	0,0260	0,0010	0,5110	ASME II Part A ed. 2021
2	S088	0,0190	17,1000	1,4430	2,0390	10,5050	0,0340	0,0210	0,2750	ASME II Part A ed. 2021
3	313039	0,0200	16,7030	0,5480	2,0330	11,0960	0,0230	0,0010	0,5150	ASME II Part A ed. 2021

PROPRIETA' MECCANICHE / MECHANICAL PROPERTIES

	OTTENUTE / OBTAINED							RICHIESTE / REQUIRED								
	Rm	Re	A	Z	Dur/hard.		Resilienza/Impact test	Rm (N/mm²)		Re (N/mm²)		A %	Z %	Dur/hard.		Resilienza/Impact test
Item	N/mm²	N/mm²	%	%	HB		KV - Joule °C	min	max	min	max	min	min	HB min	HB max	KV - Joule °C
1					270	278	20							126	300	20
2					260	266	20							126	300	20
3					271	275	20							126	300	20

Item	Trattamento Termico Tempering - °C	Dur./Hard. HB dadi/nuts h	°C	>=	HB	Prova allarg. per dadi Cone stripping on nuta		ESAME VISIVO-VIS.EXAM
1	Carbide solution treated					Positive	Proof load positive	Positivo / Positive
2	Carbide solution treated					Positive	Proof load positive	Positivo / Positive
3	Carbide solution treated					Positive	Proof load positive	Positivo / Positive

VERIFIED BY technical 2024 GEN 17 QUALITY ASSURANCE

L. FONTANA
ON BEHALF OF Rosetti Mario
☒ REVIEW ☐ WITNESS
02/07/2024

Note:

Certifichiamo che i materiali sono stati fabbricati, campionati, testati e ispezionati in conformità alle specifiche e conformi alle prescrizioni degli ordini.
We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.

Oscar Uboldi - Quality Assurance

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Elena Adornato

HELIOS SYSCOM PVT. LTD.
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Email : sales@helioscastings.com, ksd@helioscastings.com, Web : www.helioscastings.com

INSPECTION CERTIFICATE

THIS CERTIFICATE HAS BEEN PREPARED AS PER DIN EN 10204 3.1

TC No. : 000098 / 1 / WCB/WCC/LCC/LCB/1.0619 / B9BA / D010

Name of Customer	: TECHNICAL S.R.L.	DC No.	: D010/A - 17/05/2019
Certificate Confirms To	: EN 10204 3.1	Invoice No.	: D010 - 17/05/2019
Material Specification	: ASME A216 /A352 /DIN EN 10213 GR. : WCB/WCC/LCC/LCB/1.0619		
Purchase Order No.	: 000098 - 05/02/2019		
Order Acceptance No.	: 0283/18-19 - 08/02/2019		

SPECTRO CHEMICAL ANALYSIS

Heat No.	Pouring Date	C %	Si %	Mn %	P %	S %	Cr %	Mo %	Ni %	Cu %	V %	CE		HTB No.
Min.	--	0.180												
Max.	--	0.230	0.600	1.000	0.030	0.025	0.300	0.120	0.400	0.300	0.030	0.500		
B9BA	15/02/2019	0.200	0.370	0.980	0.018	0.008	0.200	0.017	0.110	0.064	0.009	0.420		02/243/19 & 02/244/19

MECHANICAL PROPERTIES

	ASTM A370				ASTM A370	ASTM A370					
Heat No.	YS MPa 0.2 %	UTS MPa	Elgn. % GL 50	R.A. %	Hardness HRB	Impact Test at -46 °C (Min. Joule)				Part Description / Drg. No.	Qty. (Dispatch)
						1	2	3	Avg		
Min.	325.00	485.00	22.00	35.00	72.00						
Max.		650.00			96.00	22J	22J	22J	27J		
B9BA	368.72	567.77	31.48	64.65	84-87	52	48	58	52.67	BODY CASTING 1" 150-600X2" 150 Cust. Drg. No. : 35-0023-LT	3

Casting Process : Melting By Electric Induction Furnace
Dimensional Inspection : Accepted as per respective component drawing
Visual Inspection : 100% Checked And Found Satisfactory as per MSS SP 55.
Heat Treatment : Quenching At 920°C 1 Hr/Inch Socking Water Quenched & Tempering At 680°C, 2 Hrs. Hold and Then Air Cooled
Surface Condition : Shot Blasted
Foundry Identification : Castings are identified by Heat No. / Material Grade / Foundry Logo and Other Requirements of Customer

Note : Materials are free from radioactive contamination

VERIFIED BY technical 2019 MAR 26 QUALITY ASSURANCE

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS 02/07/2024

Conclusion : Material Confirms to ASME A216 /A352 /DIN EN 10213 GR. : WCB/WCC/LCC/LCB/1.0619 Specification.

This alloy meets basic requirement of ASME A216 /A352 /DIN EN 10213 GR. : WCB/WCC/LCC/LCB/1.0619. Casting Confirms to NACE MR 0175 : 2003 / ISO 15156 Standards. Note : Foundry Approved according to AD 2000 Merkblatt W0 and Certified according to PED (2014/68/EU) by Certification body for Pressure Equipment of TUV NORD System, Notified Body Reg. No. 0045.

Place : Bharudi, Date : 17/05/2019

Mohit Siddhapura	Rajesh Vachhani	V.M. Bariya
(Lab Incharge)	(QA Engineer)	(Authorised Inspector)

Page 1 of 1

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SANDORI CASTINGS PVT. LTD.

Works : Survey No. 188, Gondal NH 8-B, Plot No. 1, Veraval (Shapar), Tal. Kotda Sangani, Dist. Rajkot. Gujarat (India)
Tel. : +91 2827 253400, 254282 Email : sales@sandoricastings.com

INSPECTION CERTIFICATE

THIS CERTIFICATE HAS BEEN PREPARED AS PER DIN EN 10204 3.1 - 2004

Name of Customer	: TECHNICAL S.R.L	TC No.	: 302/I_A1 – 30.06.2012
Certificate Confirms To	: EN 10204 3.1 - 2004	DC No.	: 0302 – 30.06.2012
Material Specification	: ASME A 352/A 352M - 09 GR.: LCB	Invoice No.	: EXP:D021/11-12 – 30.06.2012

Purchase Order No. : 146/405/013/146/092verbal
PO Date : 28.03.2012/01.08.2011/18.01.2012/28.03.2012/02.03.2012/28.04.2012

SPECTRO ANALYSIS

Heat No.	Pouring Date	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Cu %	V %	CE %		HTB No.
Min.	–													
Max.	–	0.300	0.600	1.000	0.040	0.045	0.500	0.500	0.200	0.300	0.030	0.430		
EFP2	17/05/2012	0.162	0.520	0.920	0.019	0.020	0.077	0.123	0.009	0.049	0.005	0.345		0100

MECHANICAL PROPERTIES

Heat No.	YS MPa	UTS MPa	Elgn. %	R.A. %	Hardness HRB	Impact test at - 46 °C (Min. Joule)				Part / Drg. No.	Part Description	Qty. (Poured)
Min.	250	485.00	22.00	35.00	79.00							
Max.		655.00			93.00	1	2	3	Avg			
EFP2	338.60	574.65	38.32	68.40	84-86	62	58	56	58.67	10-0350-03 35-0035-03 CAST	BONNET 1½" X 2"	37

VERIFIED BY technical QUALITY ASSURANCE

Casting Process : Melting By Electric Induction Furnace
Dimensinal Inspection : Accepted
Visual Inspection : 100% CHECKED AND FOUND SATISFACTORY AS PER MSS SP 55 & BS ISO 19959-2005 STD.
Heat Treatment : Quenching At 920°C 1Hr/Inch Socking Water Quenched & Tempering At 680°C, 2 Hrs. Hold And Then Air Cooled
Surface Condition : Shot Blasted
Foundry Identification : LOGO "S"
Other Requirement :
Note : MATERIALS ARE FREE FROM RADIOACTIVE CONTAMINATION

L. FONTANA
ON BEHALF OF ROSETTA MARINO
☒ REVIEW ☐ WITNESS
02/07/2012

Conclusion : Material Confirms to ASME A 352/A 352M - 09 GR. : LCB.

This alloy meets basic requirement of ASME A 352/A 352M - 09 GR. : LCB. Casting Confirms to NACE MR 0175 : 2003.
Approved according to AD 2000 Merblatt W0 and Certified according to PED (97/23/EC) by Certification body for Pressure Equipment of TUV NORD System, Notified Body Reg. No. 0045.

Place : Veraval (Shapar), Rajkot Date : 30.06.2012		
(Laboratory Assistant)	(Engineer - QA)	(Sign of Manufacturer)

MET-FO-06 Page 1 of 1 Sandori Castings Pvt. Ltd., Veraval (Shapar) Rev. 00, dtd. 30.04.11

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ISO 9001

DIC-017

NS.COMM.: 23/3962

Vignate (MI), 2025-03-24

Spett.le

ROSETTI MARINO SPA

DICHIARAZIONE DI CONFORMITÀ - N° 017
CONFORMITY DECLARATION

Ordine *order* : 1724000518 123A90A
Tipo *type* : SERIE 30.000 *SERIES*
Codice *code* : 320-D10-L2

Si attesta che i materiali utilizzati per la costruzione sono:
We declare that the materials used for the construction are

SFERA - BALL	AISI 420
GUIDA - GUIDE	AISI 316L
PORTA OTTURATORE - DISC HOLDER	17-4PH
ANELLO BLOWDOWN – BLOWDOWN RING	AISI 316L
ANELLO - RING	AISI 316
TAPPO -PLUG	AISI 316
VITE BLOWDOWN – BLOWDOWN SCREW	AISI 316L
VITE TARATURA – ADJUSTING SCREW	AISI 431
CAPPELLO - CAP	A 350 LF2
STELO - STEM	AISI 316L
CONTRODADO – LOCK NUT	AISI 316L
GUARNIZIONE - GASKET	GRAFITE ARMATA – ARMED GRAPHITE
GUARNIZIONE - GASKET	GRAFITE ARMATA – ARMED GRAPHITE
GUARNIZIONE - GASKET	GRAFITE ARMATA – ARMED GRAPHITE
GUARNIZIONE - GASKET	GRAFITE ARMATA – ARMED GRAPHITE
SPINA - PIN	AISI 316
MOLLA - SPRING	AISI 316
GUIDA MOLLA – SPRING GUIDE	AISI 303

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DIC-018

NS.COMM.: 23/3962

Vignate (MI), 2025-03-24

Spett.le

ROSETTI MARINO SPA

DICHIARAZIONE DI CONFORMITÀ - N° 018
CONFORMITY DECLARATION

Ordine *order* : 1724000518 123A90A
Tipo *type* : SERIE 30.000 *SERIES*
Codice *code* : 320-E20-5L – 320-K10-5L

Si attesta che i materiali utilizzati per la costruzione sono:
We declare that the materials used for the construction are

SFERA - BALL	AISI 316
GUIDA - GUIDE	AISI 316L
PORTA OTTURATORE - DISC HOLDER	17-4PH
ANELLO BLOWDOWN – BLOWDOWN RING	AISI 316L
ANELLO - RING	AISI 316
TAPPO DRENAGGIO – DRAIN PLUG	AISI 316
VITE BLOWDOWN – BLOWDOWN SCREW	AISI 316L
VITE TARATURA – ADJUSTING SCREW	AISI 431
CAPPELLO - CAP	A 351 CF3M
STELO - STEM	AISI 316L
CONTRODADO – LOCK NUT	AISI 316L
GUARNIZIONE - GASKET	FIBRA ARAMIDICA – ARAMID FIBER
GUARNIZIONE - GASKET	FIBRA ARAMIDICA – ARAMID FIBER
GUARNIZIONE - GASKET	FKM
GUARNIZIONE - GASKET	FKM
SPINA - PIN	AISI 316
MOLLA - SPRING	AISI 316
GUIDA MOLLA – SPRING GUIDE	AISI 316L
DISTANZIALE - SPACER	AISI 431

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E-mail: sales@technical.it - Web site: www.technical.it

VIGNATE- MI - ITALY

RIEPILOGO CERTIFICATI *- CERTIFICATE SUMMERY*

CLIENTE - *CUSTOMER*	**N° ORDINE** - *ORDER N°*	**Ns. COMMESSA** - *JOB N°*
ROSETTI MARINO S.p.A.	***1724000518 123A90A***	***23/3962***

PARTICOLARE *DENOMINATION*	**N° COLATA** *CASTING N°*	**N° CERTIFICATO** *CERTIFICATE N°*	**MATERIALE** *MATERIAL*	**FORNITORE** *SUPPLER*	**PAGINA** *PAGE*	**MATRICOLA** *SERIAL N°*	**MODELLO VALVOLA** VALVE TYPE	**NUMERO PARTE COMPONENTE CON RIFERIMENTO AL DISEGNO** COMPONENT PART NUMBER WITH DRAWING REFERENCE
CORPO *BODY*	LCJ10	L244/C	ASTM A995 5A	SANDORI CASTINGS PVT. LTD.	2	293112	320-D10-F1	7 23/3962_DWG_9
COPERCHIO *BONNET*	GCP5	0733/D1	ASTM A995 5A	SANDORI CASTINGS PVT. LTD.	3	293112	320-D10-F1	14 23/3962_DWG_9
BOCCAGLIO *NOZZLE*	282987	MEST872041/2022	A479 S32750	ACCIAIERIE VALBRUNA	4	293112	320-D10-F1	1 23/3962_DWG_9
OTTURATORE *DISC*	434129	MEST086953/2022	A479 S32750	ACCIAIERIE VALBRUNA	5 - 7	293112	320-D10-F1	2 23/3962_DWG_9
PRIGIONIERO *STUD*	327643	1347071	ASTM A/SA 193 B8M	COMVITEA S.R.L.	8 -9	293112	320-D10-F1	15 23/3962_DWG_9
DADO *NUT*	S088	1333474	ASTM A 194 8M	COMVITEA S.R.L.	10	293112	320-D10-F1	15 23/3962_DWG_9
ALTRE PARTI *OTHER PARTS*	-	19	SEE CONFORMITY DECLARATION	-	11	293112	320-D10-F1	2a-4-3-5-3-6-23-8-10-11-12-16-18-19-20-21a-24-13-9 23/3962_DWG_9

ISPETTORE CLIENTE / *CUSTOMER INSPECTOR*

ISPETTORE TECHNICAL / *TECHNICAL INSPECTOR*

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RIEPILOGO CERTIFICATI - *CERTIFICATE SUMMERY*

CLIENTE - *CUSTOMER*	**N° ORDINE** - *ORDER N°*	**Ns. COMMESSA** - *JOB N°*
ROSETTI MARINO S.p.A.	***1724000518 123A90A***	***23/3962***

PARTICOLARE *DENOMINATION*	**N° COLATA** *CASTING N°*	**N° CERTIFICATO** *CERTIFICATE N°*	**MATERIALE** *MATERIAL*	**FORNITORE** *SUPPLER*	**PAGINA** *PAGE*	**MATRICOLA** *SERIAL N°*
CORPO *BODY*	LCJ0	L244/C	ASTM A995 5A	SANDORI CASTINGS PVT. LTD.	2	293112
COPERCHIO *BONNET*	GCP5	0733/D1	ASTM A995 5A	SANDORI CASTINGS PVT. LTD.	3	293112
BOCCAGLIO *NOZZLE*	282987	MEST872041/2022	A479 S32750	ACCIAIERIE VALBRUNA	4 - 5	293112
OTTURATORE *DISC*	434129	MEST086953/2022	A479 S32750	ACCIAIERIE VALBRUNA	6 - 8	293112
DADO *NUT*	S088	1333474	ASTM A194 8M	COMVITEA S.R.L.	9	293112
PRIGIONIERO *STUD*	327643	1347071	ASTM A/SA 193 B8M	COMVITEA S.R.L.	10	293112

ISPETTORE CLIENTE / *CUSTOMER INSPECTOR*	**ISPETTORE TECHNICAL** / *TECHNICAL INSPECTOR*
	technical SRL Quality Assurance Elena Adornato

Bolt x CROSSWIND
5/8/14 R

SANDORI CASTINGS PVT. LTD.

Works : Survey No. 188, Gondal NH 8-B, Plot No. 1, Veraval (Shapar), Tal. Kotda Sanganl, Dist. Rajkot. Gujarat (India)
Tel. : +91 2827 253400, 254282 Email : sales@sandoricastings.com

INSPECTION CERTIFICATE

THIS CERTIFICATE HAS BEEN PREPARED AS PER DIN EN 10204 3.1

TC No. : **000679 / 1 / SA995 CE3MN GR-5A / LCJ0 / L244**

Name of Customer : **TECHNICAL S.R.L**
Certificate Confirms To : EN 10204 3.1
Material Specification : **ASME SA995/SA995M-15 GR. : SA995 CE3MN GR-5A**

DC No. : L244/C - 07/02/2021
Invoice No. : L244 - 07/02/2021

Purchase Order No. : 000679 - 06/11/2020
Order Acceptance No. : 1005/20-21 - 20/11/2020

SPECTRO CHEMICAL ANALYSIS

Heat No.	Pouring Date	C %	Sl %	Mn %	P %	S %	Cr %	Nl %	Mo %	N %	PREN			HTB No.
Min.	--						24.000	6.000	4.000	0.100	34.000			
Max.	--	0.030	1.000	1.500	0.040	0.040	26.000	8.000	5.000	0.300				
LCJ0	13/12/2020	0.015	0.850	0.660	0.021	0.002	25.300	7.050	4.260	0.213	42.766			02/1081/20

MECHANICAL PROPERTIES

Heat No.	ASTM A370 YS MPa 0.2%	ASTM A370 UTS MPa	ASTM A370 Elgn. % GL 25mm	ASTM A370 R.A. %	ASTM A370 Hardness HRC	ASTM A370 Impact Test at 20 °C (Min. Joule) 1	2	3	Avg	Part Description / Drg. No.	Qty. (Dispatch)
Min.	515.00	690.00	18.00								
Max.					32.00	27J	27J	27J	27J		
LCJ0	528.09	821.65	33.24	--	18-24	128	120	110	119.33	BODY 1"150-600x2"150/DIN Cust. Drg. No. : 35-0023-A Rev. No. : 01 Customer Part ID : 35-0023-50 PO Line No. : 1 Wt./Pc. : 13.60	5

Casting Process : Melting By Electric Induction Furnace
Dimensional Inspection : Accepted as per respective component drawing
Visual Inspection : 100% Checked and Found Satisfactory As Per MSS SP 55 & BS ISO 19959:2005 STD
Heat Treatment : Solution Annealed: 1140°C, 1Hours per Inch Soaking, and Furnace Cool to 1045°C Then Water Quenched
Surface Condition : Acid Pickled & Passivated
Foundry Identification : Castings are identified by Heat No. / Material Grade / Foundry Logo "S" and Other Requirements of Customer

Note : Materials Are Free From Radioactive Contamination

VERIFIED BY technical 2021 FEB 13 QUALITY ASSURANCE

Conclusion : Material Confirms to ASME SA995/SA995M-15 GR. : SA995 CE3MN GR-5A Specification.

This alloy meets basic requirement of ASME SA995/SA995M-15 GR. : SA995 CE3MN GR-5A. Casting Confirms to NACE MR0175-2003/ISO15156. Approved according to AD 2000 Merblatt W0 and Certified according to PED (2014/68/EU) by Certification body for Pressure Equipment of TUV NORD System, Notified Body Reg. No. 0045.

JALPESH KAPADIYA (Laboratory Incharge)	RAJESH VACHHANI (Engineer - QA)	V.M.BARIYA (Authorised Inspector)

MET-FO-06 Rev. 00, dtd. 01.12.15 | Page 1 of 1 | Sandori Castings Pvt. Ltd., Veraval (Shapar)

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Tel. : +91 2827 253400, 254282 Email : sales@sandoricastings.com

INSPECTION CERTIFICATE

THIS CERTIFICATE HAS BEEN PREPARED AS PER DIN EN 10204 3.1

TC No. : 000332/ / 11 / SA995 CE3MN GR-5A / GCP5 / 0733

Name of Customer	: TECHNICAL S.R.L	DC No.	: 0733/D1 - 31/08/2015
Certificate Confirms To	: EN 10204 3.1	Invoice No.	: G068 - 30/08/2015
Material Specification	: ASME-SA995/A995M-11a GR. : SA995 CE3MN GR-5A		

Purchase Order No. : 000332/ - 14/05/2015
Order Acceptance No. : 0155/15-16 - 21/05/2015

SPECTRO CHEMICAL ANALYSIS

Heat No.	Pouring Date	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	N %	PREN			HTB No.
Min	--						24.000	6.000	4.000	0.100	40.000			
Max	--	0.030	1.000	1.500	0.040	0.040	26.000	8.000	5.000	0.300				
GCP5	12/07/2015	0.024	0.610	0.710	0.020	0.004	24.720	6.930	4.430	0.148	41.707			15AF4/566

MECHANICAL PROPERTIES

	EN 10002 - 1				EN 10003 - 1	EN 10045 - 1					
Heat No	YS MPa 0.2 %	UTS MPa	Elgn. % GL 25mm	R.A. %	Hardness HRC	Impact Test at 20 °C (Min. Joule)				Part Description / Drg. No.	Qty. (Dispatch)
						1	2	3	Avg		
Min	515.00	690.00	18.00								
Max					25.00	22J	22J	22J	27J		
GCP5	530.07	744.08	33.12	--	21-23	56	72	64	64.00	BONNET 1½"X2" Cust. Drg. No. : 35-0035-50 Rev. No. : 0 Mach. Drg. No. : 10-0350-50 Rev. No. : 0 Customer Part ID : 10-0350-50 PO Line No. : 11	45

VERIFIED by technical S.r.l. 2015 08 05 QUALITY ASSURANCE

Casting Process : Melting By Electric Induction Furnace
Dimensional Inspection : Accepted as per respective component drawing
Visual Inspection : 100% Checked and Found Satisfactory As Per MSS SP 55 & BS ISO 19959:2005 STD
Heat Treatment : Solution Annealed: 1140°C, 1Hours per Inch Soaking, and Furnace Cool to 1045°C Then Water Quenched
Surface Condition : Acid Pickled & Passivated
Foundry Identification : Castings are identified by Heat No. / Material Grade / Foundry Logo and Other Requirements of Customer
Note : Materials Are Free From Radioactive Contamination

Conclusion : Material Confirms to ASME-SA995/A995M-11a GR. : SA995 CE3MN GR-5A Specification

This alloy meets basic requirement of ASME-SA995/A995M-11a GR. : SA995 CE3MN GR-5A. Casting Confirms to NACE MR0175-2003/ISO15156. Approved according to AD 2000 Merblatt W0 and Certified according to PED (97/23/EC) by Certification body for Pressure Equipment of TUV NORD System, Notified Body Reg. No. 0045.

Place : Veraval (Shapar), Rajkot Date : 31/08/2015		
(Laboratory Assistant)	(Engineer - QA)	(Sign of Manufacturer)

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Quality Assurance
Elena Adornato

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: MEST872041 / 2022 /

Cliente / Besteller/Purchaser/Client:
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr. / Bestell / Your order / Commande: ORDINE 56

Conferma ordine nr. / Werks/Our Order/Ref nr.: MI22000487

Avviso di Spedizione / Lieferanzeige/Packing list/B.L.: A-MI22000528

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

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

Qualità / Werkstoff/Grade/Nuance: S32750

Marca / Markenbezeichnung / Brand / Nuance: V257M

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: S32750

SPECIFICHE : / Anforderungen / Requirements / Exigences	Note: / Aufzeichnungen / Notes / Notes
MDS D57 5. S32750 A (0) ASME SA182 2019 S32750 A (1) ASME SA479 2021 S32750 A (2)	(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 2019 EDITION Chemical analysis only. (2)Section II Part A 2021 EDITION
ASTM A182 2021 S32750 A (3) ASTM A276 2017 S32750 A ASTM A479 2021 S32750 A	(3)For products machined directly from bar refer also to ASTM A479.
ASTM A923 2014 METHOD A ASTM E562 2019 . (4) ASTM G48 2011 METHOD A (5)	(4)19E01 (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

Tolleranza: k12 / Toleranz/Allowance/Tolerance

Pos. nr. / Pos. nr. / Item nr. / N. 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 / Pièces	Peso - KG / Gewicht / Weight / Poids	Lotto nr. / Losnr. / Lot nr. / Lot nr.
0020	Tondo	75,000	3500/ 4150	282987	1	146,0	122001030

VERIFIED BY technical 2022 GEN 26 QUALITY ASSURANCE

TEST ALLO STATO DI FORNITURA

TEST		min	max	
A	Ferrite delta %	35,0	65,0	38,0 %

Test allo stato di fornitura

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

TEST	Provetta / Probestab / Specimen/Eprouvette: Lung./Long./Length/Longueur, Larg./Width/Largeur, Diam./Diam./Diam./Diam., Spess./Thickness/Epaisseur, Diam./Diam./Diam./Diam. mm	°C	Posiz. Saggio / Probenlage / Location / Emplacement	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 / Härte / Hardness / Dureté HB		
Valori richiesti / Anforderungen/Required values / Valeurs demandées		min max		515	-	760	-	15	-	-	-			-		310
D	12,5	20	L	552		810		43		76				246		

Ferrite content tested according to ASTM E562.

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

Vicenza, 25/01/2022 VCQ052 - MEST872041	Direzione Qualità / Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto / Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 1 di 2

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Quality Assurance
Elena Adornato

5/6/22

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. MEST872041 / 2022 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: ORDINE 56
Bestell
Your order
Commande

Conferma ordine nr: MI22000487
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI22000528
Lieferanzeige/Packing list/B.L.

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

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

Qualità: S32750
Werkstoff/Grade/Nuance

Marca: V257M
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'essayeur

Punzonatura: S32750
Kennzeichnung
Marking
Marquage

Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée															
	min	41,0	-	-	-	24,00	3,00	-	6,00	-	-	-	0,24	-	-	-
	max	45,0	0,030	0,80	1,20	26,00	5,00	0,50	8,00	-	0,035	0,020	0,32	-	-	-
	PRE		C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	W %	P %	S %	N %			
282987	43,2		0,016	0,41	0,82	25,19	3,96	0,26	7,07	0,025	0,023	0,001	0,31			

Corrosion test per ASTM G48 PRACTICE A (50°C/24h):
no pitting at 20x magnification.
Material is free from carbides, nitrides, intermetallic
phases or precipitates examined at 500x magnification.
Reduction ratio = 10,1 : 1
Material solution annealed 1080°C for 1.5h/water cooled.

Sono state soddisfatte tutte le condizioni richieste
Die gestellten 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.
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.

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2022 GEN 26
QUALITY ASSURANCE

Rotor CROSSWIND
5/pezzi R

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

Vicenza, 25/01/2022	Direzione Qualità	Direzione Prodotto	Pagina
VCQ052 - MEST872041	Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Produktmanagement/Product Management/Direction Produit P.MESSORI	2 di 2

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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: MEST086953 / 2022 /

Cliente / Besteller/Purchaser/Client:
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: ORDINE 615
Bestell / Your order / Commande

Conferma ordine nr: MI22006457
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI22005426
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: 1.4410/S32750/F53
Werkstoff/Grade/Nuance

Marca: V257M
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: 1.4410/S32750/F53
Kennzeichnung / Marking / Marquage

SPECIFICHE :
Anforderungen / Requirements / Exigences

VAL STOCK A 1.4410/F53 A
MDS D57 5. S32750 A (0)
ASME SA182 2017 S32750 A (1)
ASME SA479 2021 S32750 A (2)
ASTM A182 2021 S32750 A (3)
ASTM A276 2017 S32750 A
ASTM A370 2021 .
ASTM A479 2021 S32750 A
ASTM E562 2019 . (4)
EN 10088-3 2014 1.4410
EN 10272 2016 1.4410
ISO 148-1 2016 .
ISO 6892-1 2019 .
NACE MR0103 2015 S32750 A (5)
NACE MR0175 2009 S32750 A (6)

Note:
Aufzeichnungen / Notes / Notes

(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.
(2)Section II Part A 2021 EDITION
(3)For products machined directly from bar refer also to ASTM A479.
(4)19E01
(5)ANSI/NACE MR0103/ISO 17945 November 23, 2015
(6)ANSI/NACE MR0175/ISO 15156-3, second edition 2009-10-15 Technical circular 1:2011 Published 2011-06-14

Tolleranza: k12
Toleranz/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	Los-nr. / Lot nr. / Lot nr.
0010	Tondo	25,000	4007/ 5133	434129	1	19,0	107511130

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			Posiz. Saggio / Probenlage / Location / Emplacement	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 A5 %		Strizione / Einschnürung / Reduction of area / Striction Z %		Resilienza / Kerbschlagarbeit / Impact Value / Resilience KV2 J			Durezza / Haerte / Hardness / Durete HB		
	Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C														
Valori richiesti / Anforderungen/Required values / Valeurs demandées		min / max			530	-	730 / 930	25	-	-	-	100			- / 290	
A	10	20	L		572		820	37		72		252	251	248	275	

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	24,1

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	54,0 %

VERIFIED BY technical 2022 SET 16 QUALITY ASSURANCE

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

Vicenza, 13/09/2022
VCQ012 - MEST086953

Direzione Qualità
Qualitätsmanagement/Quality Management/Gestion Qualité
R.BERTELLI

Direzione Prodotto
Produktmanagement/Product Management/Direction Produit
P.MESSORI

Pagina 1 di 3

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Quality Assurance
Elena Adornato

CROSSWINDS
5/9/22

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. MEST086953 / 2022 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: ORDINE 615
Bestell
Your order
Commande

Conferma ordine nr: MI22006457
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI22005426
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: 1.4410/S32750/F53
Werkstoff/Grade/Nuance

Marca: V257M
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: 1.4410/S32750/F53
Kennzeichnung
Marking
Marquage

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	°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		45	45	45	-	-	-	-	-	-
		max										
F	10X10	-46	L	68	48	56						

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 KV2			Durezza Haerte Hardness Durete HB		
Valori richiesti Anforderungen/Required values Valeurs démandées		min		550	-	800	-	25	-	-	-			- 290		
		max														
E	12,5	20	L	561		806		39		68				268		

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

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2022 SET 16
QUALITY ASSURANCE

Analisi chimica
Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée		PRE	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	W %	P %	S %	N %			
	min		-	-	-	24,000	3,00	-	6,00	-	-	-	0,240	-	-	-
	max		0,030	0,80	1,20	26,000	4,50	0,50	8,00	-	0,035	0,015	0,320	-		
434129		42,0	0,016	0,49	0,77	25,990	3,70	0,23	6,13	0,026	0,029	0,001	0,240			

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**

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

Vicenza, 13/09/2022	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité	Direzione Prodotto Produktmanagement/Product Management/Direction Produit	Pagina 2 di 3
VCQ012 - MEST086953	R.BERTELLI	P.MESSORI	

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technical SRL
Quality Assurance
Elena Adornato

CROSS WIND
5/9/24

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. MEST086953 / 2022 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
TECHNICAL SRL
VIA TOSCANA, 9
20060 - VIGNATE - MI

Ordine nr: ORDINE 615
Bestell
Your order
Commande

Conferma ordine nr: MI22006457
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-MI22005426
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: 1.4410/S32750/F53
Werkstoff/Grade/Nuance

Marca: V257M
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: 1.4410/S32750/F53
Kennzeichnung
Marking
Marquage

Material is free from intermetallic phases and precipitates.
Corrosion test per ASTM G48 PRACTICE A (50°C/24h):
no pitting at 20x magnification.
Reduction ratio = 45,9 : 1
Material solution annealed 1080°C for 2 h / water cooled
Ultrasonic volumetric test according to ASTM A388 : pass

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	0,2500

NOTES
No pitting at 20 x magnification

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/OES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange evt 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.

2022 SET 16 QUALITY ASSURANCE

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.

CROSSWIND
5/9/24 R

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

Vicenza, 13/09/2022 VCQ012 - MEST086953	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 3 di 3

technical SRL
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technical SRL
Quality Assurance
Elena Adornato

COMVITEA s.r.l.
Via Isonzo 32/C - 20078 Turato (CO) Tel 02 9697121 - Fax 02 96754113

CERTIFICATO DI COLLAUDO EN 10204
INSPECTION CERTIFICATE EN 10204

Azienda CERTIFICATA - UNI EN ISO 9001:2008
3.1 AD 2000 MERKBLATT W0 - PED Directive 2014/68/EU

Certificato/Certificate N°	1333474	Pag. 1 / 1	Cliente/Customer	TECHNICAL SRL	
Data cert /Date cert.	06/11/2017		Vs. ordine/Order.	000516	
d.d.t./Delivery note n.	8285	06/11/2017	Ns.rif./Int. ref.	7908	03/11/2017

Descrizione Materiale / Material Description

Item	Qty	Articolo / Article	Materiale / Material	Rif. Cliente / Your ref.
1	1000	Dado ASTM/ASME A/SA194 Gr. 8M UNI 5587 H=ø PG M10	ASTM/ASME A/SA 194 gr.8M	16-0023-36

COLATA-ANALISI CHIMICA come da certificato di acciaieria / HEAT-CHEMICAL ANALYSIS according to mill certificate

Item	Colata/Heat	C	Cr	Mn	Mo	Ni	P	S	Si
1	S088	0,0190	17,1000	1,4430	2,0390	10,5050	0,0340	0,0210	0,2760

NORME/STANDARDS

ASME II Part A ed. 2015

PROPRIETA' MECCANICHE / MECHANICAL PROPERTIES

	OTTENUTE / OBTAINED							RICHIESTE / REQUIRED							
	Rm	Re	A	Z	Dur/hard.		Resilienza/Impact test	Rm (N/mm²)		Re (N/mm²)		A %	Z %	Dur/hard. HB		Resilienza/Impact test	
Item	N/mm²	N/mm²	%	%	HB		KV - Joule °C	min	max	min	max	min	min	min	max	KV - Joule	°C
1					260	266	20							126	300		20

Item	Trattamento Termico Tempering - °C	Dur./Hard. HB dadi/nuts h	°C	>=	HB	Prova allarg. per dadi Cone stripping on nuts		ESAME VISIVO-VIS.EXAM
1	Carbide solution treated					Positive	Proof load positive	Positivo / Positive

VERIFIED BY technical
2017 NOV. 07
QUALITY ASSURANCE

Note: Rubber + crosswinds
5/12/24

Dichiariamo che il materiale è conforme alle prescrizioni dell'ordinazione e, se necessario, ai regolamenti ufficiali o alle regole tecniche corrispondenti
We state that the material is in compliance with the requirements of the order, and, if necessary, with the official regulations and related technical rules

Oscar Uboldi - Quality Assurance

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technical SRL
Quality Assurance
Elena Adornato

COMVITEA s.r.l.
Via Isonzo 32/C - 20078 Turate (CO) Tel 02.9697121 - Fax 02 96754113

CERTIFICATO DI COLLAUDO EN 10204
INSPECTION CERTIFICATE EN 10204

Azienda CERTIFICATA - UNI EN ISO 9001:2015
3.1 AD 2000 MERKBLATT W0 - PED Directive 2014/68/EU

Certificato/Certificate N°	1347071	Pag. 1 / 1	Cliente/Customer	TECHNICAL SRL	
Data cert /Date cert.	09/06/2020		Vs. ordine/Order.	000215	
d.d.t./Delivery note n.	3431	09/06/2020	Ns.rif./Int. ref.	2777	07/05/2020

Descrizione Materiale / Material Description

Item	Qty	Articolo / Article	Materiale / Material	Rif. Cliente / Your ref.
1	28	Dado ASTM/ASME A/SA 194 gr.8MA UNI 5587 H=ø PG M10 XYLAN 1070 Blu	ASTM/ASME A/SA 194 gr.8MA	16-0023-ZR
2	8	Dado ASTM/ASME A/SA 194 gr.8MA UNI 5587 H=ø PG M16 XYLAN 1070 Blu	ASTM/ASME A/SA 194 gr.8MA	16-0007-ZR
3	16	Prigioniero ASTM/ASME A/SA 193 B8M cl.1 UNI 5911 M10x35 XYLAN 1070 Blu	ASTM/ASME A/SA 193 B8M cl.1	06-0471-ZB
4	12	Prigioniero ASTM/ASME A/SA 193 B8M cl.1 UNI 5911 M10x40 XYLAN 1070 Blu	ASTM/ASME A/SA 193 B8M cl.1	06-0492-ZB
5	8	Prigioniero ASTM/ASME A/SA 193 B8M cl.1 UNI 5911 M16x45 XYLAN 1070 Blu	ASTM/ASME A/SA 193 B8M cl.1	06-0525-ZB

COLATA-ANALISI CHIMICA come da certificato di acciaieria / HEAT-CHEMICAL ANALYSIS according to mill certificate

Item	Colata/Heat	C	Cr	Mn	Mo	Ni	P	S	Si	NORME/STANDARDS
1	S088	0,0190	17,1000	1,4430	2,0390	10,5050	0,0340	0,0210	0,2750	ASME II Part A ed. 2019
2	E37173	0,0300	16,0200	1,0400	2,0400	10,0300	0,0280	0,0010	0,3900	ASME II Part A ed. 2019
3	327643	0,0180	16,5500	1,6800	2,0500	10,0500	0,0360	0,0290	0,3000	ASME II Part A ed. 2019
4	327643	0,0180	16,5500	1,6800	2,0500	10,0500	0,0360	0,0290	0,3000	ASME II Part A ed. 2019
5	639123	0,0590	16,5940	1,2990	2,0310	10,1390	0,0267	0,0243	0,3810	ASME II Part A ed. 2019

PROPRIETA' MECCANICHE / MECHANICAL PROPERTIES

	OTTENUTE / OBTAINED							RICHIESTE / REQUIRED							
	Rm	Re	A	Z	Dur/hard.		Resilienza/Impact test	Rm (N/mm²)		Re (N/mm²)		A %	Z %	Dur/hard.		Resilienza/Impact test	
Item	N/mm²	N/mm²	%	%	HB		KV - Joule °C	min	max	min	max	min	min	min HB	max	KV - Joule	°C
1					180	185	20							126	192		20
2					144	147	20							126	192		20
3	632	428	46,00	71,00	192	197	20	515		205		30	50		223		20
4	632	428	46,00	71,00	192	197	20	515		205		30	50		223		20
5	726	583	38,00	69,00	200	208	20	515		205		30	50		223		20

Item	Trattamento Termico Tempering - °C	Dur./Hard. HB dadi/nuts h	°C	>=	HB	Prova allarg. per dadi Cone stripping on nuts		ESAME VISIVO-VIS.EXAM
1	Carbide solution treated in the finished condition					Positive	Proof load positive	Positivo / Positive
2	Carbide solution treated in the finished condition					Positive	Proof load positive	Positivo / Positive
3	Carbide solution treated 1060°							Positivo / Positive
4	Carbide solution treated 1060°							Positivo / Positive
5	Carbide solution treated 1060°							Positivo / Positive

VERIFIED by technical
2020 GIU 06
QUALITY ASSURANCE

Note:

Certifichiamo che i materiali sono stati fabbricati, campionati, testati e ispezionati in conformità alle specifiche e conformi alle prescrizioni degli ordini.
We certify that the fasteners were manufactured, sampled, tested and inspected in accordance with the specification and are consistent with order prescriptions.

Oscar Uboldi - Quality Assurance

bolt + cross wind
5/8/24 R

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Quality Assurance
Elena Adornato

technical S.r.l.

COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV
ISO 9001

DIC-019

NS.COMM.: 23/3962

Vignate (MI), 2025-03-24

Spett.le

ROSETTI MARINO SPA

DICHIARAZIONE DI CONFORMITÀ - N° 019
CONFORMITY DECLARATION

Ordine *order* : 1724000518 123A90A
Tipo *type* : SERIE 30.000 *SERIES*
Codice *code* : 320-D10-F1

Si attesta che i materiali utilizzati per la costruzione sono:
We declare that the materials used for the construction are

SFERA - BALL	AISI 316
GUIDA - GUIDE	SA 995 5A
PORTA OTTURATORE - DISC HOLDER	SA 995 5A
ANELLO BLOWDOWN – BLOWDOWN RING	AISI 316L
ANELLO - RING	AISI 316
TAPPO -PLUG	AISI 316
VITE BLOWDOWN – BLOWDOWN SCREW	SA 995 5A
VITE TARATURA – ADJUSTING SCREW	SA 995 5A
CAPPELLO - CAP	SA 995 5A
STELO – STEM	AISI 316L
CONTRODADO – LOCK NUT	AISI 316L
GUARNIZIONE - GASKET	GRAFITE ARMATA – ARMED GRAPHITE
GUARNIZIONE - GASKET	GRAFITE ARMATA – ARMED GRAPHITE
GUARNIZIONE - GASKET	GRAFITE ARMATA – ARMED GRAPHITE
GUARNIZIONE - GASKET	GRAFITE ARMATA – ARMED GRAPHITE
SPINA – PIN	AISI 316
MOLLA - SPRING	17-4PH
GUIDA MOLLA – SPRING GUIDE	AISI 316L
DISTANZIALE - SPACER	AISI 431

technical srl
Enrico Brenna

Sede Legale, Stab. ed Uffici: Via Toscana, 9 - 20052 Vignate (MI) Italy
Telefono +39 - 0295361240 r.a. - Telefax +39 - 029560273
VAT IT 01729470151 - Registro Imprese MI 155563 - R.E.A. MI 867310
E-mail: sales@technical.it - Web site: www.technical.it

HYDROSTATIC TEST REPORTS

technical VIGNATE - MI - ITALY	**RAPPORTO PROVA IDROSTATICA** *HYDROSTATIC TEST REPORT*	**N° HT 3539-002**

SECONDO - *AS PER* ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
BODY Outlet connection 4" 150 RF	35-0199-D6	SA351 CF8M

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
38324	1	HT A 3539 – 3	80-PSV-001
38324	1	HT A 3539 –5	80-PSV-001_S

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER* **3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**
DURATA DELLA PROVA *TEST DURATION*	**120 SECONDS**
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**
PUNZONE OPERATORE *OPERATOR PUNCH*	
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//
ESITO DELLA PROVA *TEST RESULT*	☒ **conforme** *accepted* ☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE SECONDO MSS SP-55-2011 È RISULTATO:
Visual and Dimensional check according to MSS SP-55-2011:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES* :

Technical Job: 23/3962
Customer: Rosetti Marino S.p.A.
Customer order number: 1724000518 123A90A

ISPETTORE *INSPECTOR* **DATA** *DATE*	L. FONTANA ON BEHALF OF ROSETTI MARINO ☐ REVIEW ☒ WITNESS 02/07/2024	**DATA** *DATE* 2024.07.02	technical SRL Quality Assurance Elena Adornato

Modulo: QUA 013 06/2022

fatm + CROSSWIND 2/7/24 W

tecHnical VIGNATE - MI - ITALY	**RAPPORTO PROVA IDROSTATICA** *HYDROSTATIC TEST REPORT*	**N° HT 3444-003**

SECONDO - *AS PER* **ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1**

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
BONNET Outlet connection 4" 150 RF	**35-0044-36**	**SA 351 CF8M**

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
JMD2	1	HT A 3444 – 5	80-PSV-001
JMD2	1	HT A 3444 – 9	80-PSV-001_S

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER* **3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**
DURATA DELLA PROVA *TEST DURATION*	**120 SECONDS**
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**
PUNZONE OPERATORE *OPERATOR PUNCH*	tecHnical 01 IS
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//
ESITO DELLA PROVA ***TEST RESULT***	☒ **conforme** *accepted* ☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE SECONDO MSS SP-55-2011 È RISULTATO:
Visual and Dimensional check according to MSS SP-55-2011:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES*:

Technical Job: 23/3962
Customer: Rosetti Marino S.p.A.
Customer order number: 1724000518 123A90A

ISPETTORE *INSPECTOR* **DATA** *DATE*	L. FONTANA ON BEHALF OF ROSETTI MARINO ☐ REVIEW ☒ WITNESS 02/07/2024	**DATA** *DATE* 2024.07.02	tecHnical SRL Quality Assurance Elena Adorisio

Modulo: QUA 013 06/2022

Rotor x crosswind
2/7/24 W

technical VIGNATE - MI - ITALY	**RAPPORTO PROVA IDROSTATICA** *HYDROSTATIC TEST REPORT*	N° **HT 3648-003**

SECONDO - *AS PER* **ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1**

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
NOZZLE Inlet connection 3" 150 RF	**35-0289-37**	**A351 CF3M**

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
ENP3	1	HT A 3648 – 9	80-PSV-001
ENP3	1	HT A 3648 – 12	80-PSV-001_S

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER* **3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**
DURATA DELLA PROVA *TEST DURATION*	**120 SECONDS**
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**
PUNZONE OPERATORE *OPERATOR PUNCH*	technical 02/24
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//
ESITO DELLA PROVA *TEST RESULT*	☒ **conforme** *accepted* ☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE SECONDO MSS SP-55-2011 È RISULTATO:
Visual and Dimensional check according to MSS SP-55-2011:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES*:

Technical Job: 23/3962
Customer: Rosetti Marino S.p.A.
Customer order number: 1724000518 123A90A

ISPETTORE *INSPECTOR* **DATA** *DATE*	L. FONTANA ON BEHALF OF ROSETTI MARINO ☐ REVIEW ☒ WITNESS 02/07/2024	**DATA** *DATE* 2024.07.02	technical SRL Quality Assurance Elena Adornato

Modulo: QUA 013 06/2022

Fontana CROSSWIND 2/7/24 W

tecHnical VIGNATE - MI - ITALY	**RAPPORTO PROVA IDROSTATICA** *HYDROSTATIC TEST REPORT*	N° **HT 3458-003**

SECONDO - *AS PER* ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
BODY Outlet connection 2" 150 RF	35-0023-36	SA351 CF8M

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
JHP2	1	HT A 3458 – 29	25-PSV-001A
JHP2	1	HT A 3458 – 30	25-PSV-00X_S
JHP2	1	HT A 3458 – 31	25-PSV-001B
JHP2	1	HT A 3458 – 32	25-PSV-001C
JHP2	1	HT A 3458 – 33	25-PSV-001D
JHP2	1	HT A 3458 – 34	25-PSV-001E
JHP2	1	HT A 3458 – 35	25-PSV-001F

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER* **3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**
PUNZONE OPERATORE *OPERATOR PUNCH*	TECHNICAL 010
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//
ESITO DELLA PROVA *TEST RESULT*	☒ **conforme** *accepted* ☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE SECONDO MSS SP-55-2011 È RISULTATO:
Visual and Dimensional check according to MSS SP-55-2011:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES*:

Technical Job: 23/3962
Customer: Rosetti Marino S.p.A.
Customer order number: 1724000518 123A90A

Cross x CROSSWIND 2/7/24 W

ISPETTORE *INSPECTOR* **DATA** *DATE*	L. FONTANA ON BEHALF OF ROSETTI MARINO ☐ REVIEW ☒ WITNESS 02/07/2024	**DATA** *DATE* 2024.07.02	tecHnical SRL Quality Assurance Elena Adornato

Modulo: QUA 013 06/2022

tecHnical VIGNATE - MI - ITALY	RAPPORTO PROVA IDROSTATICA *HYDROSTATIC TEST REPORT*	N° HT 3664-005

SECONDO - *AS PER* **ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1**

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
BONNET Outlet connection 2" 150 RF	35-0035-36	SA351 CF8M

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
GN3	1	HT A 3664 – 2	25-PSV-001A
GN3	1	HT A 3664 – 13	25-PSV-00X_S
GN3	1	HT A 3664 – 14	25-PSV-001B
GN3	1	HT A 3664 – 15	25-PSV-001C
GN3	1	HT A 3664 – 54	25-PSV-001D
GN3	1	HT A 3664 – 57	25-PSV-001E
GN3	1	HT A 3664 – 64	25-PSV-001F

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER* **3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**
PUNZONE OPERATORE *OPERATOR PUNCH*	TECHNICAL 02
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//
ESITO DELLA PROVA *TEST RESULT*	☒ **conforme** *accepted* ☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE SECONDO MSS SP-55-2011 È RISULTATO:
Visual and Dimensional check according to MSS SP-55-2011:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES*:

Technical Job: 23/3962
Customer: Rosetti Marino S.p.A.
Customer order number: 1724000518 123A90A

Rosetti x CROSSWIND 2/7/24

ISPETTORE *INSPECTOR* **DATA** *DATE*	L. FONTANA ON BEHALF OF ROSETTI MARINO ☐ REVIEW ☒ WITNESS 02/07/2024	**DATA** *DATE* 2024.07.02	tecHnical SRL Quality Assurance Elena Adornato

Modulo: QUA 013 06/2022

technical VIGNATE - MI - ITALY	**RAPPORTO PROVA IDROSTATICA** *HYDROSTATIC TEST REPORT*	N° **HT 3809-001**

SECONDO - *AS PER* **ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1**

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
NOZZLE Inlet connection 1" 300 RF	**42-1141-37**	**A479 AISI 316L**

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
291150	1	HT A 3809 – 1	25-PSV-001A
291150	1	HT A 3809 – 2	25-PSV-00X_S
291150	1	HT A 3809 – 3	25-PSV-001B
291150	1	HT A 3809 – 4	25-PSV-001C
291150	1	HT A 3809 – 5	25-PSV-001D
291150	1	HT A 3809 – 6	25-PSV-001E
291150	1	HT A 3809 – 7	25-PSV-001F

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER* **3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**
PRESSIONE DI PROVA *TEST PRESSURE*	**80 BAR**
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**
PUNZONE OPERATORE *OPERATOR PUNCH*	tecHnical 01
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//
ESITO DELLA PROVA *TEST RESULT*	☒ **conforme** *accepted* ☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE È RISULTATO:
Visual and Dimensional check:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES*:

Technical Job: 23/3962
Customer: Rosetti Marino S.p.A.
Customer order number: 1724000518 123A90A

Fabio x CROSGUINO 2/7/24

ISPETTORE *INSPECTOR* **DATA** *DATE*	L. FONTANA ON BEHALF OF ROSETTI MARINO ☐ REVIEW ☒ WITNESS 02/07/2024	**DATA** *DATE* 2024.07.02	technical SRL Quality Assurance Elena Adorgato

Modulo: QUA 013 06/2022

technical VIGNATE - MI - ITALY	**RAPPORTO PROVA IDROSTATICA** *HYDROSTATIC TEST REPORT*	N° **HT 2687-003**

SECONDO - *AS PER* **ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1**

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
BODY Outlet connection 2" 150 RF	**35-0023-LT**	**SA 352 LCB**

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
B9BA	1	HT A 2687 – 3	64-PSV-001
B9BA	1	HT A 2687 – 4	64-PSV-001_S

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER* **3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**
PUNZONE OPERATORE *OPERATOR PUNCH*	TECHNICAL 01 IS
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//
ESITO DELLA PROVA *TEST RESULT*	☒ **conforme** *accepted* ☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE SECONDO MSS SP-55-2011 È RISULTATO:
Visual and Dimensional check according to MSS SP-55-2011:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES*:

Technical Job: 23/3962
Customer: Rosetti Marino S.p.A.
Customer order number: 1724000518 123A90A

ISPETTORE *INSPECTOR* **DATA** *DATE*	L. FONTANA ON BEHALF OF ROSETTI MARINO ☐ REVIEW ☒ WITNESS 02/07/2024	**DATA** *DATE* 2024.07.02	technical SRL Quality Assurance Elena Adornato

Modulo: QUA 013 06/2022

Robin x CROSSWIND 2/7/24 W

technical VIGNATE - MI - ITALY	**RAPPORTO PROVA IDROSTATICA** *HYDROSTATIC TEST REPORT*	N° **HT 2494-004**

SECONDO - *AS PER* **ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1**

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
BONNET Outlet connection 2" 150 RF	**35-0035-03**	**SA 352 LCB**

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
EFP2	1	HT A 2494 – 10	64-PSV-001
EFP2	1	HT A 2494 – 11	64-PSV-001_S

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER*	**3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**	
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**	
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**	
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**	
PUNZONE OPERATORE *OPERATOR PUNCH*	TECHNICAL 01 IS	
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**	
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//	
ESITO DELLA PROVA *TEST RESULT*	☒ **conforme** *accepted*	☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE SECONDO MSS SP-55-2011 È RISULTATO:
Visual and Dimensional check according to MSS SP-55-2011:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES*:

Technical Job: 23/3962
Customer: Rosetti Marino S.p.A.
Customer order number: 1724000518 123A90A

cladding + CROSSWIND 2/7/24 VK

ISPETTORE *INSPECTOR* **DATA** *DATE*	L. FONTANA ON BEHALF OF ROSETTI MARINO ☐ REVIEW ☒ WITNESS 02/07/2024	**DATA** *DATE* 2024.07.02	technical SRL Quality Assurance Elena Adurno

Modulo: QUA 013 06/2022

technical VIGNATE - MI - ITALY	**RAPPORTO PROVA IDROSTATICA** *HYDROSTATIC TEST REPORT*	N° **HT 3828-001**

SECONDO - *AS PER* **ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1**

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
NOZZLE Inlet connection 1" 150 RF	**42-1140-37**	**A479 AISI 316L**

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
291150	1	HT A 3828 – 1	64-PSV-001
291150	1	HT A 3828 – 2	64-PSV-001_S

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER*	**3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**	
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**	
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**	
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**	
PUNZONE OPERATORE *OPERATOR PUNCH*	**N.A.**	
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**	
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//	
ESITO DELLA PROVA ***TEST RESULT***	☒ **conforme** *accepted*	☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE È RISULTATO:
Visual and Dimensional check:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES*:

Technical Job: 23/3962
Customer: Rosetti Marino S.p.A.
Customer order number: 1724000518 123A90A

technical SRL
Quality Assurance
Elena Adornato

ISPETTORE *INSPECTOR* **DATA** *DATE*	L. FONTANA ON BEHALF OF ROSETTI MARINO ☐ REVIEW ☑ WITNESS 02/07/2024	**DATA** *DATE*	2024.07.02

Modulo: QUA 013 06/2022

Robin x CROSSWIND 2/7/24 W

VIGNATE - MI - ITALY	RAPPORTO PROVA IDROSTATICA *HYDROSTATIC TEST REPORT*	N° **HT 3881-001**

SECONDO - *AS PER* **ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1**

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
NOZZLE Inlet connection 1" 150 RF	**42-1140-50**	**A479 S32750**

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
282987	1	HT A 3881 – 1	50-PSV-011

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER*	**3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**	
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**	
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**	
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**	
PUNZONE OPERATORE *OPERATOR PUNCH*	**N.A.**	
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**	
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//	
ESITO DELLA PROVA ***TEST RESULT***	☒ **conforme** *accepted*	☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE È RISULTATO:
Visual and Dimensional check:

☒ **CONFORME** *(accepted)*	☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES*:

Technical Job: 23/3962
Customer: ROSETTI MARINO S.p.A.
Customer order number: 1724000518 123A90A

ISPETTORE *INSPECTOR* John x CROSSWIND **DATA** *DATE* 5/9/24	**DATA** *DATE* 2024.09.02

tecHnical SRL
Quality Assurance
Elena Adornato

Modulo: QUA 013 06/2022

VIGNATE - MI - ITALY	RAPPORTO PROVA IDROSTATICA *HYDROSTATIC TEST REPORT*	N° HT 2684-001

SECONDO - *AS PER* **ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1**

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
BODY Outlet connection 2" 150 RF	**35-0023-50**	**A995 Gr. 5A**

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
LCJ0	1	HT A 2684 – 3	50-PSV-011

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER* **3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**
PUNZONE OPERATORE *OPERATOR PUNCH*	tech/ 02
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//
ESITO DELLA PROVA *TEST RESULT*	☒ **conforme** *accepted* ☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE SECONDO MSS SP-55-2011 È RISULTATO:
Visual and Dimensional check according to MSS SP-55-2011:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES*:

Technical Job: 23/3962
Customer: ROSETTI MARINO S.p.A.
Customer order number: 1724000518 123A90A

ISPETTORE *INSPECTOR* Robbi x CROSSWIND **DATA** *DATE* 5/9/24 W	**DATA** *DATE* 2024.09.02 technical SRL Quality Assurance Elena Adornato

Modulo: QUA 013 06/2022

VIGNATE - MI - ITALY	RAPPORTO PROVA IDROSTATICA *HYDROSTATIC TEST REPORT*	N° HT 771-003

SECONDO - *AS PER* **ANSI B16.34 / MSS-SP 61 / UNI EN ISO 4126-1**

PARTICOLARE *PART*	CODICE *CODE*	MATERIALE *MATERIAL*
BONNET Outlet connection 2" 150 RF	**35-0035-50**	**A995 Gr. 5A**

COLATA *HEAT No.*	QUANTITA' *QUANTITY*	SIGLA *TEST ITEM*	TAG NO.
GCP5	1	HT A 771 – 3	50-PSV-011

PROVA IDROSTATICA ESEGUITA AL BANCO
HYDROSTATIC TEST ON BENCH

FLUIDO DI PROVA *TEST FLUID*	**97 % ACQUA** *WATER* **3 % PLURICOOL BIO**
MANOMETRO DI PROVA *TEST PRESSURE GAUGE*	**C26-004-01**
PRESSIONE DI PROVA *TEST PRESSURE*	**30 BAR**
DURATA DELLA PROVA *TEST DURATION*	**60 SECONDS**
SPECIFICA N° *N° SPECIFICATION*	**ANSI B16.34 / UNI EN ISO 4126-1**
PUNZONE OPERATORE *OPERATOR PUNCH*	technical 02/24
PROCEDURA TECHNICAL *TECHNICAL PROCEDURE*	**IL 10**
PROCEDURA CLIENTE *CUSTOMER PROCEDURE*	//
ESITO DELLA PROVA ***TEST RESULT***	☒ **conforme** *accepted* ☐ **non conforme** *not accepted*

IL CONTROLLO VISIVO E DIMENSIONALE SECONDO MSS SP-55-2011 È RISULTATO:
Visual and Dimensional check according to MSS SP-55-2011:

☒ **CONFORME** *(accepted)* ☐ **NON CONFORME** *(not accepted)*

NOTE -*NOTES*:

Technical Job: 23/3962
Customer: ROSETTI MARINO S.p.A.
Customer order number: 1724000518 123A90A

ISPETTORE *INSPECTOR* [signature] CROSSWIND	**DATA** *DATE* 2024.09.02
DATA *DATE* 5/9/24	technical SRL Quality Assurance Elena Adornato [signature]

Modulo: QUA 013 06/2022

think PC PROGETTI

Via Artigianato, 3A - 22069 ROVELLASCA (CO) – ITALIA - Tel: +39.02.95749415 - e-mail: info@pcprogetti.it

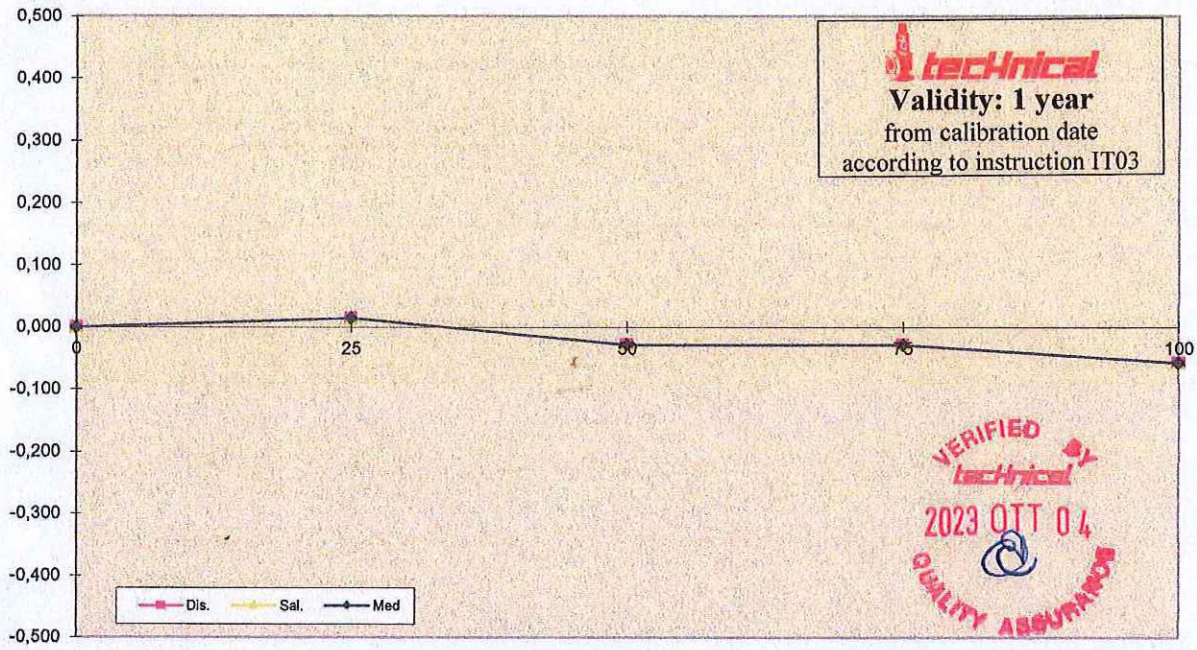
CALIBRATION REPORT Nr. 23-303-CT1-B

INSTRUMENTS	Pressure transmitter
TYPE	STS
S/N	C26-004-01
FULL SCALE	700 bar
RESOLUTION	0,1 bar
CLASS	*0,25%
Master Instrument	Digital GAUGE
Type	TRAFAG
Serial Number	702282-029
F.S. Range	1600 bar
Resolution	0,1 bar
Class	*0,034%
Certification N°	LAT 093 N. 313621P
Procedure	PC001

Amb. P. (mbar)	*
Dew (%)	*
Amb. Temp. (°C)	25°C
JOB	PC303
P.O.	C26-004-01
Result	POSITIVE
Date	03/10/2023
Expiration	03/10/2024
Operator	

CALIBRATION RESULTS (% Vs. Master Instruments)		
Acc. Measured	Max Pos.	0,01
	Max Neg.	-0,06
Avarege Error	Max Pos.	0,01
	Max Neg.	-0,06
Hysteresis		0,00
Repeatability		0,00
Note:		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
MASTER		MEASURED VALUES						ERRORS (% F.s.)						Calculated Dev. (% F.s.)					
Mis	Mis.	Up	1	Up	2	Up	3	Up	1	Up	2	Up	3	Avarage			Hyst.	Ripetibility	
%	bar	1	Dwn	2	Dwn	3	Dwn	1	Dwn	2	Dwn	3	Dwn	Sal.	Disc.	Med		Up	Dwn
0	0,0	0,0						0,00								0,00			
23,6	164,9	165,0						0,01								0,01			
47,4	331,8	331,6						-0,03								-0,03			
75,5	528,2	528,0						-0,03								-0,03			
99,3	695,4	695,0						-0,06								-0,06			



Notes:

This report is referred to whole Trasmitter & A/D board of PLC

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS

02/07/2024

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2/7/24 R

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Via Artigianato, 3A - 22060 ROVELLASCA (CO) – ITALIA - Tel. +39.02.95749415 - e-mail: info@pcprogetti.it

CALIBRATION REPORT Nr. 23-303-CT1-B

INSTRUMENTS	Pressure transmitter
TYPE	STS
S/N	C26-004-01
FULL SCALE	700 bar
RESOLUTION	0,1 bar
CLASS	*0,25%
Master Instrument	Digital GAUGE
Type	TRAFAG
Serial Number	702282-029
F.S. Range	1600 bar
Resolution	0,1 bar
Class	*0,034%
Certification N°	LAT 093 N. 313621P
Procedure	*PC001*

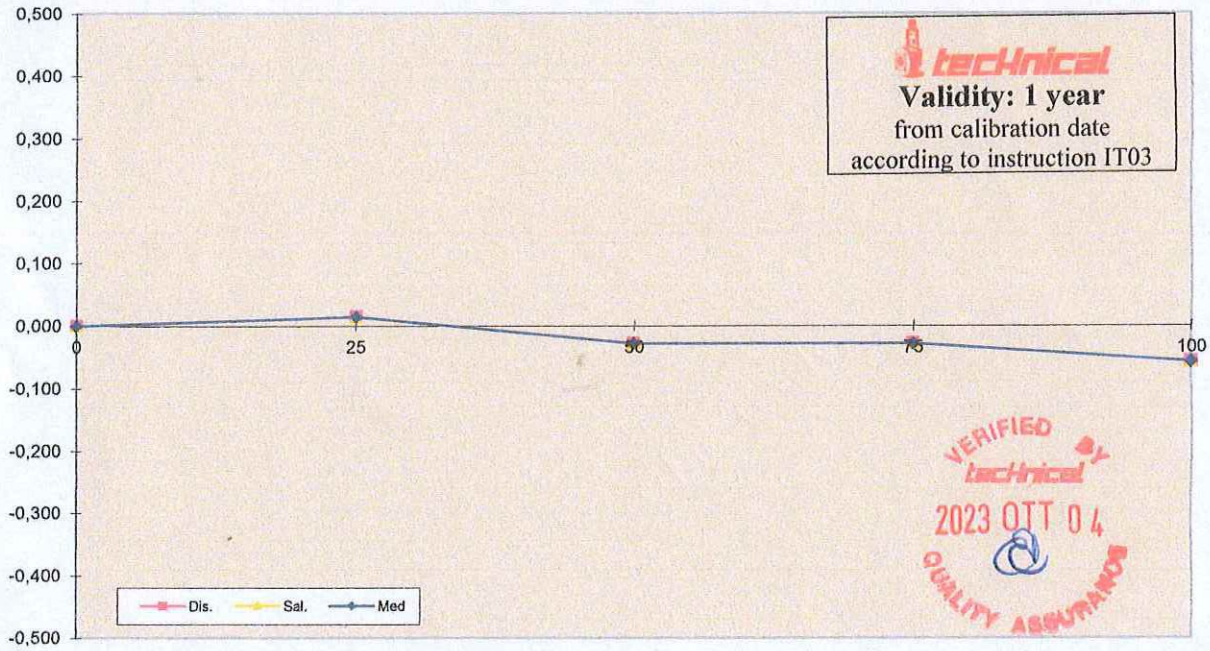
Amb. P. (mbar)	*
Dew (%)	*
Amb. Temp. (°C)	25°C
JOB	PC303
P.O.	C26-004-01
Result	POSITIVE
Date	03/10/2023
Expiration	03/10/2024
Operator	

CALIBRATION RESULTS (% Vs. Master Instruments)

Acc. Measured	Max Pos.	0,01
	Max Neg.	-0,06
Avarege Error	Max Pos.	0,01
	Max Neg.	-0,06
Hysteresis		0,00
Repeatability		0,00

Note:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
MASTER		MEASURED VALUES						ERRORS (% F.s.)						Calculated Dev. (% F.s.)					
Mis	Mis.	Up	1	Up	2	Up	3	Up	1	Up	2	Up	3	Avarage			Hyst.	Ripetibility	
%	bar	1	Dwn	2	Dwn	3	Dwn	1	Dwn	2	Dwn	3	Dwn	Sal.	Disc.	Med		Up	Dwn
0	0,0	0,0						0,00								0,00			
23,6	164,9	165,0						0,01								0,01			
47,4	331,8	331,6						-0,03								-0,03			
75,5	528,2	528,0						-0,03								-0,03			
99,3	695,4	695,0						-0,06								-0,06			



technical
Validity: 1 year
from calibration date
according to instruction IT03

VERIFIED by technical
2023 OTT 04
QUALITY ASSURANCE

Notes:

This report is referred to whole Trasmitter & A/D board of PLC

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Quality Assurance
Elena Adornato

5/9/24

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO LAB N° 0084 L

SCIENZE E TECNOLOGIE PER L'AMBIENTE EST

Testing Report n° 22.4720 on Novemberber 7th 2022 – English version

Customer
TECHNICAL S.R.L.

VIA TOSCANA 9
20052 VIGNATE (MI)

Sample number:	4330	**Matrix:**	Drinking water
Received date:	16/10/2023		
Started date:	16/10/2023	**Finished date:**	06/11/2023
Sample description:	Colourless clear liquid		
Sample label:	Demineralized water - Mod._acc. n° 23.1233		

Sample quantity:	1 l		
Packaging:	Plastic bottle	**Sampling procedure:**	Not declared
Sample fetched by:	Customer	**Sampling date:**	16/10/2023
Reference limits:	none		

Name test	Method	Unit	Value	Uncertainty (±)	Limit min	Limit max
Ammonia	APHA Standard Methods for the Examination of Water and Wastewater ed 23rd 2017 4500 NH3	mg/l	0,100	0,050		
Nitrite (NO2)	APAT CNR IRSA 4050 Man 29 2003	mg/l	< 0,010			
Nitrate (NO3)	APHA Standard Methods for the Examination of Water and Wastewater ed 23rd 2017 4110 B	mg/l	< 5,0			
* Bicarbonate	APHA Standard Methods for the Examination of Water and Wastewater ed 23rd 2017 2320 B	mg(HCO3)/l	7,0			
Chloride	APHA Standard Methods for the Examination of Water and Wastewater ed 23rd 2017 4110 B	mg/l	< 5,0			
Fluoride	APHA Standard Methods for the Examination of Water and Wastewater ed 23rd 2017 4110 B	mg/l	< 0,5			
Sulphates (as SO4)	APHA Standard Methods for the Examination of Water and Wastewater ed 23rd 2017 4110 B	mg/l	< 5			
pH	APAT CNR IRSA 2060 Man 29 2003	pH units	6,53	0,25		
Conductivity	APHA Standard Methods for the Examination of Water and Wastewater ed 23rd 2017 2510 B	µS/cm at 20°C	16	1		
* Hardness	APAT CNR IRSA 2040 B Man 29 2003	°F	< 0,5			
* Dry residue at 180°C	UNI 10506:1996	mg/l	9			
* Arsenic	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2016	µg/l	< 1			
* Calcium	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2016	mg/l	1,2			
* Total chromium	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2016	µg/l	< 1			
* Magnesium	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2016	mg/l	< 1,0			

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS
02/07/2024

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EST srl Via Marconi, 14 Grassobbio (BG) Tel.035335638 laboratorio@estambiente.it www.estambiente.it C.F.,P.I. 01679870160

* Manganese	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2016	µg/l	< 1
* Potassium	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2016	mg/l	< 1,0
* Sodium	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2016	mg/l	< 2,0

Laboratory Manager
Dr.ssa Annamaria Begnamini

* Test not qualified by Accredia
OB out of bounds
This Testing Report exclusively refers to the examined sample. It cannot be reproduced partially without laboratory approval.
The uncertainty reported is calculated to a confidence level of 95%, with a confidence level factor of k=2.
In case of sampling made by customer, results refer on sample as received. Laboratory decline any responsibility about information received by customer.

Document with advanced digital signature in accordance with current legislation.

END OF TEST REPORT

L. FONTANA
ON BEHALF OF ROSETTI MARINO
☒ REVIEW ☐ WITNESS
02/07/2024

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Testing Report n° 22.4720 on Novemberber 7th 2022 – English version

Customer
TECHNICAL S.R.L.

VIA TOSCANA 9
20052 VIGNATE (MI)

Sample number: 4330
Received date: 16/10/2023
Started date: 16/10/2023
Sample description: Colourless clear liquid
Sample label: Demineralized water - Mod._acc. n° 23.1233

Matrix: Drinking water
Finished date: 06/11/2023

Sample quantity: 1 l
Packaging: Plastic bottle
Sample fetched by: Customer
Reference limits: none

Sampling procedure: Not declared
Sampling date: 16/10/2023

Name test	Method	Unit	Value	Uncertainty (±)	Limit min	Limit max
Ammonia	APHA Standard Methods for the Examination of Water and Wastewater ed 23rd 2017 4500 NH3	mg/l	0,100	0,050		
Nitrite (NO2)	APAT CNR IRSA 4050 Man 29 2003	mg/l	< 0,010			
Nitrate (NO3)	APHA Standard Methods for the Examination of Water and Wastewater ed 23rd 2017 4110 B	mg/l	< 5,0			
* Bicarbonate	APHA Standard Methods for the Examination of Water and Wastewater ed 23rd 2017 2320 B	mg(HCO3)/l	7,0			
Chloride	APHA Standard Methods for the Examination of Water and Wastewater ed 23rd 2017 4110 B	mg/l	< 5,0			
Fluoride	APHA Standard Methods for the Examination of Water and Wastewater ed 23rd 2017 4110 B	mg/l	< 0,5			
Sulphates (as SO4)	APHA Standard Methods for the Examination of Water and Wastewater ed 23rd 2017 4110 B	mg/l	< 5			
pH	APAT CNR IRSA 2060 Man 29 2003	pH units	6,53	0,25		
Conductivity	APHA Standard Methods for the Examination of Water and Wastewater ed 23rd 2017 2510 B	µS/cm at 20°C	16	1		
* Hardness	APAT CNR IRSA 2040 B Man 29 2003	°F	< 0,5			
* Dry residue at 180°C	UNI 10506:1996	mg/l	9			
* Arsenic	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2016	µg/l	< 1			
* Calcium	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2016	mg/l	1,2			
* Total chromium	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2016	µg/l	< 1			
* Magnesium	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2016	mg/l	< 1,0			

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5/12/24

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* Manganese	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2016	µg/l	< 1
* Potassium	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2016	mg/l	< 1,0
* Sodium	UNI EN ISO 15587-2:2002 + UNI EN ISO 17294-2:2016	mg/l	< 2,0

Laboratory Manager
Dr.ssa Annamaria Begnamini

* Test not qualified by Accredia
OB out of bounds
This Testing Report exclusively refers to the examined sample. It cannot be reproduced partially without laboratory approval.
The uncertainty reported is calculated to a confidence level of 95%, with a confidence level factor of k=2.
In case of sampling made by customer, results refer on sample as received. Laboratory decline any responsibility about information received by customer.

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END OF TEST REPORT

Polm x crosswind
5/6/24 R

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DYE PENETRANT TESTING REPORT

IR TEC SRL
SISTEMA DI QUALITA' CERTIFICATO ISO 9001:2015

ISTITUTO DI RICERCHE TECNOLOGICHE E COLLAUDI

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REPORT No. REPORT	RC240187
COMMESSA JOB	JC240106
DATA DATE	2024/06/18
FOGLIO SHEET	1 DI 2 OF

RC240187 JC240106 2024/06/18 10006 MODULO /FORM M-PT Rev. 0 PT TEST REPORT **RAPPORTO DI PROVA PT**

CLIENTE CUSTOMER	TECHNICAL S.r.l. Via Toscana, 9 – 20060 Vignate (MI)	**ENTE DI COLLAUDO** INSPECTION AGENCY	//
COMMESSA JOB	Technical job: 23/3962 Client: Rosetti Marino Spa – Order 1724000518 123A90A		
OGGETTO SUBJECT	LIQUID PENETRANT EXAMINATION OF THE ITEMS IN TABLE 1 DDT 000855 on 2024/06/05		
MATERIALE MATERIAL	//	**SPESSORE** THICKNESS	Various
STADIO DI LAVORAZIONE WORKING STAGE	FINISHED	**SUPERFICIE** SURFACE	MACHINED
SPECIFICA SPECIFICATION	ASTM E 165 - IRTEC NDT-PT-02 E5 R1 Acceptance standard: No defects are acceptable on the sealing surface		

PULITORE CLEANER	NDTBC1	**LOTTO** BATCH	B230530s	**DESIGNAZIONE PRODOTTI** PRODUCTS DESIGNATION	IIAe Level 2
PENETRANTE PENETRANT	NDT K71B2p	**LOTTO** BATCH	230118Ps		
RIVELATORE DEVELOPER	NDT D112A	**LOTTO** BATCH	231220W150s		
FLUORESCENTE FLUORESCENT	☐	**CONTRASTO DI COLORE** COLOR CONTRAST	☒		

TEMPERATURA SUPERFICIE SURFACE TEMPERATURE	24°C
PULITURA DELLA SUPERFICIE SURFACE CLEANING	NDTBC1
TEMPO ASCIUGATURA (≥ 2 minuti) DRYING TIME (≥ 2 minutes)	8 Minutes
APPLICAZIONE PENETRANTE PENETRANT APPLICATION	SPRAY
TEMPO DI PENETRAZIONE PENETRATION TIME	15 Minutes
ASPORTAZIONE PENETRANTE PENETRANT REMOVAL	Water and cloths
TEMPO ASCIUGATURA (≤ 20 minuti) DRYING TIME (≤ 20 minutes)	10 Minutes
APPLICAZIONE RIVELATORE DEVELOPER APPLICATION	SPRAY
TEMPO DI SVILUPPO DEVELOPMENT TIME	10÷15 Minutes
ILLUMINAZIONE LIGHTING	1150 lux

NOTE REMARKS	**EXTENSION OF EXAMINATION 100% OF THE SEALING GROOVES**
OPERATORE OPERATOR	Mr. Dimitri Bianco - LEVEL II PT – SNT-TC-1A - IRTEC Certificate no. 7

ESITO RESULT	**SODDISFACENTE** SATYSFACTORY ☒	**RIPARARE** TO BE REPAIRED ☐	**SCARTARE** REJECTED ☐

PROVE ESEGUITE DA Test conducted by	PER IL LABORATORIO For the laboratory	L'ISPETTORE DEL CLIENTE Customer inspector	IL COLLAUDATORE The inspector
DIMITRI BIANCO	dott. Ing. G. GROSSI IR TEC SRL	L. FONTANA ON BEHALF OF Rosetti Marino ☒ REVIEW ☐ WITNESS 02/07/2024	2/7/24

TABLE 1

CODE	DESCRIPTION	TAG	MARKING	Q.TY
07-0358-D6	BODY 3" 150 x 4" 150 RF	80-PSV-001/001_S	PT 1320-PT 1321	2
04-0690-37	GUIDE 3" 150 RF x 4" 150 RF	80-PSV-001/001_S	PT 1322-PT 1323	2
10-0242-36	BONNET 3" 150 RF X 4" 150 RF	80-PSV-001/001_S	PT 1324-PT 1325	2
42-1149-G1	NOZZLE 3" 150 RF	80-PSV-001/001_S	PT 1326-PT 1327	2
10-9367-37	CAP 3" 150 RF x 4" 150 RF	80-PSV-001/001_S	PT 1328-PT 1329	2
07-0523-36	BODY 1" 300 RF x 2" 150 RF	25-PSV/001A/B/C/D/E/F/00X_S	PT 1330-PT 1331-PT 1332-PT 1333 PT 1334-PT 1335-PT 1336	7
10-0350-36	BONNET 1" 300 RF x 2" 150 RF	25-PSV/001A/B/C/D/E/F/00X_S	PT 1337-PT 1338-PT 1339-PT 1340 PT 1341-PT 1342-PT 1343	7
10-0342-37	CAP 1" 399 RF x 2" 150 RF	25-PSV/001A/B/C/D/E/F/00X_S	PT 1344-PT 1345-PT 1346-PT 1347 PT 1348-PT 1349-PT 1350	7
04-0409-37	GUIDE 1" 300 RF x 2" 150 RF	25-PSV/001A/B/C/D/E/F/00X_S	PT 1351-PT 1352-PT 1353-PT 1354 PT 1355-PT 1356-PT 1357	7
42-1141-37	NOZZLE 1" 300 RF	25-PSV/001A/B/C/D/E/F/00X_S	PT 1358-PT 1359-PT 1360-PT 1361 PT 1362-PT 1363-PT 1364	7

PROVE ESEGUITE DA Test conducted by	PER IL LABORATORIO For the laboratory	L'ISPETTORE DEL CLIENTE Customer inspector	IL COLLAUDATORE The inspector
DIMITRI BIANCO	dott. Ing. G. GROSSI IR TEC SRL	L. FONTANA ON BEHALF OF ROSETTI MARINO ☒ REVIEW ☐ WITNESS 02/07/2024	CROSSWIND 2/7/24

POSITIVE MATERIAL IDENTIFICATION TEST REPORT

	POSITIVE MATERIAL IDENTIFICATION REPORT	Certificate n. 0591 Date: 2024.07.02

	Order/Job	Procedure
ROSETTI MARINO S.p.A.	1724000518 123A90A	//
TECHNICAL S.r.l.	23/3962	Il 75 Rev. 2
INSTRUMENT: portable spectrometer XRF – Spectro X-sort AlloyPlus – type: XHH03 - Ametek S/N 12009592		

OBTAINED VALUES

Serial Number	Tag	Code	Description	Part	Material	Heat	Ident.	Elements			Result *
291496	80-PSV-001	320-K10-5L	Safety valves 30.000 series 3" 150RF x 4" 150RF	Body	A 351 CF8M	38324	A1	Cr% Min. 18,00 Max. 21,00: 17.96	Mo% Min. 2,00 Max. 3,00: 2.19	Ni% Min. 9,00 Max. 12,00: 9.61	Positive
				Bonnet	A 351 CF8M	JMD2	B1	Cr% Min. 18,00 Max. 21,00: 18.22	Mo% Min. 2,00 Max. 3,00: 2.19	Ni% Min. 9,00 Max. 12,00: 9.75	Positive
				Nozzle	A 351 CF3M	ENP3	C1	Cr% Min. 17,00 Max. 21,00: 17.81	Mo% Min. 2,00 Max. 3,00: 2.27	Ni% Min. 9,00 Max. 13,00: 9.93	Positive
				Disc	A479 316L	284467	D1	Cr% Min. 16,00 Max. 18,00: 16.27	Mo% Min. 2,00 Max. 3,00: 1.95	Ni% Min. 10,00 Max. 14,00: 9.82	Positive

* Alloys are acceptable if the alloying elements are each within ± 10% of the specified range of values

Test conducted by	Customer Inspector	Third Part Inspector
technical SRL Quality Assurance Elena Adornato	L. FONTANA ON BEHALF OF ROSETTI MARINO ☒ REVIEW ☐ WITNESS 02/07/2024	x CROSSWIND 2/7/24 R

	POSITIVE MATERIAL IDENTIFICATION REPORT	Certificate n. 0591 Date: 2024.07.02

	Order/Job	Procedure
ROSETTI MARINO S.p.A.	1724000518 123A90A	//
TECHNICAL S.r.l.	23/3962	Il 75 Rev. 2
INSTRUMENT: portable spectrometer XRF – Spectro X-sort AlloyPlus – type: XHH03 - Ametek S/N 12009592		

OBTAINED VALUES

Serial Number	Tag	Code	Description	Part	Material	Heat	Ident.	Elements			Result *
291497	80-PSV-001_S	320-K10-5L	Safety valves 30.000 series 3" 150RF x 4" 150RF	Body	A 351 CF8M	38324	A2	Cr% Min. 18,00 Max. 21,00: 17.85	Mo% Min. 2,00 Max. 3,00: 2.17	Ni% Min. 9,00 Max. 12,00: 9.69	Positive
				Bonnet	A 351 CF8M	JMD2	B2	Cr% Min. 18,00 Max. 21,00: 18.30	Mo% Min. 2,00 Max. 3,00: 2.25	Ni% Min. 9,00 Max. 12,00: 9.59	Positive
				Nozzle	A 351 CF3M	ENP3	C2	Cr% Min. 17,00 Max. 21,00: 17.97	Mo% Min. 2,00 Max. 3,00: 2.25	Ni% Min. 9,00 Max. 13,00: 10.19	Positive
				Disc	A479 316L	284467	D2	Cr% Min. 16,00 Max. 18,00: 16.20	Mo% Min. 2,00 Max. 3,00: 2.00	Ni% Min. 10,00 Max. 14,00: 9.92	Positive

* Alloys are acceptable if the alloying elements are each within ± 10% of the specified range of values

Test conducted by	Customer Inspector	Third Part Inspector
technical SRL Quality Assurance Elena Adornato	L. FONTANA ON BEHALF OF ROSETTI MARINO ☒ REVIEW ☐ WITNESS 02/07/2024	x CROSSWIND 2/7/24

	POSITIVE MATERIAL IDENTIFICATION REPORT	Certificate n. 0591 Date: 2024.07.02

	Order/Job	Procedure
ROSETTI MARINO S.p.A.	1724000518 123A90A	//
TECHNICAL S.r.l.	23/3962	Il 75 Rev. 2
INSTRUMENT: portable spectrometer XRF – Spectro X-sort AlloyPlus – type: XHH03 - Ametek S/N 12009592		

OBTAINED VALUES

Serial Number	Tag	Code	Description	Part	Material	Heat	Ident.	Elements			Result *
291498	25-PSV-001A	320-E20-5L	Safety valves 30.000 series 1" 300RF x 2" 150RF	Body	A 351 CF8M	JHP2	A3	Cr% Min. 18,00 Max. 21,00: 18.45	Mo% Min. 2,00 Max. 3,00: 2.20	Ni% Min. 9,00 Max. 12,00: 9.71	Positive
				Bonnet	A 351 CF8M	GN3	B3	Cr% Min. 18,00 Max. 21,00: 17.98	Mo% Min. 2,00 Max. 3,00: 2.25	Ni% Min. 9,00 Max. 12,00: 9.89	Positive
				Nozzle	A479 316L	291150	C3	Cr% Min. 16,00 Max. 18,00: 16.29	Mo% Min. 2,00 Max. 3,00: 1.97	Ni% Min. 10,00 Max. 14,00: 9.76	Positive
				Disc	A479 316L	292463	D3	Cr% Min. 16,00 Max. 18,00: 16.21	Mo% Min. 2,00 Max. 3,00: 2.05	Ni% Min. 10,00 Max. 14,00: 9.80	Positive

* Alloys are acceptable if the alloying elements are each within ± 10% of the specified range of values

Test conducted by	Customer Inspector	Third Part Inspector
technical SRL Quality Assurance Elena Adornato	L. FONTANA ON BEHALF OF ROSETTI MARINO ☒ REVIEW ☐ WITNESS 02/07/2024	Robin x CROSSWIND 2/7/24 R

	POSITIVE MATERIAL IDENTIFICATION REPORT	Certificate n. 0591 Date: 2024.07.02

	Order/Job	Procedure
ROSETTI MARINO S.p.A.	1724000518 123A90A	//
TECHNICAL S.r.l.	23/3962	Il 75 Rev. 2
INSTRUMENT: portable spectrometer XRF – Spectro X-sort AlloyPlus – type: XHH03 - Ametek S/N 12009592		

OBTAINED VALUES

Serial Number	Tag	Code	Description	Part	Material	Heat	Ident.	Elements			Result *
291499	25-PSV-00X_S	320-E20-5L	Safety valves 30.000 series 1" 300RF x 2" 150RF	Body	A 351 CF8M	JHP2	A4	Cr% Min. 18,00 Max. 21,00: 17.96	Mo% Min. 2,00 Max. 3,00: 2.28	Ni% Min. 9,00 Max. 12,00: 9.51	Positive
				Bonnet	A 351 CF8M	GN3	B4	Cr% Min. 18,00 Max. 21,00: 17.54	Mo% Min. 2,00 Max. 3,00: 2.42	Ni% Min. 9,00 Max. 12,00: 10.73	Positive
				Nozzle	A479 316L	291150	C4	Cr% Min. 16,00 Max. 18,00: 16.34	Mo% Min. 2,00 Max. 3,00: 2.04	Ni% Min. 10,00 Max. 14,00: 10.32	Positive
				Disc	A479 316L	292463	D4	Cr% Min. 16,00 Max. 18,00: 16.06	Mo% Min. 2,00 Max. 3,00: 2.06	Ni% Min. 10,00 Max. 14,00: 9.86	Positive

* Alloys are acceptable if the alloying elements are each within ± 10% of the specified range of values

Test conducted by	Customer Inspector	Third Part Inspector
technical SRL Quality Assurance Elena Adornato	L. FONTANA ON BEHALF OF ROSETTI MARINO ☑ REVIEW ☐ WITNESS 02/07/2024	x CROSS MIND 2/7/24 R

technical	POSITIVE MATERIAL IDENTIFICATION REPORT	Certificate n. 0591 Date: 2024.07.02

	Order/Job	Procedure
ROSETTI MARINO S.p.A.	1724000518 123A90A	//
TECHNICAL S.r.l.	23/3962	Il 75 Rev. 2
INSTRUMENT: portable spectrometer XRF – Spectro X-sort AlloyPlus – type: XHH03 - Ametek S/N 12009592		

OBTAINED VALUES

Serial Number	Tag	Code	Description	Part	Material	Heat	Ident.	Elements			Result *
291500	25-PSV-001B	320-E20-5L	Safety valves 30.000 series 1" 300RF x 2" 150RF	Body	A 351 CF8M	JHP2	A5	Cr% Min. 18,00 Max. 21,00: 18.03	Mo% Min. 2,00 Max. 3,00: 2.23	Ni% Min. 9,00 Max. 12,00: 9.87	Positive
				Bonnet	A 351 CF8M	GN3	B5	Cr% Min. 18,00 Max. 21,00: 18.10	Mo% Min. 2,00 Max. 3,00: 2.43	Ni% Min. 9,00 Max. 12,00: 10.42	Positive
				Nozzle	A479 316L	291150	C5	Cr% Min. 16,00 Max. 18,00: 16.36	Mo% Min. 2,00 Max. 3,00: 2.00	Ni% Min. 10,00 Max. 14,00: 10.14	Positive
				Disc	A479 316L	292463	D5	Cr% Min. 16,00 Max. 18,00: 16.14	Mo% Min. 2,00 Max. 3,00: 1.98	Ni% Min. 10,00 Max. 14,00: 9.83	Positive

* Alloys are acceptable if the alloying elements are each within ± 10% of the specified range of values

Test conducted by	Customer Inspector	Third Part Inspector
technical SRL Quality Assurance Elena Adornato	L. FONTANA ON BEHALF OF ROSETTI MARINO ☒ REVIEW ☐ WITNESS 02/07/2024	CROSSWIND 2/7/24 R

	POSITIVE MATERIAL IDENTIFICATION REPORT	Certificate n. 0591 Date: 2024.07.02

	Order/Job	Procedure
ROSETTI MARINO S.p.A.	1724000518 123A90A	//
TECHNICAL S.r.l.	23/3962	Il 75 Rev. 2
INSTRUMENT: portable spectrometer XRF – Spectro X-sort AlloyPlus – type: XHH03 - Ametek S/N 12009592		

OBTAINED VALUES

Serial Number	Tag	Code	Description	Part	Material	Heat	Ident.	Elements			Result *
291501	25-PSV-001C	320-E20-5L	Safety valves 30.000 series 1" 300RF x 2" 150RF	Body	A 351 CF8M	JHP2	A6	Cr% Min. 18,00 Max. 21,00: 18.02	Mo% Min. 2,00 Max. 3,00: 2.25	Ni% Min. 9,00 Max. 12,00: 9.77	Positive
				Bonnet	A 351 CF8M	GN3	B6	Cr% Min. 18,00 Max. 21,00: 17.63	Mo% Min. 2,00 Max. 3,00: 2.42	Ni% Min. 9,00 Max. 12,00: 10.53	Positive
				Nozzle	A479 316L	291150	C6	Cr% Min. 16,00 Max. 18,00: 16.46	Mo% Min. 2,00 Max. 3,00: 2.03	Ni% Min. 10,00 Max. 14,00: 10.04	Positive
				Disc	A479 316L	292463	D6	Cr% Min. 16,00 Max. 18,00: 16.26	Mo% Min. 2,00 Max. 3,00: 2.04	Ni% Min. 10,00 Max. 14,00: 9.99	Positive

* Alloys are acceptable if the alloying elements are each within ± 10% of the specified range of values

Test conducted by	Customer Inspector	Third Part Inspector
technical SRL Quality Assurance Elena Adornato	L. FONTANA ON BEHALF OF ROSETTI MARINO ☒ REVIEW ☐ WITNESS 02/07/2024	CROSSWIND 2/7/24 R

	POSITIVE MATERIAL IDENTIFICATION REPORT	Certificate n. 0591 Date: 2024.07.02

	Order/Job	Procedure
ROSETTI MARINO S.p.A.	1724000518 123A90A	//
TECHNICAL S.r.l.	23/3962	Il 75 Rev. 2
INSTRUMENT: portable spectrometer XRF – Spectro X-sort AlloyPlus – type: XHH03 - Ametek S/N 12009592		

OBTAINED VALUES

Serial Number	Tag	Code	Description	Part	Material	Heat	Ident.	Elements			Result *
291502	25-PSV-001D	320-E20-5L	Safety valves 30.000 series 1" 300RF x 2" 150RF	Body	A 351 CF8M	JHP2	A7	Cr% Min. 18,00 Max. 21,00: 18.11	Mo% Min. 2,00 Max. 3,00: 2.23	Ni% Min. 9,00 Max. 12,00: 9.81	Positive
				Bonnet	A 351 CF8M	GN3	B7	Cr% Min. 18,00 Max. 21,00: 18.28	Mo% Min. 2,00 Max. 3,00: 2.39	Ni% Min. 9,00 Max. 12,00: 10.31	Positive
				Nozzle	A479 316L	291150	C7	Cr% Min. 16,00 Max. 18,00: 16.45	Mo% Min. 2,00 Max. 3,00: 1.98	Ni% Min. 10,00 Max. 14,00: 9.85	Positive
				Disc	A479 316L	292463	D7	Cr% Min. 16,00 Max. 18,00: 16.03	Mo% Min. 2,00 Max. 3,00: 2.08	Ni% Min. 10,00 Max. 14,00: 10.10	Positive

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Test conducted by	Customer Inspector	Third Part Inspector
technical SRL Quality Assurance Elena Adornato	L. FONTANA ON BEHALF OF ROSETTI MARINO ☒ REVIEW ☐ WITNESS 02/07/2024	2/7/24 R

	POSITIVE MATERIAL IDENTIFICATION REPORT	Certificate n. 0591 Date: 2024.07.02

	Order/Job	Procedure
ROSETTI MARINO S.p.A.	1724000518 123A90A	//
TECHNICAL S.r.l.	23/3962	Il 75 Rev. 2
INSTRUMENT: portable spectrometer XRF – Spectro X-sort AlloyPlus – type: XHH03 - Ametek S/N 12009592		

OBTAINED VALUES

Serial Number	Tag	Code	Description	Part	Material	Heat	Ident.	Elements			Result *
291503	25-PSV-001E	320-E20-5L	Safety valves 30.000 series 1" 300RF x 2" 150RF	Body	A 351 CF8M	JHP2	A8	Cr% Min. 18,00 Max. 21,00: 18.22	Mo% Min. 2,00 Max. 3,00: 2.17	Ni% Min. 9,00 Max. 12,00: 10.09	Positive
				Bonnet	A 351 CF8M	GN3	B8	Cr% Min. 18,00 Max. 21,00: 17.80	Mo% Min. 2,00 Max. 3,00: 2.49	Ni% Min. 9,00 Max. 12,00: 10.74	Positive
				Nozzle	A479 316L	291150	C8	Cr% Min. 16,00 Max. 18,00: 16.39	Mo% Min. 2,00 Max. 3,00: 2.00	Ni% Min. 10,00 Max. 14,00: 9.64	Positive
				Disc	A479 316L	292463	D8	Cr% Min. 16,00 Max. 18,00: 16.24	Mo% Min. 2,00 Max. 3,00: 2.01	Ni% Min. 10,00 Max. 14,00: 9.71	Positive

* Alloys are acceptable if the alloying elements are each within ± 10% of the specified range of values

Test conducted by	Customer Inspector	Third Part Inspector
technical SRL Quality Assurance Elena Adornato	L. FONTANA ON BEHALF OF ROSETTI MARINO ☒ REVIEW ☐ WITNESS 02/07/2024	2/7/24

	POSITIVE MATERIAL IDENTIFICATION REPORT	Certificate n. 0591 Date: 2024.07.02

	Order/Job	Procedure
ROSETTI MARINO S.p.A.	1724000518 123A90A	//
TECHNICAL S.r.l.	23/3962	Il 75 Rev. 2
INSTRUMENT: portable spectrometer XRF – Spectro X-sort AlloyPlus – type: XHH03 - Ametek S/N 12009592		

OBTAINED VALUES

Serial Number	Tag	Code	Description	Part	Material	Heat	Ident.	Elements			Result *
291504	25-PSV-001F	320-E20-5L	Safety valves 30.000 series 1" 300RF x 2" 150RF	Body	A 351 CF8M	JHP2	A9	Cr% Min. 18,00 Max. 21,00: 18.17	Mo% Min. 2,00 Max. 3,00: 2.27	Ni% Min. 9,00 Max. 12,00: 9.48	Positive
				Bonnet	A 351 CF8M	GN3	B9	Cr% Min. 18,00 Max. 21,00: 17.74	Mo% Min. 2,00 Max. 3,00: 2.31	Ni% Min. 9,00 Max. 12,00: 10.48	Positive
				Nozzle	A479 316L	291150	C9	Cr% Min. 16,00 Max. 18,00: 16.38	Mo% Min. 2,00 Max. 3,00: 2.01	Ni% Min. 10,00 Max. 14,00: 10.04	Positive
				Disc	A479 316L	292463	D9	Cr% Min. 16,00 Max. 18,00: 16.36	Mo% Min. 2,00 Max. 3,00: 2.02	Ni% Min. 10,00 Max. 14,00: 9.71	Positive

* Alloys are acceptable if the alloying elements are each within ± 10% of the specified range of values

Test conducted by	Customer Inspector	Third Part Inspector
tecHnical SRL Quality Assurance Elena Adornato	L. FONTANA ON BEHALF OF ROSETTI MARINO ☒ REVIEW ☐ WITNESS 02/07/2024	CROSSWIND 2/7/24

	POSITIVE MATERIAL IDENTIFICATION REPORT	Certificate n. 0591 Date: 2024.07.02

	Order/Job	Procedure
ROSETTI MARINO S.p.A.	1724000518 123A90A	//
TECHNICAL S.r.l.	23/3962	Il 75 Rev. 2
INSTRUMENT: portable spectrometer XRF – Spectro X-sort AlloyPlus – type: XHH03 - Ametek S/N 12009592		

OBTAINED VALUES

Serial Number	Tag	Code	Description	Part	Material	Heat	Ident.	Elements			Result *
291505	64-PSV-001	320-D10-L2	Safety valves 30.000 series 1" 150RF x 2" 150RF	Nozzle	A479 316L	291150	C10	Cr% Min. 16,00 Max. 18,00: 16.33	Mo% Min. 2,00 Max. 3,00: 1.95	Ni% Min. 10,00 Max. 14,00: 9.97	Positive
				Disc	A479 316L	292463	D10	Cr% Min. 16,00 Max. 18,00: 16.25	Mo% Min. 2,00 Max. 3,00: 2.03	Ni% Min. 10,00 Max. 14,00: 9.44	Positive
291506	64-PSV-001_S	320-D10-L2	Safety valves 30.000 series 1" 150RF x 2" 150RF	Nozzle	A479 316L	291150	C11	Cr% Min. 16,00 Max. 18,00: 16.36	Mo% Min. 2,00 Max. 3,00: 2.02	Ni% Min.10,00 Max. 14,00: 10.15	Positive
				Disc	A479 316L	292463	D11	Cr% Min. 16,00 Max. 18,00: 16.18	Mo% Min. 2,00 Max. 3,00: 2.06	Ni% Min. 10,00 Max. 14,00: 9.77	Positive

* Alloys are acceptable if the alloying elements are each within ± 10% of the specified range of values

Test conducted by	Customer Inspector	Third Part Inspector
technical SRL Quality Assurance Elena Adornato	L. FONTANA ON BEHALF OF ROSETTI MARINO ☒ REVIEW ☐ WITNESS 02/07/2024	X CROSSWIND 2/7/24

	POSITIVE MATERIAL IDENTIFICATION REPORT	Certificate n. 0595 Date: 2024.09.02

	Order/Job	Procedure
ROSETTI MARINO S.p.A.	1724000518 123A90A	
TECHNICAL S.r.l.	23/3962	Il 75 Rev. 2
INSTRUMENT: portable spectrometer XRF – Spectro X-sort Ametek S/N 12009592		

OBTAINED VALUES

Serial Number	Tag	Code	Description	Part	Material	Heat	Ident.	Elements								Result*
293112	50-PSV-011	320-D10-F1	Safety valves 30.000 series 1" 150 RF x 2" 150 RF	Body	A995 5A	LCJ0	A1	Cr% Min. 24,00 Max. 26,00	25.02	Mo% Min. 4,00 Max. 5,00	4.48	Ni% Min. 6,00 Max. 8,00	7.49	Mn Max 1,50	0.72	Positive
				Bonnet	A995 5A	GCP5	B1	Cr% Min. 24,00 Max. 26,00	23.76	Mo% Min. 4,00 Max. 5,00	4.33	Ni% Min. 6,00 Max. 8,00	6.50	Mn Max 1,50	0.41	Positive
				Nozzle	A479 S32750	282987	C1	Cr% Min. 24,00 Max. 26,00	24.98	Mo% Min. 3,00 Max. 5,00	4.00	Ni% Min. 6,00 Max. 8,00	6.98	Mn Max 1,20	0.80	Positive
				Disc	A479 S32750	434129	D1	Cr% Min. 24,00 Max. 26,00	24.52	Mo% Min. 3,00 Max. 5,00	3.79	Ni% Min. 6,00 Max. 8,00	5.98	Mn Max 1,20	0.76	Positive

* Alloys are acceptable if the alloying elements are each within ± 10% of the specified range of values

Test conducted by	Customer Inspector	Third Part Inspector
technical SRL Quality Assurance Elena Adornato		CROSSWIND 5/9/24

FUGITIVE EMISSION TEST REPORT

FBR CONTROL
Via delle Vioe 8/10 - 20815 Cogliate (MB)
Tel/Fax 02 96 62 740 - info@fbrcontrol.com
www.fbrcontrol.com

FORMAZIONE e CENTRO D'ESAME NDE
LABORATORIO PROVE MECCANICHE
CONTROLLI NON DISTRUTTIVI
SALDATURA
ISPEZIONI

DATA: Date: 26/07/2024 Sheet 1/1

CERTIFICATO N°: Certificate No: FBR-LT034/24

LEAK TEST REPORT

Client	TECHNICAL SRL
Job	23/3962
Object	N°1 SAFETY VALVE 3" 150 x 4"150, RF, CODE: *320-K10-5L* Serial Number: 291497
Reference standard	IL 84 REV.0
Acceptance criteria	IL 84 REV.0

Equipment description

Helium mass spectrometer		Sniffer	
Brand:	OERLIKON	Brand:	OERLIKON
Type:	PHOENIX L300i	Type:	252003 SL300
Sensitivity - Sniffer mode:	1E-08		

Capillary type leak standard

Brand:	LEYBOLD		
Type:	ST-L 6 S.N.90001343471		
Leak. Rate - Sniffer Mode:		6,80E-06	mbar * l/s

Helium mass spectrometer calibration

External leak std - Helium leakage rate - Measured value:	6,8E-06	mbar * l/s

Test conditions

Absolute pressure	1	Bar
Helium concentration	99,99	%
Temperature	20	°C
Soak time	15	minutes
System background noise before the test	2,2	ppm

Acceptance criteria

Body Nozzle	≤48,75 ppm

Test results

Component		Value		Result
S.N. 291497	BODY / NOZZLE GASKET	3,2	ppm	SATISFACTORY
S.N. 291497	BONNET / CAP GASKET	2,9	ppm	SATISFACTORY
S.N. 291497	BODY / BONNET GASKET	3,0	ppm	SATISFACTORY
S.N. 291497	BLOWDOWN SCREW GASKET	2,9	ppm	SATISFACTORY

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technical s.r.l
Ing. Raffaele Bianchi

OPERATORE FBR Control
FBR Control Operator

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UNI EN ISO 9712
UT RT MT PT VT ET

FRANCO CORBELLINI
ON BEHALF OF
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CROSSWIND

ENTE DI COLLAUDO / ISPETTORE
Surveyor / Inspector

L. FONTANA
ON BEHALF OF ROSETTI MARINO S.p.A
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DATA: Date: 26/07/2024 Sheet 1/1

CERTIFICATO N°: Certificate No: FBR-LT035/24

LEAK TEST REPORT

Client	TECHNICAL SRL
Job	23/3962
Object	N°1 SAFETY VALVE 3" 150 x 4"150, RF, CODE: *320-K10-5L* Serial Number: 291496
Reference standard	IL 84 REV.0
Acceptance criteria	IL 84 REV.0

Equipment description

Helium mass spectrometer		Sniffer	
Brand:	OERLIKON	Brand:	OERLIKON
Type:	PHOENIX L300i	Type:	252003 SL300
Sensitivity - Sniffer mode:	1E-08		

Capillary type leak standard

Brand:	LEYBOLD		
Type:	ST-L 6 S.N.90001343471		
Leak. Rate - Sniffer Mode:		6,80E-06	mbar * l/s

Helium mass spectrometer calibration

External leak std - Helium leakage rate - Measured value:	6,8E-06	mbar * l/s

Test conditions

Absolute pressure	1	Bar
Helium concentration	99,99	%
Temperature	20	°C
Soak time	15	minutes
System background noise before the test	2,2	ppm

Acceptance criteria

Body Nozzle	≤48,75 ppm

Test results

Component		Value		Result
S.N. 291496	BODY / NOZZLE GASKET	2,5	ppm	SATISFACTORY
S.N. 291496	BONNET / CAP GASKET	2,4	ppm	SATISFACTORY
S.N. 291496	BODY / BONNET GASKET	2,4	ppm	SATISFACTORY
S.N. 291496	BLOWDOWN SCREW GASKET	2,4	ppm	SATISFACTORY

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DATA: Date: 26/07/2024 Sheet 1/1

CERTIFICATO N°: Certificate No: FBR-LT042/24

LEAK TEST REPORT

Client	TECHNICAL SRL
Job	23/3962
Object	N°1 SAFETY VALVE 1" 300 x 2"150, RF, CODE: *320-E20-5L* Serial Number: 291499
Reference standard	IL 84 REV.0
Acceptance criteria	IL 84 REV.0

Equipment description

Helium mass spectrometer		Sniffer	
Brand:	OERLIKON	Brand:	OERLIKON
Type:	PHOENIX L300i	Type:	252003 SL300
Sensitivity - Sniffer mode:	1E-08		

Capillary type leak standard

Brand:	LEYBOLD		
Type:	ST-L 6 S.N.90001343471		
Leak. Rate - Sniffer Mode:		6,80E-06	mbar * l/s

Helium mass spectrometer calibration

External leak std - Helium leakage rate - Measured value:	6,8E-06	mbar * l/s

Test conditions

Absolute pressure	1	Bar
Helium concentration	99,99	%
Temperature	20	°C
Soak time	15	minutes
System background noise before the test	2,2	ppm

Acceptance criteria

Body Nozzle	≤48,75 ppm

Test results

Component	Value		Result
S.N. 291499 BODY / NOZZLE GASKET	2,6	ppm	SATISFACTORY
S.N. 291499 BONNET / CAP GASKET	2,4	ppm	SATISFACTORY
S.N. 291499 BODY / BONNET GASKET	2,4	ppm	SATISFACTORY
S.N. 291499 BLOWDOWN SCREW GASKET	2,4	ppm	SATISFACTORY

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FBR Control Operator

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DATA: Date: 26/07/2024 Sheet 1/1

CERTIFICATO N°: Certificate No: FBR-LT036/24

LEAK TEST REPORT

Client	TECHNICAL SRL
Job	23/3962
Object	N°1 SAFETY VALVE 1" 300 x 2"150, RF, CODE: *320-E20-5L* Serial Number: 291503
Reference standard	IL 84 REV.0
Acceptance criteria	IL 84 REV.0

Equipment description

Helium mass spectrometer		Sniffer	
Brand:	OERLIKON	Brand:	OERLIKON
Type:	PHOENIX L300i	Type:	252003 SL300
Sensitivity - Sniffer mode:	1E-08		

Capillary type leak standard

Brand:	LEYBOLD
Type:	ST-L 6 S.N.90001343471

Leak. Rate - Sniffer Mode:	6,80E-06	mbar * l/s

Helium mass spectrometer calibration

External leak std - Helium leakage rate - Measured value:	6,8E-06	mbar * l/s

Test conditions

Absolute pressure	1	Bar
Helium concentration	99,99	%
Temperature	20	°C
Soak time	15	minutes
System background noise before the test	2,2	ppm

Acceptance criteria

Body Nozzle	≤48,75 ppm

Test results

Component		Value		Result
S.N. 291503	BODY / NOZZLE GASKET	2,4	ppm	SATISFACTORY
S.N. 291503	BONNET / CAP GASKET	2,5	ppm	SATISFACTORY
S.N. 291503	BODY / BONNET GASKET	2,5	ppm	SATISFACTORY
S.N. 291503	BLOWDOWN SCREW GASKET	2,4	ppm	SATISFACTORY

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DATA: Date: 26/07/2024 Sheet 1/1

CERTIFICATO N°: Certificate No: FBR-LT037/24

LEAK TEST REPORT

Client	TECHNICAL SRL
Job	23/3962
Object	N°1 SAFETY VALVE 1" 300 x 2"150, RF, CODE: *320-E20-5L* Serial Number: 291498
Reference standard	IL 84 REV.0
Acceptance criteria	IL 84 REV.0

Equipment description

Helium mass spectrometer		Sniffer	
Brand:	OERLIKON	Brand:	OERLIKON
Type:	PHOENIX L300i	Type:	252003 SL300
Sensitivity - Sniffer mode:	1E-08		

Capillary type leak standard

Brand:	LEYBOLD		
Type:	ST-L 6 S.N.90001343471		
Leak. Rate - Sniffer Mode:		6,80E-06	mbar * l/s

Helium mass spectrometer calibration

External leak std - Helium leakage rate - Measured value:	6,8E-06	mbar * l/s

Test conditions

Absolute pressure	1	Bar
Helium concentration	99,99	%
Temperature	20	°C
Soak time	15	minutes
System background noise before the test	2,2	ppm

Acceptance criteria

Body Nozzle	≤48,75 ppm

Test results

Component		Value		Result
S.N. 291498	BODY / NOZZLE GASKET	2,6	ppm	SATISFACTORY
S.N. 291498	BONNET / CAP GASKET	2,2	ppm	SATISFACTORY
S.N. 291498	BODY / BONNET GASKET	2,3	ppm	SATISFACTORY
S.N. 291498	BLOWDOWN SCREW GASKET	2,7	ppm	SATISFACTORY

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DATA: Date: 26/07/2024 Sheet 1/1

CERTIFICATO N°: Certificate No: FBR-LT038/24

LEAK TEST REPORT

Client	TECHNICAL SRL
Job	23/3962
Object	N°1 SAFETY VALVE 1" 300 x 2"150, RF, CODE: *320-E20-5L* Serial Number: 291504
Reference standard	IL 84 REV.0
Acceptance criteria	IL 84 REV.0

Equipment description

Helium mass spectrometer		Sniffer	
Brand:	OERLIKON	Brand:	OERLIKON
Type:	PHOENIX L300i	Type:	252003 SL300
Sensitivity - Sniffer mode:	1E-08		

Capillary type leak standard

Brand:	LEYBOLD		
Type:	ST-L 6 S.N.90001343471		
Leak. Rate - Sniffer Mode:		6,80E-06	mbar * l/s

Helium mass spectrometer calibration

External leak std - Helium leakage rate - Measured value:	6,8E-06	mbar * l/s

Test conditions

Absolute pressure	1	Bar
Helium concentration	99,99	%
Temperature	20	°C
Soak time	15	minutes
System background noise before the test	2,2	ppm

Acceptance criteria

Body Nozzle	≤48,75 ppm

Test results

Component		Value		Result
S.N. 291504	BODY / NOZZLE GASKET	2,7	ppm	SATISFACTORY
S.N. 291504	BONNET / CAP GASKET	2,4	ppm	SATISFACTORY
S.N. 291504	BODY / BONNET GASKET	3,1	ppm	SATISFACTORY
S.N. 291504	BLOWDOWN SCREW GASKET	2,4	ppm	SATISFACTORY

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DATA: Date: 26/07/2024 Sheet 1/1

CERTIFICATO N°: Certificate No: FBR-LT039/24

LEAK TEST REPORT

Client	TECHNICAL SRL
Job	23/3962
Object	N°1 SAFETY VALVE 1" 300 x 2"150, RF, CODE: *320-E20-5L* Serial Number: 291502
Reference standard	IL 84 REV.0
Acceptance criteria	IL 84 REV.0

Equipment description

Helium mass spectrometer		Sniffer	
Brand:	OERLIKON	Brand:	OERLIKON
Type:	PHOENIX L300i	Type:	252003 SL300
Sensitivity - Sniffer mode:	1E-08		

Capillary type leak standard

Brand:	LEYBOLD		
Type:	ST-L 6 S.N.90001343471		
Leak. Rate - Sniffer Mode:		6,80E-06	mbar * l/s

Helium mass spectrometer calibration

External leak std - Helium leakage rate - Measured value:	6,8E-06	mbar * l/s

Test conditions

Absolute pressure	1	Bar
Helium concentration	99,99	%
Temperature	20	°C
Soak time	15	minutes
System background noise before the test	2,2	ppm

Acceptance criteria

Body Nozzle	≤48,75 ppm

Test results

Component	Value		Result
S.N. 291502 BODY / NOZZLE GASKET	2,5	ppm	SATISFACTORY
S.N. 291502 BONNET / CAP GASKET	2,5	ppm	SATISFACTORY
S.N. 291502 BODY / BONNET GASKET	2,5	ppm	SATISFACTORY
S.N. 291502 BLOWDOWN SCREW GASKET	2,7	ppm	SATISFACTORY

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DATA: Date: 26/07/2024 Sheet 1/1

CERTIFICATO N°: Certificate No: FBR-LT040/24

LEAK TEST REPORT

Client	TECHNICAL SRL
Job	23/3962
Object	N°1 SAFETY VALVE 1" 300 x 2"150, RF, CODE: *320-E20-5L* Serial Number: 291501
Reference standard	IL 84 REV.0
Acceptance criteria	IL 84 REV.0

Equipment description

Helium mass spectrometer		Sniffer	
Brand:	OERLIKON	Brand:	OERLIKON
Type:	PHOENIX L300i	Type:	252003 SL300
Sensitivity - Sniffer mode:	1E-08		

Capillary type leak standard

Brand:	LEYBOLD		
Type:	ST-L 6 S.N.90001343471		
Leak. Rate - Sniffer Mode:		6,80E-06	mbar * l/s

Helium mass spectrometer calibration

External leak std - Helium leakage rate - Measured value:	6,8E-06	mbar * l/s

Test conditions

Absolute pressure	1	Bar
Helium concentration	99,99	%
Temperature	20	°C
Soak time	15	minutes
System background noise before the test	2,2	ppm

Acceptance criteria

Body Nozzle	≤48,75 ppm

Test results

Component		Value		Result
S.N. 291501	BODY / NOZZLE GASKET	2,4	ppm	SATISFACTORY
S.N. 291501	BONNET / CAP GASKET	2,4	ppm	SATISFACTORY
S.N. 291501	BODY / BONNET GASKET	2,5	ppm	SATISFACTORY
S.N. 291501	BLOWDOWN SCREW GASKET	2,4	ppm	SATISFACTORY

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DATA: Date: 26/07/2024 Sheet 1/1

CERTIFICATO N°: Certificate No: FBR-LT041/24

LEAK TEST REPORT

Client	TECHNICAL SRL
Job	23/3962
Object	N°1 SAFETY VALVE 1" 300 x 2"150, RF, CODE: *320-E20-5L* Serial Number: 291500
Reference standard	IL 84 REV.0
Acceptance criteria	IL 84 REV.0

Equipment description

Helium mass spectrometer		Sniffer	
Brand:	OERLIKON	Brand:	OERLIKON
Type:	PHOENIX L300i	Type:	252003 SL300
Sensitivity - Sniffer mode:	1E-08		

Capillary type leak standard

Brand:	LEYBOLD		
Type:	ST-L 6 S.N.90001343471		
Leak. Rate - Sniffer Mode:		6,80E-06	mbar * l/s

Helium mass spectrometer calibration

External leak std - Helium leakage rate - Measured value:	6,8E-06	mbar * l/s

Test conditions

Absolute pressure	1	Bar
Helium concentration	99,99	%
Temperature	20	°C
Soak time	15	minutes
System background noise before the test	2,2	ppm

Acceptance criteria

Body Nozzle	≤48,75 ppm

Test results

Component		Value		Result
S.N. 291500	BODY / NOZZLE GASKET	2,5	ppm	SATISFACTORY
S.N. 291500	BONNET / CAP GASKET	2,7	ppm	SATISFACTORY
S.N. 291500	BODY / BONNET GASKET	2,5	ppm	SATISFACTORY
S.N. 291500	BLOWDOWN SCREW GASKET	2,4	ppm	SATISFACTORY

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Abnahme-Prüfzeugnis
Inspection Certificate

DIN EN 10204 - 3.1

Dok. Nr.:F-LD3.3-25E

Prüfleck: **Calibration Leak:**		Typ: Type:	**Capillary Leak**
Art des Lecks: Type of Leak:	**S-TL6**	Artikelnummer: Part Number:	**12239V01**
Art des Prüfgases: Type of Tracer Gas:	**Helium**	Seriennummer: Serial Number:	**90001343471**

Verfahren: Method:	G		DIN EN ISO 20486	
Gemessene Leckagerate: Measured Leakage Rate:	**6,81E-6**	**mbar l/s**	**6,81E-7**	**Pa m³/s**
Messunsicherheit: Uncertainty of Measurement:	**+/- 20**	**%**		
Berechneter Massenstrom: Calculated Mass Flow:	**0,03**	**g/a**	**1,23E-3**	**oz/y**

Eingangsdruck: Fülldruck:	~ **7,5**	**bar**	Ausgangsdruck (abs.): Outlet Pressure:	**1000** **mbar**
Temperaturkoeffizient: Temperature Coefficient:	**+ 0.3**	**%/K**		
Nennleckrate bei: Nominal Value at:	**22,4**	**°C**	Leckageratenabnahme: Leak Rate Decrease:	**eigenkompensiert self-compensated**
Datum: Date:	**2024-06-03**		Nächste Prüfung empfohlen: Next Inspection recommended:	**2025-07-03**

Die INFICON GmbH Köln als Hersteller des o.g. Produktsbestätigt hiermit, dass die von uns in diesem Abnahme-Prüfzeugnis ermittelten Leckageraten mit Prüfeinrichtungen ermittelt wurde, die ihrerseits regelmässig (im Zuge unserer Prüfmittelüberwachung nach DIN ISO9001) mit PTB*-kalibrierten Standardlecks überprüft werden. Damit ist die von der ISO9001 geforderte Rückführbarkeit der bei uns gemessenen Leckageraten auf nationale Standards sichergestellt

INFICON GmbH (Cologne) as the manufacturer of the above mentioned product hereby certifies that the leakage rates given in our quality inspection certificate has been established by equipment which is regularly checked (in the course of our control of measurement equipment according to ISO9001) with PTB*-calibrated standard leaks. In this way our measurements of leakage rates are traceable to national standards as required by ISO9001.

*PTB = Physikalisch-Technische Bundesanstalt Berlin

Prüfbeauftragter
Inspector:

INFICON GmbH
Prüfbeauftragter/Inspector
D. Ceilay 27

Qualitätsmanager:
Quality Manager:

Ivan Bokanovic

Amtsgericht Köln, HRB-Nr. 26670, Finanzamt Köln-Süd, Steuer-Nr. 219/5824/3207, UST-Ident-Nr. DE 174555805
Geschäftsführer: Axel Guddas, Torsten Beyer, Thomas Sogalla
Aufsichtsratsvorsitzender: Henk Brouwer

L. FONTANA
ON BEHALF OF ROSETTI MARINO S.p.A
☒ REVIEW ☐ WITNESS
26/07/2024

LT001

26-07-2024
FRANCO CORBELLINI
ON BEHALF OF
☐ W ☑ R ☐ M

CROSSWIND

Leybold

tecUnical s.r.l.
Ing. Raffaele Bianchi

Leybold Italia S.r.l.

QUALITY INSPECTION CERTIFICATE

Secondo DIN 55350-18-4.2.1

Cliente:	FBR comtrol
N° d'ordine:	LAB-AM-0235
Oggetto: Strumento di misura	XL300i
N° di catalogo:	250 000 V01
N° di serie:	90001195101

La Leybold Vacuum garantisce che lo strumento di misura in oggetto è conforme alle specifiche internazionali pubblicate dalla Leybold Vacuum

Lo strumento è stato controllato secondo le norme vigenti e la sua precisione è riconducibile a norme nazionali o internazionali oppure a estratti di tecniche di calibrazione.

Strumento di controllo: Fuga campione TL 8 ***N° di serie:*** 116557 90001372509

Valore della fuga campione: 3,87 x E-8 mbar.l/s ***N° certificato:*** 12401

Ente di calibrazione: DKD ***Data di emissione:*** 20-apr-23

Responsbile del servizio — 15-nov-23 (Data) — Verificatore

L. FONTANA
ON BEHALF OF Roletti Marino S.p.A
☒ REVIEW ☐ WITNESS
26/07/2024

COSTRUCTION DECLARATION

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001

DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 23/3962-1-184 — PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial:	291496	Anno/Year:	2024
Cod. o Mod:	320-K10-5L	Classe:	5L
Ingresso/Inlet:	3" 150RF	Press. eser./Operating press.:	6,5 barg
Uscita/Outlet:	4" 150RF	Temp. d'eser./Operating temp.:	25 °C
Orifizio/Orifice:	40,6 mm	Area:	12,94 cm²
Taratura/Set Press.:	10 barg	Contropres./Back pressure:	
Quantità/Quantity:	1	Imp.Variabile/Imp.Variable:	
Sigla/Tag:	80-PSV-001	Generata/Generated:	0,17 barg

materiale/material

Corpo/Body: A 351 CF8M
Boccaglio/Nozzle: A 351 CF3M
Otturature/Disc: AISI 316L
Molla/Spring: AISI 316

access.

vern./paint.
CLIENT CYCLE

note

Sovrappressione 10% - Scarto chiusura 7%	Overpressure 10% - Blowdown 7%
Alzata mm. 13 - Fluido H2	Lift mm. 13 - Fluid H2
Regolazione molla ±5% della taratura.	Spring regulation ±5% of set pressure.

COLLAUDO BANCO DI PROVA a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 30 bar

TEST ON BENCH ambient temperature

Pressione taratura
Set pressure: 10 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-003-08

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check (IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n° / Order n°	Cliente / Customer	Ispettore / Inspector	Ispettore / Inspector
1724000518 123A90A	ROSETTI MARINO Spa	L. FONTANA ON BEHALF OF ROSETTI MARINO S.p.A ☐ REVIEW ☒ WITNESS 2024 AGO 08	

Mod. Prg. 005 - 01/19

DICHIARAZIONE DI CONFORMITÀ EU *CONFORMITY DECLARATION*

Il fabbricante *The supplier* technical srl dichiara sotto la sua responsabilità che l'accessorio di sicurezza descritto sopra *declares under the sole responsibility that the mentioned safety device*

è conforme alle disposizioni legislative che traspongono *suits the provisions of the law that transposes the* **Directive 2014/68/EU**

MARCATURA - *MARK* CE 0496 Modulo - *Module* H1

CERTIFICATO GARANZIA QUALITÀ TOTALE - FULL QUALITY ASSURANCE CERTIFICATE CE PED. N. 124433-2012-CE-ITA-ACCREDIA

ENTE NOTIFICATO DI SORVEGLIANZA - *NOTIFIED BODY* DNV Business Assurance Italy S.r.l.

NORMATIVE ARMONIZZATE APPLICATE - APPLIED HARMONIZED STANDARDS: EN ISO 4126-1; EN ISO 4126-7

VIGNATE (MI) - ITALY

DATA - *DATE* 2024-ago-08

technical srl

Authorised Representative
Enrica Brenna

technical srl - Sede Legale, Stab. ed Uffici: Via Toscana, 9 -20052 Vignate (Mi) Italy
Telefono ++39-0295361240 - Telefax ++39-029560273
E-mail: sales@technical.it - Web site: www.technical.it

Robbi X CROSSWIND 8/8/24 W

DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 23/3962-1-185 | PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial:	291497	Anno/Year:	2024
Cod. o Mod:	320-K10-5L	Classe:	5L
Ingresso/Inlet:	3" 150RF	Press. eser./Operating press.:	6,5 barg
Uscita/Outlet:	4" 150RF	Temp. d'eser./Operating temp.:	25 °C
Orifizio/Orifice:	40,6 mm	Area:	12,94 cm²
Taratura/Set Press.:	10 barg	Contropres./Back pressure:	
Quantità/Quantity:	1	Imp.Variabile/Imp.Variable:	
Sigla/Tag:	80-PSV-001_S	Generata/Generated:	0,17 barg

materiale/material

Corpo/Body: A 351 CF8M
Boccaglio/Nozzle: A 351 CF3M
Otturature/Disc: AISI 316L
Molla/Spring: AISI 316

access.

vern./paint.
CLIENT CYCLE

note

Sovrappressione 10% - Scarto chiusura 7%	Overpressure 10% - Blowdown 7%
Alzata mm. 13 - Fluido H2	Lift mm. 13 - Fluid H2
Regolazione molla ±5% della taratura.	Spring regulation ±5% of set pressure.

COLLAUDO BANCO DI PROVA a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 30 bar

TEST ON BENCH ambient temperature

Pressione taratura
Set pressure: 10 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-003-08

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check (IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n° / Order n°	Cliente / Customer	Ispettore / Inspector	Ispettore / Inspector
1724000518 123A90A	ROSETTI MARINO Spa	L. FONTANA ON BEHALF OF RosettiMarino S.p.A ☐ REVIEW ☒ WITNESS 2024 AGO 08	

Mod. Prg. 005 - 01/18

DICHIARAZIONE DI CONFORMITÀ EU *CONFORMITY DECLARATION*

Il fabbricante *The supplier* tecHnical srl dichiara sotto la sua responsabilità che l'accessorio di sicurezza descritto sopra *declares under the sole responsibility that the mentioned safety device*

è conforme alle disposizioni legislative che traspongono *suits the provisions of the law that transposes the* **Directive 2014/68/EU**

MARCATURA - *MARK* CE 0496 Modulo - *Module* H1

CERTIFICATO GARANZIA QUALITÀ TOTALE - FULL QUALITY ASSURANCE CERTIFICATE CE PED. N. 124433-2012-CE-ITA-ACCREDIA

ENTE NOTIFICATO DI SORVEGLIANZA - *NOTIFIED BODY* DNV Business Assurance Italy S.r.l.

NORMATIVE ARMONIZZATE APPLICATE - APPLIED HARMONIZED STANDARDS: EN ISO 4126-1; EN ISO 4126-7

VIGNATE (MI) - ITALY

DATA - *DATE*

2024-ago-08

tecHnical Srl

Authorised Representative
Enrica Brenna

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Robin x CROSSWING
8/8/24

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001

DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 23/3962-2-186 — PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial:	291498	Anno/Year:	2024
Cod. o Mod:	320-E20-5L	Classe:	5L
Ingresso/Inlet:	1" 300RF	Press. eser./Operating press.:	30 barg
Uscita/Outlet:	2" 150RF	Temp. d'eser./Operating temp.:	25 °C
Orifizio/Orifice:	13,3 mm	Area:	1,39 cm²
Taratura/Set Press.:	40 barg	Contropres./Back pressure:	
Quantità/Quantity:	1	Imp.Variabile/Imp.Variable:	
Sigla/Tag:	25-PSV-001A	Generata/Generated:	1 barg

materiale/material

Corpo/Body:	A 351 CF8M
Boccaglio/Nozzle:	AISI 316L
Otturature/Disc:	AISI 316L
Molla/Spring:	AISI 316

access.

vern./paint.
CLIENT CYCLE

note

Sovrappressione 10% - Scarto chiusura 7%	Overpressure 10% - Blowdown 7%
Alzata mm. 3,1 - Fluido H2	Lift mm. 3,1 - Fluid H2
Regolazione molla ±5% della taratura.	Spring regulation ±5% of set pressure.

COLLAUDO BANCO DI PROVA a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 80 bar

TEST ON BENCH ambient temperature

Pressione taratura
Set pressure: 40 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-008-07

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check (IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n° / Order n°	Cliente / Customer	Ispettore / Inspector	Ispettore / Inspector
1724000518 123A90A	ROSETTI MARINO Spa	L. FONTANA ON BEHALF OF ROSETTI MARINO S.p.A ☐ REVIEW ☒ WITNESS	2024 AGO 0 8

Mod. Prg. 005 - 01/18

DICHIARAZIONE DI CONFORMITÀ EU *CONFORMITY DECLARATION*

Il fabbricante *The supplier* tecHnical srl dichiara sotto la sua responsabilità che l'accessorio di sicurezza descritto sopra *declares under the sole responsibility that the mentioned safety device*

è conforme alle disposizioni legislative che traspongono *suits the provisions of the law that transposes the* **Directive 2014/68/EU**

MARCATURA - *MARK* CE 0496 Modulo - *Module* H1

CERTIFICATO GARANZIA QUALITÀ TOTALE - FULL QUALITY ASSURANCE CERTIFICATE CE PED. N. 124433-2012-CE-ITA-ACCREDIA

ENTE NOTIFICATO DI SORVEGLIANZA - *NOTIFIED BODY* DNV Business Assurance Italy S.r.l.

NORMATIVE ARMONIZZATE APPLICATE - APPLIED HARMONIZED STANDARDS: EN ISO 4126-1; EN ISO 4126-7

VIGNATE (MI) - ITALY

DATA - *DATE*

2024-ago-08

tecHnical srl

Authorised Representative
Enrica Brenna

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COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001

DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 23/3962-2-187 | PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial:	291499	Anno/Year:	2024
Cod. o Mod:	320-E20-5L	Classe:	5L
Ingresso/Inlet:	1" 300RF	Press. eser./Operating press.:	30 barg
Uscita/Outlet:	2" 150RF	Temp. d'eser./Operating temp.:	25 °C
Orifizio/Orifice:	13,3 mm	Area:	1,39 cm²
Taratura/Set Press.:	40 barg	Contropres./Back pressure:	
Quantità/Quantity:	1	Imp.Variabile/Imp.Variable:	
Sigla/Tag:	25-PSV-00X_S	Generata/Generated:	1 barg

materiale/material

Corpo/Body: A 351 CF8M
Boccaglio/Nozzle: AISI 316L
Otturature/Disc: AISI 316L
Molla/Spring: AISI 316

access.

vern./paint.
CLIENT CYCLE

note

Sovrappressione 10% - Scarto chiusura 7%	Overpressure 10% - Blowdown 7%
Alzata mm. 3,1 - Fluido H2	Lift mm. 3,1 - Fluid H2
Regolazione molla ±5% della taratura.	Spring regulation ±5% of set pressure.

COLLAUDO BANCO DI PROVA a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 80 bar

TEST ON BENCH ambient temperature

Pressione taratura
Set pressure: 40 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-008-07

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check (IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n° / Order n°	Cliente / Customer	Ispettore / Inspector	Ispettore / Inspector
1724000518 123A90A	ROSETTI MARINO Spa		L. FONTANA ON BEHALF OF ROSETTI MARINO S.P.A ☐ REVIEW ☒ WITNESS

Mod. Prg 305 - 01/18

2024 AGO 08

DICHIARAZIONE DI CONFORMITÀ EU *CONFORMITY DECLARATION*

Il fabbricante *The supplier* tecHnical srl dichiara sotto la sua responsabilità che l'accessorio di sicurezza descritto sopra *declares under the sole responsibility that the mentioned safety device*

è conforme alle disposizioni legislative che traspongono *suits the provisions of the law that transposes the* **Directive 2014/68/EU**

MARCATURA - *MARK* CE 0496 Modulo - *Module* H1

CERTIFICATO GARANZIA QUALITÀ TOTALE - FULL QUALITY ASSURANCE CERTIFICATE CE PED. N. 124433-2012-CE-ITA-ACCREDIA

ENTE NOTIFICATO DI SORVEGLIANZA - *NOTIFIED BODY* DNV Business Assurance Italy S.r.l.

NORMATIVE ARMONIZZATE APPLICATE - APPLIED HARMONIZED STANDARDS: EN ISO 4126-1; EN ISO 4126-7

VIGNATE (MI) - ITALY

DATA - *DATE*

2024-ago-08

tecHnical Srl

Authorised Representative
Enrica Brenna

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Telefono ++39-0295361240 - Telefax ++39-029560273
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8/8/24 W

tecHnical Srl

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001

DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 23/3962-3-188 | PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial:	291500	Anno/Year:	2024
Cod. o Mod:	320-E20-5L	Classe:	5L
Ingresso/Inlet:	1" 300RF	Press. eser./Operating press.:	30 barg
Uscita/Outlet:	2" 150RF	Temp. d'eser./Operating temp.:	25 °C
Orifizio/Orifice:	13,3 mm	Area:	1,39 cm²
Taratura/Set Press.:	40 barg	Contropres./Back pressure:	
Quantità/Quantity:	1	Imp.Variabile/Imp.Variable:	
Sigla/Tag:	25-PSV-001B	Generata/Generated:	1 barg

materiale/material		access.	vern./paint.
Corpo/Body:	A 351 CF8M		CLIENT CYCLE
Boccaglio/Nozzle:	AISI 316L		note
Otturature/Disc:	AISI 316L		
Molla/Spring:	AISI 316		

Sovrappressione 10% - Scarto chiusura 7%	Overpressure 10% - Blowdown 7%
Alzata mm. 3,1 - Fluido H2	Lift mm. 3,1 - Fluid H2
Regolazione molla ±5% della taratura.	Spring regulation ±5% of set pressure.

COLLAUDO BANCO DI PROVA a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 80 bar

TEST ON BENCH ambient temperature

Pressione taratura
Set pressure: 40 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-008-07

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check (IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n°	Cliente	Ispettore	Ispettore
1724000518 123A90A	ROSETTI MARINO Spa	L. FONTANA ON BEHALF OF ROSETTI MARINO S.p.A ☐ REVIEW ☒ WITNESS	
Order n°	Customer	Inspector	Inspector

2024 AGO 08

Mod. Prg. 005 - 01/18

DICHIARAZIONE DI CONFORMITÀ EU *CONFORMITY DECLARATION*

Il fabbricante *The supplier* tecHnical srl dichiara sotto la sua responsabilità che l'accessorio di sicurezza descritto sopra *declares under the sole responsibility that the mentioned safety device*

è conforme alle disposizioni legislative che traspongono *suits the provisions of the law that transposes the* **Directive 2014/68/EU**

MARCATURA - *MARK* CE 0496 Modulo - *Module* H1

CERTIFICATO GARANZIA QUALITÀ TOTALE - FULL QUALITY ASSURANCE CERTIFICATE CE PED. N. 124433-2012-CE-ITA-ACCREDIA

ENTE NOTIFICATO DI SORVEGLIANZA - *NOTIFIED BODY* DNV Business Assurance Italy S.r.l.

NORMATIVE ARMONIZZATE APPLICATE - APPLIED HARMONIZED STANDARDS: EN ISO 4126-1; EN ISO 4126-7

VIGNATE (MI) - ITALY

DATA - *DATE*

2024-ago-08

tecHnical Srl

Authorised Representative
Enrica Brenna

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Robin x CROSSWIND 8/8/24

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001

DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 23/3962-4-189 — PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial:	291501	Anno/Year:	2024
Cod. o Mod:	320-E20-5L	Classe:	5L
Ingresso/Inlet:	1" 300RF	Press. eser./Operating press.:	30 barg
Uscita/Outlet:	2" 150RF	Temp. d'eser./Operating temp.:	25 °C
Orifizio/Orifice:	13,3 mm	Area:	1,39 cm²
Taratura/Set Press.:	40 barg	Contropres./Back pressure:	
Quantità/Quantity:	1	Imp.Variabile/Imp.Variable:	
Sigla/Tag:	25-PSV-001C	Generata/Generated:	1 barg

materiale/material

Corpo/Body: A 351 CF8M
Boccaglio/Nozzle: AISI 316L
Otturature/Disc: AISI 316L
Molla/Spring: AISI 316

access.

vern./paint.
CLIENT CYCLE

note

Sovrappressione 10% - Scarto chiusura 7%	Overpressure 10% - Blowdown 7%
Alzata mm. 3,1 - Fluido H2	Lift mm. 3,1 - Fluid H2
Regolazione molla ±5% della taratura.	Spring regulation ±5% of set pressure.

COLLAUDO BANCO DI PROVA a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 80 bar

TEST ON BENCH ambient temperature

Pressione taratura
Set pressure: 40 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-008-07

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check (IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n°	Cliente	Ispettore	Ispettore
1724000518 123A90A	ROSETTI MARINO Spa	L. FONTANA ON BEHALF OF ROSETTI MARINO S.p.A ☐ REVIEW ☒ WITNESS	
Order n°	Customer	Inspector	Inspector

2024 AGO 08

Mod. Prg 005 - 01/18

DICHIARAZIONE DI CONFORMITÀ EU *CONFORMITY DECLARATION*

Il fabbricante *The supplier* tecHnical srl dichiara sotto la sua responsabilità che l'accessorio di sicurezza descritto sopra *declares under the sole responsibility that the mentioned safety device*

è conforme alle disposizioni legislative che traspongono *suits the provisions of the law that transposes the* **Directive 2014/68/EU**

MARCATURA - *MARK* CE 0496 Modulo - *Module* H1

CERTIFICATO GARANZIA QUALITÀ TOTALE - FULL QUALITY ASSURANCE CERTIFICATE CE PED. N. 124433-2012-CE-ITA-ACCREDIA

ENTE NOTIFICATO DI SORVEGLIANZA - *NOTIFIED BODY* DNV Business Assurance Italy S.r.l.

NORMATIVE ARMONIZZATE APPLICATE - APPLIED HARMONIZED STANDARDS: EN ISO 4126-1; EN ISO 4126-7

VIGNATE (MI) - ITALY

DATA - *DATE* 2024-ago-08

tecHnical srl

Authorised Representative
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Fatti x CROSSWIND 8/8/24

DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 23/3962-5-190 | PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial:	291502	Anno/Year:	2024
Cod. o Mod:	320-E20-5L	Classe:	5L
Ingresso/Inlet:	1" 300RF	Press. eser./Operating press.:	30 barg
Uscita/Outlet:	2" 150RF	Temp. d'eser./Operating temp.:	25 °C
Orifizio/Orifice:	13,3 mm	Area:	1,39 cm²
Taratura/Set Press.:	40 barg	Contropres./Back pressure:	
Quantità/Quantity:	1	Imp.Variabile/Imp.Variable:	
Sigla/Tag:	25-PSV-001D	Generata/Generated:	1 barg

materiale/material		access.	vern./paint.
Corpo/Body:	A 351 CF8M		CLIENT CYCLE
Boccaglio/Nozzle:	AISI 316L		note
Otturature/Disc:	AISI 316L		
Molla/Spring:	AISI 316		

Sovrappressione 10% - Scarto chiusura 7%	Overpressure 10% - Blowdown 7%
Alzata mm. 3,1 - Fluido H2	Lift mm. 3,1 - Fluid H2
Regolazione molla ±5% della taratura.	Spring regulation ±5% of set pressure.

COLLAUDO BANCO DI PROVA
a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 80 bar

TEST ON BENCH
ambient temperature

Pressione taratura
Set pressure: 40 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-008-07

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check (IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n°	Cliente	Ispettore	Ispettore
1724000518 123A90A	ROSETTI MARINO Spa	L. FONTANA ON BEHALF OF Rosetti Marino S.p.A ☐ REVIEW ☒ WITNESS	
Order n°	Customer	Inspector	Inspector

2024 AGO 08

Mod. Prg 005 - 01/18

DICHIARAZIONE DI CONFORMITÀ EU *CONFORMITY DECLARATION*

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MARCATURA - *MARK* CE 0496 Modulo - *Module* H1

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NORMATIVE ARMONIZZATE APPLICATE - APPLIED HARMONIZED STANDARDS: EN ISO 4126-1; EN ISO 4126-7

VIGNATE (MI) - ITALY

DATA - *DATE*

2024-ago-08

tecHnical srl

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COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001

DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 23/3962-6-191 — PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial:	291503	Anno/Year:	2024
Cod. o Mod:	320-E20-5L	Classe:	5L
Ingresso/Inlet:	1" 300RF	Press. eser./Operating press.:	30 barg
Uscita/Outlet:	2" 150RF	Temp. d'eser./Operating temp.:	25 °C
Orifizio/Orifice:	13,3 mm	Area:	1,39 cm²
Taratura/Set Press.:	40 barg	Contropres./Back pressure:	
Quantità/Quantity:	1	Imp.Variabile/Imp.Variable:	
Sigla/Tag:	25-PSV-001E	Generata/Generated:	1 barg

materiale/material

Corpo/Body: A 351 CF8M
Boccaglio/Nozzle: AISI 316L
Otturature/Disc: AISI 316L
Molla/Spring: AISI 316

access.

vern./paint.
CLIENT CYCLE

note

Sovrappressione 10% - Scarto chiusura 7%	Overpressure 10% - Blowdown 7%
Alzata mm. 3,1 - Fluido H2	Lift mm. 3,1 - Fluid H2
Regolazione molla ±5% della taratura.	Spring regulation ±5% of set pressure.

COLLAUDO BANCO DI PROVA a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 80 bar

TEST ON BENCH ambient temperature

Pressione taratura
Set pressure: 40 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-008-07

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check (IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n°	Cliente	Ispettore	Ispettore
1724000518 123A90A	ROSETTI MARINO Spa		L. FONTANA ON BEHALF OF ROSETTI MARINO S.p.A ☐ REVIEW ☒ WITNESS
Order n°	Customer	Inspector	Inspector

2024 AGO 08

Mod. Prg. 005 - 01/18

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MARCATURA - *MARK* CE 0496 Modulo - *Module* H1

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DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 23/3962-7-192 | PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial:	291504	Anno/Year:	2024
Cod. o Mod:	320-E20-5L	Classe:	5L
Ingresso/Inlet:	1" 300RF	Press. eser./Operating press.:	30 barg
Uscita/Outlet:	2" 150RF	Temp. d'eser./Operating temp.:	25 °C
Orifizio/Orifice:	13,3 mm	Area:	1,39 cm²
Taratura/Set Press.:	40 barg	Contropres./Back pressure:	
Quantità/Quantity:	1	Imp.Variabile/Imp.Variable:	
Sigla/Tag:	25-PSV-001F	Generata/Generated:	1 barg

materiale/material

Corpo/Body: A 351 CF8M
Boccaglio/Nozzle: AISI 316L
Otturature/Disc: AISI 316L
Molla/Spring: AISI 316

access.

vern./paint.
CLIENT CYCLE

note

Sovrappressione 10% - Scarto chiusura 7%	Overpressure 10% - Blowdown 7%
Alzata mm. 3,1 - Fluido H2	Lift mm. 3,1 - Fluid H2
Regolazione molla ±5% della taratura.	Spring regulation ±5% of set pressure.

COLLAUDO BANCO DI PROVA a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 80 bar

TEST ON BENCH ambient temperature

Pressione taratura
Set pressure: 40 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-008-07

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check (IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n°	Cliente	Ispettore
1724000518 123A90A	ROSETTI MARINO Spa	L. FONTANA ON BEHALF OF Rosetti Marino S.p.A ☐ REVIEW ☒ WITNESS
Order n°	Customer	Inspector

Ispettore / Inspector

2024 AGO 08

Mod. Prg 005 - 01.18

DICHIARAZIONE DI CONFORMITÀ EU *CONFORMITY DECLARATION*

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MARCATURA - *MARK* CE 0496 Modulo - *Module* H1

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VIGNATE (MI) - ITALY

DATA - *DATE*

2024-ago-08

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DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 23/3962-8-193 | PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial:	291505	Anno/Year:	2024
Cod. o Mod:	320-D10-L2	Classe:	L2
Ingresso/Inlet:	1" 150RF	Press. eser./Operating press.:	7 barg
Uscita/Outlet:	2" 150RF	Temp. d'eser./Operating temp.:	25 °C
Orifizio/Orifice:	10 mm	Area:	0,785 cm²
Taratura/Set Press.:	10 barg	Contropres./Back pressure:	
Quantità/Quantity:	1	Imp.Variabile/Imp.Variable:	
Sigla/Tag:	64-PSV-001	Generata/Generated:	0,1 barg

materiale/material

Corpo/Body: A 352 LCB
Boccaglio/Nozzle: A 479 316L
Otturature/Disc: AISI 316L
Molla/Spring: AISI 316

access.

vern./paint.
CLIENT CYCLE

note

Sovrappressione 10% - Scarto chiusura 7%	Overpressure 10% - Blowdown 7%
Alzata mm. 2,5 - Fluido NITROGEN	Lift mm. 2,5 - Fluid NITROGEN
Regolazione molla ±5% della taratura.	Spring regulation ±5% of set pressure.

COLLAUDO BANCO DI PROVA a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 30 bar

TEST ON BENCH ambient temperature

Pressione taratura
Set pressure: 10 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-003-08

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check (IL 42 Procedure): POSITIVO/SATISFACTORY

Mod. Prg. 005 - 01/18

Ordine n°	Cliente	Ispettore
1724000518 123A90A	ROSETTI MARINO Spa	L. FONTANA ON BEHALF OF ROSETTI MARINO S.p.A ☐ REVIEW ☒ WITNESS
Order n°	Customer	Inspector

Ispettore
Inspector

2024 AGO 08

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MARCATURA - *MARK* CE 0496 Modulo - *Module* H1

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VIGNATE (MI) - ITALY

DATA - *DATE*

2024-ago-08

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COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001

DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 23/3962-8-194 — PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial:	291506	Anno/Year:	2024
Cod. o Mod:	320-D10-L2	Classe:	L2
Ingresso/Inlet:	1" 150RF	Press. eser./Operating press.:	7 barg
Uscita/Outlet:	2" 150RF	Temp. d'eser./Operating temp.:	25 °C
Orifizio/Orifice:	10 mm	Area:	0,785 cm²
Taratura/Set Press.:	10 barg	Contropres./Back pressure:	
Quantità/Quantity:	1	Imp.Variabile/Imp.Variable:	
Sigla/Tag:	64-PSV-001_S	Generata/Generated:	0,1 barg

materiale/material	
Corpo/Body:	A 352 LCB
Boccaglio/Nozzle:	A 479 316L
Otturature/Disc:	AISI 316L
Molla/Spring:	AISI 316

access.

vern./paint.
CLIENT CYCLE

note

Sovrappressione 10% - Scarto chiusura 7%	Overpressure 10% - Blowdown 7%
Alzata mm. 2,5 - Fluido NITROGEN	Lift mm. 2,5 - Fluid NITROGEN
Regolazione molla ±5% della taratura.	Spring regulation ±5% of set pressure.

COLLAUDO BANCO DI PROVA a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 30 bar

TEST ON BENCH ambient temperature

Pressione taratura
Set pressure: 10 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-003-08

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check (IL 42 Procedure): POSITIVO/SATISFACTORY

Mod. Prg 005 - 01/16

Ordine n° / Order n°	Cliente / Customer	Ispettore / Inspector	Ispettore / Inspector
1724000518 123A90A	ROSETTI MARINO Spa	L. FONTANA ON BEHALF OF ROSETTI MARINO S.P.A ☐ REVIEW ☒ WITNESS	2024 AGO 08

DICHIARAZIONE DI CONFORMITÀ EU *CONFORMITY DECLARATION*

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MARCATURA - *MARK* CE 0496 Modulo - *Module* H1

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VIGNATE (MI) - ITALY

DATA - *DATE*

2024-ago-08

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COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001

DICHIARAZIONE DI COSTRUZIONE PER VALVOLE DI SICUREZZA SERIE 30.000N

CONSTRUCTION DECLARATION FOR SAFETY VALVES SERIAL 30.000N

n° 23/3962-24-61 — PROCEDURA/PROCEDURE N°IL 42

Matricola/Serial:	293112	Anno/Year:	2024
Cod. o Mod:	320-D10-F1	Classe:	F1
Ingresso/Inlet:	1" 150RF	Press. eser./Operating press.:	5 Barg
Uscita/Outlet:	2" 150RF	Temp. d'eser./Operating temp.:	25 °C
Orifizio/Orifice:	10 mm	Area:	0,785 cm²
Taratura/Set Press.:	6 barg	Contropres./Back pressure:	
Quantità/Quantity:	1	Imp.Variabile/Imp.Variable:	0,1 barg
Sigla/Tag:	50-PSV-011	Generata/Generated:	

materiale/material		access.	vern./paint.
Corpo/Body:	A995 5A		-
Boccaglio/Nozzle:	A479 S32750		note
Otturature/Disc:	A479 S32750		
Molla/Spring:	AISI 316		

Sovrappressione 10% - Scarto chiusura 15÷21%	Overpressure 10% - Blowdown 15÷21%
Alzata mm. 2,5 - Fluido SEA WATER	Lift mm. 2,5 - Fluid SEA WATER
Regolazione molla ±5% della taratura.	Spring regulation ±5% of set pressure.

COLLAUDO BANCO DI PROVA a temperatura ambiente

Hydrostatic Pressure
Corpo/Body 30 bar
Bocc./Nozzle 30 bar

TEST ON BENCH ambient temperature

Pressione taratura
Set pressure: 5,9 bar

Strumento utilizzato per la verifica
Pressure gauge: C23-003-08

Taratura,tenuta sede/Set pressure,seat tightness(API 527): POSITIVO/SATISFACTORY

Controllo dimensionale/Dimensional check (IL 42 Procedure): POSITIVO/SATISFACTORY

Ordine n° / Order n°	Cliente / Customer	Ispettore / Inspector	Ispettore / Inspector
1724000518 123A90A	ROSETTI MARINO Spa	x CROSSWIND 13/09/24 W/R	

Mod. Prg. 005 - 01/18

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MARCATURA - *MARK* CE 0496 Modulo - *Module* H1

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VIGNATE (MI) - ITALY

DATA - *DATE*

2024-set-12

technical srl

Authorised Representative
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ID CEE IT03358660961

RAPPORTO DI TARATURA / *CALIBRATION REPORT* N. 24010038

DATI RELATIVI ALLO STRUMENTO / *DETAILS OF THE INSTRUMENT*

Modello / *Model*	Manometro MP1 / *Press. gauge MP1*	Fondo scala / *Full scale*	60	bar
		Diametro / *Dial*	150	mm
Campo di misura / *Range*	0 / 60 bar	Divisione minima / *Minimum division*	0,2	bar
Classe di precisione / *Class of accuracy*	0,5	Matricola / *Serial number*	23D18199	
		Codice TECHNICAL / *TECHNICAL code*	C23-008-07	

CONDIZIONI AMBIENTALI DI TARATURA / *ENVIRONMENTAL CALIBRATION CONDITIONS*

Temp. ambiente / *Ambient temp.*	20 ± 2 °C	Press. atmosferica / *Atmospheric press.*	995 ± 5 mbar
Umidità relativa / *Relative humidity*	58 ± 5 %		

CONDIZIONI DI TARATURA DELLO STRUMENTO / *CALIBRATION CONDITIONS OF THE INSTRUMENT*

Fluido di taratura / *Fluid of calibration*: Aria / *Air* — Posizione / *Position*: Verticale / *Vertical*

Campione di riferimento / *Reference instrument:*

Calib. dig. mod. MENSOR CPC6050 mat. 41000PWM composto da:
Digital calibrator mod. MENSOR CPC6050 s.n. 41000PWM composed of:

- ☐ Sensore mod. CPR6050 mat. 41000LQ8 campo 0/300 mbar con cer.di tar. LAT 114 n. 0136-SP-22
  Sensor mod. CPR6050 s.n. 41000LQ8 range 0/300 mbar with calib.cer. LAT 114 n. 0136-SP-22
- ☐ Sensore mod. CPR6050 mat. 41000VXF campo 0/3,4 bar con cer.di tar. LAT 114 n. 0055-SP-22
  Sensor mod. CPR6050 s.n. 41000VXF range 0/3,4 bar with calib.cer. LAT 114 n. 0055-SP-22
- ☐ Sensore mod. CPR6050 mat. 41000WO7 campo 0/20 bar con cer.di tar. LAT 114 n. 0054-SP-22
  Sensor mod. CPR6050 s.n. 41000WO7 range 0/20 bar with calib.cer. LAT 114 n. 0054-SP-22
- ☒ Sensore mod. CPR6050 mat. 41000W3X campo 0/100 bar con cer.di tar. LAT 114 n. 0062-SP-22
  Sensor mod. CPR6050 s.n. 41000W3X range 0/100 bar with calib.cer. LAT 114 n. 0062-SP-22

L. FONTANA
ON BEHALF OF ROSETTI MARINO S.p.A.
☒ REVIEW ☒ WITNESS
2024 AGO 08

RISULTATI DELLA TARATURA / *CALIBRATION RESULT*

I risultati riportati sono stati ottenuti applicando la procedura P11 / *The reported results have been obtained applying P11 procedure*

Valori in [bar] / *Value in [bar]*

Pressione nominale / *Nominal pressure*	Valore indicato / *Reading value*	Errore indicazione / *Indication error*	Errore % / *Error %*
0	0,10	0,100	0,167
10	9,90	-0,100	-0,167
20	19,90	-0,100	-0,167
30	29,90	-0,100	-0,167
40	39,85	-0,150	-0,250
50	50,00	0,000	0,000
60	60,10	0,100	0,167
50	50,10	0,100	0,167
40	39,95	-0,050	-0,083
30	30,00	0,000	0,000
20	20,00	0,000	0,000
10	10,00	0,000	0,000

ERRORI % RIFERITI AL FONDO SCALA DI 60 bar
% ERROR REFERRED TO FULL SCALE OF 60 bar

Max Errore % f.s. / *Max Error % f.s.* = Emax = 0,250

Lo strumento è stato picchiettato ad ogni punto di misura
The pressure gauge has been pattered on every measure point

technical SRL
Quality Assurance
Elena Adornato

technical SRL
COPIA CONFORME ALL'ORIGINALE
COPY TRUE TO THE ORIGINAL

technical
Validity: 1 year
from calibration date
according to instruction IT03

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INCERTEZZA DEL PROCEDIMENTO DI TARATURA / *UNCERTAINTY OF CALIBRATION PROCEDURE*

It = Incertezza di misura del procedimento di taratura: — It = Ip + Is = 0,09 [% f.s.]
It = The measurement uncertainty of the calibration procedure

Ip = Incertezza di misura dello strumento campione: — Ip = 0,01 [% f.s.]
Ip = The measurement uncertainty of the test gauge:

Is = Incertezza di indicazione dello strumento in taratura (risoluzione) calcolata come 1/4 della divisione minima: — Is = 0,08 [% f.s.]
Is = Indication uncertainty of the gauge in calibration (resolution) corresponding to 1/4 of the minimum division:

VERIFIED BY technical 2024 GEN 22 QUALITY ASSURANCE

INCERTEZZA DELLO STRUMENTO IN TARATURA / *UNCERTAINTY OF THE GAUGE IN CALIBRATION*

Se si effettuano le opportune correzioni rispetto ad ogni punto di misura sulla base degli errori di indicazione sopra riportati, l'incertezza di misura "Im" dello strumento in taratura è pari a quella "It" del procedimento di taratura.
If the corrections, due to above errors found during calibration on each measure value , are done , the "Im" measure uncertainty of the gauge in calibration corresponds to the "It" of the calibration procedure

Nel caso non si effettuino correzioni ai valori misurati, l'incertezza Im di misura dello strumento in taratura, espressa come due volte lo scarto tipo, è pari a:
If no corrections to the measure values are done , the measurement uncertainty of the gauge in calibration, estimated at the level of twice the standard deviation, corresponds to:

Im = Incertezza di misura dello strumento in taratura
Im = uncertainty of the gauge in calibration

$$I_m = \sqrt{\left(It^2 + E_{max}^2\right)} = 0{,}27\ [\%\ \text{f.s.}]$$

Risultato / *Result:* **CONFORME alla Classe di Precisione dichiarata** / ***CONFORM to the the declared Accuracy***

Data / *Date* 16/01/2024

OMET di CERESA Srl

Firma / *Signed* (Lorenzo TARANTINI)

Mod. M411_k rev. 8

OMET di CERESA Srl
Via Sette Martiri, 26
20042 PESSANO CON BORNAGO (MILANO - ITALY)
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Fax ++39 02 95742772 e-mail info@ometitalia.it
Cod.Fisc. e P.IVA 03358660961 Pec certi@pec.ometitalia.it
Capitale Sociale € 10.000,00 R.E.A. 1669905
ID CEE IT03358660961

RAPPORTO DI TARATURA / *CALIBRATION REPORT* N. 24010038

DATI RELATIVI ALLO STRUMENTO / *DETAILS OF THE INSTRUMENT*

Modello / *Model*	Manometro MP1 / *Press. gauge MP1*	Fondo scala / *Full scale*	60	bar
		Diametro / *Dial*	150	mm
Campo di misura / *Range*	0 / 60 bar	Divisione minima / *Minimum division*	0,2	bar
Classe di precisione / *Class of accuracy*	0,6	Matricola / *Serial number*	23D18199	
		Codice TECHNICAL / *TECHNICAL code*	C23-008-07	

CONDIZIONI AMBIENTALI DI TARATURA / *ENVIRONMENTAL CALIBRATION CONDITIONS*

Temp. ambiente / *Ambient temp.*	20 ± 2 °C	Press. atmosferica / *Atmospheric press.*	995 ± 5 mbar
Umidità relativa / *Relative humidity*	58 ± 5 %		

CONDIZIONI DI TARATURA DELLO STRUMENTO / *CALIBRATION CONDITIONS OF THE INSTRUMENT*

Fluido di taratura / *Fluid of calibration* Aria / *Air* Posizione / *Position* Verticale / *Vertical*

Campione di riferimento / *Reference instrument:*

Calib. dig. mod. MENSOR CPC6050 mat. 41000PWM composto da:
Digital calibrator mod. MENSOR CPC6050 s.n. 41000PWM composed of:

- ☐ Sensore mod. CPR6050 mat. 41000LQ8 campo 0/300 mbar con cer.di tar. LAT 114 n. 0136-SP-22
  Sensor mod. CPR6050 s.n. 41000LQ8 range 0/300 mbar with calib.cer. LAT 114 n. 0136-SP-22
- ☐ Sensore mod. CPR6050 mat. 41000VXF campo 0/3,4 bar con cer.di tar. LAT 114 n. 0055-SP-22
  Sensor mod. CPR6050 s.n. 41000VXF range 0/3,4 bar with calib.cer. LAT 114 n. 0055-SP-22
- ☐ Sensore mod. CPR6050 mat. 41000WO7 campo 0/20 bar con cer.di tar. LAT 114 n. 0054-SP-22
  Sensor mod. CPR6050 s.n. 41000WO7 range 0/20 bar with calib.cer. LAT 114 n. 0054-SP-22
- ☒ Sensore mod. CPR6050 mat. 41000W3X campo 0/100 bar con cer.di tar. LAT 114 n. 0062-SP-22
  Sensor mod. CPR6050 s.n. 41000W3X range 0/100 bar with calib.cer. LAT 114 n. 0062-SP-22

L. FONTANA
ON BEHALF OF Rosetti Marino S.p.A.
☒ REVIEW ☐ WITNESS
2024 AGO 08

RISULTATI DELLA TARATURA / *CALIBRATION RESULT*

I risultati riportati sono stati ottenuti applicando la procedura P11 / *The reported results have been obtained applying P11 procedure*

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Valori in [bar] / *Value in [bar]*			
Pressione nominale / *Nominal pressure*	Valore indicato / *Reading value*	Errore indicazione / *Indication error*	Errore % / *Error %*
0	0,10	0,100	0,167
10	9,90	-0,100	-0,167
20	19,90	-0,100	-0,167
30	29,90	-0,100	-0,167
40	39,85	-0,150	-0,250
50	50,00	0,000	0,000
60	60,10	0,100	0,167
50	50,10	0,100	0,167
40	39,95	-0,050	-0,083
30	30,00	0,000	0,000
20	20,00	0,000	0,000
10	10,00	0,000	0,000

ERRORI % RIFERITI AL FONDO SCALA DI 60 bar
% ERROR REFERRED TO FULL SCALE OF 60 bar

Max Errore % f.s. / *Max Error % f.s.*	= Emax =	0,250

Lo strumento è stato picchiettato ad ogni punto di misura
The pressure gauge has been pattered on every measure point

technical SRL
Quality Assurance
Elena Adornato

technical
Validity: 1 year
from calibration date
according to instruction IT03

Rotta x CROSSWIND
8/8/24 R

INCERTEZZA DEL PROCEDIMENTO DI TARATURA / *UNCERTAINTY OF CALIBRATION PROCEDURE*

It = Incertezza di misura del procedimento di taratura: *It = The measurement uncertainty of the calibration procedure*	It = Ip + Is =	0,09 [% f.s.]
Ip = Incertezza di misura dello strumento campione: *Ip = The measurement uncertainty of the test gauge:*	Ip =	0,01 [% f.s.]
Is = Incertezza di indicazione dello strumento in taratura (risoluzione) calcolata come 1/4 della divisione minima: *Is = Indication uncertainty of the gauge in calibration (resolution) corresponding to 1/4 of the minimum division:*	Is =	0,08 [% f.s.]

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2024 GEN 22
QUALITY ASSURANCE

INCERTEZZA DELLO STRUMENTO IN TARATURA / *UNCERTAINTY OF THE GAUGE IN CALIBRATION*

Se si effettuano le opportune correzioni rispetto ad ogni punto di misura sulla base degli errori di indicazione sopra riportati, l'incertezza di misura "Im" dello strumento in taratura è pari a quella "It" del procedimento di taratura.
If the corrections, due to above errors found during calibration on each measure value , are done , the "Im" measure uncertainty of the gauge in calibration corresponds to the "It" of the calibration procedure

Nel caso non si effettuino correzioni ai valori misurati, l'incertezza Im di misura dello strumento in taratura, espressa come due volte lo scarto tipo, è pari a:
If no corrections to the measure values are done , the measurement uncertainty of the gauge in calibration, estimated at the level of twice the standard deviation, corresponds to:

Im = Incertezza di misura dello strumento in taratura
Im = uncertainty of the gauge in calibration

$$I_m = \sqrt{\left(It^2 + E_{max}^2\right)} = 0{,}27 \text{ [\% f.s.]}$$

Risultato: **CONFORME alla Classe di Precisione dichiarata**
Result: ***CONFORM to the the declared Accuracy***

Data / *Date* 16/01/2024

OMET di CERESA Srl

Firma / *Signed* (Lorenzo TARANTINI)

Mod. M411_k rev. 8

MICRO-TEC
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Centro di Taratura LAT N° 181
Calibration Centre
Laboratorio Accreditato di Taratura
Accreditated Calibration Laboratory

technical
Validity: 3 year
from calibration date according to Instruction IT02

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO
LAT N° 181
Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

CERTIFICATO DI TARATURA LAT 181 24-0004E020
Certificate of Calibration

- Data di emissione / *date of issue*: 2024-02-14
- Cliente / *customer*: **TECHNICAL s.r.l.** via Toscana, 9 20060 VIGNATE (MI)
- Destinatario / *receiver*: **TECHNICAL s.r.l.** via Toscana, 9 20060 VIGNATE (MI)

Il presente certificato di taratura è emesso in base all'accreditamento LAT N° 181 rilasciato in 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.

Si riferisce a
Referring to

- oggetto / *item*: Altimetro digitale
- costruttore / *manufacturer*: Tesa
- modello / *model*: 0076220
- matricola / *serial number*: 1R 021 V2.24 (C00-008-01)
- data di ricevimento oggetto / *date of receipt of item*: 2024-02-13
- data delle misure / *date of measurements*: 2024-02-13
- registro di laboratorio / *laboratory reference*: 2024

This certificate of calibration is issued in compliance with the accreditation LAT N° 181 granted according to decrees connected with Italian law No. 273/1991 which has established 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.

L. FONTANA
ON BEHALF OF ROSETTI MARINO S.p.A.
☒ REVIEW ☐ WITNESS
2024 AGO 08

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.

John X CROSSWIND
8/8/24 R

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2024 FEB 14
QUALITY ASSURANCE

Direzione Tecnica
(Approving Officer)
Ivo Gazziero

Firma digitale - *Digital signature*

MT-02.2 f1

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Elena Adornato

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Centro di Taratura LAT N° 181
Calibration Centre
Laboratorio Accreditato di Taratura
Accreditated Calibration Laboratory

technical
Validity: 3 year
from calibration date according to Instruction IT02

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CERTIFICATO DI TARATURA LAT 181 24-0004E020
Certificate of Calibration

Di seguito vengono riportate le seguenti informazioni:
In the following, information is reported about:

- la descrizione dell'oggetto in taratura (se necessaria);
description of the item to be calibrated (if necessary)

Altimetro digitale

- l'identificazione delle procedure in base alle quali sono state eseguite le tarature;
technical procedures used for calibration performed

PTA-02 rev.2

- I campioni che garantiscono la catena della riferibilità del Centro;
instruments or measurement standards which guarantee the traceability chain of the Centre

BPP011	Set Blocchetti piano paralleli
BPP012	Set Blocchetti piano paralleli
BPP040	Set Blocchetti piano paralleli
BPP029	Set Blocchetti piano paralleli
PDR001	Piano di riscontro
TRG007	Misuratore di temperatura

- Gli estremi dei certificati di taratura di tali campioni e l'Ente che li ha emessi; *relevant calibration certificates of those standards with the issuing Body*	Data di taratura; *Calibration date*
LAT181 23-3287P06B0	**2023-12-05**
LAT181 23-3284P06B0	**2023-12-05**
LAT181 23-3299P05B0	**2023-12-06**
LAT 107 230207MAH	**2023-12-12**
LAT172 PR0024/20	**2020-08-21**
LAT198 0639/23 0640/23	**2023-05-05**

- le condizioni ambientali e di taratura:
calibration and environmental conditions

- Luogo di taratura :
Calibration Place

TECHNICAL s.r.l.
via Toscana, 9
20060 VIGNATE (MI)

Temperatura (20 ± 5) °C
Temperature

Umidità relativa < 80% U.R.
Relative Humidity

- **Normative di riferimento**
Standards

Norma - *Standard code*	Anno - *Year*
(BIPM) The International System of Units (SI)	ed.9 2019
UNI EN ISO 1	2022
UNI 9052	1987
UNI EN ISO 13225	2012
UNI EN ISO 14253-1	2018

Valutazione di conformità : Non richiesta
Comformity assessment : *Not required*

MODALITA' DI TARATURA
Calibration method

1 - La taratura viene eseguita per interposizione dei campioni di riferimento e loro composizione tra le superfice del piano di riscontro e il tatore del misurando rilevandone la misura sul dispositivo di lettura. Se il misurando è dotato di dispositivo di azzeramento lo strumento viene azzerato posizionado il tastatore sul piano di appoggio.
The calibration is performed by interposing the reference samples and their composition between the support plan and contact surfaces of the instruments by detecting the measurement on the reading device. If the measurand is equipped with a zeroing device, the instrument is zeroed by positioning the probe on the support.

2 - I coefficienti di dilatazione termica lineare non sono misurati pertanto sono considerati pari a:
Campioni (10,05 ± 2) · 10^{-6} °C^{-1}
misurando (11,5 ± 2) · 10^{-6} °C^{-1}
The linear thermal expansion coefficients are not measured therefore they have been considered equal to:
Samples (10,05 ± 2) · 10^{-6} ° C^{-1}
measurand (11,5 ± 2) · 10^{-6} ° C^{-1}

3 - La differenza massima di temperatura tra campione e misurando è di:
1 °C nell'intervallo indicato.
The maximum difference of temperature between standard and measurand is:
1 °C with in the indicated interval.

4 - Riepilogo dei risultati vedi pag. 4
Summary of results see pag. 4

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L. FONTANA
ON BEHALF OF ROSETTI MARINO S.p.A.
☒ REVIEW ☐ WITNESS
2024 AGO 08

Rotation x CROSSWIND
8/8/24

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Validity: 3 year
from calibration date according to Instruction IT02

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LAT N° 181
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Signatory of EA, IAF and ILAC Mutual Recognition Agreements

CERTIFICATO DI TARATURA LAT 181 24-0004E020
Certificate of Calibration

Descrizione : Altimetro digitale
Description
Codice : C00-008-01
Code
Matricola : 1R 021 V2.24
Serial number

Campo : 0 - 600 mm
Range
Divisione di scala : 0,001 mm
Scale Interval

Errore di Indicazione
Length measurement errore

Lunghezza di riferimento *Reference length* L_n / mm	Misura *Measure* L_x / mm	Errore *Deviation* $E = L_x - L_n$ / µm	Incertezza estesa *Expanded Uncertainty* $U\ (k=2)$ / µm
0,000	0,000	0	1
1,100	1,100	0	1
1,500	1,501	1	1
1,900	1,901	1	1
10,300	10,300	0	1
25,000	25,000	0	1
75,000	74,999	-1	2
100,000	100,000	0	3
200,000	199,999	-1	5
400,000	399,999	-1	9
600,000	600,003	3	13

Errore di forma del tastatore piatto
Flat shape Error

Lunghezza campione *Master length* L_n / mm	Misura 1 *Measure 1* M_1 / mm	Misura 2 *Measuer 2* M_2 / mm	Errore *Deviation* $\Delta l_f = \lvert M_2 - M_1 \rvert$ / µm	Incertezza estesa *Expanded Uncertainty* $U\ (k=2)$ / µm
25,000	/	/	/	/

Errore di misura bidirezionale
Bidirectional meaurement error

Lunghezza campione *Master length* L_n / mm	Misura *Mesure to* M / mm	Errore Massimo *Max Deviation* $B = M - L_n$ / µm	Incertezza estesa *Expanded Uncertainty* $U\ (k=2)$ / µm
25,000	25,000	0	1
75,000	74,999	-1	2

Ripetibilità scala principale
Repeatability main scale

Lunghezza del campione *Master length* L_n / mm	Misura 1 *Measure 1* M_1 / mm	Misura 2 *Measure 2* M_2 / mm	Misura 3 *Measure 3* M_3 / mm	Misura 4 *Measure 4* M_4 / mm	Misura 5 *Measure 5* M_5 / mm	Deviazione standard *Standard Deviation* $s(M_i)$ / µm
200,000	199,999	200	199,999	200	199,999	0,55

Riepilogo risultati *Summay of results*		Misure *Measure* / µm	Incertezza estesa *Expanded Uncertainty* $U\ (k=2)$ / µm
Errore di indicazione *Length measurement error*	E	3	13
Errore di forma del tastatore piatto *Flat shape Error*	Δl_f	/	/
Errore di misura bidirezionale *Bidirectional meaurement error*	B	-1	2
Ripetibilità scala principale *Repeatability main scale*	$R(2s)$	1,4	/

Note : non presenti
Notes

L. FONTANA
ON BEHALF OF ROSETTI MARINO S.p.A.
☒ REVIEW ☐ WITNESS
2024 AGO 08

VERIFIED BY technical 2024 FEB 14 QUALITY ASSURANCE

Data delle misure
Date of measurements
2024-02-13

Operatore
Technician
Andrea Cinel

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Capitale Sociale € 10.000,00 R.E.A. 1669906
ID CEE IT03358660961

RAPPORTO DI TARATURA / *CALIBRATION REPORT* N. 23122426

DATI RELATIVI ALLO STRUMENTO / *DETAILS OF THE INSTRUMENT*

Modello / *Model*	Manometro MP1 / *Press. gauge MP1*	Fondo scala / *Full scale*	16	bar
		Diametro / *Dial*	150	mm
Campo di misura / *Range*	0 / 16 bar	Divisione minima / *Minimum division*	0,05	bar
Classe di precisione / *Class of accuracy*	0,5	Matricola / *Serial number*	17J14250	
		Codice TECHNICAL / *TECHNICAL code*	C23-003-08	

CONDIZIONI AMBIENTALI DI TARATURA / *ENVIRONMENTAL CALIBRATION CONDITIONS*

Temp. ambiente / *Ambient temp.*	20 ± 2 °C	Press. atmosferica / *Atmospheric press.*	997 ± 5 mbar
Umidità relativa / *Relative humidity*	68 ± 5 %		

CONDIZIONI DI TARATURA DELLO STRUMENTO / *CALIBRATION CONDITIONS OF THE INSTRUMENT*

Fluido di taratura / *Fluid of calibration* Aria / *Air* — Posizione / *Position* Verticale / *Vertical*

Campione di riferimento / *Reference instrument:*

Calib. dig. mod. MENSOR CPC6050 mat. 41000PWM composto da:
Digital calibrator mod. MENSOR CPC6050 s.n. 41000PWM composed of:

- [ ] Sensore mod. CPR6050 mat. 41000LQ8 campo 0/300 mbar con cer.di tar. LAT 114 n. 0136-SP-22
  Sensor mod. CPR6050 s.n. 41000LQ8 range 0/300 mbar with calib.cer. LAT 114 n. 0136-SP-22
- [ ] Sensore mod. CPR6050 mat. 41000VXF campo 0/3,4 bar con cer.di tar. LAT 114 n. 0055-SP-22
  Sensor mod. CPR6050 s.n. 41000VXF range 0/3,4 bar with calib.cer. LAT 114 n. 0055-SP-22
- [x] Sensore mod. CPR6050 mat. 41000WO7 campo 0/20 bar con cer.di tar. LAT 114 n. 0054-SP-22
  Sensor mod. CPR6050 s.n. 41000WO7 range 0/20 bar with calib.cer. LAT 114 n. 0054-SP-22
- [ ] Sensore mod. CPR6050 mat. 41000W3X campo 0/100 bar con cer.di tar. LAT 114 n. 0062-SP-22
  Sensor mod. CPR6050 s.n. 41000W3X range 0/100 bar with calib.cer. LAT 114 n. 0062-SP-22

RISULTATI DELLA TARATURA / *CALIBRATION RESULT*

I risultati riportati sono stati ottenuti applicando la procedura P11 / *The reported results have been obtained applying P11 procedure*

Valori in [bar] / *Value in [bar]*			
Pressione nominale / *Nominal pressure*	Valore indicato / *Reading value*	Errore indicazione / *Indication error*	Errore % / *Error %*
0	0,00	0,000	0,000
4	4,02	0,020	0,125
8	7,98	-0,020	-0,125
12	12,01	0,010	0,062
16	16,05	0,050	0,313
12	12,03	0,030	0,187
8	7,99	-0,010	-0,062
4	4,02	0,020	0,125

ERRORI % RIFERITI AL FONDO SCALA DI 16 bar
% ERROR REFERRED TO FULL SCALE OF 16 bar

Max Errore % f.s. / *Max Error % f.s.* = Emax = **0,313**

Lo strumento è stato picchiettato ad ogni punto di misura
The pressure gauge has been pattered on every measure point

technical
Validity: 1 year
from calibration date
according to instruction IT03

INCERTEZZA DEL PROCEDIMENTO DI TARATURA / *UNCERTAINTY OF CALIBRATION PROCEDURE*

It = Incertezza di misura del procedimento di taratura: — It = Ip + Is = 0,07 [% f.s.]
It = The measurement uncertainty of the calibration procedure

Ip = Incertezza di misura dello strumento campione: — Ip = 0,01 [% f.s.]
Ip = The measurement uncertainty of the test gauge:

Is = Incertezza di indicazione dello strumento in taratura (risoluzione) calcolata come 1/5 della divisione minima: — Is = 0,06 [% f.s.]
Is = Indication uncertainty of the gauge in calibration (resolution) corresponding to 1/5 of the minimum division:

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INCERTEZZA DELLO STRUMENTO IN TARATURA / *UNCERTAINTY OF THE GAUGE IN CALIBRATION*

Se si effettuano le opportune correzioni rispetto ad ogni punto di misura sulla base degli errori di indicazione sopra riportati, l'incertezza di misura "Im" dello strumento in taratura è pari a quella "It" del procedimento di taratura.
If the corrections, due to above errors found during calibration on each measure value , are done , the "Im" measure uncertainty of the gauge in calibration corresponds to the "It" of the calibration procedure

Nel caso non si effettuino correzioni ai valori misurati, l'incertezza Im di misura dello strumento in taratura, espressa come due volte lo scarto tipo, è pari a:
If no corrections to the measure values are done , the measurement uncertainty of the gauge in calibration, estimated at the level of twice the standard deviation, corresponds to:

Im = Incertezza di misura dello strumento in taratura
Im = uncertainty of the gauge in calibration

$$I_m = \sqrt{\left(It^2 + E_{max}^2\right)} = 0{,}32\ [\%\ f.s.]$$

CROSS WIND 13/09/24 R

Risultato: CONFORME alla Classe di Precisione dichiarata
Result: CONFORM to the the declared Accuracy

Data / *Date* 12/12/2023

Firma / *Signed* (Lorenzo TARANTINI)

Mod. M411-k rev. 8

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OMET di CERESA Srl technical SRL
Quality Assurance
Elena Adornato

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LABORATORIO METROLOGICO
Via Lago Maggiore, 18
36015 SCHIO (VI)

Tel. 0445-561065
Fax 0445-623664
mail: info@micro-tec.vi.it
www.micro-tec.vi.it

Centro di Taratura LAT N° 181
Calibration Centre
Laboratorio Accreditato di Taratura
Accreditated Calibration Laboratory

technical
Validity: 3 year
from calibration date according to Instruction IT02

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO
LAT N° 181
Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

CERTIFICATO DI TARATURA LAT 181 24-0004E020
Certificate of Calibration

- Data di emissione / *date of issue*: 2024-02-14
- Cliente / *customer*: **TECHNICAL s.r.l.** via Toscana, 9 20060 VIGNATE (MI)
- Destinatario / *receiver*: **TECHNICAL s.r.l.** via Toscana, 9 20060 VIGNATE (MI)

Il presente certificato di taratura è emesso in base all'accreditamento LAT N° 181 rilasciato in 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.

Si riferisce a
Referring to

- oggetto / *item*: Altimetro digitale
- costruttore / *manufacturer*: Tesa
- modello / *model*: 0076220
- matricola / *serial number*: 1R 021 V2.24 (C00-008-01)
- data di ricevimento oggetto / *date of receipt of item*: 2024-02-13
- data delle misure / *date of measurements*: 2024-02-13
- registro di laboratorio / *laboratory reference*: 2024

This certificate of calibration is issued in compliance with the accreditation LAT N° 181 granted according to decrees connected with Italian law No. 273/1991 which has established 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.

X CROSSWIND
13/09/26 R

VERIFIED BY technical
2024 FEB 14
QUALITY ASSURANCE

Direzione Tecnica
(Approving Officer)
Ivo Gazziero

Firma digitale - *Digital signature*

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Quality Assurance
Elena Adornato

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CERTIFICATO DI TARATURA LAT 181 24-0004E020
Certificate of Calibration

Di seguito vengono riportate le seguenti informazioni:
In the following, information is reported about:

- la descrizione dell'oggetto in taratura (se necessaria);
description of the item to be calibrated (if necessary)

Altimetro digitale

- l'identificazione delle procedure in base alle quali sono state eseguite le tarature;
technical procedures used for calibration performed

PTA-02 rev.2

- I campioni che garantiscono la catena della riferibilità del Centro;
instruments or measurement standards which guarantee the traceability chain of the Centre

BPP011	Set Blocchetti piano paralleli
BPP012	Set Blocchetti piano paralleli
BPP040	Set Blocchetti piano paralleli
BPP029	Set Blocchetti piano paralleli
PDR001	Piano di riscontro
TRG007	Misuratore di temperatura

- Gli estremi dei certificati di taratura di tali campioni e l'Ente che li ha emessi; *relevant calibration certificates of those standards with the issuing Body*	Data di taratura; *Calibration date*
LAT181 23-3287P06B0	**2023-12-05**
LAT181 23-3284P06B0	**2023-12-05**
LAT181 23-3299P05B0	**2023-12-06**
LAT 107 230207MAH	**2023-12-12**
LAT172 PR0024/20	**2020-08-21**
LAT198 0639/23 0640/23	**2023-05-05**

- le condizioni ambientali e di taratura:
calibration and environmental conditions

- Luogo di taratura :
Calibration Place

TECHNICAL s.r.l.
via Toscana, 9
20060 VIGNATE (MI)

Temperatura **(20 ± 5) °C**
Temperature

Umidità relativa **< 80% U.R.**
Relative Humidity

- **Normative di riferimento**
Standards

Norma - *Standard code*	Anno - *Year*
(BIPM) The International System of Units (SI)	ed.9 2019
UNI EN ISO 1	2022
UNI 9052	1987
UNI EN ISO 13225	2012
UNI EN ISO 14253-1	2018

Valutazione di conformità : Non richiesta
Comformity assessment : *Not required*

MODALITA' DI TARATURA
Calibration method

1 - La taratura viene eseguta per interposizione dei campioni di riferimento e loro composizione tra le superfice del piano di riscontro e il tatore del misurando rilevandone la misura sul dispositivo di lettura. Se il misurando è dotato di dispositivo di azzeramento lo strumento viene azzerato posizionado il tastatore sul piano di appoggio.
The calibration is performed by interposing the reference samples and their composition between the support plan and contact surfaces of the instruments by detecting the measurement on the reading device. If the measurand is equipped with a zeroing device, the instrument is zeroed by positioning the probe on the support.

2 - I coefficienti di dilatazione termica lineare non sono misurati pertanto sono considerati pari a:
Campioni (10,05 ± 2) · 10^{-6} °C^{-1}
misurando (11,5 ± 2) · 10^{-6} °C^{-1}
The linear thermal expansion coefficients are not measured therefore they have been considered equal to:
Samples (10,05 ± 2) · 10^{-6} ° C^{-1}
measurand (11,5 ± 2) · 10^{-6} ° C^{-1}

3 - La differenza massima di temperatura tra campione e misurando è di:
1 °C nell'intervallo indicato.
The maximum difference of temperature between standard and measurand is:
1 °C with in the indicated interval.

4 - Riepilogo dei risultati vedi pag. 4
Summary of results see pag. 4

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2024 FEB 14
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Elena Adornato

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CERTIFICATO DI TARATURA LAT 181 24-0004E020
Certificate of Calibration

Descrizione : Altimetro digitale
Description
Codice : C00-008-01
Code
Matricola : 1R 021 V2.24
Serial number

Campo : 0 - 600 mm
Range
Divisione di scala : 0,001 mm
Scale interval

Errore di indicazione
Length measurement errore

Lunghezza di riferimento *Reference length* L_n / mm	Misura *Measure* L_x / mm	Errore *Deviation* $E = L_x - L_n$ / µm	Incertezza estesa *Expanded Uncertainty* $U\ (k=2)$ / µm
0,000	0,000	0	1
1,100	1,100	0	1
1,500	1,501	1	1
1,900	1,901	1	1
10,300	10,300	0	1
25,000	25,000	0	1
75,000	74,999	-1	2
100,000	100,000	0	3
200,000	199,999	-1	5
400,000	399,999	-1	9
600,000	600,003	3	13

Errore di forma del tastatore piatto
Flat shape Error

Lunghezza campione *Master length* L_n / mm	Misura 1 *Measure 1* M_1 / mm	Misura 2 *Measuer 2* M_2 / mm	Errore *Deviation* $\Delta l_f = \lvert M_2 - M_1 \rvert$ / µm	Incertezza estesa *Expanded Uncertainty* $U\ (k=2)$ / µm
25,000	/	/	/	/

Errore di misura bidirezionale
Bidirectional meaurement error

Lunghezza campione *Master length* L_n / mm	Misura *Mesure to* M / mm	Errore Massimo *Max Deviation* $B = M - L_n$ / µm	Incertezza estesa *Expanded Uncertainty* $U\ (k=2)$ / µm
25,000	25,000	0	1
75,000	74,999	-1	2

Ripetibilità scala principale
Repeatability main scale

Lunghezza del campione *Master length* L_n / mm	Misura 1 *Measure 1* M_1 / mm	Misura 2 *Measure 2* M_2 / mm	Misura 3 *Measure 3* M_3 / mm	Misura 4 *Measure 4* M_4 / mm	Misura 5 *Measure 5* M_5 / mm	Deviazione standard *Standard Deviation* $s(M_i)$ / µm
200,000	199,999	200	199,999	200	199,999	0,55

Riepilogo risultati *Summay of results*		Misure *Measure* / µm	Incertezza estesa *Expanded Uncertainty* $U\ (k=2)$ / µm
Errore di indicazione *Length measurement error*	E	3	13
Errore di forma del tastatore piatto *Flat shape Error*	Δl_f	/	/
Errore di misura bidirezionale *Bidirectional meaurement error*	B	-1	2
Ripetibilità scala principale *Repeatability main scale*	$R(2s)$	1,4	/

Note : non presenti
Notes

VERIFIED BY technical 2024 FEB 14 QUALITY ASSURANCE

Data delle misure
Date of measurements
2024-02-13

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13/03/24 R

Operatore
Technician
Andrea Cinel

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Quality Assurance
Elena Adornato

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PAINTING CHECK REPORT AND PAINT INSPECTORS QUALIFICATION

LENA ANTICORROSIONE s.r.l.

24046 OSIO SOTTO (BG) - Italy - Via Ciserano, 20 - Tel. 035 88.14.91
Fax 035 48.23.278 - www.lenaanticorrosione.it - e-mail: info@lenaanticorrosione.it

ISO 9001:2015 CERTIFIED SYSTEM IAS REGISTER Cert. N. 01178

Date: **01/08/2024**

INSPECTION CERTIFICATE
UNI EN 10204:2004 (3.1)

No. **241018**

Customer: **TECHNICAL SRL**

Order no.: **0134** *Our job no.:* 241000388 *OP:* **20.871** *LENA W.P.:* **IO16**

Job no.: **23/3962**

Contractor: **ROSETTI MARINO**

Painting specification: **123A90-DDL-MAT-SP-60006 / Carbon Steel oper.temp.<120°C / Environment Atex IIC**

Serial Number / *Tag:*

291506 291505

Material description: **S.VALVE 30000N 1"x2" 150 RF LCB 320-D10-L2** *Pieces:* **2** *Item:*

SURFACE PREPARATION

DEGREASING

Product Name

NETTOYANT CARROSSERIE 547

Batch A H198306

Equipment Description:

HYDRO-JET SOLVENT

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
INTEGRITY SURFACE	VISUAL	NO defects	OK	FINISH	WATCH		25/07/2024 08,00
START	WATCH		25/07/2024 08,30	CLEANING CHECK (SSPC-SP1)	VISUAL	no sign of dirt/grease	OK

PROTECTION UNPAINTED SURFACES

Equipment Description:

TAPE/RUBBER/PLASTIC CAPS

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
MASKING CHECK	VISUAL	masking performed	25/07/2024 OK				

BLASTING

Product Name

GARNET 20-40 MESH

Batch A 3601

Equipment Description:

MANUAL BLASTING BOOTH

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
BLOTTER TEST (ASTM D4285)	WHITE ABSORBENT PAPER	no sign of oil/water	OK	ABRASIVE CLEANLINESS	VISUAL	no evidence of oil/grease	OK
START	WATCH		25/07/2024 11,00	AIR TEMP.START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	10÷40°C	28,4°C
RELATIVE HUMIDITY START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	<85%	49,2%	STEEL TEMP.START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	MIN.10°C, >3°C D.P.	27,4°C
DEW POINT START	TABLE ISO 8502-4		16,7°C	FINISH	WATCH		25/07/2024 11,30
AIR TEMP.FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	10÷40°C	28,3°C	RELATIVE HUMIDITY FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	<85%	49,1%
STEEL TEMP.FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	MIN.10°C, >3°C D.P.	27,3°C	DEW POINT FINISH	TABLE ISO 8502-4		16,6°C
SURFACE CLEANLINESS (ISO 8501-1)	VISUAL	SA 2½	OK	SURFACE ROUGHNESS (ISO 8503-4)	MARSURF PS10 MAHR SN.84	Rz 50-85µm	Rz 71,6-82,3µm
SURFACE DUST LEVEL (ISO 8502-3)	DUST TEST KIT TQC SN.63	Rating 2 or better	OK RATE 1	CHLORIDE LEVEL ON SURFACE (ISO 8502-6/9)	TQC HANNA MOD.HI98311 SN.59	MAX. 20mg/m²	8,0mg/m²

L. FONTANA
ON BEHALF OF ROSETTI MARINO S.p.A
☐ REVIEW ☒ WITNESS
2024 AGO 08

technical SRL
Quality Assurance
Elena Adornato

Rotta x CROSSWIND
8/8/24 R

Date: 01/08/2024	INSPECTION CERTIFICATE UNI EN 10204:2004 (3.1)	No. 241018

COATING

PRIMER APPLICATION

Product Name

CARBOZINC 858 GREEN

Batch A 240521043A - ***Batch B*** 240515011A

Equipment Description:

CONVENTIONAL SPRAY PUMP BRUSH Thinner type: CARBOLINE N.2

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
COATING MATERIAL STORAGE	VISUAL	acc. to PTDS	OK	PAINT CONTAINER INTEGRITY	VISUAL	no damages	OK
PRODUCT CHECK	VISUAL	unexpired	OK	MIXING RATIO	SCALES LAUMAS ISBIL 30 SN.68	acc. to PTDS	OK
START	WATCH		25/07/2024 13,00	AIR TEMP.START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	10÷40°C	28,7°C
RELATIVE HUMIDITY START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	<85%	46,4%	STEEL TEMP.START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	MIN.10°C, >3°C D.P.	27,7°C
DEW POINT START	TABLE ISO 8502-4		16,1°C	WET FILM THICKNESS (ISO 2808)	ELCOMETER 3238 WET FILM 25÷600µm	100µm	100÷150µm
FINISH	WATCH		25/07/2024 14,00	AIR TEMP.FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	10÷40°C	29,3°C
RELATIVE HUMIDITY FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	<85%	43,8%	STEEL TEMP.FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	MIN.10°C, >3°C D.P.	N.A.
DEW POINT FINISH	TABLE ISO 8502-4		15,7°C	DRY FILM THICKNESS (ISO 19840)	DELTASCOPE FMP30 FISCHER SN.92	60µm	26/07/2024 MIN.61µm MEAN 83µm
VISUAL APPEARANCE / FINAL COLOUR	VISUAL	no run, blister etc.	26/07/2024 OK / GREEN				

INTERMEDIATE APPLICATION

Product Name

CARBOMASTIC 15 LT ATEX BLACK

Batch A 230621006A - ***Batch B*** 230620019A

Equipment Description:

CONVENTIONAL SPRAY PUMP BRUSH Thinner type: CARBOLINE N.2

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
COATING MATERIAL STORAGE	VISUAL	acc. to PTDS	OK	PAINT CONTAINER INTEGRITY	VISUAL	no damages	OK
PRODUCT CHECK	VISUAL	unexpired	OK	MIXING RATIO	SCALES LAUMAS ISBIL 30 SN.68	acc. to PTDS	OK
START	WATCH		26/07/2024 11,00	AIR TEMP.START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	10÷40°C	28,1°C
RELATIVE HUMIDITY START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	<85%	40,0%	STEEL TEMP.START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	MIN.10°C, >3°C D.P.	27,1°C
DEW POINT START	TABLE ISO 8502-4		13,2°C	WET FILM THICKNESS (ISO 2808)	ELCOMETER 3238 WET FILM 25÷600µm	125µm	125÷175µm
FINISH	WATCH		26/07/2024 12,00	AIR TEMP.FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	10÷40°C	28,4°C
RELATIVE HUMIDITY FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	<85%	44,5%	STEEL TEMP.FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	MIN.10°C, >3°C D.P.	N.A.
DEW POINT FINISH	TABLE ISO 8502-4		15,1°C	DRY FILM THICKNESS (ISO 19840)	DELTASCOPE FMP30 FISCHER SN.92	100µm (TOT.160µm)	29/07/2024 MIN.164µm MEAN 239µm
VISUAL APPEARANCE / FINAL COLOUR	VISUAL	no run, blister etc.	29/07/2024 OK / BLACK				

L. FONTANA
ON BEHALF OF ROSETTI MARINO S.p.A
☐ REVIEW ☑ WITNESS
2024 AGO 08

technical SRL
Quality Assurance
Elena Adornato

8/8/24 R

Date: **01/08/2024** | **INSPECTION CERTIFICATE** UNI EN 10204:2004 (3.1) | No. **241018**

TOP-COAT APPLICATION

Product Name

CARBOTHANE 134 HP RAL 9002

Batch A 230224032A - ***Batch B*** 231211035A

Equipment Description:

CONVENTIONAL SPRAY PUMP | BRUSH | Thinner type: CARBOLINE N.25

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
COATING MATERIAL STORAGE	VISUAL	acc. to PTDS	OK	PAINT CONTAINER INTEGRITY	VISUAL	no damages	OK
PRODUCT CHECK	VISUAL	unexpired	OK	MIXING RATIO	SCALES LAUMAS ISBIL 30 SN.68	acc. to PTDS	OK
START	WATCH		29/07/2024 09,00	AIR TEMP.START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	10÷40°C	29,6°C
RELATIVE HUMIDITY START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	<85%	51,2%	STEEL TEMP.START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	MIN.10°C, >3°C D.P.	28,6°C
DEW POINT START	TABLE ISO 8502-4		18,4°C	WET FILM THICKNESS (ISO 2808)	ELCOMETER 3238 WET FILM 25÷600µm	80µm	100÷150µm
FINISH	WATCH		29/07/2024 10,00	AIR TEMP.FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	10÷40°C	29,5°C
RELATIVE HUMIDITY FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	<85%	51,2%	STEEL TEMP.FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	MIN.10°C, >3°C D.P.	N.A.
DEW POINT FINISH	TABLE ISO 8502-4		18,4°C	DRY FILM THICKNESS (ISO 19840)	DELTASCOPE FMP30 FISCHER SN.92	50µm (TOT.210µm)	30/07/2024 MIN.215µm MEAN 312µm

FINAL TEST

FINAL TEST

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
DRY FILM THICKNESS (ISO 19840)	DELTASCOPE FMP30 FISCHER SN.92	TOT.NDFT 210µm	30/07/2024 MIN.215µm MEAN 312µm	VISUAL APPEARANCE / FINAL COLOUR	VISUAL	no run, blister etc.	30/07/2024 OK / GREY-WHITE RAL 9002

ADHESION TEST

Equipment Description:

CIANOACRYLATE GLUE | DOLLY Ø 20mm

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
AIR TEMPERATURE DURING TEST	THERMO-HYGROMETER TQC DEWCHECK4 SN.67		N.A.	ADHESION (ISO 4624)	ELCOMETER 510-T SN.79 PULL-OFF TESTER (Ref.Plate No.20871)	MIN. 5 MPa	To be done when fully cured

Notes:

L. FONTANA
ON BEHALF OF ROSETTI MARINO S.p.A
☐ REVIEW ☑ WITNESS
2024 AGO 08

Robbi + CROSSWIND
8/8/24 R/W

PERFORMED BY	*REVIEW BY Q.C. MANAGER*	*CUSTOMER INSPECTOR*
LENA ANTICORROSIONE S.r.l.	LENA ANTICORROSIONE S.r.l. Resp. G. Qualità Alberto Lena	technical SRL Quality Assurance Elena Adornato
DATE: 01/08/2024	*DATE:* 01/08/2024	*DATE:* 8/08/2024

LENA ANTICORROSIONE s.r.l.

24046 OSIO SOTTO (BG) - Italy - Via Ciserano, 20 - Tel. 035 88.14.91
Fax 035 48.23.278 - www.lenaanticorrosione.it - e-mail: info@lenaanticorrosione.it

ISO 9001:2015 CERTIFIED SYSTEM
IAS REGISTER
Cert. N. 01178

Date: 07/08/2024	**ADHESION TEST**	Follow Certiifcate No. **241018**

Customer: **TECHNICAL SRL**

Order no.: **0134** *Our job no.:* 241000388 *OP:* **20.871** *LENA W.P.:* **IO16**

Job no.: **23/3962**

Contractor: **ROSETTI MARINO**

Painting specification: **123A90-DDL-MAT-SP-60006 / Carbon Steel oper.temp.<120°C / Environment Atex IIC**

Item / Serial Number:

291506 291505

Material description: **S.VALVE 30000N 1"x2" 150 RF LCB 320-D10-L2** *Pieces:* **2** *Item:*

FINAL TEST

TOP-COAT APPLICATION ON TEST PLATE

Product Name

CARBOTHANE 134 HP RAL 9002

Glue:

CIANOACRYLATE DOLLY Ø 20mm TOP-COAT APPLICATION DATE: 29/07/2024

Check	*Check Instrument*	*Required*	*Result*
AIR TEMPERATURE DURING TEST	THERMO-HYGROMETER TQC DEWCHECK4 SN.67		23°C
DRY FILM THICKNESS (ISO 19840)	DELTASCOPE FMP30 FISCHER SN.92	210µm	MIN.219µm MEAN 317µm
ADHESION (ISO 4624)	ELCOMETER 510-T SN.79 PULL-OFF TESTER	MIN. 5 MPa	SATISFACTORY (Ref.Plate No.20871)
DOLLY D	No detachment dolly		>20,00 Mpa
DOLLY F	5% cohesive 1st coat, 80% cohesive 3rd coat, 15% glue failure		19,31 Mpa

Check	*Check Instrument*	*Required*	*Result*
DOLLY A	80% cohesive 3rd coat, 20% glue failure		18,89 Mpa
DOLLY B	70% cohesive 3rd coat, 30% glue failure		18,69 Mpa
DOLLY C	No detachment dolly		>20,00 Mpa
DOLLY E	70% cohesive 3rd coat, 30% glue failure		19,03 Mpa

Notes:

PERFORMED BY	*REVIEW BY Q.C. MANAGER*	*CUSTOMER INSPECTOR*
LENA ANTICORROSIONE S.r.l.	LENA ANTICORROSIONE S.r.l. Resp. G. Qualità Alberto Lena	
DATE: 07/08/2024	*DATE: 07/08/2024*	*DATE:*

LENA ANTICORROSIONE s.r.l.

24046 OSIO SOTTO (BG) - Italy - Via Ciserano, 20 - Tel. 035 88.14.91
Fax 035 48.23.278 - www.lenaanticorrosione.it - e-mail: info@lenaanticorrosione.it

ISO 9001:2015 CERTIFIED SYSTEM IAS REGISTER Cert. N. 01178

Date: 08/08/2024	INSPECTION CERTIFICATE UNI EN 10204:2004 (3.1)	No. 241044

Customer: **TECHNICAL SRL**

Order no.: **0141** *Our job no.:* 241000415 *OP:* **20.907** *LENA W.P.:* **IO22**

Job no.: **23/3962**

Contractor: **ROSETTI MARINO**

Painting specification: **123A90-DDL-MAT-SP-60006 / Stainless Steel oper.temp.<120°C / Environment Atex IIC**

Serial Number / *Tag:*

291503 291500 291499 291501 291504 291498 291502

Material description: **S.VALVE 30000 1"x2" 300x150RF CF8M 320-E20-5L** *Pieces:* **7** *Item:*

Serial Number / *Tag:*

291496 291497

Material description: **S.VALVE 30000 3"x4" 150RF CF8M 320-K10-5L** *Pieces:* **2** *Item:*

SURFACE PREPARATION

DEGREASING

Product Name

NETTOYANT CARROSSERIE 547

Batch A H198306

Equipment Description:

HYDRO-JET SOLVENT

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
INTEGRITY SURFACE	VISUAL	NO defects	OK	START	WATCH		01/08/2024 10,00
FINISH	WATCH		01/08/2024 11,00	CLEANING CHECK (SSPC-SP1)	VISUAL	no sign of dirt/grease	OK

PROTECTION UNPAINTED SURFACES

Equipment Description:

TAPE/RUBBER/PLASTIC CAPS

Check	*Check Instrument*	*Required*	*Result*	*Check*	*Check Instrument*	*Required*	*Result*
MASKING CHECK	VISUAL	masking performed	01/08/2024 OK				

technical SRL
Quality Assurance
Elena Adinolfo

Foldi x CROSSWIND
8/8/24 R

L. FONTANA
ON BEHALF OF ROSETTI MARINO S.P.A
☐ REVIEW ☒ WITNESS
2024 AGO 08

Date: **08/08/2024**

INSPECTION CERTIFICATE
UNI EN 10204:2004 (3.1)

No. **241044**

BLASTING

Product Name

NETTOYANT CARROSSERIE 547

Batch A H198306

Equipment Description:

MANUAL BLASTING BOOTH

Check	*Check Instrument*	*Required*	*Result*
BLOTTER TEST (ASTM D4285)	WHITE ABSORBENT PAPER	no sign of oil/water	OK
START	WATCH		02/08/2024 08,00
RELATIVE HUMIDITY START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	<85%	47,7%
DEW POINT START	TABLE ISO 8502-4		16,9°C
AIR TEMP.FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	10÷40°C	28,6°C
STEEL TEMP.FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	MIN.10°C, >3°C D.P.	27,6°C
SURFACE CLEANLINESS (ISO 8501-1)	VISUAL	SA 1	OK
SURFACE DUST LEVEL (ISO 8502-3)	DUST TEST KIT TQC SN.63	Rating 2 or better	OK RATE 1

Check	*Check Instrument*	*Required*	*Result*
ABRASIVE CLEANLINESS	VISUAL	no evidence of oil/grease	OK
AIR TEMP.START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	10÷40°C	29,3°C
STEEL TEMP.START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	MIN.10°C, >3°C D.P.	28,3°C
FINISH	WATCH		02/08/2024 09,30
RELATIVE HUMIDITY FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	<85%	54,4%
DEW POINT FINISH	TABLE ISO 8502-4		18,5°C
SURFACE ROUGHNESS (ISO 8503-4)	MARSURF PS10 MAHR SN.84	Rz 25-85µm	Rz 48.7-59,3µm
CHLORIDE LEVEL ON SURFACE (ISO 8502-6/9)	TQC HANNA MOD.HI98311 SN.59	MAX. 20mg/m²	8,0mg/m²

COATING

PRIMER APPLICATION

Product Name

CARBOMASTIC 15 LT ATEX BLACK

Batch A 230621006A - ***Batch B*** 230620019A

Equipment Description:

CONVENTIONAL SPRAY PUMP BRUSH Thinner type: CARBOLINE N.2

Check	*Check Instrument*	*Required*	*Result*
COATING MATERIAL STORAGE	VISUAL	acc. to PTDS	OK
PRODUCT CHECK	VISUAL	unexpired	OK
START	WATCH		02/08/2024 10,00
RELATIVE HUMIDITY START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	<85%	54,5%
DEW POINT START	TABLE ISO 8502-4		18,5°C
FINISH	WATCH		02/08/2024 12,00
RELATIVE HUMIDITY FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	<85%	53,9%
DEW POINT FINISH	TABLE ISO 8502-4		17,9°C
VISUAL APPEARANCE / FINAL COLOUR	VISUAL	no run, blister etc.	06/08/2024 OK / BLACK

Check	*Check Instrument*	*Required*	*Result*
PAINT CONTAINER INTEGRITY	VISUAL	no damages	OK
MIXING RATIO	SCALES LAUMAS ISBIL 30 SN.68	acc. to PTDS	OK
AIR TEMP.START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	10÷40°C	28,6°C
STEEL TEMP.START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	MIN.10°C, >3°C D.P.	27,6°C
WET FILM THICKNESS (ISO 2808)	ELCOMETER 3238 WET FILM 25÷600µm	125µm	125÷175µm
AIR TEMP.FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	10÷40°C	28,1°C
STEEL TEMP.FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	MIN.10°C, >3°C D.P.	N.A.
DRY FILM THICKNESS (ISO 19840)	ISOSCOPE FMP30 SN.86	100µm (TOT.160µm)	06/08/2024 MIN.103µm MEAN 154µm

Rodm + CROSSWIND
8/8/24 R

L. FONTANA
ON BEHALF OF ROSETTI MARINO S.p.A
☐ REVIEW ☒ WITNESS
2024 AGO 0 8

technical SRL
Quality Assurance
Elena Adornato

Date: 08/08/2024

INSPECTION CERTIFICATE
UNI EN 10204:2004 (3.1)

No. 241044

TOP-COAT APPLICATION

Product Name

CARBOTHANE 134 HP RAL 9002

Batch A 230224032A - *Batch B* 240325059A

Equipment Description:

CONVENTIONAL SPRAY PUMP BRUSH Thinner type: CARBOLINE N.25

Check	Check Instrument	Required	Result
COATING MATERIAL STORAGE	VISUAL	acc. to PTDS	OK
PRODUCT CHECK	VISUAL	unexpired	OK
START	WATCH		06/08/2024 08,00
RELATIVE HUMIDITY START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	<85%	52,1%
DEW POINT START	TABLE ISO 8502-4		17,9°C
FINISH	WATCH		06/08/2024 10,00
RELATIVE HUMIDITY FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	<85%	49,6%
DEW POINT FINISH	TABLE ISO 8502-4		16,8°C

Check	Check Instrument	Required	Result
PAINT CONTAINER INTEGRITY	VISUAL	no damages	OK
MIXING RATIO	SCALES LAUMAS ISBIL 30 SN.68	acc. to PTDS	OK
AIR TEMP.START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	10÷40°C	28,7°C
STEEL TEMP.START	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	MIN.10°C, >3°C D.P.	27,7°C
WET FILM THICKNESS (ISO 2808)	ELCOMETER 3238 WET FILM 25÷600µm	80µm	100÷150µm
AIR TEMP.FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	10÷40°C	28,3°C
STEEL TEMP.FINISH	THERMO-HYGROMETER TQC DEWCHECK4 SN.67	MIN.10°C, >3°C D.P.	N.A.
DRY FILM THICKNESS (ISO 19840)	ISOSCOPE FMP30 SN.86	50µm (TOT.150µm)	07/08/2024 MIN.155µm MEAN 223µm

FINAL TEST

FINAL TEST

Check	Check Instrument	Required	Result
DRY FILM THICKNESS (ISO 19840)	ISOSCOPE FMP30 SN.86	TOT.NDFT 150µm	07/08/2024 MIN.155µm MEAN 223µm

Check	Check Instrument	Required	Result
VISUAL APPEARANCE / FINAL COLOUR	VISUAL	no run, blister etc.	07/08/2024 OK / GREY-WHITE RAL 9002

ADHESION TEST

Equipment Description:

CIANOACRYLATE GLUE DOLLY Ø 20mm

Check	Check Instrument	Required	Result
AIR TEMPERATURE DURING TEST	THERMO-HYGROMETER TQC DEWCHECK4 SN.67		N.A.

Check	Check Instrument	Required	Result
ADHESION (ISO 4624)	ELCOMETER 510-T SN.79 PULL-OFF TESTER (Ref.Plate No.20907)	MIN. 3 MPa	To be done when fully cured

Notes:

Robin x CROSSWIS
8/8/24 R/W

L. FONTANA
ON BEHALF OF ROSETTI MARINO S.p.A
☐ REVIEW ☒ WITNESS

2024 AGO 0 8

PERFORMED BY	REVIEW BY Q.C. MANAGER	CUSTOMER INSPECTOR
LENA ANTICORROSIONE S.r.l.	LENA ANTICORROSIONE S.r.l. Resp. G. Qualità Alberto Lena	technical SRL Quality Assurance Elena Adornato
DATE: 08/08/2024	DATE: 08/08/2024	DATE: 8/08/2024

LENA ANTICORROSIONE s.r.l.

24046 OSIO SOTTO (BG) - Italy - Via Ciserano, 20 - Tel. 035 88.14.91
Fax 035 48.23.278 - www.lenaanticorrosione.it - e-mail: info@lenaanticorrosione.it

ISO 9001:2015 CERTIFIED SYSTEM
IAS REGISTER
Cert. N. 01178

Date: **20/08/2024**	**ADHESION TEST**	Follow Certiifcate No. **241044**

Customer: **TECHNICAL SRL**

Order no.: **0141** *Our job no.:* 241000415 *OP:* **20.907** *LENA W.P.:* **IO22**

Job no.: **23/3962**

Contractor: **ROSETTI MARINO**

Painting specification: **123A90-DDL-MAT-SP-60006 / Stainless Steel oper.temp.<120°C / Environment Atex IIC**

Item / Serial Number:

291503 291500 291499 291501 291504 291498 291502

Material description: **S.VALVE 30000 1''x2'' 300x150RF CF8M 320-E20-5L** *Pieces:* **7** *Item:*

Item / Serial Number:

291496 291497

Material description: **S.VALVE 30000 3''x4'' 150RF CF8M 320-K10-5L** *Pieces:* **2** *Item:*

FINAL TEST

TOP-COAT APPLICATION ON TEST PLATE

Product Name

CARBOTHANE 134 HP RAL 9002

Glue:

CIANOACRYLATE DOLLY Ø 20mm TOP-COAT APPLICATION DATE: 06/08/2024

Check	*Check Instrument*	*Required*	*Result*
AIR TEMPERATURE DURING TEST	THERMO-HYGROMETER TQC DEWCHECK4 SN.67		25°C
DRY FILM THICKNESS (ISO 19840)	ISOSCOPE FMP30 SN.86	150µm	MIN.160µm MEAN 210µm
ADHESION (ISO 4624)	ELCOMETER 510-T SN.79 PULL-OFF TESTER	MIN. 3 MPa	SATISFACTORY (Ref.Plate No.20907)
DOLLY D	95% cohesive 2nd coat, 5% glue failure		12,28 Mpa
DOLLY F	100% cohesive 2nd coat		14,09 Mpa

Check	*Check Instrument*	*Required*	*Result*
DOLLY A	80% cohesive 1st coat, 20% glue failure		11,75 Mpa
DOLLY B	85% cohesive 1st coat, 15% glue failure		11,93 Mpa
DOLLY C	100% cohesive 2nd coat		13,19 Mpa
DOLLY E	100% cohesive 2nd coat		12,25 Mpa

Notes:

PERFORMED BY	*REVIEW BY Q.C. MANAGER*	*CUSTOMER INSPECTOR*
LENA ANTICORROSIONE S.r.l.	LENA ANTICORROSIONE S.r.l. Resp. G. Qualità Alberto Lena	
DATE: 20/08/2024	*DATE: 20/08/2024*	*DATE:*

tecHnical VIGNATE - MI - ITALY	RAPPORTO DI CONTROLLO MISURATORE DI SPESSIMETRO *CONTROL REPORT COATING THICKNESS GAUGES*	N° 15

	SPESSIMETRO CONTROLLATO *controlled instrument*
Codice strumento/*Instrument code*	C34-001-01
Costruttore/*Manufacturer*	ELCOMETER
n. Matricola/*Serial n.*	DF45017-016
Campo/*Range*	0 - 1597 µm
Classe di precisione/*Accuracy class*	± 5%
Unità di formato/*Format unit*	1 µm

SPESSORE *Thickness*	CODICE *code*	1°	2°	3°	4°
51,9 µm	C19-001-01	OK	OK	OK	OK
125 µm	C19-002-01	OK	OK	OK	OK
177 µm	C19-003-01	OK	OK	OK	OK
511 µm	C19-004-01	OK	OK	OK	OK
994 µm	C19-005-01	OK	OK	OK	OK

NOTE

L. FONTANA
ON BEHALF OF Rosetti Marino S.p.A
☒ REVIEW ☐ WITNESS
2024 AGO 08

8/8/24

tecHnical SRL
COPIA CONFORME ALL'ORIGINALE
COPY TRUE TO THE ORIGINAL

tecHnical SRL
Quality Assurance
Elena Adornato

Validità taratura/*Validity calibration*: 12 mesi/*months* (Procedura/*procedure* IT 03)

ESITO/*FINAL RESULT*: Favorevole ■ Negativo ☐

Emesso da: ASSICURAZIONE QUALITÀ *Issued from: QUALITY ASSURANCE*	controllo eseguito da: *control performed by:*	Assicurazione Qualità *Quality assurance*
Date: 2024.05.20 FIRMA: *Signature*	Date: 2024.05.20 FIRMA: *Signature*	Date: 2024.05.20 FIRMA: *Signature*

Modulo: QUA-018 05/2022

MICRO-TEC
LABORATORIO METROLOGICO

TECHNICAL s.r.l.
Quality Control Approved
IT 03: Validity 1 year
2024/02/21 Elena Adornato

Cliente - *customer:*
TECHNICAL s.r.l.
via Toscana, 9
20060 - VIGNATE - MI

Rapporto di taratura - *calibration report:* TEC.716389 **data** - *date:* 13/02/2024

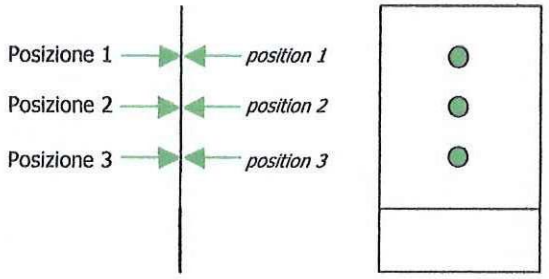
Matricola - *serial No.:* DE3209 **Codice Strumento** - *instrument code:* **C19-003-01**

Descrizione - *description:* Provino per misuratore di spessore vernice 177 µm
Costruttore - *manufacturer:* Elcometer **Modello** - *model:* -----
Campo di misura - *measuring range:* 177 µm *U.f.* - *resolution:* -----

Linea guida - *guide line:* UNI 2808; ISO 19840; UNI 9052
Procedura interna - *internal procedure:* Procedura di Taratura PT-29 - provini di spessore rev.1
Strumenti usati - *used instruments:* BPP016 - BAN002
Certificati - *certificates:* BPP016: LAT051 C122297FE0 scad.30/09/2024 - BAN002: UKAS n°153083 scad.31/03/2026

Temperatura - *temperature:* (20 ± 0,5) °C - *U.R. ≤ 60%* **Luogo di taratura** - *calibrated at:* laboratorio metrologico
Incertezza estesa - *uncertainty:* U (k=2) = 0,6 µm + 0,8·10⁻⁶l (l = lunghezza espressa in micrometri)

Matricola *Serial No.*	Misura teorica *Theoretical measure* / mm	Scostamento 1 *Deviation 1* / µm	Scostamento 2 *Deviation 2* / µm	Scostamento 3 *Deviation 3* / µm	Variazione di lunghezza *Variation in length* / µm	Incertezza estesa *Uncertainty* / µm
	177	-0,4	-0,5	-0,6	*0,2*	*0,7*



Provino di spessore
Thickness gauge
ESEMPIO
Example

Scostamento Max [µm]	0,6	*Maximum deviation [µm]*
Errore di Forma [µm]	0,2	*Form deviation [µm]*

Limiti di accettabilità - *acceptability:*
Esito taratura - *calibration result:* .
Note - *notes:* nulla da rilevare.
Operatore Tecnico - *technical operator:* N.Volpe **Verificato** - *Checked:* A.Cinel

scadenza taratura
13/02/2025
expiry date

L. FONTANA
ON BEHALF OF Rosetti Marino S.p.A
☒ REVIEW ☐ WITNESS
2024 AGO 08

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COPY TRUE TO THE ORIGINAL

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Quality Assurance
Elena Adornato

ATEX DOCUMENTATION

Base Load Power Hub (BLPH)

PRESSURE SAFETY VALVES

ATEX DOCUMENTATION

Document Number: 1724000518-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
Filippo Zanellati	23/10/2024

Rev.	Date	Description	Prepared	Reviewed	Approved
03	31/01/2025	Accepted For Construction (AFC)	A.Martinez	Delponte P.L.	Bianchi R.
02	21/10/2024	Accepted For Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
01	31/07/2024	Accepted For Construction (AFC)	Di Virgilio L.	Delponte P.L.	Bianchi R.
00	18/07/2024	Issue for Review (IFR)	Di Virgilio L.	Delponte P.L.	Bianchi R.

technical

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 / Hold List	X	X	X	X				
4	Conformity declaration ATEX 2014/34/UE	X	X	X	X				

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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
1.	
2.	
3.	
4.	

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DIC-143
NS. Comm. 23/3962
Vignate (MI), 2024-07-18

Spett.le
ROSETTI MARINO S.p.A.

Riferimento/ Ref: Ordine n°/Order n° 1724000518 123A90A
Valvole di sicurezza / Safety valves

DICHIARAZIONE DI CONFORMITÀ ATEX 2014/34/UE
CONFORMITY DECLARATION ATEX 2014/34/UE

TIPO/TYPE Serie/ Series : 30.000
Codice/Code : 320-K10-5L; 320-E20-5L; 320-D10-L2; 320-D10-F1;

Con la presente si attesta che, in riferimento alla direttiva ATEX 2014/34/UE e normative UNI CEI EN ISO 80079-36:2016 e UNI CEI EN ISO 80079-37:2016:

- le valvole non sono apparecchiature elettriche;
- le valvole sono adatte per l'utilizzo su impianti ubicati in zona pericolosa per la presenza di atmosfera potenzialmente esplosiva se utilizzate in conformità alle istruzioni fornite ed entro i limiti indicati;
- le valvole sono soggette a velocità di traslazione inferiore ad 1 m/s se correttamente installate ed utilizzate secondo le istruzioni fornite;
- le valvole hanno spessore di verniciatura fino a 200 micron.

Marcatura **II 2G Ex h IIC T6...T1 Gb** **II 2D Ex h IIIC T85°C...T450°C Db**
Fascicolo Tecnico **PVS-07/21**
Organismo Notificato **DNV - Deposito fascicolo tecnico:** **10000455040-PA-NA-ITA**

This in order to state that, referring to Directive ATEX 2014/34/EU and standards UNI CEI EN ISO 80079-36:2016 e UNI CEI EN ISO 80079-37:2016:

- valves are not electrical devices;
- valves are suitable for use on plants located in dangerous places because of the presence of potentially explosive atmosphere if used in conformity with supplied instructions and within reported limits;
- valves are subject to translation velocity lower than 1 m/s if properly installed and used in accordance with supplied instructions;
- valves have painting thickness up to 200 micron.

Marking **II 2G Ex h IIC T6...T1 Gb** **II 2D Ex h IIIC T85°C...T450°C Db**
Technical File **PVS-07/21**
Notified Body **DNV - Technical file deposit:** **10000455040-PA-NA-ITA**

Enrica Brenna

Sede Legale, Stab. ed Uffici: Via Toscana, 9 - 20052 Vignate (MI) Italy
Telefono +39 - 0295361240 r.a. - Telefax +39 - 029560273
VAT IT 01729470151 - Registro Imprese MI 155563 - R.E.A. MI 867310
E-mail: sales@technical.it - Web site: www.technical.it

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	01	80-PSV-001	Pressure safety valve	A-80000 package	Technical Srl	320-K10-5L	291496	II 2G Ex h IIC T6..T1 Gb	1724000518-IN-DA-00003 1724000518-IN-DS-00004	Declaration of Conformity by Technical Srl	Zone 2		1724000518	Technical Srl	N.A.	N.A.	YES	N.A.
2	01	80-PSV-001_S	Pressure safety valve	A-80000 package	Technical Srl	320-K10-5L	291497	II 2G Ex h IIC T6..T1 Gb	1724000518-IN-DA-00003 1724000518-IN-DS-00004	Declaration of Conformity by Technical Srl	Zone 2		1724000518	Technical Srl	N.A.	N.A.	YES	N.A.
3	01	25-PSV-001A	Pressure safety valve	Vessel V-25001A	Technical Srl	320-E20-5L	291498	II 2G Ex h IIC T6..T1 Gb	1724000518-IN-DA-00003 1724000518-IN-DS-00004	Declaration of Conformity by Technical Srl	Zone 2		1724000518	Technical Srl	N.A.	N.A.	YES	N.A.
4	01	25-PSV-00X_S	Pressure safety valve	Vessel V-25001A	Technical Srl	320-E20-5L	291499	II 2G Ex h IIC T6..T1 Gb	1724000518-IN-DA-00003 1724000518-IN-DS-00004	Declaration of Conformity by Technical Srl	Zone 2		1724000518	Technical Srl	N.A.	N.A.	YES	N.A.
5	01	25-PSV-001B	Pressure safety valve	Vessel V-25001B	Technical Srl	320-E20-5L	291500	II 2G Ex h IIC T6..T1 Gb	1724000518-IN-DA-00003 1724000518-IN-DS-00004	Declaration of Conformity by Technical Srl	Zone 2		1724000518	Technical Srl	N.A.	N.A.	YES	N.A.
6	01	25-PSV-001C	Pressure safety valve	Vessel V-25001C	Technical Srl	320-E20-5L	291501	II 2G Ex h IIC T6..T1 Gb	1724000518-IN-DA-00003 1724000518-IN-DS-00004	Declaration of Conformity by Technical Srl	Zone 2		1724000518	Technical Srl	N.A.	N.A.	YES	N.A.
7	01	25-PSV-001D	Pressure safety valve	Vessel V-25001D	Technical Srl	320-E20-5L	291502	II 2G Ex h IIC T6..T1 Gb	1724000518-IN-DA-00003 1724000518-IN-DS-00004	Declaration of Conformity by Technical Srl	Zone 2		1724000518	Technical Srl	N.A.	N.A.	YES	N.A.
8	01	25-PSV-001E	Pressure safety valve	Vessel V-25001E	Technical Srl	320-E20-5L	291503	II 2G Ex h IIC T6..T1 Gb	1724000518-IN-DA-00003 1724000518-IN-DS-00004	Declaration of Conformity by Technical Srl	Zone 2		1724000518	Technical Srl	N.A.	N.A.	YES	N.A.
9	01	25-PSV-001F	Pressure safety valve	Vessel V-25001F	Technical Srl	320-E20-5L	291504	II 2G Ex h IIC T6..T1 Gb	1724000518-IN-DA-00003 1724000518-IN-DS-00004	Declaration of Conformity by Technical Srl	Zone 2		1724000518	Technical Srl	N.A.	N.A.	YES	N.A.
10	01	64-PSV-001	Pressure safety valve	A-64000 Nitrogen generator package	Technical Srl	320-D10-L2	291505	II 2G Ex h IIC T6..T1 Gb	1724000518-IN-DA-00003 1724000518-IN-DS-00004	Declaration of Conformity by Technical Srl	Zone 2		1724000518	Technical Srl	N.A.	N.A.	YES	N.A.
11	01	64-PSV-001_S	Pressure safety valve	A-64000 Nitrogen generator package	Technical Srl	320-D10-L2	291506	II 2G Ex h IIC T6..T1 Gb	1724000518-IN-DA-00003 1724000518-IN-DS-00004	Declaration of Conformity by Technical Srl	Zone 2		1724000518	Technical Srl	N.A.	N.A.	YES	N.A.
12	01	50-PSV-0011	Pressure safety valve	Water treatment package	Technical Srl	320-D10-F1	291507	II 2G Ex h IIC T6..T1 Gb	1724000518-IN-DA-00003 1724000518-IN-DS-00004	Declaration of Conformity by Technical Srl	Zone 2		1724000518	Technical Srl	N.A.	N.A.	YES	N.A.

CUSTOMER RELEASE NOTE

C Release Note	☐ FOR PAYMENT	☒ FOR SHIPMENT

RELEASE NOTE FOR PAYMENT

PO Art.	

RELEASE NOTE FOR SHIPMENT

POS. *Item*	QTÀ *Quantity*	DESCRIZIONE *Description*	Nr. TAG *TAG No.*	TIPO DI ISPEZIONE *Kind of Inspection*	ESITO *Result*
10	2	Pressure Safety Valve	80-PSV-001 80-PSV-001_S	N/A	N/A
20	2	Pressure Safety Valve	25PSV-001A 25-PSV-00X_S	N/A	N/A
30	1	Pressure Safety Valve	25PSV-001B	N/A	N/A
40	1	Pressure Safety Valve	25PSV-001C	N/A	N/A
50	1	Pressure Safety Valve	25PSV-001D	N/A	N/A
60	1	Pressure Safety Valve	25PSV-001E	N/A	N/A
70	1	Pressure Safety Valve	25PSV-001F	N/A	N/A
80	1	Pressure Safety Valve	64PSV-001	N/A	N/A
90	N/A	Spare Parts Commissioning	N/A	N/A	N/A
100	N/A	2Y Spare Parts	N/A	N/A	N/A
150	1	Pressure Safety Valve	64PSV-001_S	N/A	N/A

Warehouse open Monday to Friday from 08.00 to12.00 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. *Approval Code*
N/A	PO	172400518	02	N/A
N/A	Packing List	23-3962-rosetti	N/A	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*			
One PSV still to be shipped, tag: 50-PSV-011			

ROSETTI MARINO	RELEASE NOTE	Nr. RN-0518-TEC-02	Sheet 1 of 2
		DATA *Date* 16/09/2024	Rev. 00
PROGETTO *Project* HOLLANDSE KUST NOORD WIND PARK	CLIENTE *Client* CROSSWIND	COMMESSA *Job* 123A90	
FORNITORE *Vendor* Technical	NUMERO D' ORDINE *Purchase Order No.* 172400518		

C Release Note	☐ FOR PAYMENT	☒ FOR SHIPMENT

RELEASE NOTE FOR PAYMENT

PO Art.	

RELEASE NOTE FOR SHIPMENT

POS. *Item*	QTÀ *Quantity*	DESCRIZIONE *Description*	Nr. TAG *TAG No.*	TIPO DI ISPEZIONE *Kind of Inspection*	ESITO *Result*
160	1	Pressure Safety Valve	50-PSV-011	N/A	N/A

Warehouse open Monday to Friday from 08.00 to12.00 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. *Approval Code*
N/A	PO	172400518	02	N/A
N/A	Packing List	23-3962_Packing list_13.09.2024	N/A	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 actual delivery date it's not greater than two weeks from contractual delivery date.

INCARICATO *Person in charge* ROSETTI MARINO *Supply Management dept.*		RAPPR. DEL CLIENTE *Client Representative*	FORNITORE *Vendor*	CONSTRUCTION MANAGER *Only requested for Punch List to be closed at Yard*
Nome Cognome *Name Surname*	**Firma** *Signature*			
Leonardo PASQUALI	Leonardo Pasquali 2024.09.16 14:33:12+02'00'	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.*
MOD-PRO-18-Rev. 2016-02 Release Note Report

ROSETTI MARINO	RELEASE NOTE	Nr. RN-0518-TEC-02	Sheet 2 of 2
		DATA *Date* 16/09/2024	Rev. 00
PROGETTO *Project* **HOLLANDSE KUST NOORD WIND PARK**	**CLIENTE** *Client* CROSSWIND	**COMMESSA** *Job* ***123A90***	
FORNITORE *Vendor* Technical	**NUMERO D' ORDINE** *Purchase Order No.* 172400518		

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*

None.

INCARICATO *Person in charge* **ROSETTI MARINO** *Supply Management dept.*		**RAPPR. DEL CLIENTE** *Client Representative*	**FORNITORE** *Vendor*	**CONSTRUCTION MANAGER** *Only requested for Punch List to be closed at Yard*
Nome Cognome *Name Surname*	**Firma** *Signature*			
Leonardo PASQUALI	Leonardo Pasquali 2024.09.16 14:33:12+02'00'	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.*

MOD-PRO-18-Rev. 2016-02 Release Note Report