Base Load Power Hub (BLPH)

WELDING BOOK - SCANDIUZZI

Document Number: 1723001793-WEL-LIS-00005

Document Class: 2

1	11/01/2024	Accepted for Construction (AFC)	M.TEMPESTA	A.SIMONETTO	M.AMOROSO
0	11/12/2023	Issue for Review (IFR)	M.TEMPESTA	A.SIMONETTO	M.AMOROSO
Rev.	Date	Description	Prepared	Reviewed	Approved

SCANDIUZZI

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Revision / Change Log

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

HOLDS LIST

No.	Description
1	
2	
3	
4	

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1 INTRODUCTION

1.1 PROJECT OVERVIEW

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

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

1.1.1 Project Location

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

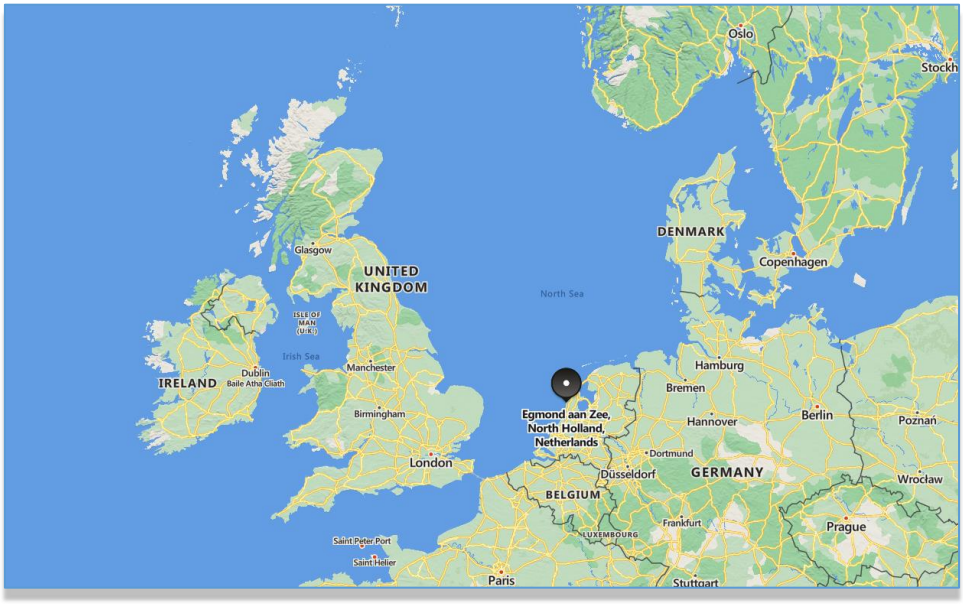


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map

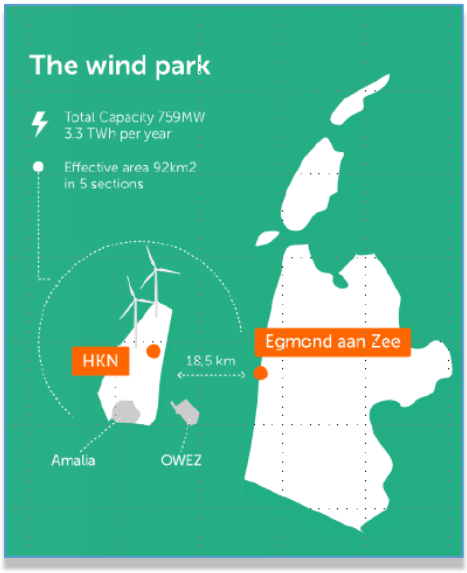


Figure 2 - Wind Park Details

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

1.1.2 Project Concept

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

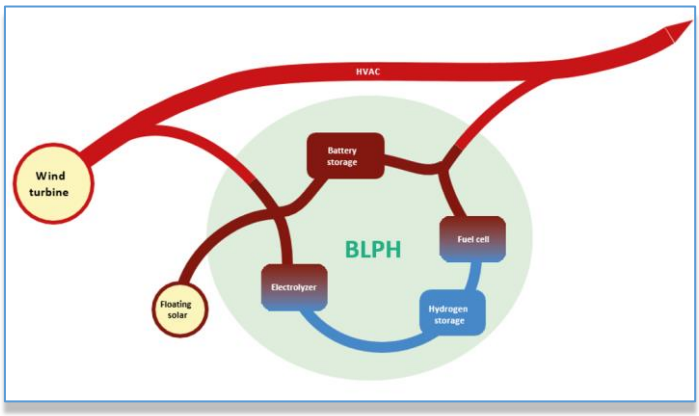


Figure 3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as

converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

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

2 DOCUMENT SCOPE

The scope of this procedure is to define the Welding Procedure Specifications to be used on structural steelworks of Base Load Power Hub (BLPH) on WPG and node supply fabricated in SCANDIUZZI facilities.

Scandiuzzi coded the welding book internally as 2308-WB-00 (annex to present document).

2.1 REFERENCES

Doc. No.	Rev.	Date	Description - Title
K559-2254-MT-SPE-001	01	06/03/2023	Structural Fabrication Specification
EEMUA 158	Third ededition	2014	Construction Specification for Fixed Offshore Structures.
ISO 19902	Second edition	2020-11	Petroleum and Natural Gas Industries - Fixed Steel Offshore Structures.
ISO 19901-3	Dec-2014	Dec-2014	Petroleum and Natural Gas Industries - Specific Requirements for Offshore Structures - Topsides Structure.

Table 1 - Reference Documents

2.2 DEFINITIONS AND ABBREVIATIONS

COMPANY or Client (CPY):	Crosswind
CONTRACTOR (CTR):	ROSETTI MARINO S.p.A.
PROJECT:	HOLLANDSE KUST NOORD WIND PARK Project
CA	Certifying Authority
DP	Dye Penetrant
ITP	Inspection and Test Plan
MPI	Magnetic Particle Inspection
NDT	Non-Destructive Testing
QA	Quality Assurance
QC	Quality Control
RT	Radiographic Testing
UT	Ultrasonic Testing
WPQ	Welder Performance Qualification
WPQR (aka PQR)	Welding Procedure Qualification Record
WPS	Welding Procedure Specification
CJP	Complete Joint Penetration
PJP	Partial Joint Peneteration
FW	Fillet weld joint
WI	Welding Inspector
WS	Welding Supervisor
WT	Wall Thickness

Table 2 - Definitions and Abbreviations

3 ANNEX: SCANDIUZZI PACKAGE FOR WELDING

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STEEL STRUCTURES according to EEMUA 158

Welding Book for workshop activities:

PLATE GIRDER PREFABRICATION (WELDED BEAM) AND STEELWORKS JOINTS

REVISION	DATE	ISSUED	APPROVED	DESCRIPTION
1	06/12/2023	A.Simonetto	M.Amoroso	FINAL ISSUE
0	04/12/2023	M.Tempesta	M.Amoroso	PRELIMINARY ISSUE

SCANDIUZZI	**WELDING BOOK** *QUADERNO DI SALDATURA*	**COMM.:** *JOB*	**2308**
		DATA: *Date:*	**06/12/2023**
CUSTOMER: *CLIENTE*	**ROSETTI MARINO**	**Doc. N°**	**2308 – WB – 00**
PROJECT: *PROGETTO*	**Base Load Power Hub (BLPH)**	**P.O.:**	**1723001792** **1723001793**

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WPS LIST

LISTA SPECIFICHE DI SALDATURA

SCANDIUZZI

WELDING KEY FORM

LISTA DELLE SPECIFICHE DI SALDATURA

COMM. / JOB: 2308

DATE : 06/12/2023

CLIENTE / CUSTOMER: ROSETTI E MARINO

ITEM : STEEL STRUCTURES according to EEMUA 158 PLATE GIRDER PREFABRICATION

DOC.No. 2308-WB-00

IMPIANTO / PLANT: Base Load Power Hub (BLPH)

P.O. No. 1723001792 - 1723001793

SPECIFICA APPLICABILE APPLICABLE WPS	MATERIALE BASE BASE MATERIAL	GAMMA SPESSORI THK. RANGE (mm)	PROCESSO DI SALDATURA WELDING PROCESS	PROC DI SALD. DI SUPPORTO SUPPORTING WPQR	DESCRIZIONE TIPO DI GIUNTO / TYPE OF JOINT	DESCRIZIONE TIPO DI SALDATURA / TYPE OF WELD	PRERISCALDO PREHEAT	TEMERATURA INTERPASS	POS. DI SALDATURA WELDING POSITION	MATERIALE DI SALDATURA / FILLER METAL 121	 138	 136
2308-121-00	S460MLO EN10225-2 S460MLO EN10225-2	12,5- 50	121	**23TO001006PW\1A** **23TO001006PW\2A**	GIUNTO D'ANGOLO TEE/CORNER JOINT	SALDATURE D'ANGOLO PASSATA MULTIPLA MULTIPASS FILLET WELDS	≥ 50°C	200°C	PA	EN ISO 14174/ EN ISO 14171-A: S A FB 1 55 AC H5 / S3Si		
2308-136-01	S460MLO EN 10025-2 S460MLO EN 10025-2	12,5- 50	136	**23TO001006PW\4A**	GIUNTO DI TESTA e A T BUTT JOINT and T JOINT	SALDATURA A PIENA PENETRAZIONE FULL PENETRATION WELD	≥ 50°C	200°C	PF			EN 17632-A: T50 6 1Ni P M21 1 H5
2308-136-02	S460MLO EN 10025-2 S460MLO EN 10025-2	12,5- 50	136	**23TO001006PW\4A**	GIUNTO DI TESTA e A T BUTT JOINT and T JOINT	SALDATURA A PIENA PENETRAZIONE FULL PENETRATION WELD	≥ 50°C	200°C	PF			EN 17632-A: T50 6 1Ni P M21 1 H5
2308-138-03	S460MLO EN 10025-2 S460MLO EN 10025-2	12,5- 50	138	**23TO001006PW\3A**	GIUNTO DI TESTA e A T BUTT JOINT and T JOINT	SALDATURA A PIENA PENETRAZIONE FULL PENETRATION WELD	≥ 50°C	200°C	PA-PB		EN 17632-A: T50 6 1Ni M M21 1 H5	
2308-138-04	S460MLO EN 10025-2 S460MLO EN 10025-2	12,5- 50	138	**23TO001006PW\3A**	GIUNTO DI TESTA e A T BUTT JOINT and T JOINT	SALDATURA A PIENA PENETRAZIONE FULL PENETRATION WELD	≥ 50°C	200°C	PA-PB		EN 17632-A: T50 6 1Ni M M21 1 H5	
2308-136-05	S460MLO EN 10025-2 S460MLO EN 10025-2	3-50	136	**23TO001006PW\4A**	GIUNTO D'ANGOLO TEE/CORNER JOINT	SALDATURE D'ANGOLO PASSATA MULTIPLA MULTIPASS FILLET WELDS	≥ 50°C	200°C	PF		EN 17632-A: T50 6 1Ni P M21 1 H5	
2308-138-06	S460MLO EN 10025-2 S460MLO EN 10025-2	3-50	138	**23TO001006PW\3A**	GIUNTO D'ANGOLO TEE/CORNER JOINT	SALDATURE D'ANGOLO PASSATA MULTIPLA MULTIPASS FILLET WELDS	≥ 50°C	200°C	PB			EN 17632-A: T50 6 1Ni M M21 1 H5

REV.	DATE	ISSUED BY	APPROVED BY	NOTES
1	06/12/2023	A.SIMONETTO	M.AMOROSO	FINAL ISSUE
0	04/12/2023	M.TEMPESTA	M.AMOROSO	PRELIMINARY ISSUE

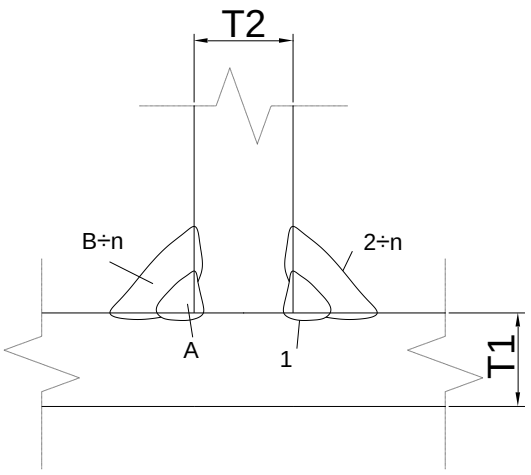
WPS

SCANDiUZZi	**MANUFACTURER'S WELDING PROCEDURE SPECIFICATION (W P S)** PROCEDURA DI SALDATURA ACCORDING TO EN ISO 15609-1 Ed 2019	**WPS-N.**/PROC.N. **2308-121-00** **Rev. 2** **DATE**/DATA **06/12/2023** **SUPP. WPAR N°:** **23TO001006PW\1A** WPAR DI SUPP.: **23TO001006PW\2A**

WELDING PROCESS(ES) / PROCESSO(I) DI SALDATURA	***A)***	**121**	***B)***		***C)***	
TYPE(S) / TIPO	**A)**	FULLY MECHANIZED	**B)**		**C)**	

JOINTS / GIUNTI	
JOINT TYPE / TIPO DI GIUNTO	TEE-JOINT, FW - ml
BACKING / SOSTEGNO	YES
BACKING MATERIAL TYPE / TIPO MATERIALE DI SOSTEGNO :	Base material
WELD PREPARATION / PREPARAZIONE:	SEE SKETCH
METHOD OF PREPARATION & CLEANING: METODO DI PREPARAZIONE E PULIZIA:	GRINDING AND BRUSHING
PARENT MATERIAL / MATERIALE BASE	
GROUP NO./ GRUPPO **TO/**A **GROUP NO**./ GRUPPO	2.1 to 2.1
SPEC. TYPE & GRADE TO / SPECIF. TIPO E GRADO	S460 MLO EN 10225-2
THICKNESS / SPESSORE (mm)	T1-T2=12,5 to 50 mm
OUTSIDE DIAMETER: DIAMETRO ESTERNO: (mm).	N.A.
OTHER /	

Sketch
Bevel details see constructions drawings
Throat size=unlimited



FILLER METAL / MATERIALE D'APPORTO		**A)**	**B)**
SPECIFICATION NO./ SPECIFICA NO**.**		ISO 14171-A	
DESIGNATION / CLASSIFICAZIONE		S3Si	
SIZE / DIMENSIONI		4 mm	
TRADE NAME / NOME COMMERCIALE		OK AUTROD 12.32	
MANUFACTURER / FABBRICANTE		ESAB	
FLUX TRADE NAME / NOME COMM. FLUSSO		OK FLUX 10.62	
MANUFACTURER / FABBRICANTE		ESAB	
OTHER / ALTRO		EN ISO 14174/EN ISO 14171-A: S A FB 1 55 AC H5 / S3Si	

WELDING POSITION / POSIZIONE DI SALDATURA	
POSITION / POSIZIONE	PB - HORIZONTAL
WELDING PROGRESSION / PROGRESSIONE DI SALDATURA	N.A.

PREHEAT / PRERISCALDO	
PREHEAT TEMP. / TEMPERATURA DI PRERISCALDO (C°)	≥ 50° C
INTERPASS TEMP. / TEMPERATURA DI INTERPASS (C°)	200°C max.
PREHEAT MAINTENANCE / TEMPERATURA DI POSTRISCALDO	N.A.

GAS(ES) / GAS

PERCENT COMPOSITION / COMPOSIZIONE %

	GAS(ES) GAS	**(MIXTURE)** (MISCELA)	**FLOW RATE** PORTATA	**DESIGNAZIONE GAS** GAS DESIGNATION
PLASMA	***N.A.***	***N.A.***	***N.A.***	***N.A.***
SHIELDING / PROTEZIONE	***N.A.***	***N.A.***	***N.A.***	***N.A.***
TRAILING / AGGIUNTIVO	***N.A.***	***N.A.***	***N.A.***	***N.A.***
BACKING / AL ROVESCIO	***N.A.***	***N.A.***	***N.A.***	***N.A.***

SCANDiUZZi	**MANUFACTURER'S WELDING PROCEDURE SPECIFICATION (W P S)** PROCEDURA DI SALDATURA ACCORDING TO EN ISO 15609-1 Ed 2019	**WPS-N.**/PROC.N. **2308-121-00** **Rev. 2** **DATE**/DATA **06/12/2023** **SUPP. WPAR N°:** **23TO001006PW\1A** WPAR DI SUPP.: **23TO001006PW\2A**

ELECTRICAL CHARACTERISTICS CARATTERISTICHE ELETTRICHE

CURRENT / CORRENTE	SEE TABLE BELOW
POLARITY / POLARITA'	SEE TABLE BELOW
MODE OF METAL TRANSFER / MODO DI TRASFERIMENTO...	N.A.
TUNGSTEN ELECTRODE TYPE & SIZE / TIPO E DIMENS. ELETTRODO W	N.A.
ELECTRODE WIRE FEED SPEED RANGE / CAMPO DI VELOCITA' DEL FILO	N.A.

TECHNIQUE / TECNICA

STRING OR WEAVE BEADS / CORDONI STRETTI O LARGHI	WEAVE AND STRING
ORIFICE OR GAS CUP SIZE / DIAMETRO DELL'UGELLO O CERAMICA	16 mm
INITIAL & INTERPASS CLEANING / PULIZIA INIZIALE E FRA LE PASSATE	GRINDING AND/OR BRUSHING
METHOD OF BACK GOUGING / METODO DI SOLCATURA	N.A.
OSCILLATION / OSCILLAZIONE	N.A.
AMPLITUDE / AMPIEZZA	N.A.
FREQUENCY / FREQUENZA	N.A.
STAND OFF DISTANCE / DISTANZA LIBERA FILO (mm**)**	20-25 mm
MULTIPLE, SINGLE PASS (PER SIDE) /PASSATA SINGOLA O MULT.(PER LATO)	MULTIPLE
SINGLE OR MULTIPLE ELECTRODES / ELETTRODO/I SINGOLO O MULTIPLI	SINGLE
TORCHE ANGLE / ANGOLO TORCIA	45°
OTHER / ALTRO	Distance between the two opposing torches 100-120
POST WELD HEAT TREATMENT (PWHT) AND/OR AGEING TRATTAMENTO TERMICO DOPO SALDATURA E/O INVECCHIAMENTO	***NONE***
TEMPERATURE RANGE / INTERVALLO DI TEMPERATURA (°C)	N.A.
TIME RANGE (HOURS) / TEMPO DI MANTENIMENTO (ORE**)**	N.A.
HEAT. RATE / GRADIENTE DI RISCALDAMENTO (°C/H)	N.A.
COOL. RATE / GRADIENTE DI RAFFREDDAMENTO(°C/H)	N.A.
OTHER / ALTRO	N.A.

RUN(S) OR LAYER(S) PASSATE O STRATO/I	**WELDING PROCESS(ES)** PROCESSO(I) DI SALDATURA	**FILLER METAL MATERIALE D'APPORTO**		**CURRENT CORRENTE**			**VOLTAGE** TENSIONE **V**	**TRAVEL SPEED** VELOCITA' DI SALDAT. **(mm/1')**	**HEAT INPUT** APPORTO TERMICO **(KJ/mm)**	**OTHER** ALTRO
		EN DESIG. OR TRADE NAME CLASS. EN O NOME COMM.	**ELECTRODE SIZE** DIMENSIONI (**mm)**	**TYPE & POLARITY** TIPO E POLARITA'		**AMPERES** **A**				
1	121	S3Si	4	DC	EP	500-520	24-26	480-500	1,44 – 1,69	
2÷n	121	S3Si	4	DC	EP	500-520	24-26	480-500	1,44 – 1,69	
A	121	S3Si	4	DC	EP	500-520	24-26	480-500	1,44 – 1,69	
B ÷ n	121	S3Si	4	DC	EP	500-520	24-26	480-500	1,44 – 1,69	

MANUFACTURER COSTRUTTORE
(STAMP AND SIGNATURE)

SCANDIUZZI
STEEL CONSTRUCTIONS S.p.A.
ITALY
QUALITY CONTROL

SCANDiUZZi	**MANUFACTURER'S WELDING PROCEDURE SPECIFICATION (W P S)** PROCEDURA DI SALDATURA ACCORDING TO EN ISO 15609-1 Ed 2019	**WPS-N.**/PROC.N. **2308-136-01** **Rev. 2** **DATE**/DATA **06/12/2023** **SUPP. WPQR N°:** WPQR DI SUPP.: **23TO001006PW\4A**

SHEET/FOGLIO 1/3

WELDING PROCESS(ES) / PROCESSO(I) DI SALDATURA	***A)***	**136**	***B)***		***C)***	
TYPE(S) / TIPO	**A)**	PARTLY MECHANIZED	**B)**		**C)**	

JOINTS / GIUNTI	
JOINT TYPE / TIPO DI GIUNTO	SEE SHEET 3OF 3
BACKING / SOSTEGNO	YES
BACKING MATERIAL TYPE / TIPO MATERIALE DI SOSTEGNO :	WELD METAL
WELD PREPARATION / PREPARAZIONE:	SEE SKETCH
METHOD OF PREPARATION & CLEANING: METODO DI PREPARAZIONE E PULIZIA:	GRINDING AND BRUSHING
PARENT MATERIAL / MATERIALE BASE	
GROUP NO./ GRUPPO **TO/**A **GROUP NO**./ GRUPPO	2.1 to 2.1
SPEC. TYPE & GRADE TO / SPECIF. TIPO E GRADO	S460 MLO EN 10225-2
THICKNESS / SPESSORE (mm)	T1-T2=12,5 -50 mm
OUTSIDE DIAMETER: DIAMETRO ESTERNO: (mm).	N.A.
OTHER /	

For joints design and weld beads sequence see sheet 3 of 3
Per la progettazione del giunto e le passate di saldatura vedere foglio 3 di 3

		A)	**B)**
FILLER METAL / MATERIALE D'APPORTO			
SPECIFICATION NO./ SPECIFICA NO**.**		EN 17632-A	
DESIGNATION / CLASSIFICAZIONE		T50 6 1Ni P M21 1 H5	
SIZE / DIMENSIONI		1,2 mm	
TRADE NAME / NOME COMMERCIALE		DIAMONDSPARK Ni1RC	
MANUFACTURER / FABBRICANTE		BÖHLER	
FLUX TRADE NAME / NOME COMM. FLUSSO		N.A.	
MANUFACTURER / FABBRICANTE		N.A.	
OTHER / ALTRO			

WELDING POSITION / POSIZIONE DI SALDATURA	
POSITION / POSIZIONE	PF (VERTICAL)
WELDING PROGRESSION / PROGRESSIONE DI SALDATURA	UPHILL

PREHEAT / PRERISCALDO	
PREHEAT TEMP. / TEMPERATURA DI PRERISCALDO (C°)	50°C
INTERPASS TEMP. / TEMPERATURA DI INTERPASS (C°)	200°C max.
PREHEAT MAINTENANCE / TEMPERATURA DI POSTRISCALDO	N.A.

GAS(ES) / GAS

PERCENT COMPOSITION / COMPOSIZIONE %

	GAS(ES) GAS	**(MIXTURE)** (MISCELA)	**FLOW RATE** PORTATA	**DESIGNAZIONE GAS** GAS DESIGNATION
PLASMA	***N.A.***	***N.A.***	***N.A.***	***N.A.***
SHIELDING / PROTEZIONE	Ar/CO2	*82 / 18 %*	*16 ÷ 18* l/1'	ISO 14175 – M21
TRAILING / AGGIUNTIVO	***N.A.***	***N.A.***	***N.A.***	***N.A.***
BACKING / AL ROVESCIO	***N.A.***	***N.A.***	***N.A.***	***N.A.***

SCANDiUZZi	**MANUFACTURER'S WELDING PROCEDURE SPECIFICATION (W P S)** PROCEDURA DI SALDATURA ACCORDING TO EN ISO 15609-1 Ed 2019	**WPS-N.**/PROC.N. **2308-136-01** **Rev. 2** **DATE**/DATA **06/12/2023** **SUPP. WPQR N°:** WPQR DI SUPP.: **23TO001006PW\4A**

ELECTRICAL CHARACTERISTICS CARATTERISTICHE ELETTRICHE

CURRENT / CORRENTE	SEE TABLE BELOW
POLARITY / POLARITA'	SEE TABLE BELOW
MODE OF METAL TRANSFER / MODO DI TRASFERIMENTO...	N.A.
TUNGSTEN ELECTRODE TYPE & SIZE / TIPO E DIMENS. ELETTRODO W	N.A.
ELECTRODE WIRE FEED SPEED RANGE / CAMPO DI VELOCITA' DEL FILO	6-9 m / 1'

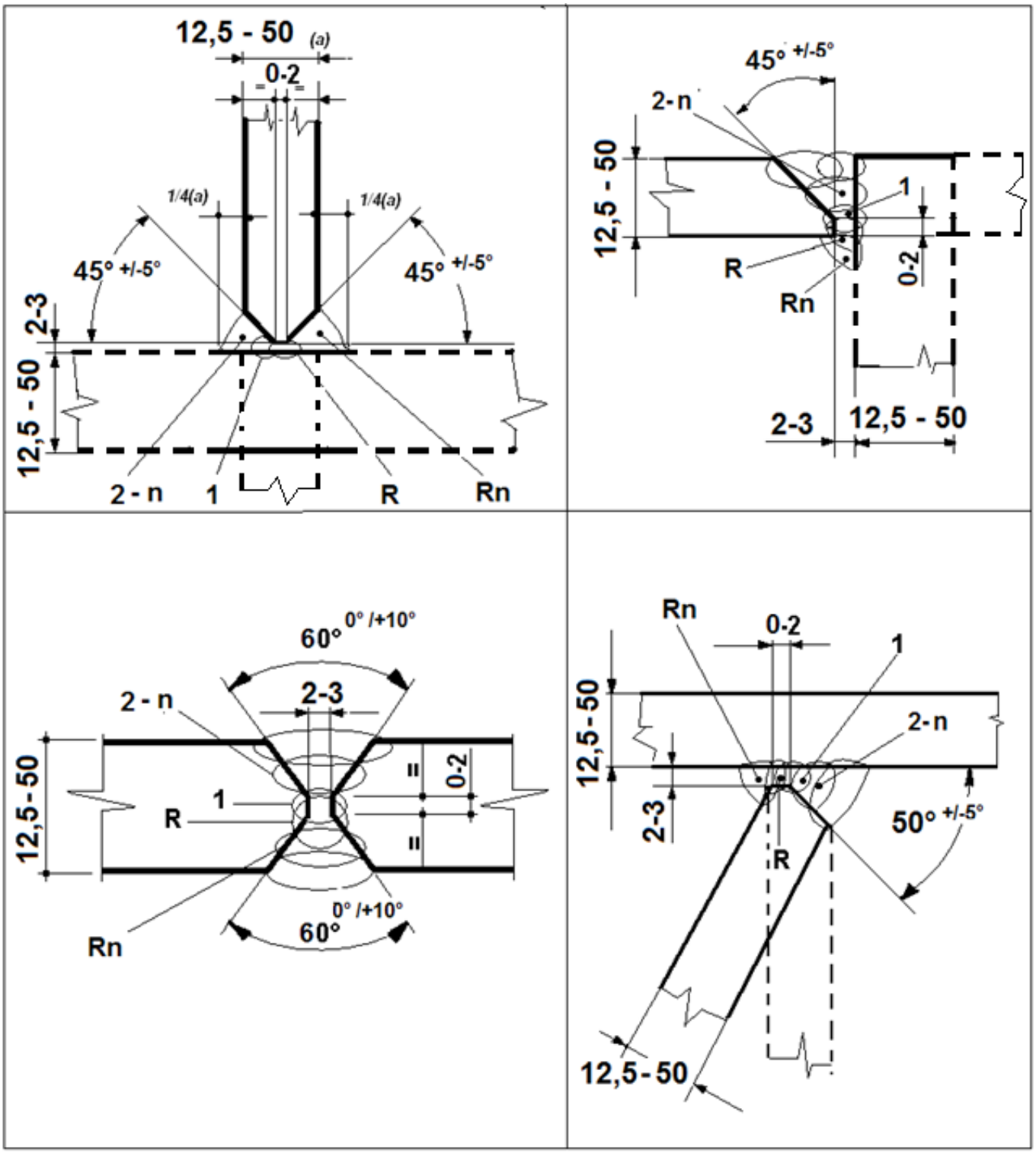
TECHNIQUE / TECNICA

STRING OR WEAVE BEADS / CORDONI STRETTI O LARGHI	BOTH
ORIFICE OR GAS CUP SIZE / DIAMETRO DELL'UGELLO O CERAMICA	18 mm
INITIAL & INTERPASS CLEANING / PULIZIA INIZIALE E FRA LE PASSATE	GRINDING AND/OR BRUSHING
METHOD OF BACK GOUGING / METODO DI SOLCATURA	GRINDING TO SOUND METAL
OSCILLATION / OSCILLAZIONE	N.A.
AMPLITUDE / AMPIEZZA	N.A.
FREQUENCY / FREQUENZA	N.A.
STAND OFF DISTANCE / DISTANZA LIBERA FILO (mm**)**	15-18 mm
MULTIPLE, SINGLE PASS (PER SIDE) /PASSATA SINGOLA O MULT.(PER LATO)	MULTIPLE
SINGLE OR MULTIPLE ELECTRODES / ELETTRODO/I SINGOLO O MULTIPLI	SINGLE
TORCHE ANGLE / ANGOLO TORCIA	20÷45°
OTHER / ALTRO	N.A.

POST WELD HEAT TREATMENT (PWHT) AND/OR AGEING TRATTAMENTO TERMICO DOPO SALDATURA E/O INVECCHIAMENTO	***NONE***
TEMPERATURE RANGE / INTERVALLO DI TEMPERATURA (°C)	N.A.
TIME RANGE (HOURS) / TEMPO DI MANTENIMENTO (ORE**)**	N.A.
HEAT. RATE / GRADIENTE DI RISCALDAMENTO (°C/H)	N.A.
COOL. RATE / GRADIENTE DI RAFFREDDAMENTO(°C/H)	N.A.
OTHER / ALTRO	N.A.

RUN(S) OR LAYER(S) PASSATE O STRATO/I	**WELDING PROCESS(ES)** PROCESSO(I) DI SALDATURA	**FILLER METAL MATERIALE D'APPORTO**		**CURRENT CORRENTE**			**VOLTAGE** TENSIONE **V**	**TRAVEL SPEED** VELOCITA' DI SALDAT. **(mm/1')**	**HEAT INPUT** APPORTO TERMICO **(KJ/mm)**	**OTHER** ALTRO
		EN DESIG. OR TRADE NAME CLASS. EN O NOME COMM.	**ELECTRODE SIZE** DIMENSIONI **(mm)**	**TYPE & POLARITY** TIPO E POLARITA'		**AMPERES** **A**				
1	136	T50 6 1Ni P M21 1 H5	1,2	DC	EP	200 - 215	23 – 24	100 - 120	1,84 - 2,47	N.A.
2-n	136	T50 6 1Ni P M21 1 H5	1,2	DC	EP	215 - 250	23 - 25	200 - 270	0,88 – 1,5	N.A.
R	136	T50 6 1Ni P M21 1 H5	1,2	DC	EP	200 - 220	23 – 24	150 - 200	1,10 - 1,69	N.A.
R1- Rn	136	T50 6 1Ni P M21 1 H5	1,2	DC	EP	215 - 250	23 - 25	200 - 270	0,88 – 1,5	N.A.

SCANDiUZZi	**MANUFACTURER'S WELDING PROCEDURE SPECIFICATION (W P S)** PROCEDURA DI SALDATURA ACCORDING TO EN ISO 15609-1 Ed 2019	**WPS-N.**/PROC.N. **2308-136-01** **Rev. 2** **DATE**/DATA **06/12/2023** **SUPP. WPQR N°:** WPQR DI SUPP.: **23TO001006PW\4A**



MANUFACTURER COSTRUTTORE
(STAMP AND SIGNATURE)

SCANDIUZZI
STEEL CONSTRUCTIONS S.p.A.
ITALY
QUALITY CONTROL

SCANDiUZZi	**MANUFACTURER'S WELDING PROCEDURE SPECIFICATION (W P S)** PROCEDURA DI SALDATURA ACCORDING TO EN ISO 15609-1 Ed 2019	**WPS-N.**/PROC.N. **2308-136-02** **Rev. 2** **DATE**/DATA **06/12/2023** **SUPP. WPQR N°:** WPQR DI SUPP.: **23TO001006PW\4A**

SHEET/FOGLIO 1/3

WELDING PROCESS(ES) / PROCESSO(I) DI SALDATURA	***A)***	**136**	***B)***		***C)***	
TYPE(S) / TIPO	**A)**	PARTLY MECHANIZED	**B)**		**C)**	

JOINTS / GIUNTI	
JOINT TYPE / TIPO DI GIUNTO	SEE SHEET 3 OF 3
BACKING / SOSTEGNO	YES
BACKING MATERIAL TYPE / TIPO MATERIALE DI SOSTEGNO :	CERAMIC BACKING STRIP
WELD PREPARATION / PREPARAZIONE:	SEE SKETCH
METHOD OF PREPARATION & CLEANING: METODO DI PREPARAZIONE E PULIZIA:	GRINDING AND BRUSHING
PARENT MATERIAL / MATERIALE BASE	
GROUP NO./ GRUPPO **TO/**A **GROUP NO**./ GRUPPO	2.1 to 2.1
SPEC. TYPE & GRADE TO / SPECIF. TIPO E GRADO	S460 MLO EN 10225-2
THICKNESS / SPESSORE (mm)	T1-T2=12,5 -50 mm
OUTSIDE DIAMETER: DIAMETRO ESTERNO: (mm).	N.A.
OTHER /	

For joints design and weld beads sequence see sheet 3 of 3
Per la progettazione del giunto e le passate di saldatura vedere foglio 3 di 3

FILLER METAL / MATERIALE D'APPORTO	**A)**	**B)**
SPECIFICATION NO./ SPECIFICA NO**.**	EN 17632-A	
DESIGNATION / CLASSIFICAZIONE	T50 6 1Ni P M21 1 H5	
SIZE / DIMENSIONI	1,2 mm	
TRADE NAME / NOME COMMERCIALE	DIAMONDSPARK Ni1RC	
MANUFACTURER / FABBRICANTE	BÖHLER	
FLUX TRADE NAME / NOME COMM. FLUSSO	N.A.	
MANUFACTURER / FABBRICANTE	N.A.	
OTHER / ALTRO		

WELDING POSITION / POSIZIONE DI SALDATURA	
POSITION / POSIZIONE	PF (VERTICAL)
WELDING PROGRESSION / PROGRESSIONE DI SALDATURA	UPHILL
PREHEAT / PRERISCALDO	
PREHEAT TEMP. / TEMPERATURA DI PRERISCALDO (C°)	≥ 50°C
INTERPASS TEMP. / TEMPERATURA DI INTERPASS (C°)	200°C max.
PREHEAT MAINTENANCE / TEMPERATURA DI POSTRISCALDO	N.A.

GAS(ES) / GAS

PERCENT COMPOSITION / COMPOSIZIONE %

	GAS(ES) GAS	**(MIXTURE)** (MISCELA)	**FLOW RATE** PORTATA	**DESIGNAZIONE GAS** GAS DESIGNATION
PLASMA	***N.A.***	***N.A.***	***N.A.***	***N.A.***
SHIELDING / PROTEZIONE	Ar/CO2	*82 / 18 %*	*16 ÷ 18* l/1'	ISO 14175 – M21
TRAILING / AGGIUNTIVO	***N.A.***	***N.A.***	***N.A.***	***N.A.***
BACKING / AL ROVESCIO	***N.A.***	***N.A.***	***N.A.***	***N.A.***

SCANDiUZZi	**MANUFACTURER'S WELDING PROCEDURE SPECIFICATION (W P S)** PROCEDURA DI SALDATURA ACCORDING TO EN ISO 15609-1 Ed 2019	**WPS-N.**/PROC.N. **2308-136-02** **Rev. 2** **DATE**/DATA **06/12/2023** **SUPP. WPQR N°:** WPQR DI SUPP.: **23TO001006PW\4A**

ELECTRICAL CHARACTERISTICS CARATTERISTICHE ELETTRICHE

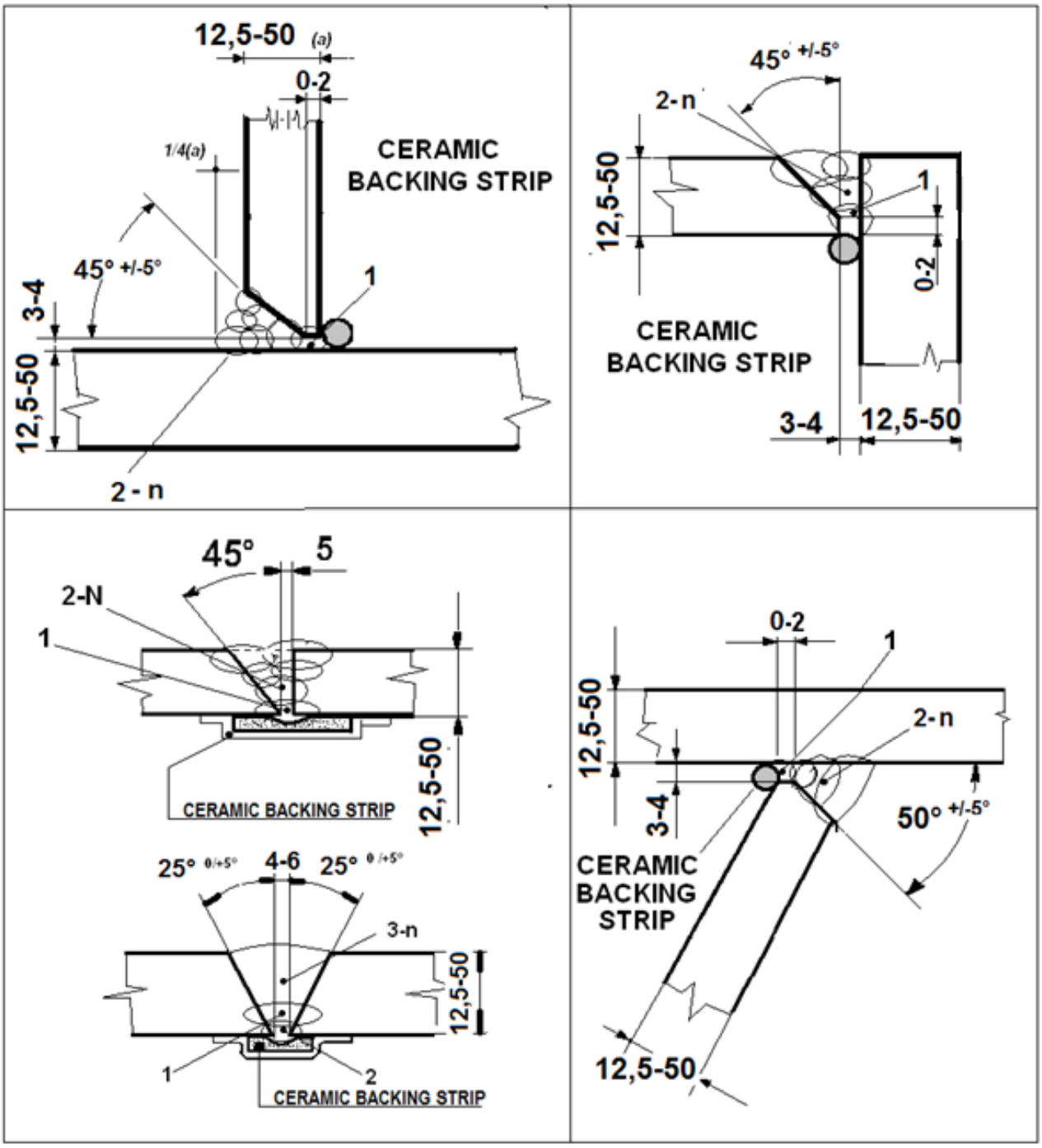
CURRENT / CORRENTE	SEE TABLE BELOW
POLARITY / POLARITA'	SEE TABLE BELOW
MODE OF METAL TRANSFER / MODO DI TRASFERIMENTO...	N.A.
TUNGSTEN ELECTRODE TYPE & SIZE / TIPO E DIMENS. ELETTRODO W	N.A.
ELECTRODE WIRE FEED SPEED RANGE / CAMPO DI VELOCITA' DEL FILO	6-9 m / 1'

TECHNIQUE / TECNICA

STRING OR WEAVE BEADS / CORDONI STRETTI O LARGHI	BOTH
ORIFICE OR GAS CUP SIZE / DIAMETRO DELL'UGELLO O CERAMICA	18 mm
INITIAL & INTERPASS CLEANING / PULIZIA INIZIALE E FRA LE PASSATE	GRINDING AND/OR BRUSHING
METHOD OF BACK GOUGING / METODO DI SOLCATURA	N.A.
OSCILLATION / OSCILLAZIONE	N.A.
AMPLITUDE / AMPIEZZA	N.A.
FREQUENCY / FREQUENZA	N.A.
STAND OFF DISTANCE / DISTANZA LIBERA FILO (mm**)**	15-18 mm
MULTIPLE, SINGLE PASS (PER SIDE) /PASSATA SINGOLA O MULT.(PER LATO)	MULTIPLE
SINGLE OR MULTIPLE ELECTRODES / ELETTRODO/I SINGOLO O MULTIPLI	SINGLE
TORCHE ANGLE / ANGOLO TORCIA	N.A.
OTHER / ALTRO	N.A.

POST WELD HEAT TREATMENT (PWHT) AND/OR AGEING TRATTAMENTO TERMICO DOPO SALDATURA E/O INVECCHIAMENTO	***NONE***
TEMPERATURE RANGE / INTERVALLO DI TEMPERATURA (°C)	N.A.
TIME RANGE (HOURS) / TEMPO DI MANTENIMENTO (ORE**)**	N.A.
HEAT. RATE / GRADIENTE DI RISCALDAMENTO (°C/H)	N.A.
COOL. RATE / GRADIENTE DI RAFFREDDAMENTO(°C/H)	N.A.
OTHER / ALTRO	N.A.

RUN(S) OR LAYER(S) PASSATE O STRATO/I	**WELDING PROCESS(ES)** PROCESSO(I) DI SALDATURA	**FILLER METAL MATERIALE D'APPORTO**		**CURRENT CORRENTE**			**VOLTAGE** TENSIONE **V**	**TRAVEL SPEED** VELOCITA' DI SALDAT. **(mm/1')**	**HEAT INPUT** APPORTO TERMICO **(KJ/mm)**	**OTHER** ALTRO
		EN DESIG. OR TRADE NAME CLASS. EN O NOME COMM.	**ELECTRODE SIZE** DIMENSIONI **(mm)**	**TYPE & POLARITY** TIPO E POLARITA'		**AMPERES** **A**				
1	136	T50 6 1Ni P M21 1 H5	1,2	DC	EP	200 - 215	23 – 24	100 - 120	1,84 - 2,47	N.A.
2-n	136	T50 6 1Ni P M21 1 H5	1,2	DC	EP	215 - 250	23 - 25	200 - 270	0,88 – 1,5	N.A.



MANUFACTURER COSTRUTTORE
(STAMP AND SIGNATURE)

SCANDIUZZI STEEL CONSTRUCTIONS S.p.A. ITALY QUALITY CONTROL

SCANDiUZZi	**MANUFACTURER'S WELDING PROCEDURE SPECIFICATION (W P S)** PROCEDURA DI SALDATURA ACCORDING TO EN ISO 15609-1 Ed 2019	**WPS-N.**/PROC.N. **2308-138-03** **Rev. 2** **DATE**/DATA **06/12/2023** **SUPP. WPQR N°:** WPQR DI SUPP.: **23TO001006PW\3A**

WELDING PROCESS(ES) / PROCESSO(I) DI SALDATURA	***A)***	**138**	***B)***		***C)***	
TYPE(S) / TIPO	**A)**	PARTLY MECHANIZED	**B)**		**C)**	

JOINTS / GIUNTI	
JOINT TYPE / TIPO DI GIUNTO	SEE SHEET 3OF 3
BACKING / SOSTEGNO	YES
BACKING MATERIAL TYPE / TIPO MATERIALE DI SOSTEGNO :	CERAMIC BACKING STRIP
WELD PREPARATION / PREPARAZIONE:	SEE SKETCH
METHOD OF PREPARATION & CLEANING: METODO DI PREPARAZIONE E PULIZIA:	GRINDING AND BRUSHING
PARENT MATERIAL / MATERIALE BASE	
GROUP NO./ GRUPPO **TO/**A **GROUP NO**./ GRUPPO	2.1 to 2.1
SPEC. TYPE & GRADE TO / SPECIF. TIPO E GRADO	S460 MLO EN 10225-2
THICKNESS / SPESSORE (mm)	T1-T2=12,5 -50 mm
OUTSIDE DIAMETER: DIAMETRO ESTERNO: (mm).	N.A.
OTHER /	

For joints design and weld beads sequence see sheet 3 of 3
Per la progettazione del giunto e le passate di saldatura vedere foglio 3 di 3

FILLER METAL / MATERIALE D'APPORTO	**A)**	**B)**
SPECIFICATION NO./ SPECIFICA NO**.**	EN 17632-A	
DESIGNATION / CLASSIFICAZIONE	T50 6 1Ni M M21 1 H5	
SIZE / DIMENSIONI	1,2 mm	
TRADE NAME / NOME COMMERCIALE	DIAMONDSPARK Ni1MC	
MANUFACTURER / FABBRICANTE	BÖHLER	
FLUX TRADE NAME / NOME COMM. FLUSSO	N.A.	
MANUFACTURER / FABBRICANTE	N.A.	
OTHER / ALTRO		

WELDING POSITION / POSIZIONE DI SALDATURA	
POSITION / POSIZIONE	PA - PB (FLAT)
WELDING PROGRESSION / PROGRESSIONE DI SALDATURA	N.A.
PREHEAT / PRERISCALDO	
PREHEAT TEMP. / TEMPERATURA DI PRERISCALDO (C°)	≥ 50°C
INTERPASS TEMP. / TEMPERATURA DI INTERPASS (C°)	200°C max.
PREHEAT MAINTENANCE / TEMPERATURA DI POSTRISCALDO	N.A.

GAS(ES) / GAS

PERCENT COMPOSITION / COMPOSIZIONE %

	GAS(ES) GAS	**(MIXTURE)** (MISCELA)	**FLOW RATE** PORTATA	**DESIGNAZIONE GAS** GAS DESIGNATION
PLASMA	N.A.	N.A.	N.A.	N.A.
SHIELDING / PROTEZIONE	**Ar/CO_2**	**82 / 18 %**	**16 ÷ 18 l/1'**	**ISO 14175 – M21**
TRAILING / AGGIUNTIVO	N.A.	N.A.	N.A.	N.A.
BACKING / AL ROVESCIO	N.A.	N.A.	N.A.	N.A.

SCANDiUZZi	**MANUFACTURER'S WELDING PROCEDURE SPECIFICATION (W P S)** PROCEDURA DI SALDATURA ACCORDING TO EN ISO 15609-1 Ed 2019	**WPS-N**./PROC.N. **2308-138-03** **Rev. 2** **DATE**/DATA **06/12/2023** **SUPP. WPQR N°:** WPQR DI SUPP.: **23TO001006PW\3A**

ELECTRICAL CHARACTERISTICS CARATTERISTICHE ELETTRICHE

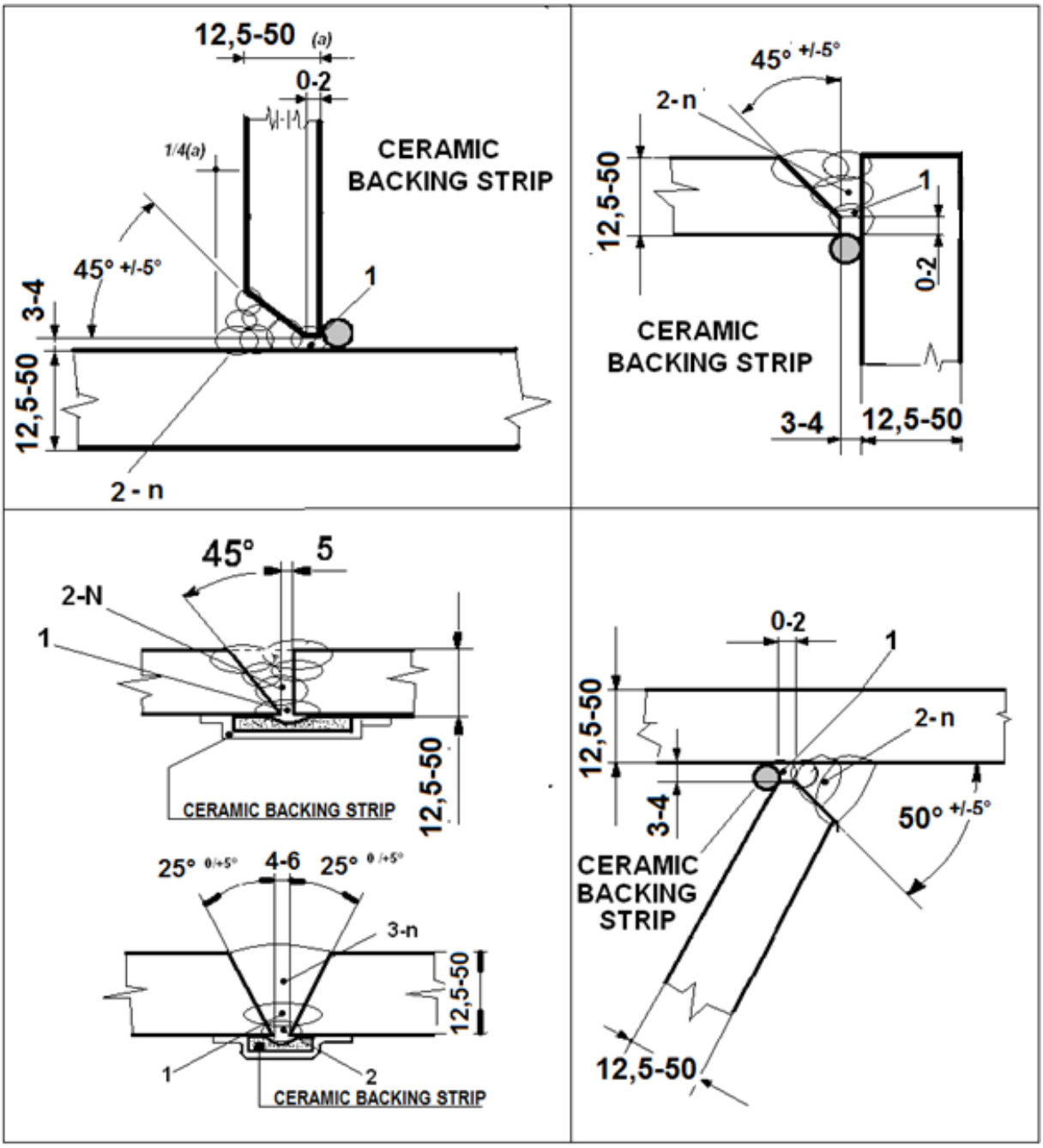
CURRENT / CORRENTE	SEE TABLE BELOW
POLARITY / POLARITA'	SEE TABLE BELOW
MODE OF METAL TRANSFER / MODO DI TRASFERIMENTO...	N.A.
TUNGSTEN ELECTRODE TYPE & SIZE / TIPO E DIMENS. ELETTRODO W	N.A.
ELECTRODE WIRE FEED SPEED RANGE / CAMPO DI VELOCITA' DEL FILO	6 - 9 m / 1'

TECHNIQUE / TECNICA

STRING OR WEAVE BEADS / CORDONI STRETTI O LARGHI	BOTH
ORIFICE OR GAS CUP SIZE / DIAMETRO DELL'UGELLO O CERAMICA	18 mm
INITIAL & INTERPASS CLEANING / PULIZIA INIZIALE E FRA LE PASSATE	GRINDING AND/OR BRUSHING
METHOD OF BACK GOUGING / METODO DI SOLCATURA	N.A.
OSCILLATION / OSCILLAZIONE	N.A.
AMPLITUDE / AMPIEZZA	N.A.
FREQUENCY / FREQUENZA	N.A.
STAND OFF DISTANCE / DISTANZA LIBERA FILO (mm**)**	15-18 mm
MULTIPLE, SINGLE PASS (PER SIDE) /PASSATA SINGOLA O MULT.(PER LATO)	MULTIPLE
SINGLE OR MULTIPLE ELECTRODES / ELETTRODO/I SINGOLO O MULTIPLI	SINGLE
TORCHE ANGLE / ANGOLO TORCIA	20÷45°
OTHER / ALTRO	N.A.

POST WELD HEAT TREATMENT (PWHT) AND/OR AGEING TRATTAMENTO TERMICO DOPO SALDATURA E/O INVECCHIAMENTO	***NONE***
TEMPERATURE RANGE / INTERVALLO DI TEMPERATURA (°C)	N.A.
TIME RANGE (HOURS) / TEMPO DI MANTENIMENTO (ORE**)**	N.A.
HEAT. RATE / GRADIENTE DI RISCALDAMENTO (°C/H)	N.A.
COOL. RATE / GRADIENTE DI RAFFREDDAMENTO(°C/H)	N.A.
OTHER / ALTRO	N.A.

RUN(S) OR LAYER(S) PASSATE O STRATO/I	**WELDING PROCESS(ES)** PROCESSO(I) DI SALDATURA	**FILLER METAL MATERIALE D'APPORTO**		**CURRENT CORRENTE**			**VOLTAGE** TENSIONE **V**	**TRAVEL SPEED** VELOCITA' DI SALDAT. **(mm/1')**	**HEAT INPUT** APPORTO TERMICO **(KJ/mm)**	**OTHER** ALTRO
		EN DESIG. OR TRADE NAME CLASS. EN O NOME COMM.	**ELECTRODE SIZE** DIMENSIONI **(mm)**	**TYPE & POLARITY** TIPO E POLARITA'		**AMPERES** **A**				
1	138	T50 6 1Ni M M21 1 H5	1,2	DC	EP	180-200	23-26	250-300	1,25-1,62	N.A.
2	138	T50 6 1Ni M M21 1 H5	1,2	DC	EP	210-230	27-29	280-320	1,06 – 1,3	N.A.
3-n	138	T50 6 1Ni M M21 1 H5	1,2	DC	EP	240-270	29-31	250-350	0,95 – 1,61	N.A.



MANUFACTURER COSTRUTTORE
(STAMP AND SIGNATURE)

SCANDIUZZI STEEL CONSTRUCTIONS S.p.A. ITALY QUALITY CONTROL

SCANDiUZZi	**MANUFACTURER'S WELDING PROCEDURE SPECIFICATION (W P S)** PROCEDURA DI SALDATURA ACCORDING TO EN ISO 15609-1 Ed 2019	**WPS-N**./PROC.N. **2308-138-04**	**Rev. 2**
		DATE/DATA **06/12/2023**	
		SUPP. WPQR N°: WPQR DI SUPP.: **23TO001006PW\3A**	

WELDING PROCESS(ES) / PROCESSO(I) DI SALDATURA	***A)***	**138**	***B)***		***C)***	
TYPE(S) / TIPO	**A)**	PARTLY MECHANIZED	**B)**		**C)**	

JOINTS / GIUNTI		**For joints design and weld beads sequence see sheet 3 of 3** Per la progettazione del giunto e le passate di saldatura vedere foglio 3 di 3
JOINT TYPE / TIPO DI GIUNTO	SEE SHEET 3OF 3	
BACKING / SOSTEGNO	YES	
BACKING MATERIAL TYPE / TIPO MATERIALE DI SOSTEGNO :	WELD METAL	
WELD PREPARATION / PREPARAZIONE:	SEE SKETCH	
METHOD OF PREPARATION & CLEANING: METODO DI PREPARAZIONE E PULIZIA:	GRINDING AND BRUSHING	
PARENT MATERIAL / MATERIALE BASE		
GROUP NO./ GRUPPO **TO/**A **GROUP NO**./ GRUPPO	2.1 to 2.1	
SPEC. TYPE & GRADE TO / SPECIF. TIPO E GRADO	S460 MLO EN 10225-2	
THICKNESS / SPESSORE (mm)	T1-T2=12,5 -50 mm	
OUTSIDE DIAMETER: DIAMETRO ESTERNO: (mm).	N.A.	
OTHER /		

		A)	**B)**
FILLER METAL / MATERIALE D'APPORTO			
SPECIFICATION NO./ SPECIFICA NO**.**		EN 17632-A	
DESIGNATION / CLASSIFICAZIONE		T50 6 1Ni M M21 1 H5	
SIZE / DIMENSIONI		1,2 mm	
TRADE NAME / NOME COMMERCIALE		DIAMONDSPARK Ni1MC	
MANUFACTURER / FABBRICANTE		BÖHLER	
FLUX TRADE NAME / NOME COMM. FLUSSO		N.A.	
MANUFACTURER / FABBRICANTE		N.A.	
OTHER / ALTRO			

WELDING POSITION / POSIZIONE DI SALDATURA	
POSITION / POSIZIONE	PA - PB (FLAT)
WELDING PROGRESSION / PROGRESSIONE DI SALDATURA	N.A.

PREHEAT / PRERISCALDO	
PREHEAT TEMP. / TEMPERATURA DI PRERISCALDO (C°)	≥ 50°C
INTERPASS TEMP. / TEMPERATURA DI INTERPASS (C°)	200°C max.
PREHEAT MAINTENANCE / TEMPERATURA DI POSTRISCALDO	N.A.

GAS(ES) / GAS

PERCENT COMPOSITION / COMPOSIZIONE %

	GAS(ES) GAS	**(MIXTURE)** (MISCELA)	**FLOW RATE** PORTATA	**DESIGNAZIONE GAS** GAS DESIGNATION
PLASMA	N.A.	N.A.	N.A.	N.A.
SHIELDING / PROTEZIONE	**Ar/CO_2**	**82 / 18 %**	**16 ÷ 18 l/1'**	**ISO 14175 – M21**
TRAILING / AGGIUNTIVO	N.A.	N.A.	N.A.	N.A.
BACKING / AL ROVESCIO	N.A.	N.A.	N.A.	N.A.

ELECTRICAL CHARACTERISTICS CARATTERISTICHE ELETTRICHE

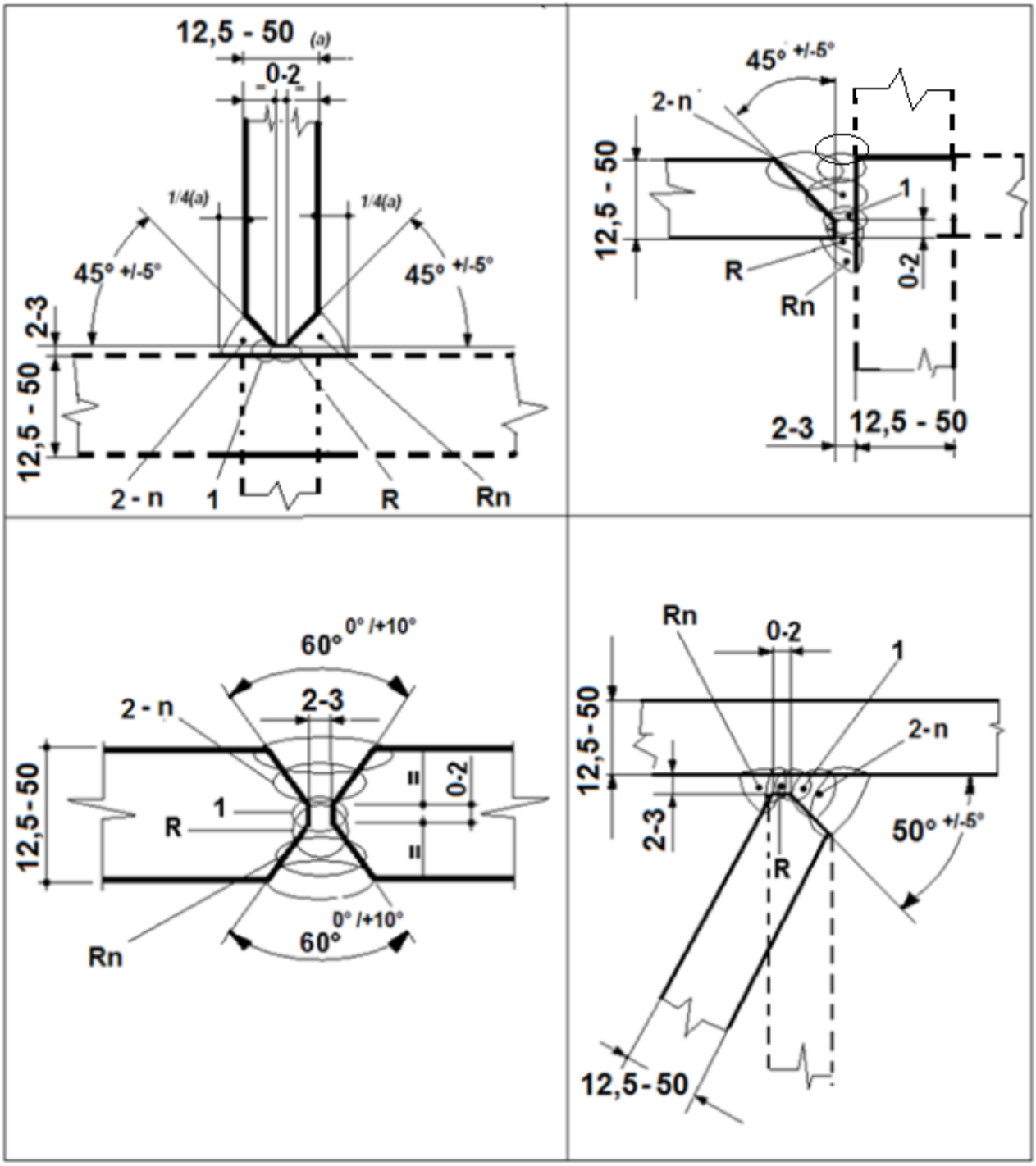
CURRENT / CORRENTE	SEE TABLE BELOW
POLARITY / POLARITA'	SEE TABLE BELOW
MODE OF METAL TRANSFER / MODO DI TRASFERIMENTO...	N.A.
TUNGSTEN ELECTRODE TYPE & SIZE / TIPO E DIMENS. ELETTRODO W	N.A.
ELECTRODE WIRE FEED SPEED RANGE / CAMPO DI VELOCITA' DEL FILO	6 - 9 m / 1'

TECHNIQUE / TECNICA

STRING OR WEAVE BEADS / CORDONI STRETTI O LARGHI	BOTH
ORIFICE OR GAS CUP SIZE / DIAMETRO DELL'UGELLO O CERAMICA	18 mm
INITIAL & INTERPASS CLEANING / PULIZIA INIZIALE E FRA LE PASSATE	GRINDING AND/OR BRUSHING
METHOD OF BACK GOUGING / METODO DI SOLCATURA	GRINDING TO SOUND METAL
OSCILLATION / OSCILLAZIONE	N.A.
AMPLITUDE / AMPIEZZA	N.A.
FREQUENCY / FREQUENZA	N.A.
STAND OFF DISTANCE / DISTANZA LIBERA FILO (mm**)**	15-18 mm
MULTIPLE, SINGLE PASS (PER SIDE) /PASSATA SINGOLA O MULT.(PER LATO)	MULTIPLE
SINGLE OR MULTIPLE ELECTRODES / ELETTRODO/I SINGOLO O MULTIPLI	SINGLE
TORCHE ANGLE / ANGOLO TORCIA	20÷45°
OTHER / ALTRO	N.A.

POST WELD HEAT TREATMENT (PWHT) AND/OR AGEING TRATTAMENTO TERMICO DOPO SALDATURA E/O INVECCHIAMENTO	***NONE***
TEMPERATURE RANGE / INTERVALLO DI TEMPERATURA (°C)	N.A.
TIME RANGE (HOURS) / TEMPO DI MANTENIMENTO (ORE**)**	N.A.
HEAT. RATE / GRADIENTE DI RISCALDAMENTO (°C/H)	N.A.
COOL. RATE / GRADIENTE DI RAFFREDDAMENTO(°C/H)	N.A.
OTHER / ALTRO	N.A.

RUN(S) OR LAYER(S) PASSATE O STRATO/I	**WELDING PROCESS(ES)** PROCESSO(I) DI SALDATURA	**FILLER METAL MATERIALE D'APPORTO**		**CURRENT CORRENTE**			**VOLTAGE** TENSIONE **V**	**TRAVEL SPEED** VELOCITA' DI SALDAT. **(mm/1')**	**HEAT INPUT** APPORTO TERMICO **(KJ/mm)**	**OTHER** ALTRO
		EN DESIG. OR TRADE NAME CLASS. EN O NOME COMM.	**ELECTRODE SIZE** DIMENSIONI **(mm)**	**TYPE & POLARITY** TIPO E POLARITA'		**AMPERES** **A**				
1	138	T50 6 1Ni M M21 1 H5	1,2	DC	EP	180-200	23-26	250-300	1,25-1,62	N.A.
2	138	T50 6 1Ni M M21 1 H5	1,2	DC	EP	210-230	27-29	280-320	1,06 – 1,3	N.A.
3-n	138	T50 6 1Ni M M21 1 H5	1,2	DC	EP	240-270	29-31	250-350	0,95 – 1,61	N.A.
R	138	T50 6 1Ni M M21 1 H5	1,2	DC	EP	210-230	27-29	280-320	1,06 – 1,3	N.A.
R1-Rn	138	T50 6 1Ni M M21 1 H5	1,2	DC	EP	240-270	29-31	250-350	0,95 – 1,61	N.A.



MANUFACTURER COSTRUTTORE
(STAMP AND SIGNATURE)

SCANDIUZZI
STEEL CONSTRUCTIONS S.p.A.
ITALY
QUALITY CONTROL

SCANDiUZZi	**MANUFACTURER'S WELDING PROCEDURE SPECIFICATION (W P S)** PROCEDURA DI SALDATURA ACCORDING TO EN ISO 15609-1 Ed 2019	**WPS-N.**/PROC.N. **2308-136-05** **Rev. 2** **DATE**/DATA **06/12/2023** **SUPP. WPQR N°:** WPQR DI SUPP.: **23TO001006PW\4A**

SHEET/FOGLIO 1/3

WELDING PROCESS(ES) / PROCESSO(I) DI SALDATURA	***A)***	**136**	***B)***		***C)***	
TYPE(S) / TIPO	**A)**	PARTLY MECHANIZED	**B)**		**C)**	

JOINTS / GIUNTI	
JOINT TYPE / TIPO DI GIUNTO	FILLET WELDS (MULTIPASS)
BACKING / SOSTEGNO	YES
BACKING MATERIAL TYPE / TIPO MATERIALE DI SOSTEGNO :	BASE MATERIAL
WELD PREPARATION / PREPARAZIONE:	SEE SKETCH
METHOD OF PREPARATION & CLEANING: METODO DI PREPARAZIONE E PULIZIA:	GRINDING AND BRUSHING
PARENT MATERIAL / MATERIALE BASE	
GROUP NO./ GRUPPO **TO/**A **GROUP NO**./ GRUPPO	2.1 to 2.1
SPEC. TYPE & GRADE TO / SPECIF. TIPO E GRADO	S460 MLO EN 10225-2
THICKNESS / SPESSORE (mm)	T1-T2=3 -50 mm
OUTSIDE DIAMETER: DIAMETRO ESTERNO: (mm).	N.A.
OTHER / ALTRO : FILL	

For joints design and weld beads sequence see sheet 3 of 3
Per la progettazione del giunto e le passate di saldatura vedere foglio 3 di 3

FILLER METAL / MATERIALE D'APPORTO	**A)**	**B)**
SPECIFICATION NO./ SPECIFICA NO**.**	EN 17632-A	
DESIGNATION / CLASSIFICAZIONE	T50 6 1Ni P M21 1 H5	
SIZE / DIMENSIONI	1,2 mm	
TRADE NAME / NOME COMMERCIALE	DIAMONDSPARK Ni1RC	
MANUFACTURER / FABBRICANTE	BÖHLER	
FLUX TRADE NAME / NOME COMM. FLUSSO	N.A.	
MANUFACTURER / FABBRICANTE	N.A.	
OTHER / ALTRO FILLET WELD THROAT SIZE : UNLIMITED		

WELDING POSITION / POSIZIONE DI SALDATURA	
POSITION / POSIZIONE	PF (VERTICAL)
WELDING PROGRESSION / PROGRESSIONE DI SALDATURA	UPHILL
PREHEAT / PRERISCALDO	
PREHEAT TEMP. / TEMPERATURA DI PRERISCALDO (C°)	≥ 50°C
INTERPASS TEMP. / TEMPERATURA DI INTERPASS (C°)	200°C max.
PREHEAT MAINTENANCE / TEMPERATURA DI POSTRISCALDO	N.A.

GAS(ES) / GAS

PERCENT COMPOSITION / COMPOSIZIONE %

	GAS(ES) GAS	**(MIXTURE)** (MISCELA)	**FLOW RATE** PORTATA	**DESIGNAZIONE GAS** GAS DESIGNATION
PLASMA	***N.A.***	***N.A.***	***N.A.***	***N.A.***
SHIELDING / PROTEZIONE	Ar/CO2	*82 / 18 %*	*16 ÷ 18* l/1'	ISO 14175 – M21
TRAILING / AGGIUNTIVO	***N.A.***	***N.A.***	***N.A.***	***N.A.***
BACKING / AL ROVESCIO	***N.A.***	***N.A.***	***N.A.***	***N.A.***

SCANDiUZZi	**MANUFACTURER'S WELDING PROCEDURE SPECIFICATION (W P S)** PROCEDURA DI SALDATURA ACCORDING TO EN ISO 15609-1 Ed 2019	**WPS-N**./PROC.N. **2308-136-05** **Rev. 2** **DATE**/DATA **06/12/2023** **SUPP. WPQR N°:** WPQR DI SUPP.: **23TO001006PW\4A**

ELECTRICAL CHARACTERISTICS CARATTERISTICHE ELETTRICHE

CURRENT / CORRENTE	SEE TABLE BELOW
POLARITY / POLARITA'	SEE TABLE BELOW
MODE OF METAL TRANSFER / MODO DI TRASFERIMENTO...	N.A.
TUNGSTEN ELECTRODE TYPE & SIZE / TIPO E DIMENS. ELETTRODO W	N.A.
ELECTRODE WIRE FEED SPEED RANGE / CAMPO DI VELOCITA' DEL FILO	6-9 m / 1'

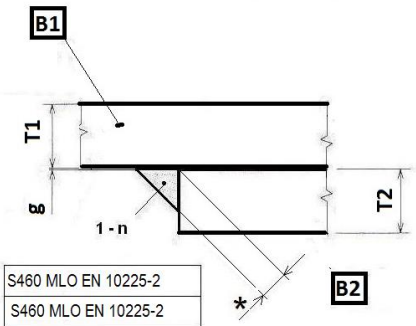
TECHNIQUE / TECNICA

STRING OR WEAVE BEADS / CORDONI STRETTI O LARGHI	BOTH
ORIFICE OR GAS CUP SIZE / DIAMETRO DELL'UGELLO O CERAMICA	18 mm
INITIAL & INTERPASS CLEANING / PULIZIA INIZIALE E FRA LE PASSATE	GRINDING AND/OR BRUSHING
METHOD OF BACK GOUGING / METODO DI SOLCATURA	N.A.
OSCILLATION / OSCILLAZIONE	N.A.
AMPLITUDE / AMPIEZZA	N.A.
FREQUENCY / FREQUENZA	N.A.
STAND OFF DISTANCE / DISTANZA LIBERA FILO (mm**)**	15-18 mm
MULTIPLE, SINGLE PASS (PER SIDE) /PASSATA SINGOLA O MULT.(PER LATO)	MULTIPLE
SINGLE OR MULTIPLE ELECTRODES / ELETTRODO/I SINGOLO O MULTIPLI	SINGLE
TORCHE ANGLE / ANGOLO TORCIA	45°
OTHER / ALTRO	N.A.

POST WELD HEAT TREATMENT (PWHT) AND/OR AGEING TRATTAMENTO TERMICO DOPO SALDATURA E/O INVECCHIAMENTO	***NONE***
TEMPERATURE RANGE / INTERVALLO DI TEMPERATURA (°C)	N.A.
TIME RANGE (HOURS) / TEMPO DI MANTENIMENTO (ORE**)**	N.A.
HEAT. RATE / GRADIENTE DI RISCALDAMENTO (°C/H)	N.A.
COOL. RATE / GRADIENTE DI RAFFREDDAMENTO(°C/H)	N.A.
OTHER / ALTRO	N.A.

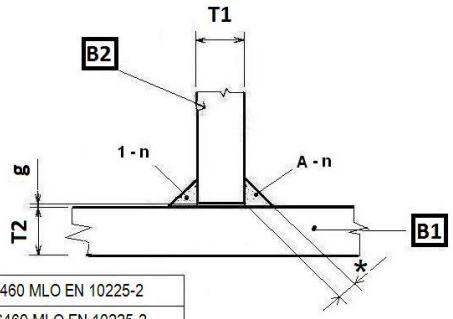
RUN(S) OR LAYER(S) PASSATE O STRATO/I	**WELDING PROCESS(ES)** PROCESSO(I) DI SALDATURA	**FILLER METAL MATERIALE D'APPORTO**		**CURRENT CORRENTE**			**VOLTAGE** TENSIONE **V**	**TRAVEL SPEED** VELOCITA' DI SALDAT. **(mm/1')**	**HEAT INPUT** APPORTO TERMICO **(KJ/mm)**	**OTHER** ALTRO
		EN DESIG. OR TRADE NAME CLASS. EN O NOME COMM.	**ELECTRODE SIZE** DIMENSIONI **(mm)**	**TYPE & POLARITY** TIPO E POLARITA'		**AMPERES** **A**				
1	136	T50 6 1Ni P M21 1 H5	1,2	DC	EP	215 - 230	23 – 24	150 - 200	1,18 – 1,76	N.A.
2-n	136	T50 6 1Ni P M21 1 H5	1,2	DC	EP	225 - 250	24 - 25	200 - 250	1,04 – 1,5	N.A.
A	136	T50 6 1Ni P M21 1 H5	1,2	DC	EP	215 - 230	23 – 24	150 - 200	1,18 – 1,76	N.A.
B-n	136	T50 6 1Ni P M21 1 H5	1,2	DC	EP	225 - 250	24 - 25	200 - 250	1,04 – 1,5	N.A.

* FOR FILLET WELD SIZES (LEG OR THROAT)
SEE THE RELATED SHOP DRAWINGS OR WELD MAP

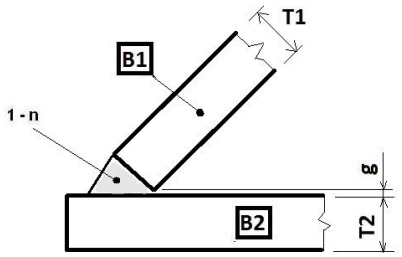


B1	S460 MLO EN 10225-2
B2	S460 MLO EN 10225-2
g =	0-0,5 mm
T1 =	3- 50 mm
T2 =	3- 50 mm

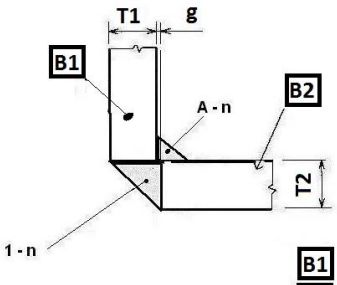
* FOR FILLET WELD SIZES (LEG OR THROAT)
SEE THE RELATED SHOP DRAWINGS OR WELD MAP



B1	S460 MLO EN 10225-2
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g =	0-0,5 mm
T1 =	3- 50 mm
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B1	S460 MLO EN 10225-2
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B1	S460 MLO EN 10225-2
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MANUFACTURER COSTRUTTORE
(STAMP AND SIGNATURE)

SCANDIUZZI
STEEL CONSTRUCTIONS S.p.A.
ITALY
QUALITY CONTROL

SCANDiUZZi	**MANUFACTURER'S WELDING PROCEDURE SPECIFICATION (W P S)** PROCEDURA DI SALDATURA ACCORDING TO EN ISO 15609-1 Ed 2019	**WPS-N**./PROC.N. **2308-138-06** **Rev. 2** **DATE**/DATA **06/12/2023** **SUPP. WPQR N°:** WPQR DI SUPP.: **23TO001006PW\3A**

SHEET/FOGLIO 1/3

WELDING PROCESS(ES) / PROCESSO(I) DI SALDATURA	***A)***	**138**	***B)***		***C)***	
TYPE(S) / TIPO	**A)**	PARTLY MECHANIZED	**B)**		**C)**	

JOINTS / GIUNTI	
JOINT TYPE / TIPO DI GIUNTO	FILLET WELD (MULTIPASS)
BACKING / SOSTEGNO	YES
BACKING MATERIAL TYPE / TIPO MATERIALE DI SOSTEGNO :	BASE MATERIAL
WELD PREPARATION / PREPARAZIONE:	SEE SKETCH
METHOD OF PREPARATION & CLEANING: METODO DI PREPARAZIONE E PULIZIA:	GRINDING AND BRUSHING
PARENT MATERIAL / MATERIALE BASE	
GROUP NO./ GRUPPO **TO/**A **GROUP NO**./ GRUPPO	2.1 to 2.1
SPEC. TYPE & GRADE TO / SPECIF. TIPO E GRADO	S460 MLO EN 10225-2
THICKNESS / SPESSORE (mm)	T1-T2 = 3 -50 mm
OUTSIDE DIAMETER: DIAMETRO ESTERNO: (mm).	N.A.
OTHER / ALTRO	FILLET WELD THROAT SIZE : UNLIMITED

For joints design and weld beads sequence see sheet 3 of 3
Per la progettazione del giunto e le passate di saldatura vedere foglio 3 di 3

FILLER METAL / MATERIALE D'APPORTO	**A)**	**B)**
SPECIFICATION NO./ SPECIFICA NO**.**	EN 17632-A	
DESIGNATION / CLASSIFICAZIONE	T50 6 1Ni M M21 1 H5	
SIZE / DIMENSIONI	1,2 mm	
TRADE NAME / NOME COMMERCIALE	DIAMONDSPARK Ni1MC	
MANUFACTURER / FABBRICANTE	BÖHLER	
FLUX TRADE NAME / NOME COMM. FLUSSO	N.A.	
MANUFACTURER / FABBRICANTE	N.A.	
OTHER / ALTRO		

WELDING POSITION / POSIZIONE DI SALDATURA	
POSITION / POSIZIONE	PB (FLAT)
WELDING PROGRESSION / PROGRESSIONE DI SALDATURA	N.A.

PREHEAT / PRERISCALDO	
PREHEAT TEMP. / TEMPERATURA DI PRERISCALDO (C°)	≥ 50°C
INTERPASS TEMP. / TEMPERATURA DI INTERPASS (C°)	200°C max.
PREHEAT MAINTENANCE / TEMPERATURA DI POSTRISCALDO	N.A.

GAS(ES) / GAS

PERCENT COMPOSITION / COMPOSIZIONE %

	GAS(ES) GAS	**(MIXTURE)** (MISCELA)	**FLOW RATE** PORTATA	**DESIGNAZIONE GAS** GAS DESIGNATION
PLASMA	N.A.	N.A.	N.A.	N.A.
SHIELDING / PROTEZIONE	**Ar/CO_2**	**82 / 18 %**	**16 ÷ 18 l/1'**	**ISO 14175 – M21**
TRAILING / AGGIUNTIVO	N.A.	N.A.	N.A.	N.A.
BACKING / AL ROVESCIO	N.A.	N.A.	N.A.	N.A.

SCANDiUZZi	**MANUFACTURER'S WELDING PROCEDURE SPECIFICATION (W P S)** PROCEDURA DI SALDATURA ACCORDING TO EN ISO 15609-1 Ed 2019	**WPS-N**./PROC.N. **2308-138-06** **Rev. 2** **DATE**/DATA **06/12/2023** **SUPP. WPQR N°:** WPQR DI SUPP.: **23TO001006PW\3A**

ELECTRICAL CHARACTERISTICS CARATTERISTICHE ELETTRICHE

CURRENT / CORRENTE	SEE TABLE BELOW
POLARITY / POLARITA'	SEE TABLE BELOW
MODE OF METAL TRANSFER / MODO DI TRASFERIMENTO...	N.A.
TUNGSTEN ELECTRODE TYPE & SIZE / TIPO E DIMENS. ELETTRODO W	N.A.
ELECTRODE WIRE FEED SPEED RANGE / CAMPO DI VELOCITA' DEL FILO	6 - 9 m / 1'

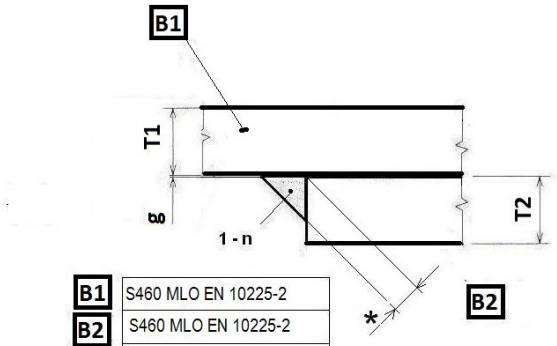
TECHNIQUE / TECNICA

STRING OR WEAVE BEADS / CORDONI STRETTI O LARGHI	BOTH
ORIFICE OR GAS CUP SIZE / DIAMETRO DELL'UGELLO O CERAMICA	18 mm
INITIAL & INTERPASS CLEANING / PULIZIA INIZIALE E FRA LE PASSATE	GRINDING AND/OR BRUSHING
METHOD OF BACK GOUGING / METODO DI SOLCATURA	N.A.
OSCILLATION / OSCILLAZIONE	N.A.
AMPLITUDE / AMPIEZZA	N.A.
FREQUENCY / FREQUENZA	N.A.
STAND OFF DISTANCE / DISTANZA LIBERA FILO (mm**)**	15-18 mm
MULTIPLE, SINGLE PASS (PER SIDE) /PASSATA SINGOLA O MULT.(PER LATO)	MULTIPLE
SINGLE OR MULTIPLE ELECTRODES / ELETTRODO/I SINGOLO O MULTIPLI	SINGLE
TORCHE ANGLE / ANGOLO TORCIA	45°
OTHER / ALTRO	N.A.

POST WELD HEAT TREATMENT (PWHT) AND/OR AGEING TRATTAMENTO TERMICO DOPO SALDATURA E/O INVECCHIAMENTO	***NONE***
TEMPERATURE RANGE / INTERVALLO DI TEMPERATURA (°C)	N.A.
TIME RANGE (HOURS) / TEMPO DI MANTENIMENTO (ORE**)**	N.A.
HEAT. RATE / GRADIENTE DI RISCALDAMENTO (°C/H)	N.A.
COOL. RATE / GRADIENTE DI RAFFREDDAMENTO(°C/H)	N.A.
OTHER / ALTRO	N.A.

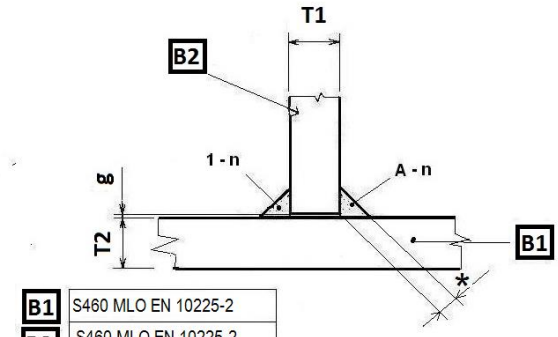
RUN(S) OR LAYER(S) PASSATE O STRATO/I	**WELDING PROCESS(ES)** PROCESSO(I) DI SALDATURA	**FILLER METAL MATERIALE D'APPORTO**		**CURRENT CORRENTE**			**VOLTAGE** TENSIONE **V**	**TRAVEL SPEED** VELOCITA' DI SALDAT. **(mm/1')**	**HEAT INPUT** APPORTO TERMICO **(KJ/mm)**	**OTHER** ALTRO
		EN DESIG. OR TRADE NAME CLASS. EN O NOME COMM.	**ELECTRODE SIZE** DIMENSIONI **(mm)**	**TYPE & POLARITY** TIPO E POLARITA'		**AMPERES** **A**				
1	138	T50 6 1Ni M M21 1 H5	1,2	DC	EP	210-230	27-29	280-320	0,85 - 1,14	N.A.
2	138	T50 6 1Ni M M21 1 H5	1,2	DC	EP	240-260	29-31	300-350	0,95 - 1,29	N.A.
A	138	T50 6 1Ni M M21 1 H5	1,2	DC	EP	210-230	27-29	280-320	0,85 - 1,14	N.A.
B-n	138	T50 6 1Ni M M21 1 H5	1,2	DC	EP	240-260	29-31	300-350	0,95 - 1,29	N.A.

* FOR FILLET WELD SIZES (LEG OR THROAT)
SEE THE RELATED SHOP DRAWINGS OR WELD MAP

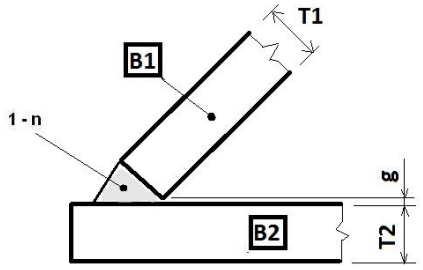


B1	S460 MLO EN 10225-2
B2	S460 MLO EN 10225-2
g =	0-0,5 mm
T1 =	3- 50 mm
T2 =	3- 50 mm

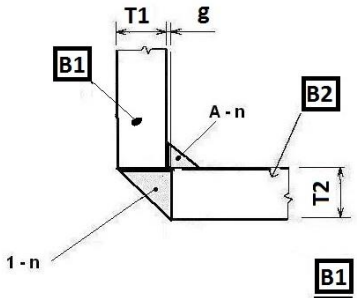
* FOR FILLET WELD SIZES (LEG OR THROAT)
SEE THE RELATED SHOP DRAWINGS OR WELD MAP



B1	S460 MLO EN 10225-2
B2	S460 MLO EN 10225-2
g =	0-0,5 mm
T1 =	3- 50 mm
T2 =	3- 50 mm



B1	S460 MLO EN 10225-2
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T1 =	3- 50 mm
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B1	S460 MLO EN 10225-2
B2	S460 MLO EN 10225-2
g =	0-0,5 mm
T1 =	3- 50 mm
T2 =	3- 50 mm

MANUFACTURER COSTRUTTORE
(STAMP AND SIGNATURE)

SCANDIUZZI
STEEL CONSTRUCTIONS S.p.A.
ITALY
QUALITY CONTROL

WPQR

In progress

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO
ISP N° 069 E
Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

WELDING PROCEDURE QUALIFICATION RECORD (WPQR)

N. 23TO001006PW\1A

Manufacturer **SCANDIUZZI STEEL CONSTRUCTIONS SpA - Volpago del Montello (TV)**

WPQR No. **2308-121-TC1** Dated **01/12/2023**

Manufacturer's welding procedure (WPS) No. **p-2308-121-TC1** Dated **08/11/2023** Date of welding **13/11/2023**

RANGE OF APPROVAL

Welding process	**121** Type **Fully mechanized**
Joint type	**Plates and Pipes FW**
Single/Multiple pass	**Multiple** (**Hardness properties apply**)
Parent material group(s)	**2-2, 1-1, 2-1** ISO/TR 15608; ISO/TR20172; ISO/TR 20173; ISO/TR20174 Steels with a specified minimum yield strength ≤ 460 MPa
Steel grades	**EH460;DH460;EH420;DH420** according to Pt D, Ch 2, Sec1 of RINA Rules
Parent material thickness (mm)	Butt Joint = **N.A.** Fillet Joint t_1 = **3,0 to 50,0** t_2 = **3,0 to 50,0 For EN 15614-1** Butt Joint = **N.A.** Fillet Joint t_1 = **12,5 to 50,0** t_2 = **12,5 to 50,0 For RINA RULES**
Throat thickness (mm)	**No restriction** For EN 15614-1 **12,5 to 50,0** for RINA RULES
Weld deposit thickness (mm)	**N.A.**
Outside diameter (mm)	**Over 500 For EN 15614-1 and RINA RULES**
Filler metal type	**ESAB OK AUTROD 12.32** Nr. of wires for process 12: **One**
Flux make	**ESAB OK FLUX 10.62** Flux Designation: **EN ISO 14174-A:S A FB 1 55 AC H5**
Filler metal type	**Flux/Wire combination EN ISO 14174-A:S A FB 1 55 AC H5/EN ISO 14171-A:S3Si**
Shielding gas (ISO 14175)	**N.A.** Backing gas (ISO 14175) **None**
Type of welding current	**DCEP** Heat input Kj/cm **Min 11,7**
Welding position	**PB** Transfer Mode **N.A.**
Preheat min. (°C)	**+50 ISO 15614-1** (if ISO/TR 17671-2 requirements are fulfilled) Interpass temp. Max. (°C) **+200 UNI EN ISO 15614-1**
Preheat min. (°C)	**50 RINA Rules** Interpass temp. Max. (°C) **+200 RINA Rules**
Post weld heat treatment / Ageing	**None**
Other information	-

Welders name **El Mezzi Habib** Stamp No. **H**

Welding test conducted by **SCANDIUZZI STEEL CONSTRUCTIONS SpA - Volpago del Montello (TV)**

Mechanical test conducted by **GLOBAL TEST srl - Marcon (VE)** Laboratory test No. **30247**

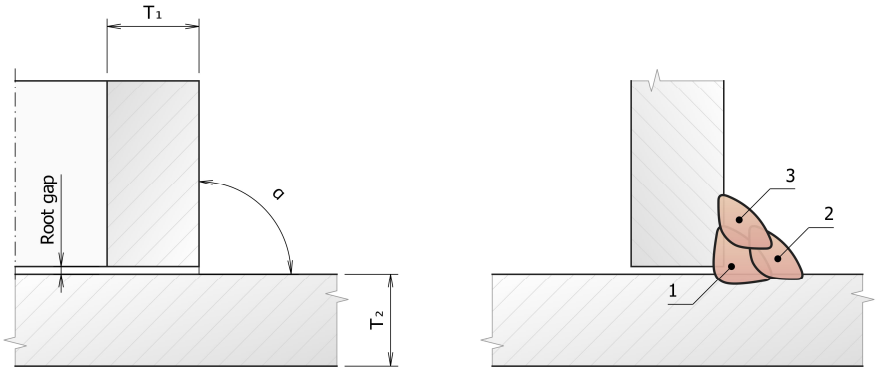
At presence of RINA Surveyor **P. Danesin**

We certify that the statements in this certificate are correct and that the test welds were prepared, welded and tested in accordance with **UNI EN ISO 15614-1: 2019** Standard ; **RINA Rules for the Classification of Ships and EEMUA Pub. 158 Ed. 3** requirements.

Issued at: Genova on **01 December 2023**

RINA Services S.p.A.
PED No. Bo. 0474

JOINT DETAILS AND WELDING SEQUENCES PLATE TO PLATE – T FILLET WELDED FROM ONE SIDE CLOSE SQUARE – MULTI PASS								
Pass No.	Process	Filler metal diam. (mm)	Filler metal classification	Amps	Volt	Travel speed (cm/min)	Heat input (kJ/cm)	Metal Transfer mode
1	**121**	**4,0**	**S3Si**	**520**	**25,0**	**50,0**	**15,6**	**N.A.**
2	**121**	**4,0**	**S3Si**	**520**	**25,0**	**50,0**	**15,6**	**N.A.**
3	**121**	**4,0**	**S3Si**	**520**	**25,0**	**50,0**	**15,6**	**N.A.**



PARENT MATERIAL

Material specification	**T_1 = EN 10225-2 to T_2 = EN 10225-2**		
Type or grade	**T_1 = S460 MLO to T_2 = S460MLO**		
Steel grade	**N.A.(EH460)** according to Pt D, Ch 2, Sec 1 of RINA Rules		
Group(s)/Subgroup(s) No. (ISO/TR 15608)	**T_1 = 2.1 to T_2 = 2.1**		
Thickness (mm)	**T_1 = 25,0 to T_2 = 25,0**	Throat thickness (mm)	**M1 9,2 ; 9,1 ; M2 9,2 ; 9,2**
Diameter (mm)	**D_1 = N.A. to D_2 = N.A.**		
Branch connection angle	**N.A.**		
Other	**Heat 736009**		

WELDING CONSUMABLES

Process	**121**
Trade name(s)	**ESAB OK AUTROD 12.32**
Specification	**EN ISO 14171-A**
Classification / designation	**S3 Si**
Size (mm)	**4,0**
Deposited metal thickness	
Groove	**N.A.**
Throat	**M1 9,2-9,1 mm ; M2 9,2-9,2 mm**
Flux trade name	**ESAB OK FLUX 10.62 (*)**
Consumable insert	**N.A.**
Other	**(*) EN ISO 14174 : S A FB 55 AC H5**
	Heat wire : 22309
	Lot flux : PNX3210364

GAS

	Gas	Mixture	Flow rate (l/min.)
Shielding	-	-	-
Trailing	-	-	-
Backing	-	-	-

POSITION

Welding position **PB**

Other

PREHEAT

Preheat temperature **Min +50°C**

Interpass temperature **Max +200°C**

Other

POSTWELD HEAT TREATMENT

Temperature **N.A.**

Time **None**

Other

ELECTRICAL CHARACTERISTICS

Current **DCEP**

Ampere (range) **See table**

Volts (Range) **See table**

Mode of metal transfer **N.A.**

Tungsten electrode size and type **N.A.**

Other **Gen. : LINCOLN IDEALARC DC 1000**

TECHNIQUE

Travel speed (range) **See table**

String or weave bead **String**

Oscillation (*) **N.A.**

Method of groove/edge preparation **Machining/Grinding**

Interpass cleaning **Machining/Grinding**

Method of back gouging **N.A.**

Orifice or gas cup size **16 mm**

Stand off distance (*) **20-25 mm**

Multiple or single pass **Multiple**

Multiple or single electrodes **Single**

Torch angle (*) **45° respect to horizontal plan and normal to direction of travel**

Other (*) for fully mechanized/robotic only

HARDNESS TEST		
Location	Type/load	Maximum value
Parent metal(s)	**HV10**	**196**
H.A.Z.(s)	**HV10**	**200**
Weld metal	**HV10**	**212**

OTHER TEST

MACROGRAPHIC EXAMINATION	**Acceptable**
MICROGRAPHIC EXAMINATION	**Not required**
FRACTURE EXAMINATION	**Acceptable**

NON DESTRUCTIVE EXAMINATION

VISUAL EXAMINATION	**Acceptable See report 2300-121 PB VT**
RADIOGRAPHIC EXAMINATION	**Not required**
PENETRANT TEST	**Not required**
MAGNETIC PARTICLE	**Acceptable See report 2300-121 PB MT**
ULTRASONIC TEST	**Not required**

Issued at: Genova on **01 December 2023**

RINA Services S.p.A.
PED No. Bo. 0474

GLOBAL TEST srl

LAB N° 1230 L

Seda A: legale, amministrativa e operativa
Via Venier,21/B – 30020 Marcon (VE)
Tel 041923994 - E-mail: laboratorio@globaltest.it
Seda B: operativa
Via A. Moro 10/C, 45026 Lendinara (RO)

CLIENTE / CUSTOMER	
SCANDIUZZI STEEL CONSTRUCTIONS S.r.l. Via Piave, 14 - 31040 Volpago Del Montello (TV)	
ORDINE / ORDER N° Conferma Ordine	DATA / DATE 17/11/2023
RAPPORTO DI PROVA N° / TEST REPORT **30247**	DATA / DATE 01/12/2023
	PAG. 1 di 7

RAPPORTO DI PROVA / TEST REPORT

Prodotto Product	Id. Cliente Client Id.	Ricevuto il Received on	Id. Global Test Global Test Id.	Dimensioni dichiarate Declared dimensions	Materiale dichiarato Declared material	Note Remarks
Weld Coupon	WPS p-2308-121-TC1	15/11/2023	13620	Thk 25 to 25 mm	S460 MLO EN 10225-2	Welding Process: 121 Welding Type: Fully Mechanized Welding Process: PB Welder: El Mezzi Habib (H) Pr. RINA: 2023 TO PW 1006 **Qualifica procedimento** **UNI EN ISO 15614-1:2019 Lev.2** **+ RINA RULES** **+ EEMUA Pub.158 Ed.3**

Prove eseguite e Normative di riferimento Performed Tests and Reference Standards	Eseguita il Performed on	Esecuzione Testing by
Fracture test according to UNI EN ISO 9017:2018	27/11/2023	Sede A ☒ Sede B ☐ Altro ☐
Macrographic examination according to UNI EN ISO 17639:2022	27/11/2023	Sede A ☒ Sede B ☐ Altro ☐
Hardness test according UNI EN ISO 6507-1:2018	27/11/2023	Sede A ☒ Sede B ☐ Altro ☐

Non è permessa la riproduzione parziale del presente rapporto di prova senza l'autorizzazione di Global Test. Il campionamento dei saggi è stato effettuato a cura del Cliente. I risultati riportati nel presente documento si riferiscono esclusivamente alle prove effettuate sui saggi consegnati in laboratorio così come ricevuti ed indicate in tabella "identificazione cliente". I residui dei saggi lavorati e le provette verranno conservati per 1 mese; dopo tale periodo verranno rottamati. Il presente documento è archiviato per minimo di 10 anni. Quando riportata, l'incertezza di misura è espressa con fattore di copertura k=2 pari a livello di fiducia del 95% circa.

Partial reproduction of this report without Global Test authorization is strictly forbidden. The sampling of materials was performed by Customer. The test results given here, only refer to tests carried out on materials delivered in the laboratory as received and shown in table "Client identification". The residual of samples machined and test samples will be kept for 1 month; after which they will be scrapped. This document will be kept in memory for 10 years at least. When reported, the uncertainty of measurement is expressed with a coverage factor k = 2 equal to 95% level of confidence.

Approvato da: RESPONSABILE LABORATORIO
Marco Canato
GLOBAL TEST Srl

Spazio riservato ad eventuali approvazioni esterne / Space reserved for possible external approvals

P. Panesin
RINA Services S.p.A

GLOBAL TEST Srl

LAB N° 1230 L

Seda A: legale, amministrativa e operativa
Via Venier,21/B – 30020 Marcon (VE)
Tel 041923994 - E-mail: laboratorio@globaltest.it
Seda B: operativa
Via A. Moro 10/C, 45026 Lendinara (RO)

CLIENTE / CUSTOMER
SCANDIUZZI STEEL CONSTRUCTIONS S.r.l.
Via Piave, 14 - 31040 Volpago Del Montello (TV)

ORDINE / ORDER N°	DATA / DATE
Conferma Ordine	17/11/2023
RAPPORTO DI PROVA N° / TEST REPORT	DATA / DATE
30247	01/12/2023
	PAG. 2 di 7

Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards	Standards Correlati - Related Standards
Fracture test according to UNI EN ISO 9017:2018	None

PROVA DI FRATTURA / FRACTURE TEST

Identificativo Campione Sample Identification		**Dimensioni** Dimensions	**Mandrino** Jig	**Angolo** Angle	**Profilo Intaglio** Notch Profiles	**Esito** Results
Cliente / Client	**Lab.** / Lab.	mm	mm			
WPS p-2308-121-TC1	13620 / 3	150 x 150 x 25	***	***	u	No defects noted according to UNI EN ISO 5817:2023 Lev. B

Approvato da: RESPONSABILE LABORATORIO
Marco Canato
GLOBAL TEST Srl

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RINA Services S.p.A

GLOBAL TEST srl

LAB N° 1230 L

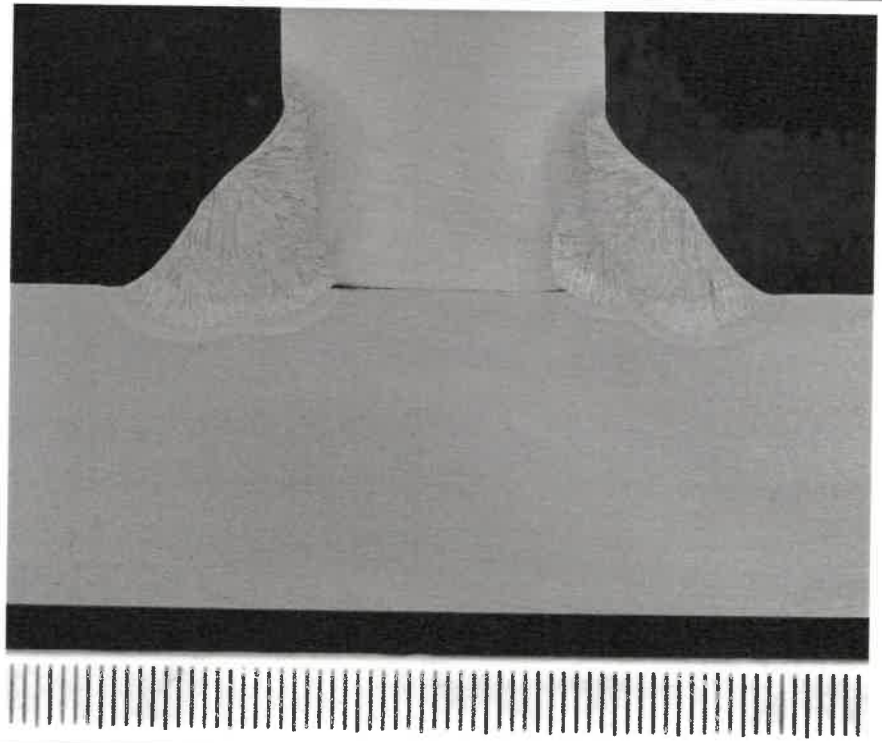
Seda A: legale, amministrativa e operativa
Via Venier,21/B – 30020 Marcon (VE)
Tel 041923994 - E-mail: laboratorio@globaltest.it
Seda B: operativa
Via A. Moro 10/C, 45026 Lendinara (RO)

CLIENTE / CUSTOMER	**SCANDIUZZI STEEL CONSTRUCTIONS S.r.l.** Via Piave, 14 - 31040 Volpago Del Montello (TV)
ORDINE / ORDER N°	DATA / DATE
Conferma Ordine	17/11/2023
RAPPORTO DI PROVA N° / TEST REPORT	DATA / DATE
30247	01/12/2023
	PAG. 3 di 7

Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Macrographic examination according to UNI EN ISO 17639:2022

Standards Correlati - Related Standards
UNI 3138:1984

ESAME MACROGRAFICO / MACROGRAPHIC EXAMINATION



Identificativo Campione Sample Identification	**Cliente** Client	WPS p-2308-121-TC1
	Lab. Lab.	13620 / 1
Posizione Prelievo / Sampling position **Zona Esaminata** / Examinated Area		Transversal Weld Joint
Tipo di saldatura/ Weld Joint type		Fillet Weld
Tipo di Attacco / Etching Type		Nital 10%
Metodo di attacco / Ethching method		Immersione – 30s Swabbing – 30s
Designazione / Designation		Esame-ISO 17639-A-E-2.1/2.1-2.1/2.1-A.1
Esito / Result (*)		No defects noted according to UNI EN ISO 5817:2023 Lev. B + UNI EN ISO 15614-1:2019 Lev.2 Para 7.5 Lato sinistro - Altezza Gola "a": 9.2 mm Lato destro - Altezza Gola "a": 9.2 mm

Approvato da: RESPONSABILE LABORATORIO
Marco Canato
GLOBAL TEST Srl

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RINA Services S.p.A.

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Tel 041923994 - E-mail: laboratorio@globaltest.it
Seda B: operativa
Via A. Moro 10/C, 45026 Lendinara (RO)

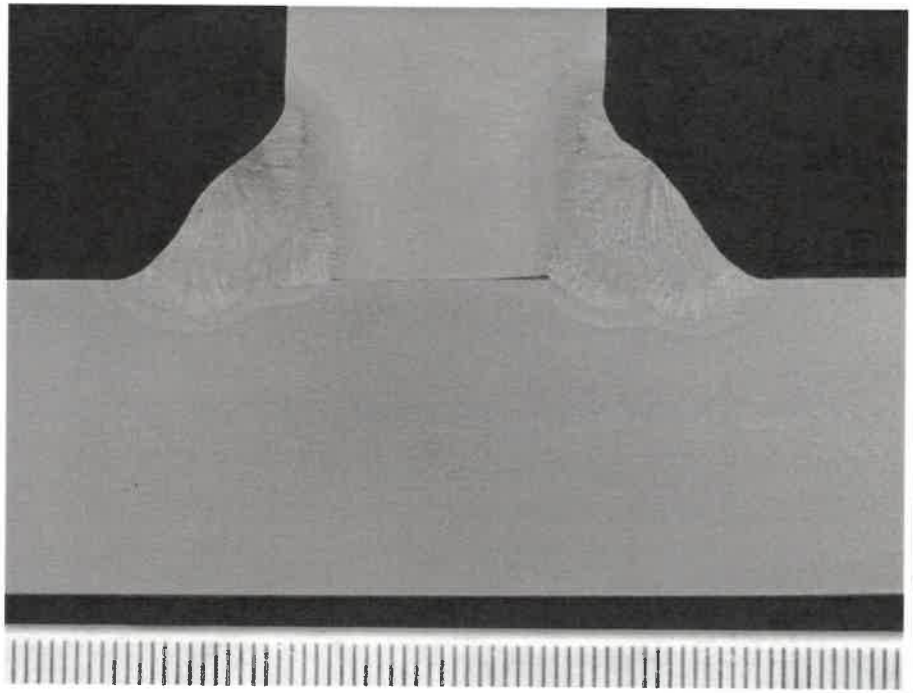
CLIENTE / CUSTOMER
SCANDIUZZI STEEL CONSTRUCTIONS S.r.l.
Via Piave, 14 - 31040 Volpago Del Montello (TV)

ORDINE / ORDER N°	DATA / DATE
Conferma Ordine	17/11/2023
RAPPORTO DI PROVA N° / TEST REPORT	DATA / DATE
30247	01/12/2023
	PAG. 4 di 7

Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Macrographic examination according to UNI EN ISO 17639:2022

Standards Correlati - Related Standards
UNI 3138:1984

ESAME MACROGRAFICO / MACROGRAPHIC EXAMINATION



Identificativo Campione Sample Identification	**Cliente** Client	WPS p-2308-121-TC1
	Lab. Lab.	13620 / 2
Posizione Prelievo / Sampling position **Zona Esaminata** / Examinated Area		Transversal Weld Joint
Tipo di saldatura/ Weld Joint type		Fillet Weld
Tipo di Attacco / Etching Type		Nital 10%
Metodo di attacco / Ethching method		Immersione – 30s Swabbing – 30s
Designazione / Designation		Esame-ISO 17639-A-E-2.1/2.1-2.1/2.1-A.1
Esito / Result (*)		No defects noted according to UNI EN ISO 5817:2023 Lev. B + UNI EN ISO 15614-1:2019 Lev.2 Para 7.5 Lato sinistro - Altezza Gola "a": 9.1 mm Lato destro - Altezza Gola "a": 9.2 mm

Approvato da: RESPONSABILE LABORATORIO
Marco Canato
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Spazio riservato ad eventuali approvazioni esterne / Space reserved for possible external approvals

RINA
P. Danesin
RINA Services S.p.A.

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LAB N° 1230 L

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Tel 041923994 - E-mail: laboratorio@globaltest.it
Seda B: operativa
Via A. Moro 10/C, 45026 Lendinara (RO)

CLIENTE / CUSTOMER
SCANDIUZZI STEEL CONSTRUCTIONS S.r.l.
Via Piave, 14 - 31040 Volpago Del Montello (TV)

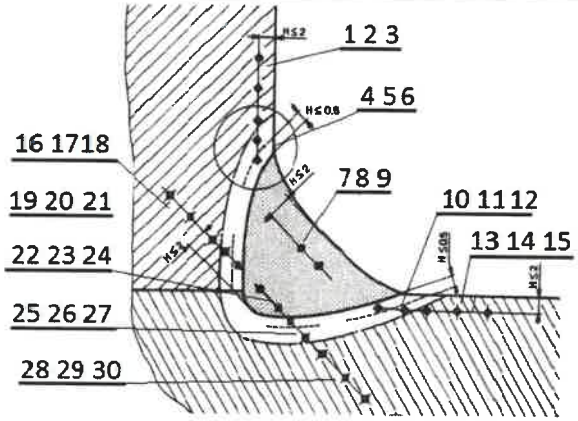
ORDINE / ORDER N°	DATA / DATE
Conferma Ordine	17/11/2023
RAPPORTO DI PROVA N° / TEST REPORT	DATA / DATE
30247	01/12/2023
	PAG. 5 di 7

Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Hardness test according to UNI EN ISO 6507-1:2018

Standards Correlati - Related Standards
UNI EN ISO 9015-1:2011

PROVA DI DUREZZA / HARDNESS TEST

Identificativo Campione / Sample Identification		Prova di durezza / Hardness Test
Cliente / Client	**Lab.** / Lab.	
WPS p-2308-121-TC1	13620 / 1	HV10



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
196	190	196	184	185	193	204	208	197	200	189	188	195	195	189
16	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
188	187	184	197	186	191	212	207	207	193	195	192	192	186	190

Approvato da: RESPONSABILE LABORATORIO
Marco Canato
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RINA
P. Dalesio
RINA Servizi

GLOBAL TEST sr|

LAB N° 1230 L

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Tel 041923994 - E-mail: laboratorio@globaltest.it
Seda B: operativa
Via A. Moro 10/C, 45026 Lendinara (RO)

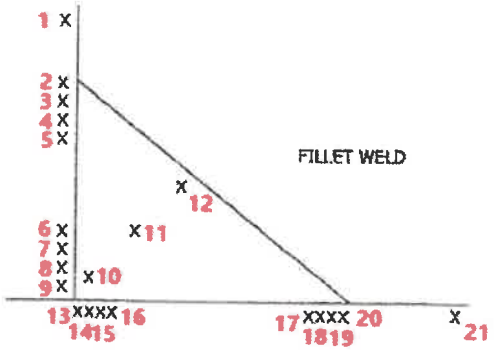
CLIENTE / CUSTOMER	
SCANDIUZZI STEEL CONSTRUCTIONS S.r.l. Via Piave, 14 - 31040 Volpago Del Montello (TV)	
ORDINE / ORDER N° Conferma Ordine	DATA / DATE 17/11/2023
RAPPORTO DI PROVA N° / TEST REPORT **30247**	DATA / DATE 01/12/2023
	PAG. 6 di 7

Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Hardness test according to UNI EN ISO 6507-1:2018

Standards Correlati - Related Standards (*)
EEMUA Pub.158 Ed.3 Para 4.4.4.4

PROVA DI DUREZZA / HARDNESS TEST

Identificativo Campione / Sample Identification		Prova di durezza / Hardness Test
Cliente / Client	**Lab.** / Lab.	
WPS p-2308-121-TC1	13620 / 1	HV10



EEMUA Pub. 158 Ed.3 - Fig.8
Locations of indents for hardness surveys

1	2	3	4	5	6	7
196	184	185	193	204	197	194
8	**9**	**10**	**11**	**12**	**13**	**14**
201	202	204	208	209	202	194
15	**16**	**17**	**18**	**19**	**20**	**21**
195	198	202	198	196	199	190

Approvato da: RESPONSABILE LABORATORIO
Marco Canato
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Danesin
RINA Services S.p.A

STRUMENTI USATI PER LE PROVE / EQUIPMENT USED FOR TESTS

Equipment used	Trademark		Calibration expiry (±15 days)
Digital Caliper	Borletti CDJB15	Sn: 032819-186295	27/10/2025
Hydraulic Press	OMCN P30/MR	Sn: 589557	-
Camera	CANON EOS 4000D	Sn: 153070020586	-
Hardness Testing Machine	QNESS Q30A+	Sn: Q1788/02/20	13/03/2024

(*) Metodo di prova non accreditata da ACCREDIA – Ente Italiano di Accreditamento
Test method not accredited by ACCREDIA - Italian Accreditation System

La decorrenza del presente Rapporto di Prova coincide con la data di emissione del documento, posta in alto a destra. Non rileva il fatto che la firma digitale sia eventualmente apposta successivamente.
The effective date of this Test Report corresponds with the emission date, placed in the upper right corner. It does not have relevance the fact that the digital signature is eventually affixed afterwards.

Approvato da: RESPONSABILE LABORATORIO	Spazio riservato ad eventuali approvazioni esterne / Space reserved for possible external approvals
Marco Canato GLOBAL TEST Srl	

SCANDIUZZI	RAPPORTO DI ESAME VISIVO VISUAL EXAMINATION REPORT	RAPPORTO n°: Report Nr.: *2300-121 PB - VT* FOGLIO / SHEET 1

CLIENTE / CUSTOMER	PURCHASE ORDER	COMMESSA / JOB
Scandiuzzi	/	***2300 - 138***

PROGETTO / PROJECT:	Welding procedure qualification record acc. to **EN ISO 15614-1 : 2019**
ITEM	Test coupon marked **2308-121-TC1** – welder stamp : **"H "** (*MEZZI HABIB*)

SPECIFICA DI RIFERIMENTO PER ESECUZIONE DEL CONTROLLO: Reference specification applied :	**EN 17637**
CRITERI DI ACCETTABILITA' DIFETTI: Acceptance criteria:	**EN 5817 level B**
CONDIZIONE SUPERFICIALE DEL MATERIALE BASE: Superficial condition of base material:	**As rolled – brushed**
CONDIZIONE SUPERFICIALE DELLE SALDATURE: Superficial condition of welding:	**As welded**
ESTENSIONE DEL CONTROLLO: Test Extension:	**100% after first weld pass and in final conditions**
DISEGNO: Drawing:	**see WPS 2308-121-TC1**
IDENTIFICAZIONE DELL' OGGETTO DA ESAMINARE: Object identification	**West test coupon stamped 2308-12-TC1– welder stamp : "H"**
MATERIALE: Material:	**S460 MLO EN 10225-2**
TIPO GIUNTO: Type of joint:	**T JOINT FILLET WELD multipass – PB – welded from both sides**
SPESSORE MATERIALE Material Thickness	**25 mm**
PROCESSO DI SALDATURA Welding process	**121 – SAW**
DISPOSITIVI D' ESAME USATI Examination devices used:	**weld gauge**

RISULTATO D' ESAME
Result of examination: [X] Conforme / **Acceptable** [ ] Non conforme / **Not acceptable**

Note : **test coupon welded in PB position -**
Light intensity during test : 1000lux

OPERATORE	ISPETTORE CLIENTE *Customer Inspector*	AUTORITA' CONTROLLO *Authority Control*
SCANDIUZZI Mr. PINCI 2° level EN ISO 9712 Operator STEEL CONSTRUCTIONS S.p.A. ITALY QUALITY CONTROL	RINA S. Danesin RINA Services S.p.A.	

SCANDIUZZI

VERBALE DI CONTROLLO MAGNETOSCOPICO: 2300-121PB- MT

MT EXAMINATION REPORT

DATI METODO DI CONTROLLO

TEST METHOD

Data: 14-11-2023 *Date:*	Costruttore: *Manufacturer :*	Scandiuzzi Steel Constructions Spa

Oggetto: **Weld test coupon for WPQR** *Object:*

Sigla: *Item:*	2308-121-TC1	Commessa: *Shop Order:*	2300-138	Disegno: *Drawing:*	WPS 2308-121-TC1
Welder Stamp	"H"	N.F. : *S.N.:*	See below	Proc. sald. : *Welding process*	121

Materiale : *Material:*	Sp. (mm) : *Thickness (mm):*	Particolare : *Component:*	Estensione controllo : *Test Extensions:*
S S60 MLO EN 10225 - 2	25	T JOINT FILLET WELD	100%

Specifica di riferimento : *Reference Specification :*	EN ISO 17638 Scandiuzzi proc. PR –MT- 00	Classe di accettabilità : *Acceptance Criteria:*	EN ISO 5817 level B - ISO 23278 LEV. 2X

Condizioni superficiali : *Surface conditions:*	Stadio di lavorazione : *Working Step:*	Preparazione superficiale : *Surface Pre-Cleaning:*	Temperatura d'esame (C°): *Test Temperature:*
As Welded	After welding	Brushed	Room

Apparecchiatura : YOKE TWIST CGM *Equipment:* — Matricola : / *Serial:* — Data ultima taratura : *Date of last sensitività test:* Pull test before check starting

☐ Puntali *Prodes*	☐ Bobina *Induction coil*	☒ Giogo *Yoke*
Direzione di magnetizzazione: *Direction of magnetization:* /	Direzione di magnetizzazione: *Direction of magnetization:* /	Direzione di magnetizzazione: *Direction of magnetization:* Longitudinal
Corrente: / *Current:*	Corrente: / *Current:*	Corrente: AC *Current:*
Distanza puntali (mm): / *Prodes spacing(mm):*	Lunghezza (mm): / *Lenght(mm):*	Distanza puntali (mm): 100 *Prodes spacing(mm):*
Copri puntali: / *Prodes cover:*	Diametro (mm): / *Diameter(mm):*	
	Numero di spire: / *Number of coil:*	

Metodo di controllo : Continuous *Examination method:*

Verifica campo magnetico : Lifting test 4,5 kg *Magnetic field check:*

☐ SECCO *DRY* — ☒ UMIDO *WET*

Rivelatore : / *Developer:*	☒ CONTRASTO COLORE ☐ FLUORESCENTE
Colore : / *Color:*	*Lacca di contrasto:* ELITE FLAW FINDR – WBL -5 *Paint contrast:*
Lanciapolvere : / *Dustlaunch:*	Rivelatore : ELITE FLAW FINDR – BLACK BW – 2 *Developer :*
Lacca di contrasto : / *Paint contrast:*	Sospensione liquida: KEROSENOIL *Wet:*
Smagnetizzazione : / *Demagnetization:*	Smagnetizzazione : NOT REQUIRED *Demagnetization:*

Luce d'ispezione : 1000 lux *Inspection light:*

ESITO DEL CONTROLLO

TEST RESULTS

IDENTIFICAZIONE *Identification*	N° Pcs.	DISCONTINUITA' *Discontinuity*	LARGHEZZA (mm) *Width(mm)*	LUNG.(mm) *Lenght(mm)*	DWG	ESITO *Result*
2308-121-TC1	1	-	-	-	WPS 2308-121-TC1	ACCEPTABLE

OPERATORE	ISPETTORE CLIENTE *Customer Inspector*	AUTORITA' CONTROLLO *Authority Control*
SCANDIUZZI STEEL CONSTRUCTIONS S.p.A. A. Simonetto ITALY QUALITY CONTROL	RINA Banesin RINA Services S.p.A	

CERTIFICATO DI COLLAUDO/ INSPECTION CERTIFICATE

in accordo a/acc to EN 10204 - 3.1

Data/Date: 2023-07-28

Numero certificato/Cert no: EC27230730 rev. 0

Nostro ordine/Our order:	0100821086	Vostro ordine/Your order:	OA11-230705-23048981
Nostro riferimento/Our ref:	HYBRIS PRD account	Vostro riferimento/Your ref:	
Codice Cliente/Cust no:	ITB02047	Vostro numero fax/Your fax	
Data ordine Cliente/Your date:	20230724	Vostra e-mail/Your e-mail:	

Indirizzo di fatturazione/Invoice address
SCANDIUZZI STEEL CONSTRUCTIONS SPA
VIA PIAVE N. 14
31040 VOLPAGO DEL MONTELLO
Italy

Destinatario del certificato/Cert receiver

Indirizzo di spedizione/Delivery address
SCANDIUZZI STEEL CONSTRUCTIONS SPA
VIA PIAVE N. 14
31040 VOLPAGO DEL MONTELLO
Italy

PRODOTTO CONSEGNATO/DELIVERED PRODUCT

Marchio/Brand: ESAB
Descrizione/Desc: OK Autrod 12.32 4.0mm 30kg
Codice/Item no: 1232402800
Numero di lotto/Lot no: PVX1510809
N. di colata/Heat number: 22309
Quantità/Quantity: 120 KGM

ANALISI CHIMICA/CHEMICAL ANALYSIS

Wire/strip	
C	0.13%
Si	0.29%
Mn	1.74%
P	0.009%
S	0.007%
Cr	0.04%
Ni	0.01%
Mo	< 0.01%
Cu	0.04%

CLASSIFICAZIONE/CLASSIFICATIONS

SFA/AWS A5.17: EH12K
EN ISO 14171-A: S3Si

COMMENTI/COMMENTS

Materiale fornito in accordo al Sistema Qualità conforme alla norma EN ISO 9001.
Questo certificato è stampato elettronicamente.
Per ogni chiarimento, rivolgersi a:
ESAB Saldatura S.p.A. | Str. Provinciale 34, n.37 - 20010 Ossona MI, Italy
Product supplied under a QA Programme fulfilling the EN ISO 9001 standard.
This certificate is produced electronically.
Please refer any queries to: (see above)

Validazione/Validation
Josef Moravek Quality Manager

SCANDIUZZI STEEL CONSTRUCTIONS, User: Moreno Amoroso - Document Checked & Accepted - 08/08/2023 ID Number: 14021 page 1/1

CERTIFICATO DI COLLAUDO/ INSPECTION CERTIFICATE

in accordo a/acc to EN 10204 - 3.1

Data/Date: 2023-09-11

Numero certificato/Cert no: EC27269763 rev. 0

Nostro ordine/Our order:	0100851172	Vostro ordine/Your order:	1/568
Nostro riferimento/Our ref:	Stefano di Virgilio	Vostro riferimento/Your ref:	
Codice Cliente/Cust no:	ITB02264	Vostro numero fax/Your fax	
Data ordine Cliente/Your date:	20230908	Vostra e-mail/Your e-mail:	

Indirizzo di fatturazione/Invoice address
VERONA SALDATURA GAS S.N.C. DI
CORSINI MASSIMO E GAMBESI GRAZIANO
VIA DELLA SCIENZA n. 7
37139 BASSONE
Italy

Destinatario del certificato/Cert receiver

Indirizzo di spedizione/Delivery address
SCANDIUZZI STEEL CONSTRUCTIONS SPA
VIA E. FERMI 88
72100 BRINDISI BR
Italy

PRODOTTO CONSEGNATO/DELIVERED PRODUCT

Marchio/Brand: ESAB
Descrizione/Desc: OK Flux 10.62 25kg(55lb) BP
Codice/Item no: 1062800000
Numero di lotto/Lot no: PNX3210364
Quantità/Quantity: 175 KGM

ANALISI CHIMICA/CHEMICAL ANALYSIS

Flux	
CaF2	27%
Al2O3+MnO	18%
SiO2+TiO2	15%
CaO+MgO	37%

CLASSIFICAZIONE/CLASSIFICATIONS

EN ISO 14174: S A FB 1 55 AC H5
EN ISO 14174: S A FB 1 55 AC H4 only
BlockPac/moisture-protection

COMMENTI/COMMENTS

Materiale fornito in accordo al Sistema Qualità conforme alla norma EN ISO 9001.
Questo certificato è stampato elettronicamente.
Per ogni chiarimento, rivolgersi a:
ESAB Saldatura S.p.A. | Str. Provinciale 34, n.37 - 20010 Ossona MI, Italy
Product supplied under a QA Programme fulfilling the EN ISO 9001 standard.
This certificate is produced electronically.
Please refer any queries to: (see above)

Validazione/Validation
Piotr Grela Quality Manager

SCANDIUZZI STEEL CONSTRUCTIONS, User: Stefano Cesi - Document Checked & Accepted - 15/09/2023 ID Number: 14197 page 1/1

voestalpine Grobblech GmbH

A02
Inspection certificate

EN 10204 - 3.2

N1423VKR-4

voestalpine-Straße 3
4020 Linz, Austria
www.voestalpine.com/grobblech

A03 Document number	A0370744/A	A08 Order-No.:	1500639	A07 OrderDat.	15-04-2021

Date of dispatch 01-08-2021 400F

A06 Customer	Kroeger Staal B.V. Oostelljke Randweg 40 NL-4782 PZ MOERDIJK	B01 Product	Plate		
		B02 Material	S460MLO	B03 Standard	EN 10225-1 : 2019
A07 OrderNo.	6729	Supplementary requirements	Z35 - EN 10164		
A06 Consignee	Europe Steel Projects BV Oostelijke Randweg 40 NL-4782 PZ MOERDIJK	B04 Delivery condition	thermomechanical rolled + accelerated cooled		

B03 - Supplementary requirements

OPTIONS 1, 6, 7, 9, 11, 12, 17 OF EN 10225:2019 AND OPTION 18 OF EN 10225:2009
FINAL ROLLING DIRECTION IS PERPENDICULAR TO DIE STAMPING.
MATERIAL IS FINE GRAINED, VACUUM DEGASSED AND FULLY KILLED, PRODUCED BY BOF.
MATERIAL IS PRE-QUALIFIED ACC. TO EN10225:2019 OPTION 17.

D01 - Visual Examination and dimensional checking: satisfactory. The results of tests performed are in compliance with the requirements.

Detail of supply

B07 Heat No.	B06 Plate No	Item	Dimensions B09 Thickness mm	B10 Width mm	B11 Length mm	B08 Piece	ind. Weight kg	total Weight kg	A09 Disp-No 130 42	reference no.
735829	287565/1	200	60,00	2051,0	12000	1		11.863	55172	S460MLOVAS
735829	290462/1	170	50,00	2500,0	12000	1		12.006	55172	S460MLOVAS
736009	289410/1	100	25,00	2500,0	12000	1		5.962	55172	S460MLOVAS
736009	291133/1	30	15,00	2051,0	12000	1		2.932	55172	S460MLOVAS
736009	291133/2	30	15,00	2051,0	12000	1		2.932	55172	S460MLOVAS
736009	291135/1	60	16,00	2051,0	16000	1		4.168	55172	S460MLOVAS
736009	291137/1	60	16,00	2051,0	16000	1		4.195	55172	S460MLOVAS
736009	292575/1	120	30,00	2500,0	12000	1		7.146	55172	S460MLOVAS
736009	292577/1	120	30,00	2500,0	12000	1		7.147	55172	S460MLOVAS
736009	292579/1	120	30,00	2500,0	12000	1		7.147	55172	S460MLOVAS
736009	292581/1	120	30,00	2500,0	12000	1		7.170	55172	S460MLOVAS
736009	292583/2	40	15,00	2500,0	12000	1		3.597	55172	S460MLOVAS

A04
Symbol of the manufacturer's work

voestalpine

Z03
third party stamp

DNV — SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT — 1864
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LINTNER Norbert

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Dimensional tolerances acc. EN 10029/11
EN10163-2: Class B3 - Repair-welding not permitted
Thicknesstolerance acc. EN 10029/11 tab.1 class B

Chemical composition (Heat analysis) - part 1 of 2

B07 Heat No.	C %	Si %	Mn %	P %	S %	Al %	Cr %	Ni %	Mo %	Cu %	V %	Nb %	Ti %	N %	B %	Sn %	Ca %	As %	Sb %	Pb %	Cae %	Pcm %
>=						.015																
Set values <=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0200	.0050	.0300	.0100	.010	.41	.23
736009	.028	.316	1.580	.006	.0006	.040	.181	.170	.006	.159	.005	.037	.013	.0043	.0002	.0020	.0014	.0020	.0020	.002	.35	.14
736926	.030	.348	1.650	.006	.0007	.045	.175	.170	.005	.159	.004	.039	.012	.0044	.0002	.0020	.0018	.0020	.0020	.002	.36	.15
836634	.032	.337	1.640	.008	.0006	.038	.181	.190	.013	.161	.004	.037	.011	.0041	.0002	.0020	.0014	.0020	.0020	.002	.37	.15
929534	.028	.324	1.630	.008	.0005	.038	.166	.180	.005	.160	.004	.039	.012	.0045	.0002	.0020	.0017	.0020	.0020	.002	.36	.14
930314	.033	.343	1.620	.005	.0007	.036	.172	.160	.001	.157	.004	.036	.013	.0054	.0002	.0020	.0015	.0020	.0020	.002	.36	.15
>=						.015																
Set values <=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0200	.0050	.0300	.0100	.010	.41	.22
735829	.036	.341	1.610	.008	.0007	.041	.174	.170	.006	.160	.003	.038	.012	.0048	.0002	.0020	.0020	.0030	.0020	.002	.36	.15
736009	.028	.316	1.580	.006	.0006	.040	.181	.170	.006	.159	.005	.037	.013	.0043	.0002	.0020	.0014	.0020	.0020	.002	.35	.14
736926	.030	.348	1.650	.006	.0007	.045	.175	.170	.005	.159	.004	.039	.012	.0044	.0002	.0020	.0018	.0020	.0020	.002	.36	.15
736927	.030	.340	1.620	.005	.0010	.038	.170	.170	.002	.160	.003	.036	.013	.0047	.0002	.0020	.0014	.0020	.0020	.002	.36	.14
840986	.030	.337	1.640	.007	.0003	.038	.175	.170	.006	.151	.004	.040	.013	.0047	.0002	.0020	.0014	.0020	.0020	.002	.36	.14
841329	.027	.322	1.620	.008	.0005	.037	.172	.170	.005	.163	.005	.038	.014	.0040	.0003	.0020	.0010	.0030	.0020	.002	.36	.14
841750	.060	.393	1.540	.009	.0007	.041	.177	.280	.025	.155	.004	.030	.013	.0038	.0002	.0020	.0016	.0020	.0020	.002	.39	.17
841752	.060	.350	1.540	.008	.0007	.036	.174	.270	.016	.162	.004	.028	.014	.0037	.0002	.0020	.0014	.0020	.0020	.002	.38	.17
842367	.063	.348	1.530	.007	.0008	.037	.173	.280	.009	.157	.005	.029	.011	.0043	.0002	.0020	.0023	.0030	.0020	.002	.38	.17
929534	.028	.324	1.630	.008	.0005	.038	.166	.180	.005	.160	.004	.039	.012	.0045	.0002	.0020	.0017	.0020	.0020	.002	.36	.14
930314	.033	.343	1.620	.005	.0007	.036	.172	.160	.001	.157	.004	.036	.013	.0054	.0002	.0020	.0015	.0020	.0020	.002	.36	.15
931038	.029	.340	1.620	.008	.0008	.039	.165	.180	.024	.163	.005	.039	.012	.0051	.0003	.0020	.0023	.0030	.0020	.002	.36	.14

Z03
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SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT - DNV 1864
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Lilly-Yuki Norbert

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Test results: C10-C29 Tensile Test at room temperature acc. EN ISO 6892-1

B07 Heat No.	B06 Plate No	C41 Width	SpThickn mm	C01 loc.	PosTh.	C02 Dir	C11 Rp0,2 MPa	C12 Rm MPa	L0	C13 E %	C11 Rp0,2/Rm %	Sim.htm	WBH
>=							460	520		17.0			
Set values <=								700			93.00		
736009	291133	30,0	15.09	F	O	T	546	614	A5	18.5	88.94		
736926	292617	30,0	15.10	F	O	T	548	640	A5	19.6	85.67		
836634	296717	30,0	15.32	F	O	T	557	618	A5	17.9	90.10		
929534	298464	30,0	15.49	F	O	T	538	588	A5	23.4	91.53		
930314	295907	30,0	15.64	F	O	T	504	575	A5	22.3	87.63		
>=							440	520		17.0			
Set values <=								700			93.00		
736009	289410	30,0	25.36	F	O	T	536	590	A5	22.0	90.77		
736926	294666	30,0	20.42	F	O	T	577	651	A5	20.2	88.70		
736927	294046	30,0	20.28	F	O	T	489	597	A5	24.6	81.92		
930314	292635	30,0	20.76	F	O	T	567	612	A5	17.9	92.65		
	292661	30,0	25.18	F	O	T	552	605	A5	23.2	91.23		
>=							420	520		17.0			
Set values <=								700			93.00		
736009	292581	30,0	30.77	F	O	T	528	589	A5	24.7	89.61		
736926	294338	30,0	30.50	F	O	T	512	582	A5	25.0	87.94		
736927	292613	30,0	31.20	F	O	T	525	592	A5	23.4	88.69		
	292625	30,0	40.88	F	O	T	479	593	A5	23.1	80.76		
	292628	30,0	40.82	F	O	T	484	594	A5	24.4	81.43		
	292630	30,0	41.06	F	O	T	473	590	A5	23.5	80.09		
841329	288720	30,0	40.63	F	O	T	463	567	A5	23.8	81.55		
930314	292633	30,0	41.04	F	O	T	473	592	A5	23.8	79.93		
	292660	30,0	40.89	F	O	T	470	595	A5	24.3	78.93		
931038	298855	30,0	41.07	F	O	T	493	600	A5	23.3	82.20		
>=							415	500		17.0			
Set values <=								675			93.00		
735829	287565	Ø	9.99	F	V	T	438	551	A5	30.9	79.39		
	290462	Ø	10.01	F	V	T	474	593	A5	27.4	79.90		
	287565	Ø	10.01	F	V	T	485	563	A5	29.7	86.06	001	1
	290462	Ø	9.99	F	V	T	517	595	A5	27.7	86.85	001	1

Z03
third party stamp

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Inspection representative voestalpine
Gobbleen
LIVIXER Norbert

voestalpine

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ONE STEP AHEAD.

Test results: C10-C29 Tensile Test at room temperature acc. EN ISO 6892-1

B07 Heat No.	B06 Plate No	C41 Width mm	SpThickn	C01 loc.	PosTh.	C02 Dir	C11 Rp0,2 MPa	C12 Rm MPa	L0	C13 E %	C11 Rp0,2/Rm %	Sim.htm	WBH

F: Bottom
PosTh.: Pos Thickness
O: surface
V: ¼ t
C02;Dir:
T: transverse
C12; Rm: Tensile Strength
L0: gauge
A5: Length = 5.65 * sqr (area) mm
C13;E: elongation
Sim.htm: sim. heat treatment
001: Sim.htm group #1
WBH: sim. heat treatment

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Gobbi Kevin
LANXATH Norbert

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Test results: C40-C49 Impact Test acc. EN ISO 148-1

B07 Heat No.	B06 Plate No	C40 shape	C01 loc.	PosTh.	C02 Dir	C03 temp °C	C42 SV J	C42 SV J	C42 SV J	C43 AV J	Sim.htm	WBH	samp.cond.
Set values >=						-40	42	42	42	60			
Set values <=													
735829	287565	CV 10x10	F	O	T	-40	367	363	363	364			
	290462	CV 10x10	F	O	T	-40	370	353	350	357			
	287565	CV 10x10	F	O	T	-40	349	344	341	345	001	1	
	290462	CV 10x10	F	O	T	-40	300	294	295	296	001	1	
	287565	CV 10x10	F	K	T	-40	361	359	358	359			
	290462	CV 10x10	F	K	T	-40	377	374	385	379			
	287565	CV 10x10	F	K	T	-40	316	144	337	266	001	1	
	290462	CV 10x10	F	K	T	-40	49	325	128	167	001	1	
736009	289410	CV 10x10	F	O	T	-40	348	364	357	356			
	291133	CV 10x10	F	O	T	-40	350	350	352	351			
	292581	CV 10x10	F	O	T	-40	352	352	341	348			

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Grobbleder
LANTNER Norbert

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Test results: C40-C49 Impact Test acc. EN ISO 148-1

B07 Heat No.	B06 Plate No	C40 shape	C01 loc.	PosTh.	C02 Dir	C03 temp °C	C42 SV J	C42 SV J	C42 SV J	C43 AV J	Sim.htm	WBH	samp.cond.
>=						-40	42	42	42	60			
Set values <=													
930314	292633	CV 10x10	F	O	T	-40	377	366	352	365			
	292635	CV 10x10	F	O	T	-40	360	379	383	374			
	292660	CV 10x10	F	O	T	-40	384	366	407	386			
	292661	CV 10x10	F	O	T	-40	350	386	367	367			
	294335	CV 10x10	F	O	T	-40	365	383	394	381			
	295907	CV 10x10	F	O	T	-40	404	399	426	410			
	294335	CV 10x10	F	O	T	-40	358	372	358	363	001	1	
	294335	CV 10x10	F	K	T	-40	384	368	393	382			
	294335	CV 10x10	F	K	T	-40	401	374	389	388	001	1	
931038	299142	CV 10x10	F	O	T	-40	381	389	340	370			
>=						-40	29	29	29	46			
Set values <=													
735829	287565	CV 10x10	F	ZB2	T	-40	321	286	313	307			strain aged 5%, 60 min. at 250°C

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LIVA/VKR Siegbert

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Test results: C40-C49 Impact Test acc. EN ISO 148-1

B07	B06	C40	C01		C02	C03	C42	C42	C42	C43			
Heat No.	Plate No	shape	loc.	PosTh.	Dir	temp	SV	SV	SV	AV	Sim.htm	WBH	samp.cond.
						°C	J	J	J	J			

Sim.htm: sim. heat treatment
001: Sim.htm group #1
WBH: sim. heat treatment
samp.cond.: sample condition

Test results: C30-C39 Hardness Test Vickers

B07	B06	C01			C31	C31	C31
Heat No.	Plate No	loc.	PosTh.	Hard.	HV	HV	HV
735829	285777	F	OS	HV10	230	226	224
736009	287890	F	OS	HV10	193	199	193
736926	294666	F	OS	HV10	214	230	215
736927	292613	F	OS	HV10	203	194	194
836634	296717	F	OS	HV10	215	212	211
840986	285718	F	OS	HV10	230	223	226
841329	288720	F	OS	HV10	203	205	204
841750	292002	F	OS	HV10	234	229	222
841752	292010	F	OS	HV10	235	235	227
842367	299193	F	OS	HV10	240	240	237
929534	292411	F	OS	HV10	203	207	204
930314	292635	F	OS	HV10	212	201	205
931038	298855	F	OS	HV10	203	208	203

C01;loc.:
F: Bottom
PosTh.: Pos Thickness
OS: upper side
Hard.: stress

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Inspection representative voestalpine
Gobbels
i.V. Vink Norbert

voestalpine
ONE STEP AHEAD.

Test results: C10-C29 through Thickness Test at room temperature acc. DIN / EN 10164:2018

B07 Heat No.	B06 Plate No	C40 Shape	SpThickn mm	C01 loc.	C02 Dir	C12 Rm MPa	C12 Rm MPa	C12 Rm MPa	Z(SV) %	Z(SV) %	Z(SV) %	Z(AV) %

S: through thickness direction
C12; Rm: Tensile Strength
Z(SV): reduction of area (single value)
Z(AV): reduction of area (average value)

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Inspection representative voestalpine
Gobbleck
Lindner Norbert

voestalpine
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Chemical composition (Product analysis) - part 1 of 2

B07 Heat No.	B06 Plate No	C %	Si %	Mn %	P %	S %	Al %	Cr %	Ni %	Mo %	Cu %	V %	Nb %	Ti %	N %	B %	Sn %	Ca %	As %	Sb %
	>=						.015													
Set values	<=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0050	.0300	.0200	.0100
736009	291133	.030	.315	1.630	.008	.0008	.041	.179	.180	.008	.160	.003	.038	.013	.0035	.0002	.0020	.0014	.0020	.0020
736926	292652	.031	.361	1.650	.007	.0007	.043	.175	.180	.005	.162	.004	.039	.012	.0049	.0002	.0020	.0018	.0030	.0020
836634	296717	.031	.344	1.630	.008	.0007	.039	.178	.180	.013	.154	.004	.038	.011	.0038	.0002	.0020	.0015	.0020	.0030
929534	292411	.032	.327	1.610	.008	.0011	.031	.175	.180	.005	.161	.004	.039	.011	.0063	.0003	.0020	.0015	.0020	.0020
930314	292623	.033	.349	1.650	.006	.0007	.040	.185	.170	.005	.158	.004	.038	.013	.0050	.0002	.0020	.0018	.0030	.0020
	>=						.015													
Set values	<=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0050	.0300	.0200	.0100
735829	287565	.034	.332	1.600	.008	.0010	.040	.171	.170	.006	.158	.003	.039	.012	.0042	.0002	.0020	.0017	.0030	.0020
736009	289509	.030	.317	1.610	.007	.0008	.040	.182	.180	.009	.163	.004	.035	.013	.0036	.0002	.0040	.0013	.0020	.0020
	291133	.030	.315	1.630	.008	.0008	.041	.179	.180	.008	.160	.003	.038	.013	.0035	.0002	.0020	.0014	.0020	.0020
	292579	.030	.314	1.630	.007	.0008	.043	.181	.190	.008	.159	.004	.038	.013	.0040	.0002	.0020	.0016	.0020	.0020
736926	294666	.058	.364	1.530	.008	.0006	.036	.165	.270	.015	.157	.003	.029	.011	.0050	.0002	.0020	.0016	.0020	.0020
736927	292613	.032	.353	1.650	.007	.0009	.043	.186	.180	.006	.163	.004	.039	.013	.0053	.0002	.0020	.0017	.0030	.0020
	292624	.032	.351	1.650	.006	.0011	.044	.184	.180	.006	.162	.004	.039	.013	.0051	.0002	.0020	.0018	.0030	.0020
	292626	.032	.350	1.650	.006	.0010	.045	.183	.180	.006	.162	.003	.039	.014	.0053	.0002	.0020	.0018	.0030	.0020
	292629	.031	.347	1.650	.006	.0010	.045	.181	.180	.006	.162	.003	.038	.013	.0049	.0002	.0030	.0018	.0030	.0020
	292645	.032	.350	1.640	.006	.0009	.044	.185	.180	.006	.161	.003	.038	.013	.0055	.0002	.0020	.0020	.0030	.0020
840986	285719	.031	.327	1.630	.007	.0003	.036	.172	.170	.006	.151	.003	.039	.013	.0042	.0002	.0020	.0013	.0030	.0020
	287720	.033	.326	1.590	.007	.0006	.035	.169	.170	.005	.155	.003	.037	.013	.0041	.0002	.0020	.0015	.0020	.0020
841329	288720	.027	.308	1.590	.009	.0007	.035	.169	.170	.005	.160	.004	.038	.013	.0041	.0002	.0020	.0010	.0030	.0020
	292008	.027	.317	1.610	.009	.0007	.035	.171	.170	.005	.163	.005	.038	.013	.0045	.0002	.0020	.0014	.0030	.0020
841750	292002	.059	.389	1.540	.010	.0007	.040	.177	.280	.024	.157	.004	.030	.013	.0040	.0002	.0020	.0017	.0030	.0020
	292003	.058	.387	1.530	.009	.0007	.041	.176	.280	.025	.155	.004	.029	.013	.0035	.0002	.0020	.0019	.0020	.0020
	292004	.060	.391	1.550	.009	.0007	.041	.176	.280	.026	.157	.004	.031	.013	.0039	.0003	.0020	.0018	.0020	.0020
841752	292010	.060	.377	1.530	.009	.0009	.037	.176	.270	.018	.161	.004	.029	.013	.0037	.0003	.0020	.0016	.0030	.0020
	294333	.060	.349	1.530	.008	.0007	.039	.173	.270	.016	.158	.004	.028	.013	.0040	.0002	.0020	.0014	.0020	.0020
842367	299193	.051	.346	1.520	.007	.0014	.039	.172	.270	.005	.161	.005	.027	.011	.0051	.0002	.0020	.0017	.0020	.0020
929534	292411	.032	.327	1.610	.008	.0011	.031	.175	.180	.005	.161	.004	.039	.011	.0063	.0003	.0020	.0015	.0020	.0020
930314	292623	.033	.349	1.650	.006	.0007	.040	.185	.170	.005	.158	.004	.038	.013	.0050	.0002	.0020	.0018	.0030	.0020
	292633	.033	.351	1.650	.007	.0009	.042	.186	.180	.006	.161	.004	.039	.013	.0055	.0002	.0030	.0018	.0030	.0020
	292635	.033	.354	1.660	.007	.0007	.041	.187	.180	.006	.160	.004	.040	.013	.0053	.0002	.0020	.0018	.0030	.0020
	292659	.033	.352	1.650	.007	.0007	.040	.185	.180	.005	.159	.004	.039	.013	.0056	.0002	.0020	.0018	.0030	.0020

Z03
third party stamp

SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT - DNV 1864
☐ ~~Witnessed~~ ☒ Reviewed
And found to comply with:
EN 10225-1 : 2019
Date: 2021-08-09
Sign: Antonio R. Zambrano C.
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Z02
Inspection representative voestalpine
Gobbicchi
Lantaler Norbert

voestalpine

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ONE STEP AHEAD.

Chemical composition (Product analysis) - part 2 of 2

B07 Heat No.	B06 Plate No	Pb %	Bi %	Cae %	Pcm %	LF01 %	LF02 %	Al/N
	>=							2.00
Set values	<=		.010	.0100	.41	.23	.120	.130	
736009	291133	.002	.0020	.36	.14	.041	.054	11.71
736926	292652	.002	.0020	.37	.15	.043	.055	8.78
836634	296717	.002	.0020	.36	.15	.042	.053	10.26
929534	292411	.002	.0020	.36	.15	.043	.054	4.92
930314	292623	.002	.0020	.37	.15	.042	.055	8.00
	>=							2.00
Set values	<=		.010	.0100	.41	.22	.120	.130	
735829	287565	.002	.0020	.36	.15	.042	.054	9.52
736009	289509	.002	.0020	.36	.14	.039	.052	11.11
	291133	.002	.0020	.36	.14	.041	.054	11.71
	292579	.002	.0020	.36	.14	.042	.055	10.75
736926	294666	.002	.0020	.38	.17	.032	.043	7.20
736927	292613	.002	.0020	.37	.15	.043	.056	8.11
	292624	.002	.0020	.37	.15	.043	.056	8.63
	292626	.002	.0020	.37	.15	.042	.056	8.49
	292629	.002	.0020	.37	.15	.041	.054	9.18
	292645	.002	.0020	.37	.15	.041	.054	8.00
840986	285719	.002	.0020	.36	.14	.042	.055	8.57
	287720	.002	.0020	.36	.14	.040	.053	8.54
841329	288720	.002	.0020	.35	.14	.042	.055	8.54
	292008	.002	.0020	.35	.14	.043	.056	7.78
841750	292002	.002	.0020	.39	.17	.034	.047	10.00
	292003	.002	.0020	.38	.17	.033	.046	11.71
	292004	.002	.0020	.39	.18	.035	.048	10.51
841752	292010	.002	.0020	.38	.17	.033	.046	10.00
	294333	.002	.0020	.38	.17	.032	.045	9.75
842367	299193	.002	.0020	.37	.16	.032	.043	7.65
929534	292411	.002	.0020	.36	.15	.043	.054	4.92
930314	292623	.002	.0020	.37	.15	.042	.055	8.00
	292633	.002	.0020	.37	.15	.043	.056	7.64
	292635	.002	.0020	.37	.15	.044	.057	7.74
	292659	.002	.0020	.37	.15	.043	.056	7.14

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SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT
DNV 1864
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Inspection representative voestalpine
Grobbauer
[illegible] Norbert

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Chemical composition (Product analysis) - part 2 of 2

B07 Heat No.	B06 Plate No	Pb %	Bi %	Cae %	Pcm %	LF01 %	LF02 %	Al/N
>=								2.00
Set values <=		.010	.0100	.41	.22	.120	.130	
931038	298855	.002	.0020	.36	.15	.046	.058	8.33

C99 - Supplementary information
Cae: C+(Mn/6)+(Cr+Mo+V)/5+(Ni+Cu)/15
Pcm: C+((Mn+Cu+Cr)/20)+(Si/30)+(Ni/60)+(Mo/15)+(V/10)+(B*5)
LF02: Nb+V+Ti
Al/N: Al/N
LF01: Nb+V

Remarks

Simulated heat treatment of test coupons:

Item 170-280, 300:
001/1: 1 cycle(s) sim. PWHT: furnace charge temperature at max. 400 °C, heating with max. 55 °C/h up to 580 °C, +10 °C/-10 °C, holding time 240 minutes, cooling with max. 55 °C/h down to 400 °C, final cooling in calm air.

We confirm that the above-mentioned delivery corresponds to the order (and standard).

C70 - Method of steelmaking: Basic oxygen furnace (BOF) steelmaking, continuous casting, steel is fully killed, vacuum degassed and melted by fine grain practice, austenitic grain size 5 or finer.

The signature of the inspection representative from voestalpine Grobblech GmbH is substituted by a electronic Signature, because the certificates of voestalpine Grobblech GmbH are prepared by a suitable data processing system (EN 10204, Pt.5).

Z03
third party stamp

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And found to comply with:
EN 10225-1 : 2019
Date: 2021-08-09
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Z02
Inspection representative voestalpine Grobblech
i.V. MEIX Norbert

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D02-D50 - ULTRASONIC EXAMINATION PLATE(S)

SPECIFICATION

Item 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 310
Ultrasonic test acc. EN 10160, EN 10160 class S3/Body, Grid 100 mm, EN 10160 class E4/Edge Zone, Edge zone longitudinal 50 mm, Edge zone transverse 50 mm; satisfactory
Item 170, 180, 190, 200, 210, 220, 230, 240, 270, 280, 300
Ultrasonic test acc. EN 10160, EN 10160 class S3/Body, Grid 100 mm, EN 10160 class E4/Edge Zone, Edge zone longitudinal 75 mm, Edge zone transverse 75 mm; satisfactory
Item 250, 260
Ultrasonic test acc. EN 10160, EN 10160 class S3/Body, Grid 100 mm, EN 10160 class E4/Edge Zone, Edge zone longitudinal 100 mm, Edge zone transverse 100 mm; satisfactory

VALID TEST EQUIPMENT
mechanized ultrasonic "In-Line testing system" (Manufacturer: NDT-Systems & Services) and
mechanized ultrasonic "off-line - testing system" (manufacturer: Windhoff Bahn- und Anlagentechnik GmbH) and
MUT (optional): Sonatest D20 no. 90006523 or Sonatest D20 no. 90007346 or Sonatest Masterscan 380 no. 90007347 or Sonatest Masterscan 380 no. 90006522 or Sonatest D50 no. 90010231 or GE - USM 36 no. 90010775

PROBE
(in-line AUT): 3STSE 18.3/8 P5, SEZ5R10RS, SE3 18.3/10 5A, (5MHz)
(off-line AUT): S140 (4MHz) 3T/1R
(MUT): SEB4E (4MHz), SEB4E0° (4MHz), MSEB4E (4MHz), B2SO (2MHz)
watergapcoupling

SURFACE CONDITION
Scaled surface - cleaned surface and free of loose scale.

RESULT
Plate(s) comply with the specification.

INSPECTION OPERATOR
Operators Level 1 or 2: qualified and certified according EN ISO 9712 (since 01.01.2013) respectively according the Written Practice „NDT-WP" (in accordance to Recommended Practice SNT-TC-1A). Operators Level 2 for ASME/ASTM.

INSPECTION SUPERVISOR
Responsible Level 3: Bindreiter Erich

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~~Witnessed~~ Reviewed
And found to comply with:
EN 10225-1 : 2019
Date: 2021-08-09
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Z02
Inspection representative voestalpine
Globbiek
LIN1VKR Norbert

voestalpine
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Z03
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DNV
SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT
1864
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And found to comply with:
EN 10225-1 : 2019
Date: 2021-08-09
Sign: Antonio R. Zambrano C.

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Inspection representative voestalpine
Grobblech
i.V. Norbert

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ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO
ISP N° 069 E
Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

WELDING PROCEDURE QUALIFICATION RECORD (WPQR)

N. 23TO001006PW\2A

Manufacturer **SCANDIUZZI STEEL CONSTRUCTIONS SpA - Volpago del Montello (TV)**

WPQR No. **2308-121-TC2** Dated **01/12/2023**

Manufacturer's welding procedure (WPS) No. **p-2308-121-TC2** Dated **08/11/2023** Date of welding **13/11/2023**

RANGE OF APPROVAL

Welding process	**121** Type **Fully mechanized**
Joint type	**Plates and Pipes and build-up BW ssmb-bs/FWUNI EN ISO 15614-1** **Plates and Pipes BW bs/FW RINA Rules**
Single/Multiple pass	**Multiple** (**Impact and hardness properties apply**)
Parent material group(s)	**2-2, 1-1, 2-1** ISO/TR 15608; ISO/TR20172; ISO/TR 20173; ISO/TR20174 Steels with a specified minimum yield strength ≤ 460 MPa
Steel grades	**EH460;DH460;EH420;DH420** according to Pt D, Ch 2, Sec1 of RINA Rules
Parent material thickness (mm)	Butt Joint = **12,5 to 50,0** Fillet Joint t_1 **= 3,0 to 50,0** t_2 **= 3,0 to 50,0 For EN 15614-1** Butt Joint = **12,5 to 50,0**Fillet Joint t_1 **= 12,5 to 50,0** t_2 **= 12,5 to 50,0 For RINA RULES**
Throat thickness (mm)	**No restriction** For EN 15614-1 **12,5 to 50,0** for RINA RULES
Weld deposit thickness (mm)	**Max 50,0**
Outside diameter (mm)	**Over 500 For EN 15614-1 and RINA RULES**
Filler metal type	**ESAB OK AUTROD 12.32** Nr. of wires for process 12: **One**
Flux make	**ESAB OK FLUX 10.62** Flux Designation: **EN ISO 14174-A:S A FB 1 55 AC H5**
Filler metal type	**Flux/Wire combination EN ISO 14174-A:S A FB 1 55 AC H5/EN ISO 14171-A:S3Si**
Shielding gas (ISO 14175)	**N.A.** Backing gas (ISO 14175) **None**
Type of welding current	**DCEP** Heat input Kj/cm **Min 11,2 ; Max 26,5**
Welding position	**PA** Transfer Mode **N.A.**
Preheat min. (°C)	**+50 ISO 15614-1** (if ISO/TR 17671-2 requirements are fulfilled) Interpass temp. Max. (°C) **+200 UNI EN ISO 15614-1**
Preheat min. (°C)	**50 RINA Rules** Interpass temp. Max. (°C) **+200 RINA Rules**
Post weld heat treatment / Ageing	**None**
Other information	-

Welders name **El Mezzi Habib** Stamp No. **H**

Welding test conducted by **SCANDIUZZI STEEL CONSTRUCTIONS SpA - Volpago del Montello (TV)**

Mechanical test conducted by **GLOBAL TEST srl - Marcon (VE)** Laboratory test No. **30248**

At presence of RINA Surveyor **P. Danesin**

We certify that the statements in this certificate are correct and that the test welds were prepared, welded and tested in accordance with **UNI EN ISO 15614-1: 2019** Standard ; **RINA Rules for the Classification of Ships and EEMUA Pub. 158 Ed. 3** requirements**.**

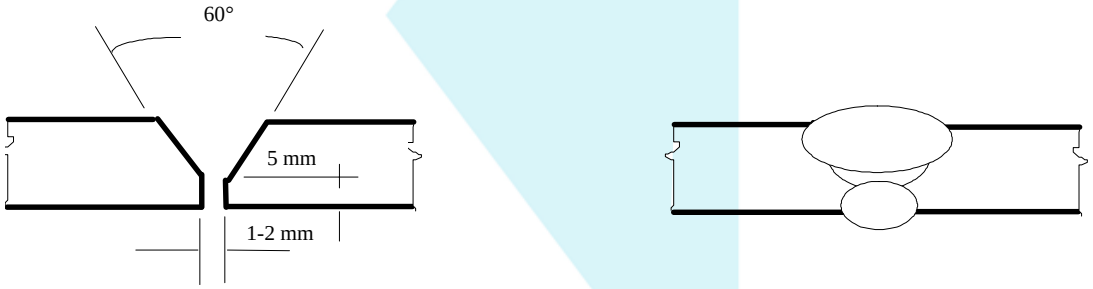
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RINA Services S.p.A.
PED No. Bo. 0474

JOINT DETAILS AND WELDING SEQUENCES

PLATE TO PLATE SINGLE-V, BUTT JOINT; BOTH SIDES WELDING WITH BACK GOUGING

Pass No.	Process	Filler metal diam. (mm)	Filler metal classification	Amps	Volt	Travel speed (cm/min)	Heat input (kJ/cm)	Metal Transfer mode
1	**121**	**4,0**	**S3Si**	**400**	**28,0**	**45,0**	**14,9**	**N.A.**
2	**121**	**4,0**	**S3Si**	**430**	**28,0**	**45,0**	**16,1**	**N.A.**
3	**121**	**4,0**	**S3Si**	**500**	**29,0**	**45,0**	**19,3**	**N.A.**
4	**121**	**4,0**	**S3Si**	**530**	**30,0**	**45,0**	**21,2**	**N.A.**
5-7	**121**	**4,0**	**S3Si**	**530**	**30,0**	**50,0**	**19,1**	**N.A.**
8-15	**121**	**4,0**	**S3Si**	**500**	**30,0**	**45,0**	**20,0**	**N.A.**
16-19	**121**	**4,0**	**S3Si**	**500**	**30,0**	**51,0**	**17,6**	**N.A.**
ON THE OPPOSITE SIDE, GRINDING TO SOUND METAL								
1R	**121**	**4,0**	**S3Si**	**500**	**30,0**	**51,0**	**17,6**	**N.A.**



PARENT MATERIAL

Material specification	**T_1 = EN 10225-2 to T_2 = EN 10225-2**
Type or grade	**T_1 = S460 MLO to T_2 = S460MLO**
Steel grade	**N.A. (EH460)** according to Pt D, Ch 2, Sec 1 of RINA Rules
Group(s)/Subgroup(s) No. (ISO/TR 15608)	**T_1 = 2.1 to T_2 = 2.1**
Thickness (mm)	**T_1 = 25,0 to T_2 = 25,0** Throat thickness (mm) **N.A.**
Diameter (mm)	**D_1 = N.A. to D_2 = N.A.**
Branch connection angle	**N.A.**
Other	**Heat 736009 ; First pass with ceramic baking**

WELDING CONSUMABLES

Process	**121**
Trade name(s)	**ESAB OK AUTROD 12.32**
Specification	**EN ISO 14171-A**
Classification / designation	**S3 Si**
Size (mm)	**4,0**
Deposited metal thickness	
Groove	**20,0 mm**
Throat	**N.A.**
Flux trade name	**ESAB OK FLUX 10.62 (*)**
Consumable insert	**N.A.**
Other	**(*) EN ISO 14174 : S A FB 55 AC H5**
	Heat wire : 22309
	Lot flux : PNX3210364

GAS

	Gas	Mixture	Flow rate (l/min.)
Shielding	-	-	-
Trailing	-	-	-
Backing	-	-	-

POSITION

Welding position **PA**

Other

PREHEAT

Preheat temperature **Min +50°C**

Interpass temperature **Max +200°C**

Other

POSTWELD HEAT TREATMENT

Temperature **N.A.**

Time **None**

Other

ELECTRICAL CHARACTERISTICS

Current **DCEP**

Ampere (range) **See table** Volts (Range) **See table**

Mode of metal transfer **N.A.**

Tungsten electrode size and type **N.A.**

Other **Gen. : ESAB LEA 1000**

TECHNIQUE

Travel speed (range) **See table**

String or weave bead **String**

Oscillation (*) **N.A.**

Method of groove/edge preparation **Machining/Grinding**

Interpass cleaning **Machining/Grinding**

Method of back gouging **Machining/Grinding**

Orifice or gas cup size **16 mm**

Stand off distance (*) **20-25 mm**

Multiple or single pass **Multiple**

Multiple or single electrodes **Single**

Torch angle (*) **90° respect to horizontal plan and normal to direction of travel**

Other (*) for fully mechanized/robotic only

TRANSVERSE TENSILE TEST						
Spec. (No.)	Width (mm)	Thickness (mm)	Area (mm^2)	Total load (N)	R_m. (N/mm^2)	Fracture location
13620\4	**25,00**	**24,91**	**622,8**	**366746**	**589**	**Ductile failure in weld**
13620\5	**24,98**	**24,90**	**622,0**	**367332**	**591**	**Ductile failure in weld**

ALL-WELD METAL TENSILE TEST							
Spec. (No.)	Diameter (mm)	Area (mm)	L_0 (mm)	Rp0,2% (N/mm^2)	Tensile strength (N/mm^2)	A (%)	Note
13620\6	**12,46**	**121,9**	**50,0**	**491**	**569**	**31,1**	**79,3**

BEND TEST			
Type	No.	Bend Angle	Result
SIDE TRANSVERSE	**4 OFF**	**180°**	**Acceptable**

IMPACT TEST

Full size 10x10x55

Spec No.	Notch location	Notch type	Test Temp. (°C)	Impact values (J)	Average (J)
VWT $_{0/2}$	**WELD**	**ISO-V**	**-40**	**290-290-252**	**277**
VHT $_{0/2}$	**FL**	**ISO-V**	**-40**	**287-284-293**	**288**
VHT $_{2,0/2}$	**FL+2**	**ISO-V**	**-40**	**299-302-291**	**297**
VHT $_{5,0/2}$	**FL+5**	**ISO-V**	**-40**	**283-271-279**	**278**
VWT $_{0/13}$	**WELD**	**ISO-V**	**-40**	**289-241-297**	**276**
VHT $_{0/13}$	**FL**	**ISO-V**	**-40**	**285-273-287**	**282**
VHT $_{2,0/13}$	**FL+2**	**ISO-V**	**-40**	**281-273-264**	**273**
VHT $_{5,0/13}$	**FL+5**	**ISO-V**	**-40**	**264-273-261**	**266**

HARDNESS TEST		
Location	Type/load	Maximum value
Parent metal(s)	**HV10**	**200**
H.A.Z.(s)	**HV10**	**211**
Weld metal	**HV10**	**214**

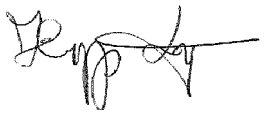
OTHER TEST

MACROGRAPHIC EXAMINATION	**Acceptable**
MICROGRAPHIC EXAMINATION	**Not required**

NON DESTRUCTIVE EXAMINATION

VISUAL EXAMINATION	**Acceptable See report 2300-121 PA VT**
RADIOGRAPHIC EXAMINATION	**Acceptable See report 2510-23**
PENETRANT TEST	**Not required**
MAGNETIC PARTICLE	**Acceptable See report 2300-121 PA MT**
ULTRASONIC TEST	**Not required**

Issued at: Genova on **01 December 2023**



RINA Services S.p.A.
PED No. Bo. 0474

GLOBAL TEST srl

LAB N° 1230 L

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Tel 041923994 - E-mail: laboratorio@globaltest.it
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Via A. Moro 10/C, 45026 Lendinara (RO)

CLIENTE / CUSTOMER
SCANDIUZZI STEEL CONSTRUCTIONS S.r.l.
Via Piave, 14 - 31040 Volpago Del Montello (TV)

ORDINE / ORDER N°	DATA / DATE
Conforme Ordine	17/11/2023
RAPPORTO DI PROVA N° / TEST REPORT	DATA / DATE
30248	01/12/2023
	PAG. 1 di 9

RAPPORTO DI PROVA / TEST REPORT

Prodotto Product	Id. Cliente Client Id.	Ricevuto il Received on	Id. Global Test Global Test Id.	Dimensioni dichiarate Declared dimensions	Materiale dichiarato Declared material	Note Remarks
Weld Coupon	WPS p-2308-121-TC2	15/11/2023	13620	Thk 25 mm	S460 MLO EN 10225-2	Welding Process: 121 Welding Type: Fully Mechanized Welding Process: PA Welder: El Mezzi Habib (H) Pr. RINA: 2023 TO PW 1006 **Qualifica procedimento** **UNI EN ISO 15614-1:2019 Lev.2** **+ RINA RULES** **+ EEMUA Pub.158 Ed.3**

Prove eseguite e Normative di riferimento Performed Tests and Reference Standards	Eseguita il Performed on	Esecuzione Testing by
Room temperature tensile test according to UNI EN ISO 4136:2022 + UNI EN ISO 6892-1:2020	01/12/2023	Sede A ☒ Sede B ☐ Altro ☐
Room temperature tensile test according to UNI EN ISO 5178:2019 + UNI EN ISO 6892-1:2020	01/12/2023	Sede A ☒ Sede B ☐ Altro ☐
Bend test according to UNI EN ISO 5173:2023	27/11/2023	Sede A ☒ Sede B ☐ Altro ☐
Charpy Impact test according to UNI EN ISO 148-1:2016 + UNI EN ISO 9016:2022	01/12/2023	Sede A ☒ Sede B ☐ Altro ☐
Macrographic examination according to UNI EN ISO 17639:2022	27/11/2023	Sede A ☒ Sede B ☐ Altro ☐
Hardness test according UNI EN ISO 6507-1:2018	27/11/2023	Sede A ☒ Sede B ☐ Altro ☐

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Approvato da: RESPONSABILE LABORATORIO
Marco Canato
GLOBAL TEST Srl

Spazio riservato ad eventuali approvazioni esterne / Space reserved for possible external approvals

RINA
P. Canesin
RINA Services S.p.A.

GLOBAL TEST srl

LAB N° 1230 L

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Tel 041923994 - E-mail: laboratorio@globaltest.it
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Via A. Moro 10/C, 45026 Lendinara (RO)

CLIENTE / CUSTOMER
SCANDIUZZI STEEL CONSTRUCTIONS S.r.l.
Via Piave, 14 - 31040 Volpago Del Montello (TV)

ORDINE / ORDER N°	DATA / DATE
Conforme Ordine	17/11/2023
RAPPORTO DI PROVA N° / TEST REPORT	DATA / DATE
30248	01/12/2023
	PAG. 2 di 9

Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Room temperature tensile test according to UNI EN ISO 4136:2022 + UNI EN ISO 6892-1:2020

Standards Correlati - Related Standards
None

PROVA DI TRAZIONE / TENSILE TEST

Identificativo Campione Sample Identification		**Provino** Specimen	**Posizione** Position	**Dimensioni** Dimensions	**Area** Area	**Carico Max** Maximum Load F_m	**Carico Rottura** Ultimate Tensile Strength **Rm**	**Aspetto frattura** Fracture Appearance	**Zona rottura** Fracture Location
Cliente / Client	**Lab.** / Lab.			mm	mm^2	N	MPa		
WPS p-2308-121-TC2	13620 / 4	F	TW	24.91 x 25.00	622.8	366746	589	Ductile	In Weld
WPS p-2308-121-TC2	13620 / 5	F	TW	24.90 x 24.98	622.0	367332	591	Ductile	In Weld

Posizione: *Position:*	**Tipo di campione:** *Specimen Tipe:*	**Tipo di velocità di prova:** *Testing Rate method:*
TB: trasversale in materiale base / transversal on base metal LB: longitudinale in materiale base / longitudinal on base metal TW: trasversale attraverso saldatura / transversal across weld metal LW: longitudinale su saldatura / longitudinal on weld metal	F – prismatica / flat C – cilindrica / cilyndrical T – tubo intero / entire pipe P – provetta da tubo / specimen from pipe	"A224" method

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LAB N° 1230 L

Seda A: legale, amministrativa e operativa
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CLIENTE / CUSTOMER
SCANDIUZZI STEEL CONSTRUCTIONS S.r.l.
Via Piave, 14 - 31040 Volpago Del Montello (TV)

ORDINE / ORDER N°	DATA / DATE
Conforme Ordine	17/11/2023
RAPPORTO DI PROVA N° / TEST REPORT	DATA / DATE
30248	01/12/2023
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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Room Temperature tensile test according to UNI EN ISO 5178:2019 + UNI EN ISO 6892-1:2020

Standards Correlati - Related Standards(*)
EEMUA Pub.158 Ed.3 Para 4.4.4.2

PROVA DI TRAZIONE / TENSILE TEST

Identificativo Campione Sample Identification		**Provino** Specimen	**Posizione** Position	**Dimensioni** Dimensions	**Area** Area	**Lunghezza Iniziale** Original Length L_0	**Snervamento** Yield Strength **Rp0.2%**	**Rottura** Tensile Strength **Rm**	**Allungamento** Elongation **A**	**Strizione** Area Reduction **Z**	**Zona di rottura** Break position
Cliente / Client	**Lab.** / Lab.			mm	mm^2	mm	MPa	MPa	%	%	
WPS p-2308-121-TC2	13620 / 6	C	LW	Ø 12.46	121.9	50.0	491	569	31.1	79.3	***

Posizione: *Position:*	**Tipo di campione:** *Specimen Tipe:*	**Tipo di velocità di prova:** *Testing Rate method:*
TB: trasversale in materiale base / transversal on base metal LB: longitudinale in materiale base / longitudinal on base metal TW: trasversale attraverso saldatura / transversal across weld metal LW: longitudinale su saldatura / longitudinal on weld metal	F – prismatica / flat C – cilindrica / cilyndrical T – tubo intero / entire pipe P – provetta da tubo / specimen from pipe	"A224" method

Approvato da: RESPONSABILE LABORATORIO
Marco Canato
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ORDINE / ORDER N°	DATA / DATE
Conforme Ordine	17/11/2023
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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards	Standards Correlati - Related Standards
Bend test according to UNI EN ISO 5173:2023	None

PROVA DI PIEGA / BEND TEST

Identificativo Campione Sample Identification		**Posizione** Position	**Dimensioni** Dimensions	**Mandrino** Jig	**Angolo** Angle	**Distanza Rulli** Rolls Distance	**Esito** Results
Cliente / Client	**Lab.** / Lab.		mm	mm	mm	mm	
WPS p-2308-121-TC2	13620 / 7	SBB	24.9 x 10.3	40	180°	63	Not defects noted according to UNI EN ISO 15614-1:2019 Par. 7.4.2 (*)
WPS p-2308-121-TC2	13620 / 8	SBB	24.9 x 10.1	40	180°	63	Not defects noted according to UNI EN ISO 15614-1:2019 Par. 7.4.2 (*)
WPS p-2308-121-TC2	13620 / 9	SBB	24.8 x 10.3	40	180°	63	Not defects noted according to UNI EN ISO 15614-1:2019 Par. 7.4.2 (*)
WPS p-2308-121-TC2	13620 / 10	SBB	24.8 x 10.4	40	180°	63	Not defects noted according to UNI EN ISO 15614-1:2019 Par. 7.4.2 (*)

Tipo di provino: *Specimen Type:*	**Note:** Remarks:
TFBB: Piega trasversale al dritto / transversal face bend test TRBB: Piega trasversale al rovescio / transversal root bend test SBB: Piega trasversale laterali / transversal side bend test	Testing Procedure: Former Bend Test Test Temperature: (23±5)°C

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ORDINE / ORDER N°	DATA / DATE
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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Charpy Impact test according to UNI EN ISO 148-1:2016

Standards Correlati - Related Standards
UNI EN ISO 9016:2022 + EEMUA Pub.158 Ed.3 Para 4.4.4.2(*)

PROVA DI RESILIENZA / CHARPY IMPACT TEST

Identificativo Campione Sample Identification		Temperatura Temperature	Posizione Position	Dimensioni Dimensions	Intaglio Notch	Resilienza Impact energy Joule				Espansione laterale Lateral expansion mm			
Cliente / Client	**Lab.** / Lab.	°C		mm		1	2	3	AVG	1	2	3	AVG
WPS p-2308-121-TC2	13620 / 11	- 40	VWT 0/2	10.0 x 10.0	KV_2	290	290	252	277	2,18	2,17	2,11	2,15
WPS p-2308-121-TC2	13620 / 12	- 40	VHT 0/2	10.0 x 10.0	KV_2	287	284	293	288	2,16	2,11	2,22	2,16
WPS p-2308-121-TC2	13620 / 13	- 40	VHT 2/2	10.0 x 10.0	KV_2	299	302	291	297	2,21	2,24	2,18	2,21
WPS p-2308-121-TC2	13620 / 14	- 40	VHT 5/2	10.0 x 10.0	KV_2	283	271	279	278	2,14	2,07	2,11	2,11
WPS p-2308-121-TC2	13620 / 15	- 40	VWT 0/13	10.0 x 10.0	KV_2	289	241	297	276	2,16	2,12	2,31	2,20
WPS p-2308-121-TC2	13620 / 16	- 40	VHT 0/13	10.0 x 10.0	KV_2	285	273	287	282	2,18	2,09	2,14	2,14
WPS p-2308-121-TC2	13620 / 17	- 40	VHT 2/13	10.0 x 10.0	KV_2	281	273	264	273	2,15	2,07	2,61	2,28
WPS p-2308-121-TC2	13620 / 18	- 40	VHT 5/13	10.0 x 10.0	KV_2	264	273	261	266	2,19	2,09	2,64	2,31

Posizione provino:
Position of specimen:

BM: Materiale Base / Base Metal
VHT: Linea di Fusione / Fusion Line
VWT: Zona Fusa / Weld Metal

Note:
Remarks:

Tempo di condizionamento provini: >15 min
Conditioning time: >15 min
1) Valore approssimativo KV eccede 80% della capacità dell'apparecchiatura - Approximate KV value exceeds 80% of the equipment's capacity
2) Valore approssimativo di provino non rotto – Approximate value of unbroken specimen

Approvato da: RESPONSABILE LABORATORIO
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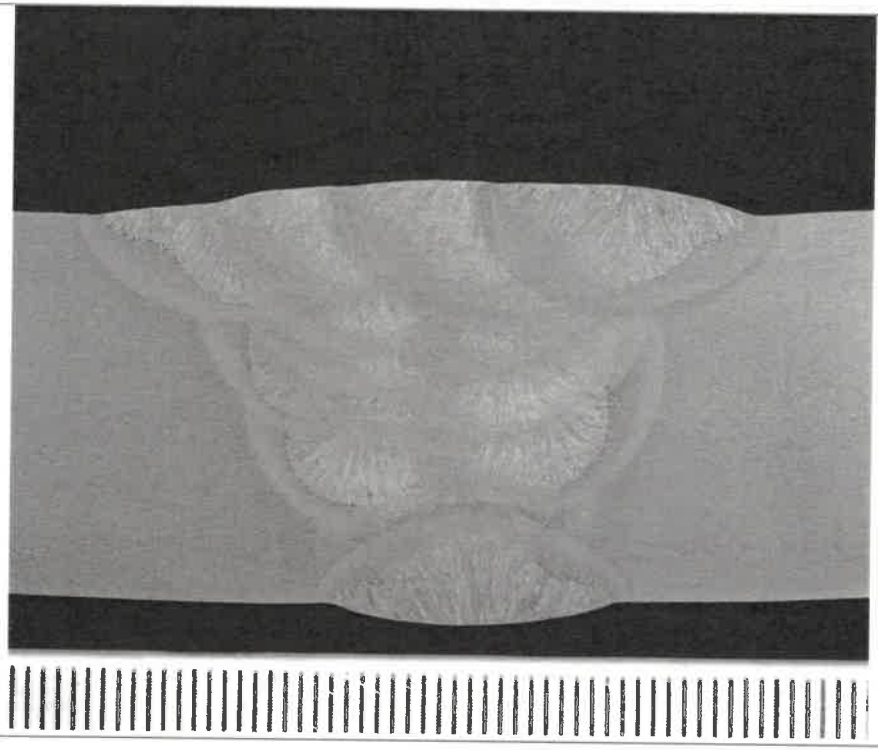
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CLIENTE / CUSTOMER	
SCANDIUZZI STEEL CONSTRUCTIONS S.r.l. Via Piave, 14 - 31040 Volpago Del Montello (TV)	
ORDINE / ORDER N° Conforme Ordine	DATA / DATE 17/11/2023
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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards	Standards Correlati - Related Standards
Macrographic examination according to UNI EN ISO 17639:2022	UNI 3138:1984

ESAME MACROGRAFICO / MACROGRAPHIC EXAMINATION



Identificativo Campione Sample Identification	**Cliente** Client	WPS p-2308-121-TC2
	Lab. Lab.	13620 / 19
Posizione Prelievo / Sampling position **Zona Esaminata** / Examinated Area		Transversal Weld Joint
Tipo di saldatura/ Weld Joint type		Butt Weld
Tipo di Attacco / Etching Type		Nital 10%
Metodo di attacco / Ethching method		Immersione – 30s Swabbing – 30s
Designazione / Designation		Esame-ISO 17639-A-E-2.1/2.1-2.1/2.1-A.1
Esito / Result (*)		No defects noted according to UNI EN ISO 5817:2023 Lev. B + UNI EN ISO 15614-1:2019 Lev.2 Para 7.5

Approvato da: RESPONSABILE LABORATORIO
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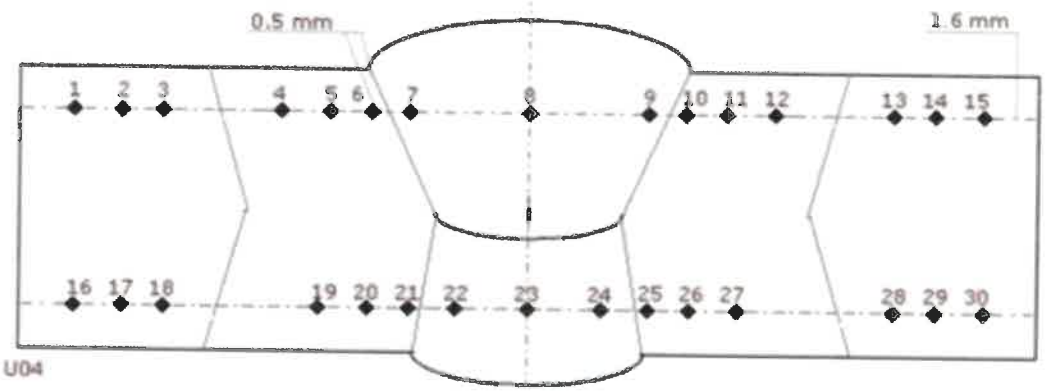
CLIENTE / CUSTOMER	
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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Hardness test according to UNI EN ISO 6507-1:2018

Standards Correlati - Related Standards
UNI EN ISO 9015-1:2011

PROVA DI DUREZZA / HARDNESS TEST

Identificativo Campione Sample Identification		Prova di durezza Hardness Test
Cliente / Client	**Lab.** / Lab.	
WPS p-2308-121-TC2	13620 / 19	HV10



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
192	196	197	184	182	190	196	184	180	194	196	187	195	200	198
16	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
195	195	191	167	187	203	214	210	210	211	201	197	186	188	190

Approvato da: RESPONSABILE LABORATORIO
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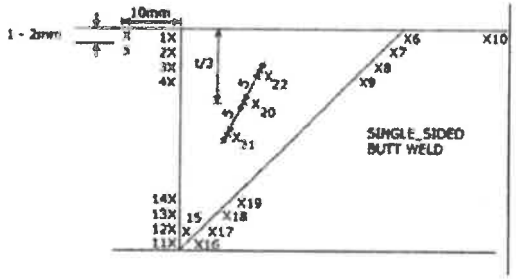
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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Hardness test according to UNI EN ISO 6507-1:2018

Standards Correlati - Related Standards (*)
EEMUA Pub.158 Ed.3 Para 4.4.4.4(*)

PROVA DI DUREZZA / HARDNESS TEST

Identificativo Campione Sample Identification		**Prova di durezza** Hardness Test
Cliente / Client	**Lab.** / Lab.	
WPS p-2308-121-TC2	13620 / 19	HV10



EEMUA Pub. 158 Ed.3 - Fig.8
Locations of indents for hardness surveys

1	2	3	4	5	6	7	8	9	10	11
190	193	195	197	190	195	198	194	192	190	202
12	13	14	15	16	17	18	19	20	21	22
210	214	216	210	216	214	218	207	194	183	185

Approvato da: RESPONSABILE LABORATORIO
Marco Canato
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CLIENTE / CUSTOMER	**SCANDIUZZI STEEL CONSTRUCTIONS S.r.l.** Via Piave, 14 - 31040 Volpago Del Montello (TV)
ORDINE / ORDER N° Conforme Ordine	DATA / DATE 17/11/2023
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STRUMENTI USATI PER LE PROVE / EQUIPMENT USED FOR TESTS

Equipment used	Trademark		Calibration expiry (±15 days)
Digital Caliper	Borletti CDJB15	Sn: 032819-186295	27/10/2025
Tensile Test Machine – 1200kN	GALDABINI QUASAR 1200	Sn: VB3Z	13/03/2024
Electronic Exstensometer	GALDABINI MICRO	Sn: 34547	13/03/2024
Hydraulic Press	OMCN P30/MR	Sn: 589557	-
Charpy pendulum	Wolpert PW30/15K	Sn: 1216	13/03/2024
Digital Thermometer + Probe	TC Direct + PT100	Sn: 220606695 + 220606695/PT100	05/12/2023
Camera	CANON EOS 4000D	Sn: 153070020586	-
Hardness Testing Machine	QNESS Q30A+	Sn: Q1788/02/20	13/03/2024

(*) Metodo di prova non accreditata da ACCREDIA – Ente Italiano di Accreditamento
Test method not accredited by ACCREDIA - Italian Accreditation System

La decorrenza del presente Rapporto di Prova coincide con la data di emissione del documento, posta in alto a destra. Non rileva il fatto che la firma digitale sia eventualmente apposta successivamente.
The effective date of this Test Report corresponds with the emission date, placed in the upper right corner. It does not have relevance the fact that the digital signature is eventually affixed afterwards.

Approvato da: RESPONSABILE LABORATORIO Marco Canato **GLOBAL TEST Srl**	**Spazio riservato ad eventuali approvazioni esterne** / Space reserved for possible external approvals

SCANDIUZZI	RAPPORTO DI ESAME VISIVO VISUAL EXAMINATION REPORT	RAPPORTO n°: Report Nr.: ***2300-121 PA - VT*** FOGLIO / SHEET 1

CLIENTE / CUSTOMER	PURCHASE ORDER	COMMESSA / JOB
Scandiuzzi	/	***2300 - 138***

PROGETTO / PROJECT:	Welding procedure qualification record acc. to **EN ISO 15614-1 : 2019**
ITEM	Test coupon marked **2308-121-TC2** – welder stamp : **"H "** (MEZZI HABIB)

SPECIFICA DI RIFERIMENTO PER ESECUZIONE DEL CONTROLLO: Reference specification applied :	**EN 17637**
CRITERI DI ACCETTABILITA' DIFETTI: Acceptance criteria:	**EN 5817 level B**
CONDIZIONE SUPERFICIALE DEL MATERIALE BASE: Superficial condition of base material:	**As rolled – brushed**
CONDIZIONE SUPERFICIALE DELLE SALDATURE: Superficial condition of welding:	**As welded**
ESTENSIONE DEL CONTROLLO: Test Extension:	**100% after first weld pass and in final conditions**
DISEGNO: Drawing:	**see WPS 2308-121-TC2**
IDENTIFICAZIONE DELL' OGGETTO DA ESAMINARE: Object identification	**West test coupon stamped 2308-121-TC2– welder stamp : "H"**
MATERIALE: Material:	**S460 MLO EN 10225-2**
TIPO GIUNTO: Type of joint:	**single V butt weld - multipass – PA –back gouged**
SPESSORE MATERIALE Material Thickness	**25 mm**
PROCESSO DI SALDATURA Welding process	**121 – SAW .**
DISPOSITIVI D' ESAME USATI Examination devices used:	**weld gauge**

RISULTATO D' ESAME
Result of examination: [X] Conforme / **Acceptable** [ ] Non conforme / **Not acceptable**

Note : **test coupon welded in PA position -**
Light intensity during test : 1000lux

Data : Date:	SCANDIUZZI INSPECTOR	No.Bo. Inspector	T.P. INSPECTOR
13 /11/2023	A.Simonetto SCANDIUZZI STEEL CONSTRUCTIONS S.p.A. ITALY QUALITY CONTROL	RINA R.Danesin	

SCANDIUZZI

VERBALE DI CONTROLLO MAGNETOSCOPICO: 2300-121PA- MT

MT EXAMINATION REPORT

DATI METODO DI CONTROLLO

TEST METHOD

Data: 14-11-2023 *Date:*	Costruttore: *Manufacturer:*	Scandiuzzi Steel Constructions Spa

Oggetto: **Weld test coupon for WPQR** *Object:*

Sigla: *Item:*	2308-121-TC2	Commessa: *Shop Order:*	2300-138	Disegno: *Drawing:*	WPS 2308-121-TC2
Welder Stamp	"H"	N.F. : *S.N.:*	See below	Proc. sald. : *Welding process*	121

Materiale : *Material:*	Sp. (mm) : *Thickness (mm):*	Particolare : *Component:*	Estensione controllo : *Test Extensions:*
S S60 MLO EN 10225 - 2	25	SINGLE V FULL PEN. WELD	100%

Specifica di riferimento : *Reference Specification :*	EN ISO 17638 Scandiuzzi proc. PR –MT- 00	Classe di accettabilità : *Acceptance Criteria:*	EN ISO 5817 level B - ISO 23278 LEV. 2X
Condizioni superficiali : *Surface conditions:*	Stadio di lavorazione : *Working Step:*	Preparazione superficiale : *Surface Pre-Cleaning:*	Temperatura d'esame (C°): *Test Temperature:*
As Welded	After welding	Brushed	Room

Apparecchiatura : YOKE TWIST CGM *Equipment:*	Matricola : / *Serial:*	Data ultima taratura : *Date of last sensitività test:* Pull test before check starting

☐ Puntali *Prodes*	☐ Bobina *Induction coil*	☒ Giogo *Yoke*
Direzione di magnetizzazione: *Direction of magnetization:* /	Direzione di magnetizzazione: *Direction of magnetization:* /	Direzione di magnetizzazione: *Direction of magnetization:* Longitudinal
Corrente: / *Current:*	Corrente: / *Current:*	Corrente: AC *Current:*
Distanza puntali (mm): / *Prodes spacing(mm):*	Lunghezza (mm): / *Lenght(mm):*	Distanza puntali (mm): 100 *Prodes spacing(mm):*
Copri puntali: / *Prodes cover:*	Diametro (mm): / *Diameter(mm):*	
	Numero di spire: / *Number of coil:*	

Metodo di controllo : Continuous *Examination method:*

Verifica campo magnetico : Lifting test 4,5 kg *Magnetic field check:*

☐ SECCO *DRY*	☒ UMIDO *WET*
Rivelatore : / *Developer:*	☒ CONTRASTO COLORE ☐ FLUORESCENTE
Colore : / *Color:*	*Lacca di contrasto:* ELITE FLAW FINDR – WBL -5 *Paint contrast:*
Lanciapolvere : / *Dustlaunch:*	Rivelatore : ELITE FLAW FINDR – BLACK BW – 2 *Developer :*
Lacca di contrasto : / *Paint contrast:*	Sospensione liquida: KEROSENOIL *Wet:*
Smagnetizzazione : / *Demagnetization:*	Smagnetizzazione : NOT REQUIRED *Demagnetization:*

Luce d'ispezione : 1000 lux *Inspection light:*

ESITO DEL CONTROLLO

TEST RESULTS

IDENTIFICAZIONE *Identification*	N° Pcs.	DISCONTINUITA' *Discontinuity*	LARGHEZZA (mm) *Width(mm)*	LUNG.(mm) *Lenght(mm)*	DWG	ESITO *Result*
2308-121-TC2	1	-	-	-	WPS 2308-121-TC2	ACCEPTABLE

OPERATORE *MT-PT-VT Level. UNI EN ISO 9712 Operator*	ISPETTORE CLIENTE *Customer Inspector*	AUTORITA' CONTROLLO *Authority Control*
SCANDIUZZI STEEL CONSTRUCTIONS S.p.A. ITALY QUALITY CONTROL	RINA P. Danesin RINA Services S.p.A.	

TRM ndt S.r.l.
Controlli non distruttivi
Via G. Tiepolo,16/B - 31021 Mogliano Veneto(TV)-Italy
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info@trmndt.it tecnico@trmndt.it trmndtsrl@legalmail.it
www.trmndt.it

CERTIFICATO DI CONTROLLO RADIOGRAFICO – RADIOGRAPHIC EXAMINATION REPORT

RT 2510-23 Data: 15-11-2023

Cliente: *Customer:*	Scandiuzzi Steel Constructions SpA	Particolare: *Component:*	Saldature testa testa - Butt welds
Impianto: *Plant:*	- Weld test coupon for welding procedure qualification record	Proc. saldat.: *Welding process:*	121
Oggetto: *Object:*	WPQR 2308-121- TC2	Materiale: *Material:*	S460 MLO EN 10225-2
Ordine *Order:*	-	Estens. test: *Test Extension:*	100%
P.O.: *P.O. job:*	-	Spessore (mm) : *Thickness (mm):*	25
Sigla: *Item:*	-	Temperatura d'esame (°C): *Test Temperature (°C):*	-
Commessa: *Shop order:*	2300-138	Condizioni superficiali: *Surface conditions:*	Come saldato-As welded
Nr. Fabbrica: *Serial Nr.:*	2308 -121- TC2	Stadio lavorazione: *Working step:*	Dopo saldatura-After welding
Disegno: *Drawing:*	WPS 2308-121-TC2	Punzone saldatore *Welder stamp*	H (Mezzi Habib)

PROCEDURA E TECNICA DI CONTROLLO - *PROCEDURE AND TEST METHOD*

Specifica di riferimento: *Specific Reference:* UNI EN ISO 17636-1 Cl.B

Classe di accettabilità: *Acceptance criteria:* UNI EN ISO 10675-1 Liv.1

CODICI DELLE DISCONTINUITA' - *DISCONTINUITY CODE:*

12	Difetto film *Film Defect*	202	Cavità di ritiro *Shrinkage cavity*	402	Mancanza penetrazione *Lack of penetration*	517	Ripresa difettosa *Poor restart*	2013	Nido di soffiature *Clustered porosità*
100	Cricche *Crack*	300	Inclusioni solide *Solid inclusion*	500	Irregolarità di maglia *Irregular shape*	600	Difetto generico *Generic indication*	2014	Porosità allineate *Aligned porosity*
101	Cricche longitudinali *Longitudinal crack*	301	Inclusioni di scoria *Slag inclusion*	502	Sovrametallo *Excess weld metal*	601	Colpo d'arco *Arc strike*	2015	Cavità allungate *Elongated cavity*
102	Cricche trasversali *Transverse crack*	302	Inclusioni di flusso *Flux inclusion*	504	Eccesso penetrazione *Excess of penetration*	602	Spruzzo *Spatter*	2016	Tarlo *Worm hole*
103	Cricche a raggiera *Radiating cracks*	303	Inclusione di ossido *Oxide inclusion*	507	Slivellamento *Misalignment*	604	Colpo di mola *Grinding mark*	2024	Cavità cratere *Crater pipe*
104	Cricche di cratere *Crater crack*	304	Inclusione metallica *Metallic inclusion*	511	Insellamento *External concavity*	2011	Poro *Isolated gas porosity*	5011	Incisione marginale *Undercut*
201	Soffiatura *Gas cavity*	401	Mancanza di fusione *Lack of fusion*	515	Insellam. al vertice *Root concavity*	2012	Porosità unif. distribuite *Porosity regularly distributed*	5013	Incisione al vertice *Shrinkage groove*

APPARECCHIATURA RADIOGRAFICA:

RADIOGRAFIC EQUIPMENT:

1	Apparecchio: *Testing equipment:*	Comet Evo Pxs Evo 300DS Matricola : 985483	Tipo di sorgente: *Source type:*	☑	Raggi X *X Ray*	☐	Raggi Y *Gamma ray*	Dimensione macchia focale: *Sources size:*	Ø 1 mm
2	Apparecchio: *Testing equipment:*		Tipo di sorgente: *Source type:*	☐	Raggi X *X Ray*	☐	Raggi Y *Gamma ray*	Dimensione macchia focale: *Sources size:*	mm
3	Apparecchio: *Testing equipment:*		Tipo di sorgente: *Source type:*	☐	Raggi X *X Ray*	☐	Raggi Y *Gamma ray*	Dimensione macchia focale: *Sources size:*	mm

ESITO/RESULT : A = Conforme - *Acceptable* - NC = Non Conforme - *Unacceptable*

OPERATORE CND ESAMINATORE *NDT TECHNICIAN AND EXAMINER*	ISPETTORE CLIENTE *CUSTOMER INSPECTOR*	ENTE COLLAUDATORE *SURVEYOR INSPECTOR*	*CONTROLLO QUALITA' QUALITY CONTROL*
Ionita Marius 2 liv. RT UNI EN ISO 9712 15-11-2023		RINA R.Banesin RINA Services S.p.A.	SCANDIUZZI Via Piave, 14 [illegible]

TRM ndt S.r.l.
Controlli non distruttivi
Via G. Tiepolo,16/B - 31021 Mogliano Veneto(TV)-Italy
Telefono - Fax: 041-5906946
p.I./c.f.:04005440278
info@trmndt.it tecnico@trmndt.it trmndtsrl@legalmail.it
www.trmndt.it

CERTIFICATO DI CONTROLLO RADIOGRAFICO – RADIOGRAPHIC EXAMINATION REPORT

RT 2510-23 Data: 15-11-2023

TECNICA DI CONTROLLO RADIOGRAFICO:
RADIOGRAFIC TECHNIQUE:

Tecnica radiografica: *Radiographic technique:* ☐ Panoramica *Panoramic* ☑ Imm. singola parete singola *Single view, single wall exposure* ☐ Imm. singola parete doppia *Single view, double wall exposure* ☐ Imm. doppia parete doppia *Double view, double wall exposure*

Apparecchio n: *Testing equipment n:* 1 Curie: *Activity* - IQI: *IQI:* ISO 19232-1 10 FE-EN ☐ Lato film *Film side* ☑ Lato sorgente *Source side* Sensibilità equivalente *Equivalent sensitivity:* W12

Penombra geometrica: *Geometrical unsharpness:* ISO17636-1 fig.21 Numero di esposizioni: *Number of exposures:* 1 per giunto 1 for joint Densità: *Density:* ≥2.3 Estens. test: *Extent of exam:* 100%

Produttore film-Lotto: *Film manufacturer-Lot:* Carestream – 0475 012 Scadenza: *Expiry:* 04-2025 Schermi protezione pellicola: *Film screens:* 0,10/0,10 Numero film per busta: *Number of film in each film holder:* 1

Tipo di sviluppo- Lotto: *Developer type- Lot:* Carestream - 5089794 Scadenza: *Expiry:* 09-2023 Tipo di fissaggio- Lotto: *Fixer type- Lot:* Carestream - 5091867 Scadenza: *Expiry:* 11-2024

Trattamento pellicola: *Film processing:* Automatico *Automatic* Ciclo di sviluppo(min): *Development cycle(min):* 8 Temperatura di sviluppo(°C): *Development temperature(°C):* 28

IDENTIFICAZIONE DELLA SALDATURA
Identification of welding

PARAMETRI RADIOGRAFICI
Radiographic Parameters

Saldatura *Welding*	Tratto *Stroke*	Diametro *Diameter* "	Materiale base *Base material* mm	Sovrametallo *Weld reinforcem.* mm	Distanza sorg.- ogg. *Source - ob. Distance* mm	Distanza ogg - film *Ob. - film distance* mm	Voltaggio *Voltage* KV/MA	Tipo film *Type film*	Saldatore *Welder*	Discontinuità *Discontinuity*	Esito *Result*
2308 121-TC2	1-2	-	25	-	800	25	270/3/2'10"	T200	H		A

ESITO/RESULT : A = Conforme - *Acceptable* - NC = Non Conforme - *Unacceptable*

OPERATORE CND ESAMINATORE *NDT TECHNICIAN AND EXAMINER*	ISPETTORE CLIENTE *CUSTOMER INSPECTOR*	ENTE COLLAUDATORE *SURVEYOR INSPECTOR*	*CONTROLLO QUALITA' QUALITY CONTROL*
Ionita Marius 2 liv. PED UNI EN ISO 9712 15-11-2023		RINA P. Danesin	CANDUZZI

CERTIFICATO DI COLLAUDO/ INSPECTION CERTIFICATE

in accordo a/acc to EN 10204 - 3.1

Data/Date: 2023-07-28

Numero certificato/Cert no: EC27230730 rev. 0

Nostro ordine/Our order:	0100821086	Vostro ordine/Your order:	OA11-230705-23048981
Nostro riferimento/Our ref:	HYBRIS PRD account	Vostro riferimento/Your ref:	
Codice Cliente/Cust no:	ITB02047	Vostro numero fax/Your fax	
Data ordine Cliente/Your date:	20230724	Vostra e-mail/Your e-mail:	

Indirizzo di fatturazione/Invoice address
SCANDIUZZI STEEL CONSTRUCTIONS SPA
VIA PIAVE N. 14
31040 VOLPAGO DEL MONTELLO
Italy

Destinatario del certificato/Cert receiver

Indirizzo di spedizione/Delivery address
SCANDIUZZI STEEL CONSTRUCTIONS SPA
VIA PIAVE N. 14
31040 VOLPAGO DEL MONTELLO
Italy

PRODOTTO CONSEGNATO/DELIVERED PRODUCT

Marchio/Brand: ESAB
Descrizione/Desc: OK Autrod 12.32 4.0mm 30kg
Codice/Item no: 1232402800
Numero di lotto/Lot no: PVX1510809
N. di colata/Heat number: 22309
Quantità/Quantity: 120 KGM

ANALISI CHIMICA/CHEMICAL ANALYSIS

Wire/strip	
C	0.13%
Si	0.29%
Mn	1.74%
P	0.009%
S	0.007%
Cr	0.04%
Ni	0.01%
Mo	< 0.01%
Cu	0.04%

CLASSIFICAZIONE/CLASSIFICATIONS

SFA/AWS A5.17: EH12K
EN ISO 14171-A: S3Si

COMMENTI/COMMENTS

Materiale fornito in accordo al Sistema Qualità conforme alla norma EN ISO 9001.
Questo certificato è stampato elettronicamente.
Per ogni chiarimento, rivolgersi a:
ESAB Saldatura S.p.A. | Str. Provinciale 34, n.37 - 20010 Ossona MI, Italy
Product supplied under a QA Programme fulfilling the EN ISO 9001 standard.
This certificate is produced electronically.
Please refer any queries to: (see above)

Validazione/Validation
Josef Moravek Quality Manager

SCANDIUZZI STEEL CONSTRUCTIONS, User: Moreno Amoroso - Document Checked & Accepted - 08/08/2023 ID Number: 14021 page 1/1

CERTIFICATO DI COLLAUDO/ INSPECTION CERTIFICATE

in accordo a/acc to EN 10204 - 3.1

Data/Date: 2023-09-11

Numero certificato/Cert no: EC27269763 rev. 0

Nostro ordine/Our order:	0100851172	Vostro ordine/Your order:	1/568
Nostro riferimento/Our ref:	Stefano di Virgilio	Vostro riferimento/Your ref:	
Codice Cliente/Cust no:	ITB02264	Vostro numero fax/Your fax	
Data ordine Cliente/Your date:	20230908	Vostra e-mail/Your e-mail:	

Indirizzo di fatturazione/Invoice address
VERONA SALDATURA GAS S.N.C. DI
CORSINI MASSIMO E GAMBESI GRAZIANO
VIA DELLA SCIENZA n. 7
37139 BASSONE
Italy

Destinatario del certificato/Cert receiver

Indirizzo di spedizione/Delivery address
SCANDIUZZI STEEL CONSTRUCTIONS SPA
VIA E. FERMI 88
72100 BRINDISI BR
Italy

PRODOTTO CONSEGNATO/DELIVERED PRODUCT

Marchio/Brand: ESAB
Descrizione/Desc: OK Flux 10.62 25kg(55lb) BP
Codice/Item no: 1062800000
Numero di lotto/Lot no: PNX3210364
Quantità/Quantity: 175 KGM

ANALISI CHIMICA/CHEMICAL ANALYSIS

Flux	
CaF2	27%
Al2O3+MnO	18%
SiO2+TiO2	15%
CaO+MgO	37%

CLASSIFICAZIONE/CLASSIFICATIONS

EN ISO 14174: S A FB 1 55 AC H5
EN ISO 14174: S A FB 1 55 AC H4 only
BlockPac/moisture-protection

COMMENTI/COMMENTS

Materiale fornito in accordo al Sistema Qualità conforme alla norma EN ISO 9001.
Questo certificato è stampato elettronicamente.
Per ogni chiarimento, rivolgersi a:
ESAB Saldatura S.p.A. | Str. Provinciale 34, n.37 - 20010 Ossona MI, Italy
Product supplied under a QA Programme fulfilling the EN ISO 9001 standard.
This certificate is produced electronically.
Please refer any queries to: (see above)

Validazione/Validation
Piotr Grela Quality Manager

SCANDIUZZI STEEL CONSTRUCTIONS, User: Stefano Cesi - Document Checked & Accepted - 15/09/2023 ID Number: 14197 page 1/1

voestalpine Grobblech GmbH

A02
Inspection certificate

EN 10204 - 3.2

N1423VKR-4

voestalpine-Straße 3
4020 Linz, Austria
www.voestalpine.com/grobblech

A03 Document number	A0370744/A	A08 Order-No.:	1500639	A07 OrderDat.	15-04-2021

Date of dispatch 01-08-2021 400F

A06 Customer	Kroeger Staal B.V. Oostelljke Randweg 40 NL-4782 PZ MOERDIJK	B01 Product	Plate		
		B02 Material	S460MLO	B03 Standard	EN 10225-1 : 2019
A07 OrderNo.	6729	Supplementary requirements	Z35 - EN 10164		
A06 Consignee	Europe Steel Projects BV Oostelijke Randweg 40 NL-4782 PZ MOERDIJK	B04 Delivery condition	thermomechanical rolled + accelerated cooled		

B03 - Supplementary requirements

OPTIONS 1, 6, 7, 9, 11, 12, 17 OF EN 10225:2019 AND OPTION 18 OF EN 10225:2009
FINAL ROLLING DIRECTION IS PERPENDICULAR TO DIE STAMPING.
MATERIAL IS FINE GRAINED, VACUUM DEGASSED AND FULLY KILLED, PRODUCED BY BOF.
MATERIAL IS PRE-QUALIFIED ACC. TO EN10225:2019 OPTION 17.

D01 - Visual Examination and dimensional checking: satisfactory. The results of tests performed are in compliance with the requirements.

Detail of supply

B07 Heat No.	B06 Plate No	Item	Dimensions B09 Thickness mm	B10 Width mm	B11 Length mm	B08 Piece	ind. Weight kg	total Weight kg	A09 Disp-No 130 42	reference no.
735829	287565/1	200	60,00	2051,0	12000	1		11.863	55172	S460MLOVAS
735829	290462/1	170	50,00	2500,0	12000	1		12.006	55172	S460MLOVAS
736009	289410/1	100	25,00	2500,0	12000	1		5.962	55172	S460MLOVAS
736009	291133/1	30	15,00	2051,0	12000	1		2.932	55172	S460MLOVAS
736009	291133/2	30	15,00	2051,0	12000	1		2.932	55172	S460MLOVAS
736009	291135/1	60	16,00	2051,0	16000	1		4.168	55172	S460MLOVAS
736009	291137/1	60	16,00	2051,0	16000	1		4.195	55172	S460MLOVAS
736009	292575/1	120	30,00	2500,0	12000	1		7.146	55172	S460MLOVAS
736009	292577/1	120	30,00	2500,0	12000	1		7.147	55172	S460MLOVAS
736009	292579/1	120	30,00	2500,0	12000	1		7.147	55172	S460MLOVAS
736009	292581/1	120	30,00	2500,0	12000	1		7.170	55172	S460MLOVAS
736009	292583/2	40	15,00	2500,0	12000	1		3.597	55172	S460MLOVAS

A04
Symbol of the manufacturer's work

voestalpine

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~~Witnessed~~ ☒ Reviewed
And found to comply with:
EN 10225-1 : 2019
Date: 2021-08-09
Sign: Antonio R. Zambrano C.

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Z02
Inspection representative voestalpine Grobblech
LINTNER Norbert

voestalpine
ONE STEP AHEAD

Dimensional tolerances acc. EN 10029/11
EN10163-2: Class B3 - Repair-welding not permitted
Thicknesstolerance acc. EN 10029/11 tab.1 class B

Chemical composition (Heat analysis) - part 1 of 2

B07 Heat No.	C %	Si %	Mn %	P %	S %	Al %	Cr %	Ni %	Mo %	Cu %	V %	Nb %	Ti %	N %	B %	Sn %	Ca %	As %	Sb %	Pb %	Cae %	Pcm %
>=						.015																
Set values <=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0200	.0050	.0300	.0100	.010	.41	.23
736009	.028	.316	1.580	.006	.0006	.040	.181	.170	.006	.159	.005	.037	.013	.0043	.0002	.0020	.0014	.0020	.0020	.002	.35	.14
736926	.030	.348	1.650	.006	.0007	.045	.175	.170	.005	.159	.004	.039	.012	.0044	.0002	.0020	.0018	.0020	.0020	.002	.36	.15
836634	.032	.337	1.640	.008	.0006	.038	.181	.190	.013	.161	.004	.037	.011	.0041	.0002	.0020	.0014	.0020	.0020	.002	.37	.15
929534	.028	.324	1.630	.008	.0005	.038	.166	.180	.005	.160	.004	.039	.012	.0045	.0002	.0020	.0017	.0020	.0020	.002	.36	.14
930314	.033	.343	1.620	.005	.0007	.036	.172	.160	.001	.157	.004	.036	.013	.0054	.0002	.0020	.0015	.0020	.0020	.002	.36	.15
>=						.015																
Set values <=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0200	.0050	.0300	.0100	.010	.41	.22
735829	.036	.341	1.610	.008	.0007	.041	.174	.170	.006	.160	.003	.038	.012	.0048	.0002	.0020	.0020	.0030	.0020	.002	.36	.15
736009	.028	.316	1.580	.006	.0006	.040	.181	.170	.006	.159	.005	.037	.013	.0043	.0002	.0020	.0014	.0020	.0020	.002	.35	.14
736926	.030	.348	1.650	.006	.0007	.045	.175	.170	.005	.159	.004	.039	.012	.0044	.0002	.0020	.0018	.0020	.0020	.002	.36	.15
736927	.030	.340	1.620	.005	.0010	.038	.170	.170	.002	.160	.003	.036	.013	.0047	.0002	.0020	.0014	.0020	.0020	.002	.36	.14
840986	.030	.337	1.640	.007	.0003	.038	.175	.170	.006	.151	.004	.040	.013	.0047	.0002	.0020	.0014	.0020	.0020	.002	.36	.14
841329	.027	.322	1.620	.008	.0005	.037	.172	.170	.005	.163	.005	.038	.014	.0040	.0003	.0020	.0010	.0030	.0020	.002	.36	.14
841750	.060	.393	1.540	.009	.0007	.041	.177	.280	.025	.155	.004	.030	.013	.0038	.0002	.0020	.0016	.0020	.0020	.002	.39	.17
841752	.060	.350	1.540	.008	.0007	.036	.174	.270	.016	.162	.004	.028	.014	.0037	.0002	.0020	.0014	.0020	.0020	.002	.38	.17
842367	.063	.348	1.530	.007	.0008	.037	.173	.280	.009	.157	.005	.029	.011	.0043	.0002	.0020	.0023	.0030	.0020	.002	.38	.17
929534	.028	.324	1.630	.008	.0005	.038	.166	.180	.005	.160	.004	.039	.012	.0045	.0002	.0020	.0017	.0020	.0020	.002	.36	.14
930314	.033	.343	1.620	.005	.0007	.036	.172	.160	.001	.157	.004	.036	.013	.0054	.0002	.0020	.0015	.0020	.0020	.002	.36	.15
931038	.029	.340	1.620	.008	.0008	.039	.165	.180	.024	.163	.005	.039	.012	.0051	.0003	.0020	.0023	.0030	.0020	.002	.36	.14

Z03
third party stamp

SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT - DNV 1864
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And found to comply with:
EN 10225-1 : 2019
Date: 2021-08-09
Sign: Antonio R. Zambrano C.
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Z02
Inspection representative voestalpine
Gobbleen
Lilly-Yuki Norbert

voestalpine
ONE STEP AHEAD.

voestalpine

Test results: C10-C29 Tensile Test at room temperature acc. EN ISO 6892-1

B07 Heat No.	B06 Plate No	C41 Width	SpThickn mm	C01 loc.	PosTh.	C02 Dir	C11 Rp0,2 MPa	C12 Rm MPa	L0	C13 E %	C11 Rp0,2/Rm %	Sim.htm	WBH
>=							460	520		17.0			
Set values <=								700			93.00		
736009	291133	30,0	15.09	F	O	T	546	614	A5	18.5	88.94		
736926	292617	30,0	15.10	F	O	T	548	640	A5	19.6	85.67		
836634	296717	30,0	15.32	F	O	T	557	618	A5	17.9	90.10		
929534	298464	30,0	15.49	F	O	T	538	588	A5	23.4	91.53		
930314	295907	30,0	15.64	F	O	T	504	575	A5	22.3	87.63		
>=							440	520		17.0			
Set values <=								700			93.00		
736009	289410	30,0	25.36	F	O	T	536	590	A5	22.0	90.77		
736926	294666	30,0	20.42	F	O	T	577	651	A5	20.2	88.70		
736927	294046	30,0	20.28	F	O	T	489	597	A5	24.6	81.92		
930314	292635	30,0	20.76	F	O	T	567	612	A5	17.9	92.65		
	292661	30,0	25.18	F	O	T	552	605	A5	23.2	91.23		
>=							420	520		17.0			
Set values <=								700			93.00		
736009	292581	30,0	30.77	F	O	T	528	589	A5	24.7	89.61		
736926	294338	30,0	30.50	F	O	T	512	582	A5	25.0	87.94		
736927	292613	30,0	31.20	F	O	T	525	592	A5	23.4	88.69		
	292625	30,0	40.88	F	O	T	479	593	A5	23.1	80.76		
	292628	30,0	40.82	F	O	T	484	594	A5	24.4	81.43		
	292630	30,0	41.06	F	O	T	473	590	A5	23.5	80.09		
841329	288720	30,0	40.63	F	O	T	463	567	A5	23.8	81.55		
930314	292633	30,0	41.04	F	O	T	473	592	A5	23.8	79.93		
	292660	30,0	40.89	F	O	T	470	595	A5	24.3	78.93		
931038	298855	30,0	41.07	F	O	T	493	600	A5	23.3	82.20		
>=							415	500		17.0			
Set values <=								675			93.00		
735829	287565	Ø	9.99	F	V	T	438	551	A5	30.9	79.39		
	290462	Ø	10.01	F	V	T	474	593	A5	27.4	79.90		
	287565	Ø	10.01	F	V	T	485	563	A5	29.7	86.06	001	1
	290462	Ø	9.99	F	V	T	517	595	A5	27.7	86.85	001	1

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Z02
Inspection representative voestalpine
Gobbleen
LIVIXER Norbert

voestalpine

voestalpine
ONE STEP AHEAD.

Test results: C10-C29 Tensile Test at room temperature acc. EN ISO 6892-1

B07 Heat No.	B06 Plate No	C41 Width mm	SpThickn	C01 loc.	PosTh.	C02 Dir	C11 Rp0,2 MPa	C12 Rm MPa	L0	C13 E %	C11 Rp0,2/Rm %	Sim.htm	WBH

F: Bottom
PosTh.: Pos Thickness
O: surface
V: ¼ t
C02;Dir:
T: transverse
C12; Rm: Tensile Strength
L0: gauge
A5: Length = 5.65 * sqr (area) mm
C13;E: elongation
Sim.htm: sim. heat treatment
001: Sim.htm group #1
WBH: sim. heat treatment

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SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT - DNV 1864
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And found to comply with:
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Date: 2021-08-09
Sign: Antonio R. Zambrano C.
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Z02
Inspection representative voestalpine
Gobbi Kevin
LANXATH Norbert

voestalpine

voestalpine
ONE STEP AHEAD.

Test results: C40-C49 Impact Test acc. EN ISO 148-1

B07 Heat No.	B06 Plate No	C40 shape	C01 loc.	PosTh.	C02 Dir	C03 temp °C	C42 SV J	C42 SV J	C42 SV J	C43 AV J	Sim.htm	WBH	samp.cond.
Set values >=						-40	42	42	42	60			
Set values <=													
735829	287565	CV 10x10	F	O	T	-40	367	363	363	364			
	290462	CV 10x10	F	O	T	-40	370	353	350	357			
	287565	CV 10x10	F	O	T	-40	349	344	341	345	001	1	
	290462	CV 10x10	F	O	T	-40	300	294	295	296	001	1	
	287565	CV 10x10	F	K	T	-40	361	359	358	359			
	290462	CV 10x10	F	K	T	-40	377	374	385	379			
	287565	CV 10x10	F	K	T	-40	316	144	337	266	001	1	
	290462	CV 10x10	F	K	T	-40	49	325	128	167	001	1	
736009	289410	CV 10x10	F	O	T	-40	348	364	357	356			
	291133	CV 10x10	F	O	T	-40	350	350	352	351			
	292581	CV 10x10	F	O	T	-40	352	352	341	348			

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Sign: Antonio R. Zambrano C.

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Z02
Inspection representative voestalpine
Grobbleder
LANTNER Norbert

voestalpine
ONE STEP AHEAD

Test results: C40-C49 Impact Test acc. EN ISO 148-1

B07 Heat No.	B06 Plate No	C40 shape	C01 loc.	PosTh.	C02 Dir	C03 temp °C	C42 SV J	C42 SV J	C42 SV J	C43 AV J	Sim.htm	WBH	samp.cond.
>=						-40	42	42	42	60			
Set values <=													
930314	292633	CV 10x10	F	O	T	-40	377	366	352	365			
	292635	CV 10x10	F	O	T	-40	360	379	383	374			
	292660	CV 10x10	F	O	T	-40	384	366	407	386			
	292661	CV 10x10	F	O	T	-40	350	386	367	367			
	294335	CV 10x10	F	O	T	-40	365	383	394	381			
	295907	CV 10x10	F	O	T	-40	404	399	426	410			
	294335	CV 10x10	F	O	T	-40	358	372	358	363	001	1	
	294335	CV 10x10	F	K	T	-40	384	368	393	382			
	294335	CV 10x10	F	K	T	-40	401	374	389	388	001	1	
931038	299142	CV 10x10	F	O	T	-40	381	389	340	370			
>=						-40	29	29	29	46			
Set values <=													
735829	287565	CV 10x10	F	ZB2	T	-40	321	286	313	307			strain aged 5%, 60 min. at 250°C

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And found to comply with:
EN 10225-1 : 2019
Date: 2021-08-09
Sign: Antonio R. Zambrano C.

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Inspection representative voestalpine
Gobbleon
LIVA/VKR Siegbert

voestalpine

voestalpine
ONE STEP AHEAD.

Test results: C40-C49 Impact Test acc. EN ISO 148-1

B07	B06	C40	C01		C02	C03	C42	C42	C42	C43			
Heat No.	Plate No	shape	loc.	PosTh.	Dir	temp	SV	SV	SV	AV	Sim.htm	WBH	samp.cond.
						°C	J	J	J	J			

Sim.htm: sim. heat treatment
001: Sim.htm group #1
WBH: sim. heat treatment
samp.cond.: sample condition

Test results: C30-C39 Hardness Test Vickers

B07	B06	C01			C31	C31	C31
Heat No.	Plate No	loc.	PosTh.	Hard.	HV	HV	HV
735829	285777	F	OS	HV10	230	226	224
736009	287890	F	OS	HV10	193	199	193
736926	294666	F	OS	HV10	214	230	215
736927	292613	F	OS	HV10	203	194	194
836634	296717	F	OS	HV10	215	212	211
840986	285718	F	OS	HV10	230	223	226
841329	288720	F	OS	HV10	203	205	204
841750	292002	F	OS	HV10	234	229	222
841752	292010	F	OS	HV10	235	235	227
842367	299193	F	OS	HV10	240	240	237
929534	292411	F	OS	HV10	203	207	204
930314	292635	F	OS	HV10	212	201	205
931038	298855	F	OS	HV10	203	208	203

C01;loc.:
F: Bottom
PosTh.: Pos Thickness
OS: upper side
Hard.: stress

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Inspection representative voestalpine
Gobbels
i.V. Vink Norbert

voestalpine
ONE STEP AHEAD.

Test results: C10-C29 through Thickness Test at room temperature acc. DIN / EN 10164:2018

B07 Heat No.	B06 Plate No	C40 Shape	SpThickn mm	C01 loc.	C02 Dir	C12 Rm MPa	C12 Rm MPa	C12 Rm MPa	Z(SV) %	Z(SV) %	Z(SV) %	Z(AV) %

S: through thickness direction
C12; Rm: Tensile Strength
Z(SV): reduction of area (single value)
Z(AV): reduction of area (average value)

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Gobbleck
Lindner Norbert

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Chemical composition (Product analysis) - part 1 of 2

B07 Heat No.	B06 Plate No	C %	Si %	Mn %	P %	S %	Al %	Cr %	Ni %	Mo %	Cu %	V %	Nb %	Ti %	N %	B %	Sn %	Ca %	As %	Sb %
	>=						.015													
Set values	<=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0050	.0300	.0200	.0100
736009	291133	.030	.315	1.630	.008	.0008	.041	.179	.180	.008	.160	.003	.038	.013	.0035	.0002	.0020	.0014	.0020	.0020
736926	292652	.031	.361	1.650	.007	.0007	.043	.175	.180	.005	.162	.004	.039	.012	.0049	.0002	.0020	.0018	.0030	.0020
836634	296717	.031	.344	1.630	.008	.0007	.039	.178	.180	.013	.154	.004	.038	.011	.0038	.0002	.0020	.0015	.0020	.0030
929534	292411	.032	.327	1.610	.008	.0011	.031	.175	.180	.005	.161	.004	.039	.011	.0063	.0003	.0020	.0015	.0020	.0020
930314	292623	.033	.349	1.650	.006	.0007	.040	.185	.170	.005	.158	.004	.038	.013	.0050	.0002	.0020	.0018	.0030	.0020
	>=						.015													
Set values	<=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0050	.0300	.0200	.0100
735829	287565	.034	.332	1.600	.008	.0010	.040	.171	.170	.006	.158	.003	.039	.012	.0042	.0002	.0020	.0017	.0030	.0020
736009	289509	.030	.317	1.610	.007	.0008	.040	.182	.180	.009	.163	.004	.035	.013	.0036	.0002	.0040	.0013	.0020	.0020
	291133	.030	.315	1.630	.008	.0008	.041	.179	.180	.008	.160	.003	.038	.013	.0035	.0002	.0020	.0014	.0020	.0020
	292579	.030	.314	1.630	.007	.0008	.043	.181	.190	.008	.159	.004	.038	.013	.0040	.0002	.0020	.0016	.0020	.0020
736926	294666	.058	.364	1.530	.008	.0006	.036	.165	.270	.015	.157	.003	.029	.011	.0050	.0002	.0020	.0016	.0020	.0020
736927	292613	.032	.353	1.650	.007	.0009	.043	.186	.180	.006	.163	.004	.039	.013	.0053	.0002	.0020	.0017	.0030	.0020
	292624	.032	.351	1.650	.006	.0011	.044	.184	.180	.006	.162	.004	.039	.013	.0051	.0002	.0020	.0018	.0030	.0020
	292626	.032	.350	1.650	.006	.0010	.045	.183	.180	.006	.162	.003	.039	.014	.0053	.0002	.0020	.0018	.0030	.0020
	292629	.031	.347	1.650	.006	.0010	.045	.181	.180	.006	.162	.003	.038	.013	.0049	.0002	.0030	.0018	.0030	.0020
	292645	.032	.350	1.640	.006	.0009	.044	.185	.180	.006	.161	.003	.038	.013	.0055	.0002	.0020	.0020	.0030	.0020
840986	285719	.031	.327	1.630	.007	.0003	.036	.172	.170	.006	.151	.003	.039	.013	.0042	.0002	.0020	.0013	.0030	.0020
	287720	.033	.326	1.590	.007	.0006	.035	.169	.170	.005	.155	.003	.037	.013	.0041	.0002	.0020	.0015	.0020	.0020
841329	288720	.027	.308	1.590	.009	.0007	.035	.169	.170	.005	.160	.004	.038	.013	.0041	.0002	.0020	.0010	.0030	.0020
	292008	.027	.317	1.610	.009	.0007	.035	.171	.170	.005	.163	.005	.038	.013	.0045	.0002	.0020	.0014	.0030	.0020
841750	292002	.059	.389	1.540	.010	.0007	.040	.177	.280	.024	.157	.004	.030	.013	.0040	.0002	.0020	.0017	.0030	.0020
	292003	.058	.387	1.530	.009	.0007	.041	.176	.280	.025	.155	.004	.029	.013	.0035	.0002	.0020	.0019	.0020	.0020
	292004	.060	.391	1.550	.009	.0007	.041	.176	.280	.026	.157	.004	.031	.013	.0039	.0003	.0020	.0018	.0020	.0020
841752	292010	.060	.377	1.530	.009	.0009	.037	.176	.270	.018	.161	.004	.029	.013	.0037	.0003	.0020	.0016	.0030	.0020
	294333	.060	.349	1.530	.008	.0007	.039	.173	.270	.016	.158	.004	.028	.013	.0040	.0002	.0020	.0014	.0020	.0020
842367	299193	.051	.346	1.520	.007	.0014	.039	.172	.270	.005	.161	.005	.027	.011	.0051	.0002	.0020	.0017	.0020	.0020
929534	292411	.032	.327	1.610	.008	.0011	.031	.175	.180	.005	.161	.004	.039	.011	.0063	.0003	.0020	.0015	.0020	.0020
930314	292623	.033	.349	1.650	.006	.0007	.040	.185	.170	.005	.158	.004	.038	.013	.0050	.0002	.0020	.0018	.0030	.0020
	292633	.033	.351	1.650	.007	.0009	.042	.186	.180	.006	.161	.004	.039	.013	.0055	.0002	.0030	.0018	.0030	.0020
	292635	.033	.354	1.660	.007	.0007	.041	.187	.180	.006	.160	.004	.040	.013	.0053	.0002	.0020	.0018	.0030	.0020
	292659	.033	.352	1.650	.007	.0007	.040	.185	.180	.005	.159	.004	.039	.013	.0056	.0002	.0020	.0018	.0030	.0020

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SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT - DNV 1864
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Gobbicchi
Lantaler Norbert

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Chemical composition (Product analysis) - part 2 of 2

B07 Heat No.	B06 Plate No	Pb %	Bi %	Cae %	Pcm %	LF01 %	LF02 %	Al/N
	>=							2.00
Set values	<=		.010	.0100	.41	.23	.120	.130	
736009	291133	.002	.0020	.36	.14	.041	.054	11.71
736926	292652	.002	.0020	.37	.15	.043	.055	8.78
836634	296717	.002	.0020	.36	.15	.042	.053	10.26
929534	292411	.002	.0020	.36	.15	.043	.054	4.92
930314	292623	.002	.0020	.37	.15	.042	.055	8.00
	>=							2.00
Set values	<=		.010	.0100	.41	.22	.120	.130	
735829	287565	.002	.0020	.36	.15	.042	.054	9.52
736009	289509	.002	.0020	.36	.14	.039	.052	11.11
	291133	.002	.0020	.36	.14	.041	.054	11.71
	292579	.002	.0020	.36	.14	.042	.055	10.75
736926	294666	.002	.0020	.38	.17	.032	.043	7.20
736927	292613	.002	.0020	.37	.15	.043	.056	8.11
	292624	.002	.0020	.37	.15	.043	.056	8.63
	292626	.002	.0020	.37	.15	.042	.056	8.49
	292629	.002	.0020	.37	.15	.041	.054	9.18
	292645	.002	.0020	.37	.15	.041	.054	8.00
840986	285719	.002	.0020	.36	.14	.042	.055	8.57
	287720	.002	.0020	.36	.14	.040	.053	8.54
841329	288720	.002	.0020	.35	.14	.042	.055	8.54
	292008	.002	.0020	.35	.14	.043	.056	7.78
841750	292002	.002	.0020	.39	.17	.034	.047	10.00
	292003	.002	.0020	.38	.17	.033	.046	11.71
	292004	.002	.0020	.39	.18	.035	.048	10.51
841752	292010	.002	.0020	.38	.17	.033	.046	10.00
	294333	.002	.0020	.38	.17	.032	.045	9.75
842367	299193	.002	.0020	.37	.16	.032	.043	7.65
929534	292411	.002	.0020	.36	.15	.043	.054	4.92
930314	292623	.002	.0020	.37	.15	.042	.055	8.00
	292633	.002	.0020	.37	.15	.043	.056	7.64
	292635	.002	.0020	.37	.15	.044	.057	7.74
	292659	.002	.0020	.37	.15	.043	.056	7.14

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Grobbauer
[illegible] Norbert

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Chemical composition (Product analysis) - part 2 of 2

B07 Heat No.	B06 Plate No	Pb %	Bi %	Cae %	Pcm %	LF01 %	LF02 %	Al/N
>=								2.00
Set values <=		.010	.0100	.41	.22	.120	.130	
931038	298855	.002	.0020	.36	.15	.046	.058	8.33

C99 - Supplementary information
Cae: C+(Mn/6)+(Cr+Mo+V)/5+(Ni+Cu)/15
Pcm: C+((Mn+Cu+Cr)/20)+(Si/30)+(Ni/60)+(Mo/15)+(V/10)+(B*5)
LF02: Nb+V+Ti
Al/N: Al/N
LF01: Nb+V

Remarks

Simulated heat treatment of test coupons:

Item 170-280, 300:
001/1: 1 cycle(s) sim. PWHT: furnace charge temperature at max. 400 °C, heating with max. 55 °C/h up to 580 °C, +10 °C/-10 °C, holding time 240 minutes, cooling with max. 55 °C/h down to 400 °C, final cooling in calm air.

We confirm that the above-mentioned delivery corresponds to the order (and standard).

C70 - Method of steelmaking: Basic oxygen furnace (BOF) steelmaking, continuous casting, steel is fully killed, vacuum degassed and melted by fine grain practice, austenitic grain size 5 or finer.

The signature of the inspection representative from voestalpine Grobblech GmbH is substituted by a electronic Signature, because the certificates of voestalpine Grobblech GmbH are prepared by a suitable data processing system (EN 10204, Pt.5).

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Inspection representative voestalpine Grobblech
i.V. MEIX Norbert

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D02-D50 - ULTRASONIC EXAMINATION PLATE(S)

SPECIFICATION

Item 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 310
Ultrasonic test acc. EN 10160, EN 10160 class S3/Body, Grid 100 mm, EN 10160 class E4/Edge Zone, Edge zone longitudinal 50 mm, Edge zone transverse 50 mm; satisfactory
Item 170, 180, 190, 200, 210, 220, 230, 240, 270, 280, 300
Ultrasonic test acc. EN 10160, EN 10160 class S3/Body, Grid 100 mm, EN 10160 class E4/Edge Zone, Edge zone longitudinal 75 mm, Edge zone transverse 75 mm; satisfactory
Item 250, 260
Ultrasonic test acc. EN 10160, EN 10160 class S3/Body, Grid 100 mm, EN 10160 class E4/Edge Zone, Edge zone longitudinal 100 mm, Edge zone transverse 100 mm; satisfactory

VALID TEST EQUIPMENT
mechanized ultrasonic "In-Line testing system" (Manufacturer: NDT-Systems & Services) and
mechanized ultrasonic "off-line - testing system" (manufacturer: Windhoff Bahn- und Anlagentechnik GmbH) and
MUT (optional): Sonatest D20 no. 90006523 or Sonatest D20 no. 90007346 or Sonatest Masterscan 380 no. 90007347 or Sonatest Masterscan 380 no. 90006522 or Sonatest D50 no. 90010231 or GE - USM 36 no. 90010775

PROBE
(in-line AUT): 3STSE 18.3/8 P5, SEZ5R10RS, SE3 18.3/10 5A, (5MHz)
(off-line AUT): S140 (4MHz) 3T/1R
(MUT): SEB4E (4MHz), SEB4E0° (4MHz), MSEB4E (4MHz), B2SO (2MHz)
watergapcoupling

SURFACE CONDITION
Scaled surface - cleaned surface and free of loose scale.

RESULT
Plate(s) comply with the specification.

INSPECTION OPERATOR
Operators Level 1 or 2: qualified and certified according EN ISO 9712 (since 01.01.2013) respectively according the Written Practice „NDT-WP" (in accordance to Recommended Practice SNT-TC-1A). Operators Level 2 for ASME/ASTM.

INSPECTION SUPERVISOR
Responsible Level 3: Bindreiter Erich

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Z02
Inspection representative voestalpine
Globbiek
LIN1VKR Norbert

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Grobblech
i.V. Norbert

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ISP N° 069 E

Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

WELDING PROCEDURE QUALIFICATION RECORD (WPQR)

N. 23TO001006PW\3A

Manufacturer **SCANDIUZZI STEEL CONSTRUCTIONS SpA - Volpago del Montello (TV)**

WPQR No. **2308-138-TC3** Dated **01/12/2023**

Manufacturer's welding procedure (WPS) No. **p-2308-138-TC3** Dated **08/11/2023** Date of welding **13/11/2023**

RANGE OF APPROVAL

Welding process	**138** Type **Partly mechanized**
Joint type	**Plates and Pipes and build-up BW ssmb-bs/FWUNI EN ISO 15614-1** **Plates and Pipes BW ssmb-bs/FW RINA Rules**
Single/Multiple pass	**Multiple** (**Impact and hardness properties apply**)
Parent material group(s)	**2-2, 1-1, 2-1** ISO/TR 15608; ISO/TR20172; ISO/TR 20173; ISO/TR20174 Steels with a specified minimum yield strength ≤ 460 MPa
Steel grades	**EH460;DH460;EH420;DH420** according to Pt D, Ch 2, Sec1 of RINA Rules
Parent material thickness (mm)	Butt Joint = **12,5 to 50,0** Fillet Joint t_1 **= 3,0 to 50,0** t_2 **= 3,0 to 50,0 For EN 15614-1** Butt Joint = **12,5 to 50,0** Fillet Joint t_1 **= 12,5 to 50,0** t_2 **= 12,5 to 50,0 For RINA RULES**
Throat thickness (mm)	**No restriction** For EN 15614-1 **12,5 to 50,0** for RINA RULES
Weld deposit thickness (mm)	**Max 50,0**
Outside diameter (mm)	**Over 500 For EN 15614-1 and RINA RULES**
Filler metal type	**N.A. for EN 15614-1 ; Diamonspark Ni1 MC for RINA RULES**
Flux make	**N.A.** Flux Designation: **N.A.**
Filler metal type	**Metal-cored wire EN ISO 17632-A : T50 6 1Ni M M21 1 H5**
Shielding gas (ISO 14175)	**M21 with CO_2% min.14,4 max.21,6** Backing gas (ISO 14175) **None**
Type of welding current	**DCEP** Heat input Kj/cm **Min. 6,8 ; Max 22,2**
Welding position	**PA** Transfer Mode **Spray, Pulse, Globular transfer**
Preheat min. (°C)	**+50 ISO 15614-1** (if ISO/TR 17671-2 requirements are fulfilled) Interpass temp. Max. (°C) **+200 UNI EN ISO 15614-1**
Preheat min. (°C)	**50 RINA Rules** Interpass temp. Max. (°C) **+200 RINA Rules**
Post weld heat treatment / Ageing	**None**
Other information	-

Welders name **Sorica Petrica** Stamp No. **SP**

Welding test conducted by **SCANDIUZZI STEEL CONSTRUCTIONS SpA - Volpago del Montello (TV)**

Mechanical test conducted by **GLOBAL TEST srl - Marcon (VE)** Laboratory test No. **30249**

At presence of RINA Surveyor **P. Danesin**

We certify that the statements in this certificate are correct and that the test welds were prepared, welded and tested in accordance with **UNI EN ISO 15614-1: 2019** Standard ; **RINA Rules for the Classification of Ships and EEMUA Pub. 158 Ed. 3** requirements**.**

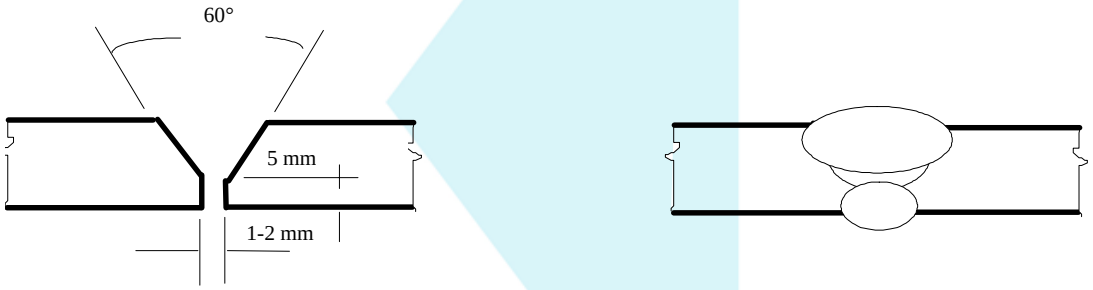
Issued at: Genova on **01 December 2023**

RINA Services S.p.A.
PED No. Bo. 0474

JOINT DETAILS AND WELDING SEQUENCES

PLATE TO PLATE SINGLE-V - BUTT JOINT; ONE SIDE WELDING WITH CERAMIC BACKING

Pass No.	Process	Filler metal diam. (mm)	Filler metal classification	Amps	Volt	Travel speed (cm/min)	Heat input (kJ/cm)	Metal Transfer mode
1	**138**	**1,2**	**T50 6 1Ni M M21 1 H5**	**190**	**24,7**	**15,0**	**15,0**	**Spray Arc**
2-3	**138**	**1,2**	**T50 6 1Ni M M21 1 H5**	**225**	**28,2**	**30,0**	**10,2**	**Spray Arc**
4-5	**138**	**1,2**	**T50 6 1Ni M M21 1 H5**	**255**	**29,5**	**40,0**	**9,0**	**Spray Arc**
6-8	**138**	**1,2**	**T50 6 1Ni M M21 1 H5**	**285**	**29,7**	**24,7**	**16,4**	**Spray Arc**
9-10	**138**	**1,2**	**T50 6 1Ni M M21 1 H5**	**265**	**29,7**	**21,3**	**17,7**	**Spray Arc**
11-12	**138**	**1,2**	**T50 6 1Ni M M21 1 H5**	**275**	**29,7**	**26,1**	**15,0**	**Spray Arc**
13-17	**138**	**1,2**	**T50 6 1Ni M M21 1 H5**	**260**	**29,2**	**26,5**	**13,8**	**Spray Arc**



PARENT MATERIAL

Material specification	**T_1 = EN 10225-2 to T_2 = EN 10225-2**
Type or grade	**T_1 = S460 MLO to T_2 = S460MLO**
Steel grade	**N.A.(EH460)** according to Pt D, Ch 2, Sec 1 of RINA Rules
Group(s)/Subgroup(s) No. (ISO/TR 15608)	**T_1 = 2.1 to T_2 = 2.1**
Thickness (mm)	**T_1 = 25,0 to T_2 = 25,0** Throat thickness (mm) **N.A.**
Diameter (mm)	**D_1 = N.A. to D_2 = N.A.**
Branch connection angle	**N.A.**
Other	**Heat 736009**

WELDING CONSUMABLES

Process	**138S**
Trade name(s)	**DIAMONDSPARK Ni1 MC**
Specification	**EN ISO 17632-A**
Classification / designation	**T 50 6 1Ni M M21 1 H5**
Size (mm)	**1,2**
Deposited metal thickness	
Groove	**20,0 mm**
Throat	**N.A.**
Flux trade name	**N.A.**
Consumable insert	**N.A.**
Other	**Heat 1080412**

GAS

	Gas	Mixture	Flow rate (l/min.)
Shielding	-	**Ar 82% + CO_2 18%**	**18**
Trailing	-	-	-
Backing	-	-	-

POSITION

Welding position **PA**

Other

PREHEAT

Preheat temperature **Min +50°C**

Interpass temperature **Max +200°C**

Other

POSTWELD HEAT TREATMENT

Temperature **N.A.**

Time **None**

Other

ELECTRICAL CHARACTERISTICS

Current **DCEP**

Ampere (range) **See table** Volts (Range) **See table**

Mode of metal transfer **N.A.**

Tungsten electrode size and type **N.A.**

Other **N.A.**

TECHNIQUE

Travel speed (range) **See table**

String or weave bead **String and Weave**

Oscillation (*) **N.A.**

Method of groove/edge preparation **Machining/Grinding**

Interpass cleaning **Machining/Grinding**

Method of back gouging **N.A.**

Orifice or gas cup size **18 mm**

Stand off distance (*) **16-18 mm**

Multiple or single pass **Multiple**

Multiple or single electrodes **Single**

Torch angle (*) **N.A.**

Other (*) for fully mechanized/robotic only

TRANSVERSE TENSILE TEST						
Spec. (No.)	Width (mm)	Thickness (mm)	Area (mm^2)	Total load (N)	R_m. (N/mm^2)	Fracture location
13620\20	**25,01**	**24,77**	**619,5**	**375474**	**606**	**Ductile failure out weld**
13620\21	**24,98**	**24,59**	**614,3**	**368126**	**599**	**Ductile failure out weld**

ALL-WELD METAL TENSILE TEST							
Spec. (No.)	Diameter (mm)	Area (mm)	L_0 (mm)	Rp0,2% (N/mm^2)	Tensile strength (N/mm^2)	A (%)	Note
13620\22	**12,52**	**123,1**	**50,0**	**542**	**615**	**26,4**	**72,1**

BEND TEST			
Type	No.	Bend Angle	Result
SIDE TRANSVERSE	**4 OFF**	**180°**	**Acceptable**

IMPACT TEST

Full size 10x10x55

Spec No.	Notch location	Notch type	Test Temp. (°C)	Impact values (J)	Average (J)
VWT $_{0/2}$	**WELD**	**ISO-V**	**-40**	**306-321-333**	**320**
VHT $_{0/2}$	**FL**	**ISO-V**	**-40**	**294-297-293**	**295**
VHT $_{2,0/2}$	**FL+2**	**ISO-V**	**-40**	**283-274-279**	**279**
VHT $_{5,0/2}$	**FL+5**	**ISO-V**	**-40**	**274-265-227**	**255**
VWT $_{0/13}$	**WELD**	**ISO-V**	**-40**	**299-306-307**	**304**
VHT $_{0/13}$	**FL**	**ISO-V**	**-40**	**284-285-271**	**280**
VHT $_{2,0/13}$	**FL+2**	**ISO-V**	**-40**	**265-223-267**	**252**
VHT $_{5,0/13}$	**FL+5**	**ISO-V**	**-40**	**271-279-243**	**264**

HARDNESS TEST		
Location	Type/load	Maximum value
Parent metal(s)	**HV10**	**205**
H.A.Z.(s)	**HV10**	**205**
Weld metal	**HV10**	**207**

OTHER TEST

MACROGRAPHIC EXAMINATION	**Acceptable**
MICROGRAPHIC EXAMINATION	**Not required**

NON DESTRUCTIVE EXAMINATION

VISUAL EXAMINATION	**Acceptable See report 2300-138 PA VT**
RADIOGRAPHIC EXAMINATION	**Acceptable See report 2511-23**
PENETRANT TEST	**Not required**
MAGNETIC PARTICLE	**Acceptable See report 2300-138 PA MT**
ULTRASONIC TEST	**Not required**

Issued at: Genova on **01 December 2023**

RINA Services S.p.A.
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ORDINE / ORDER N°	DATA / DATE
Conforme Ordine	17/11/2023
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30249	01/12/2023
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RAPPORTO DI PROVA / TEST REPORT

Prodotto Product	Id. Cliente Client Id.	Ricevuto il Received on	Id. Global Test Global Test Id.	Dimensioni dichiarate Declared dimensions	Materiale dichiarato Declared material	Note Remarks
Weld Coupon	WPS p-2308-138-TC3	15/11/2023	13620	Thk 25 mm	S460 MLO EN 10225-2	Welding Process: 138 Welding Type: Partly Mechanized Welding Process: PA Welder: Sorica Petriaca (SP) Pr. RINA: 2023 TO PW 1006 **Qualifica procedimento** **UNI EN ISO 15614-1:2019 Lev.2** **+ RINA RULES** **+ EEMUA Pub.158 Ed.3**

Prove eseguite e Normative di riferimento Performed Tests and Reference Standards	Eseguita il Performed on	Esecuzione Testing by
Room temperature tensile test according to UNI EN ISO 4136:2022 + UNI EN ISO 6892-1:2020	01/12/2023	Sede A ☒ Sede B ☐ Altro ☐
Room temperature tensile test according to UNI EN ISO 5178:2019 + UNI EN ISO 6892-1:2020	01/12/2023	Sede A ☒ Sede B ☐ Altro ☐
Bend test according to UNI EN ISO 5173:2023	27/11/2023	Sede A ☒ Sede B ☐ Altro ☐
Charpy Impact test according to UNI EN ISO 148-1:2016 + UNI EN ISO 9016:2022	01/12/2023	Sede A ☒ Sede B ☐ Altro ☐
Macrographic examination according to UNI EN ISO 17639:2022	27/11/2023	Sede A ☒ Sede B ☐ Altro ☐
Hardness test according UNI EN ISO 6507-1:2018	27/11/2023	Sede A ☒ Sede B ☐ Altro ☐

Non è permessa la riproduzione parziale del presente rapporto di prova senza l'autorizzazione di Global Test. Il campionamento dei saggi è stato effettuato a cura del Cliente. I risultati riportati nel presente documento si riferiscono esclusivamente alle prove effettuate sui saggi consegnati in laboratorio così come ricevuti ed indicate in tabella "identificazione cliente". I residui dei saggi lavorati e le provette verranno conservati per 1 mese; dopo tale periodo verranno rottamati. Il presente documento è archiviato per minimo di 10 anni. Quando riportata, l'incertezza di misura è espressa con fattore di copertura k=2 pari a livello di fiducia del 95% circa.

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ORDINE / ORDER N° Conforme Ordine	DATA / DATE 17/11/2023
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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Room temperature tensile test according to UNI EN ISO 4136:2022 + UNI EN ISO 6892-1:2020

Standards Correlati - Related Standards
None

PROVA DI TRAZIONE / TENSILE TEST

Identificativo Campione Sample Identification		**Provino** Specimen	**Posizione** Position	**Dimensioni** Dimensions	**Area** Area	**Carico Max** Maximum Load F_m	**Carico Rottura** Ultimate Tensile Strength **Rm**	**Aspetto frattura** Fracture Appearance	**Zona rottura** Fracture Location
Cliente / Client	**Lab.** / Lab.			mm	mm^2	N	MPa		
WPS p-2308-138-TC3	13620 / 20	F	TW	24.77 x 25.01	619.5	375474	606	Ductile	Out Weld
WPS p-2308-138-TC3	13620 / 21	F	TW	24.59 x 24.98	614.3	368126	599	Ductile	Out Weld

Posizione: *Position:*	**Tipo di campione:** *Specimen Tipe:*	**Tipo di velocità di prova:** *Testing Rate method:*
TB: trasversale in materiale base / transversal on base metal LB: longitudinale in materiale base / longitudinal on base metal TW: trasversale attraverso saldatura / transversal across weld metal LW: longitudinale su saldatura / longitudinal on weld metal	F – prismatica / flat C – cilindrica / cilyndrical T – tubo intero / entire pipe P – provetta da tubo / specimen from pipe	"A224" method

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CLIENTE / CUSTOMER **SCANDIUZZI STEEL CONSTRUCTIONS S.r.l.** Via Piave, 14 - 31040 Volpago Del Montello (TV)	
ORDINE / ORDER N° Conforme Ordine	DATA / DATE 17/11/2023
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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Room Temperature tensile test according to UNI EN ISO 5178:2019 + UNI EN ISO 6892-1:2020

Standards Correlati - Related Standards(*)
EEMUA Pub.158 Ed.3 Para 4.4.4.2

PROVA DI TRAZIONE / TENSILE TEST

Identificativo Campione Sample Identification		**Provino** Specimen	**Posizione** Position	**Dimensioni** Dimensions	**Area** Area	**Lunghezza Iniziale** Original Length L_0	**Snervamento** Yield Strength **Rp0.2%**	**Rottura** Tensile Strength **Rm**	**Allungamento** Elongation **A**	**Strizione** Area Reduction **Z**	**Zona di rottura** Break position
Cliente / Client	**Lab.** / Lab.			mm	mm^2	mm	MPa	MPa	%	%	
WPS p-2308-138-TC3	13620 / 22	C	LW	Ø 12.52	123.1	50.0	542	615	26.4	72.1	***

Posizione: *Position:*	**Tipo di campione:** *Specimen Tipe:*	**Tipo di velocità di prova:** *Testing Rate method:*
TB: trasversale in materiale base / transversal on base metal LB: longitudinale in materiale base / longitudinal on base metal TW: trasversale attraverso saldatura / transversal across weld metal LW: longitudinale su saldatura / longitudinal on weld metal	F – prismatica / flat C – cilindrica / cilyndrical T – tubo intero / entire pipe P – provetta da tubo / specimen from pipe	"A224" method

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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards	Standards Correlati - Related Standards
Bend test according to UNI EN ISO 5173:2023	None

PROVA DI PIEGA / BEND TEST

Identificativo Campione Sample Identification		**Posizione** Position	**Dimensioni** Dimensions	**Mandrino** Jig	**Angolo** Angle	**Distanza Rulli** Rolls Distance	**Esito** Results
Cliente / Client	**Lab.** / Lab.		mm	mm	mm	mm	
WPS p-2308-138-TC3	13620 / 23	SBB	24.8 x 10.2	40	180°	63	Not defects noted according to UNI EN ISO 15614-1:2019 Par. 7.4.2 (*)
WPS p-2308-138-TC3	13620 / 24	SBB	24.9 x 10.1	40	180°	63	Not defects noted according to UNI EN ISO 15614-1:2019 Par. 7.4.2 (*)
WPS p-2308-138-TC3	13620 / 25	SBB	24.9 x 10.2	40	180°	63	Not defects noted according to UNI EN ISO 15614-1:2019 Par. 7.4.2 (*)
WPS p-2308-138-TC3	13620 / 26	SBB	24.8 x 10.1	40	180°	63	Not defects noted according to UNI EN ISO 15614-1:2019 Par. 7.4.2 (*)

Tipo di provino: *Specimen Type:*	**Note:** Remarks:
TFBB: Piega trasversale al dritto / transversal face bend test TRBB: Piega trasversale al rovescio / transversal root bend test SBB: Piega trasversale laterali / transversal side bend test	Testing Procedure: Former Bend Test Test Temperature: (23±5)°C

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ORDINE / ORDER N°	DATA / DATE
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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Charpy Impact test according to UNI EN ISO 148-1:2016

Standards Correlati - Related Standards
UNI EN ISO 9016:2022 + EEMUA Pub.158 Ed.3 Para 4.4.4.2(*)

PROVA DI RESILIENZA / CHARPY IMPACT TEST

Identificativo Campione Sample Identification		**Temperatura** Temperature	**Posizione** Position	**Dimensioni** Dimensions	**Intaglio** Notch	**Resilienza** Impact energy Joule				**Espansione laterale** Lateral expansion mm			
Cliente / Client	**Lab.** / Lab.	°C		mm		1	2	3	AVG	1	2	3	AVG
WPS p-2308-138-TC3	13620 / 27	- 40	VWT 0/2	10.0 x 10.0	KV_2	306	321	333	320	2,29	2,32	2,36	2,32
WPS p-2308-138-TC3	13620 / 28	- 40	VHT 0/2	10.0 x 10.0	KV_2	294	297	293	295	2,18	2,21	2,15	2,18
WPS p-2308-138-TC3	13620 / 29	- 40	VHT 2/2	10.0 x 10.0	KV_2	283	274	279	279	2,11	2,07	2,09	2,09
WPS p-2308-138-TC3	13620 / 30	- 40	VHT 5/2	10.0 x 10.0	KV_2	274	265	227	255	2,02	1,94	1,67	1,88
WPS p-2308-138-TC3	13620 / 31	- 40	VWT 0/13	10.0 x 10.0	KV_2	299	306	307	304	2,16	2,28	2,29	2,24
WPS p-2308-138-TC3	13620 / 32	- 40	VHT 0/13	10.0 x 10.0	KV_2	284	285	271	280	2,09	2,07	2,01	2,06
WPS p-2308-138-TC3	13620 / 33	- 40	VHT 2/13	10.0 x 10.0	KV_2	265	223	267	252	1,94	1,45	1,92	2,28
WPS p-2308-138-TC3	13620 / 34	- 40	VHT 5/13	10.0 x 10.0	KV_2	271	279	243	264	2,02	2,08	1,94	2,64

Posizione provino: *Position of specimen:*	**Note:** *Remarks:*
BM: Materiale Base / Base Metal VHT: Linea di Fusione / Fusion Line VWT: Zona Fusa / Weld Metal	Tempo di condizionamento provini: >15 min Conditioning time: >15 min 1) Valore approssimativo KV eccede 80% della capacità dell'apparecchiatura - Approximate KV value exceeds 80% of the equipment's capacity 2) Valore approssimativo di provino non rotto – Approximate value of unbroken specimen

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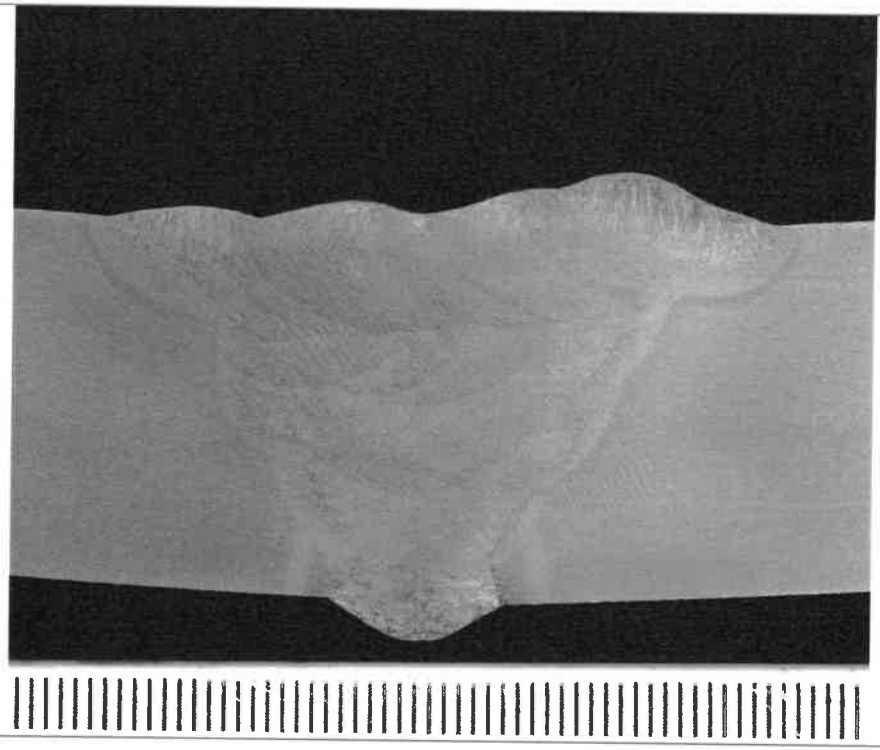
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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards	Standards Correlati - Related Standards
Macrographic examination according to UNI EN ISO 17639:2022	UNI 3138:1984

ESAME MACROGRAFICO / MACROGRAPHIC EXAMINATION



Identificativo Campione Sample Identification	**Cliente** Client	WPS p-2308-138-TC3
	Lab. Lab.	13620 / 35
Posizione Prelievo / Sampling position **Zona Esaminata** / Examinated Area		Transversal Weld Joint
Tipo di saldatura/ Weld Joint type		Butt Weld
Tipo di Attacco / Etching Type		Nital 10%
Metodo di attacco / Ethching method		Immersione – 30s Swabbing – 30s
Designazione / Designation		Esame-ISO 17639-A-E-2.1/2.1-2.1/2.1-A.1
Esito / Result (*)		No defects noted according to UNI EN ISO 5817:2023 Lev. B + UNI EN ISO 15614-1:2019 Lev.2 Para 7.5

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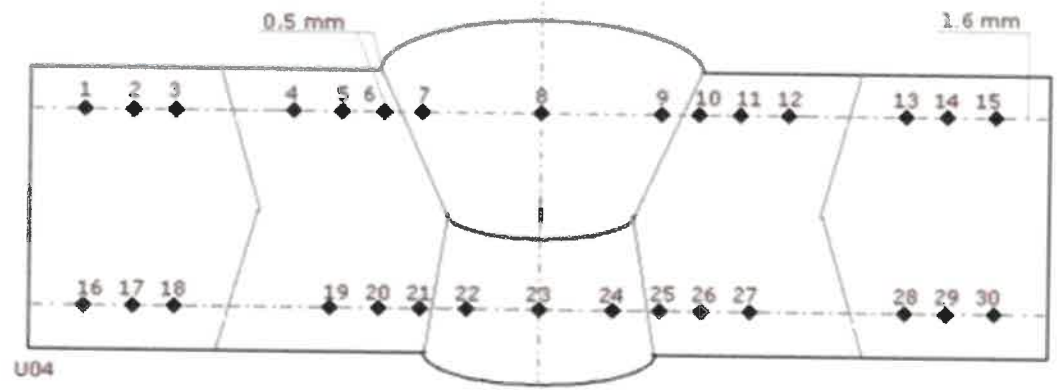
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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards	Standards Correlati - Related Standards
Hardness test according to UNI EN ISO 6507-1:2018	UNI EN ISO 9015-1:2011

PROVA DI DUREZZA / HARDNESS TEST

Identificativo Campione Sample Identification		**Prova di durezza** Hardness Test
Cliente / Client	**Lab.** / Lab.	
WPS p-2308-138-TC3	13620 / 35	HV10



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
192	191	192	190	188	194	207	193	192	191	191	201	197	205	198
16	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
193	194	192	177	191	184	181	176	179	205	199	180	200	201	205

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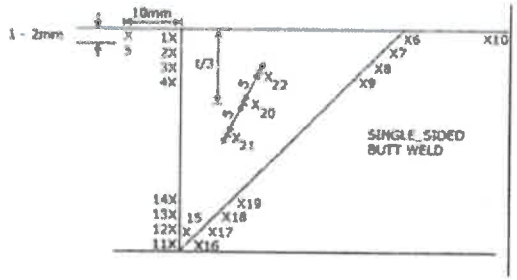
ORDINE / ORDER N°	DATA / DATE
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30249	01/12/2023
	PAG. 8 di 9

Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Hardness test according to UNI EN ISO 6507-1:2018

Standards Correlati - Related Standards (*)
EEMUA Pub.158 Ed.3 Para 4.4.4.4(*)

PROVA DI DUREZZA / HARDNESS TEST

Identificativo Campione Sample Identification		**Prova di durezza** Hardness Test
Cliente / Client	**Lab.** / Lab.	
WPS p-2308-138-TC3	13620 / 35	HV10



EEMUA Pub. 158 Ed.3 - Fig.8
Locations of indents for hardness surveys

1	2	3	4	5	6	7	8	9	10	11
191	194	192	198	195	198	196	193	191	192	207
12	13	14	15	16	17	18	19	20	21	22
213	211	215	107	215	218	219	206	198	181	194

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STRUMENTI USATI PER LE PROVE / EQUIPMENT USED FOR TESTS

Equipment used	Trademark		Calibration expiry (±15 days)
Digital Caliper	Borletti CDJB15	Sn: 032819-186295	27/10/2025
Tensile Test Machine – 1200kN	GALDABINI QUASAR 1200	Sn: VB3Z	13/03/2024
Electronic Exstensometer	GALDABINI MICRO	Sn: 34547	13/03/2024
Hydraulic Press	OMCN P30/MR	Sn: 589557	-
Charpy pendulum	Wolpert PW30/15K	Sn: 1216	13/03/2024
Digital Thermometer + Probe	TC Direct + PT100	Sn: 220606695 + 220606695/PT100	05/12/2023
Camera	CANON EOS 4000D	Sn: 153070020586	-
Hardness Testing Machine	QNESS Q30A+	Sn: Q1788/02/20	13/03/2024

(*) Metodo di prova non accreditata da ACCREDIA – Ente Italiano di Accreditamento
Test method not accredited by ACCREDIA - Italian Accreditation System

La decorrenza del presente Rapporto di Prova coincide con la data di emissione del documento, posta in alto a destra. Non rileva il fatto che la firma digitale sia eventualmente apposta successivamente.
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SCANDIUZZI	RAPPORTO DI ESAME VISIVO VISUAL EXAMINATION REPORT	RAPPORTO n°: Report Nr.: *2300-138PA - VT* FOGLIO / SHEET 1

CLIENTE / CUSTOMER	PURCHASE ORDER	COMMESSA / JOB
Scandiuzzi	/	***2300 - 138***

PROGETTO / PROJECT:	Welding procedure qualification record acc. to **EN ISO 15614-1 : 2019**
ITEM	Test coupon marked **2308-138-TC3** – welder stamp : **"SP "** (*SORICA PETRICA*)

SPECIFICA DI RIFERIMENTO PER ESECUZIONE DEL CONTROLLO: Reference specification applied :	**EN 17637**
CRITERI DI ACCETTABILITA' DIFETTI: Acceptance criteria:	**EN 5817 level B**
CONDIZIONE SUPERFICIALE DEL MATERIALE BASE: Superficial condition of base material:	**As rolled – brushed**
CONDIZIONE SUPERFICIALE DELLE SALDATURE: Superficial condition of welding:	**As welded**
ESTENSIONE DEL CONTROLLO: Test Extension:	**100%**
DISEGNO: Drawing:	**see WPS 2308-138 –TC3**
IDENTIFICAZIONE DELL' OGGETTO DA ESAMINARE: Object identification	**West test coupon stamped 2308-138–TC3– welder stamp : "SP"**
MATERIALE: Material:	**S460 MLO EN 10225-2**
TIPO GIUNTO: Type of joint:	**single V butt weld - multipass – PA**
SPESSORE MATERIALE Material Thickness	**25 mm**
PROCESSO DI SALDATURA Welding process	**138– FCAW – metal cored wire**
DISPOSITIVI D' ESAME USATI Examination devices used:	**weld gauge**

RISULTATO D' ESAME
Result of examination: [X] Conforme / **Acceptable** [ ] Non conforme / **Not acceptable**

Note : **test coupon welded in PA position –**
Light intensity during test : 1000lux

Data : Date:	SCANDIUZZI INSPECTOR	No.Bo. Inspector	T.P. INSPECTOR
13 /11/2023	SCANDIUZZI STEEL CONSTRUCTIONS S.p.A. ITALY QUALITY CONTROL A. Simonetto	RINA P. Danesin RINA Services S.p.A.	

SCANDIUZZI

VERBALE DI CONTROLLO MAGNETOSCOPICO: 2300-138PA- MT

MT EXAMINATION REPORT

DATI METODO DI CONTROLLO

TEST METHOD

Data: 14-11-2023 *Date:*	Costruttore: *Manufacturer :*	Scandiuzzi Steel Constructions Spa

Oggetto: **Weld test coupon for WPQR and WPQ (Welder Name : Sorica Petrica)** *Object:*

Sigla: *Item:*	2308-138-TC3	Commessa: *Shop Order:*	2300-138	Disegno: *Drawing:*	WPS 2308-138-TC3
Welder Stamp	"SP "	N.F. : *S.N.:*	See below	Proc. sald. : *Welding process*	138

Materiale : *Material:*	Sp. (mm) : *Thickness (mm):*	Particolare : *Component:*	Estensione controllo : *Test Extensions:*
S S60 MLO EN 10225 - 2	25	SINGLE V FULL PEN. WELD	100%

Specifica di riferimento : *Reference Specification :*	EN ISO 17638 Scandiuzzi proc. PR –MT- 00	Classe di accettabilità : *Acceptance Criteria:*	EN ISO 5817 level B - ISO 23278 LEV. 2X

Condizioni superficiali : *Surface conditions:*	Stadio di lavorazione : *Working Step:*	Preparazione superficiale : *Surface Pre-Cleaning:*	Temperatura d'esame (C°): *Test Temperature:*
As Welded	After welding	Brushed	Room

Apparecchiatura : YOKE TWIST CGM *Equipment:* Matricola : / *Serial:* Data ultima taratura : *Date of last sensitività test:* Pull test before check starting

☐ Puntali *Prodes*	☐ Bobina *Induction coil*	☒ Giogo *Yoke*
Direzione di magnetizzazione: *Direction of magnetization:* /	Direzione di magnetizzazione: *Direction of magnetization:* /	Direzione di magnetizzazione: *Direction of magnetization:* Longitudinal
Corrente: / *Current:*	Corrente: / *Current:*	Corrente: AC *Current:*
Distanza puntali (mm): / *Prodes spacing(mm):*	Lunghezza (mm): / *Lenght(mm):*	Distanza puntali (mm): 100 *Prodes spacing(mm):*
Copri puntali: / *Prodes cover:*	Diametro (mm): / *Diameter(mm):*	
	Numero di spire: / *Number of coil:*	

Metodo di controllo : Continuous *Examination method:*

Verifica campo magnetico : Lifting test 4,5 kg *Magnetic field check:*

☐ SECCO *DRY* ☒ UMIDO *WET*

Rivelatore : / *Developer:*	☒ CONTRASTO COLORE ☐ FLUORESCENTE
Colore : / *Color:*	*Lacca di contrasto:* ELITE FLAW FINDR – WBL -5 *Paint contrast:*
Lanciapolvere : / *Dustlaunch:*	Rivelatore : ELITE FLAW FINDR – BLACK BW – 2 *Developer :*
Lacca di contrasto : / *Paint contrast:*	Sospensione liquida: KEROSENOIL *Wet:*
Smagnetizzazione : / *Demagnetization:*	Smagnetizzazione : NOT REQUIRED *Demagnetization:*

Luce d'ispezione : 1000 lux *Inspection light:*

ESITO DEL CONTROLLO

TEST RESULTS

IDENTIFICAZIONE *Identification*	N° Pcs.	DISCONTINUITA' *Discontinuity*	LARGHEZZA (mm) *Width(mm)*	LUNG.(mm) *Lenght(mm)*	DWG	ESITO *Result*
2308-138-TC3 + SP	1	-	-	-	WPS 2308-138-TC3	ACCEPTABLE

OPERATORE *Operator*	ISPETTORE CLIENTE *Customer Inspector*	AUTORITA' CONTROLLO *Authority Control*
SCANDIUZZI STEEL CONSTRUCTIONS S.P.A. A.Simonetto QUALITY CONTROL	RINA P. Dapassi RINA Service	

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www.trmndt.it

CERTIFICATO DI CONTROLLO RADIOGRAFICO – RADIOGRAPHIC EXAMINATION REPORT
RT 2511-23 Data: 15-11-2023

Cliente: *Customer:*	Scandiuzzi Steel Constructions SpA	Particolare: *Component:*	Saldature testa testa - Butt welds
Impianto: *Plant:*	Weld test coupon for welding procedure qualification record and welder qualification	Proc. saldat.: *Welding process:*	138
Oggetto: *Object:*	WPQR 2308 -138- TC3	Materiale: *Material:*	S460 MLO EN 10225-2
Ordine *Order:*	-	Estens. test: *Test Extension:*	100%
P.O.: *P.O. job:*	-	Spessore (mm) : *Thickness (mm):*	25
Sigla: *Item:*	-	Temperatura d'esame (°C): *Test Temperature (°C):*	-
Commessa: *Shop order:*	2300-138	Condizioni superficiali: *Surface conditions:*	Come saldato-As welded
Nr. Fabbrica: *Serial Nr.:*	2308 -138- TC3	Stadio lavorazione: *Working step:*	Dopo saldatura-After welding
Disegno: *Drawing:*	WPS 2308-138-TC3	Punzone saldatore *Welder stamp*	SP (Sorica Petrica)

PROCEDURA E TECNICA DI CONTROLLO - *PROCEDURE AND TEST METHOD*

Specifica di riferimento: *Specific Reference:* UNI EN ISO 17636-1 Cl.B

Classe di accettabilità: *Acceptance criteria:* UNI EN ISO 10675-1 Liv.1

CODICI DELLE DISCONTINUITA' - *DISCONTINUITY CODE:*

12	Difetto film *Film Defect*	202	Cavità di ritiro *Shrinkage cavity*	402	Mancanza penetrazione *Lack of penetration*	517	Ripresa difettosa *Poor restart*	2013	Nido di soffiature *Clustered porosità*
100	Cricche *Crack*	300	Inclusioni solide *Solid inclusion*	500	Irregolarità di maglia *Irregular shape*	600	Difetto generico *Generic indication*	2014	Porosità allineate *Aligned porosity*
101	Cricche longitudinali *Longitudinal crack*	301	Inclusioni di scoria *Slag inclusion*	502	Sovrametallo *Excess weld metal*	601	Colpo d'arco *Arc strike*	2015	Cavità allungate *Elongated cavity*
102	Cricche trasversali *Transverse crack*	302	Inclusioni di flusso *Flux inclusion*	504	Eccesso penetrazione *Excess of penetration*	602	Spruzzo *Spatter*	2016	Tarlo *Worm hole*
103	Cricche a raggiera *Radiating cracks*	303	Inclusione di ossido *Oxide inclusion*	507	Sfivellamento *Misalignment*	604	Colpo di mola *Grinding mark*	2024	Cavità cratere *Crater pipe*
104	Cricche di cratere *Crater crack*	304	Inclusione metallica *Metallic inclusion*	511	Insellamento *External concavity*	2011	Poro *Isolated gas porosity*	5011	Incisione marginale *Undercut*
201	Soffiatura *Gas cavity*	401	Mancanza di fusione *Lack of fusion*	515	Insellam. al vertice *Root concavity*	2012	Porosità unif. distribuite *Porosity regularly distributed*	5013	Incisione al vertice *Shrinkage groove*

APPARECCHIATURA RADIOGRAFICA:
RADIOGRAFIC EQUIPMENT:

1	Apparecchio: *Testing equipment:*	Comet Evo Pxs Evo 300DS Matricola : 985483	Tipo di sorgente: *Source type:*	☑	Raggi X *X Ray*	☐	Raggi Y *Gamma ray*	Dimensione macchia focale: *Sources size:*	Ø 1 mm
2	Apparecchio: *Testing equipment:*		Tipo di sorgente: *Source type:*	☐	Raggi X *X Ray*	☐	Raggi Y *Gamma ray*	Dimensione macchia focale: *Sources size:*	mm
3	Apparecchio: *Testing equipment:*		Tipo di sorgente: *Source type:*	☐	Raggi X *X Ray*	☐	Raggi Y *Gamma ray*	Dimensione macchia focale: *Sources size:*	mm

ESITO/RESULT : A = Conforme - *Acceptable* - NC = Non Conforme - *Unacceptable*

OPERATORE CND ESAMINATORE *NDT TECHNICIAN AND EXAMINER*	ISPETTORE CLIENTE *CUSTOMER INSPECTOR*	ENTE COLLAUDATORE *SURVEYOR INSPECTOR*	*CONTROLLO QUALITA' QUALITY CONTROL*
Ienita Marius 2 liv. RT UNI EN ISO 9712 15-11-2023		RINA Romanesti RINA Service	SCANDIUZZI Via [illegible] 31040 VOLPAGO [illegible]

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CERTIFICATO DI CONTROLLO RADIOGRAFICO – RADIOGRAPHIC EXAMINATION REPORT

RT 2511-23 Data: 15-11-2023

TECNICA DI CONTROLLO RADIOGRAFICO:
RADIOGRAFIC TECHNIQUE:

Tecnica radiografica: *Radiographic technique:* ☐ Panoramica *Panoramic* ☑ Imm. singola parete singola *Single view, single wall exposure* ☐ Imm. singola parete doppia *Single view, double wall exposure* ☐ Imm. doppia parete doppia *Double view, double wall exposure*

Apparecchio n: *Testing equipment n:* 1 Curie: *Activity* - IQI: *IQI:* ISO 19232-1 10 FE-EN ☐ Lato film *Film side* ☑ Lato sorgente *Source side* Sensibilità equivalente *Equivalent sensitivity:* W12

Penombra geometrica: *Geometrical unsharpness:* ISO17636-1 fig.21 Numero di esposizioni: *Number of exposures:* 1 per giunto 1 for joint Densità: *Density:* ≥2.3 Estens. test: *Extent of exam:* 100%

Produttore film-Lotto: *Film manufacturer-Lot:* Carestream – 0475 012 Scadenza: *Expiry:* 04-2025 Schermi protezione pellicola: *Film screens:* 0,10/0,10 Numero film per busta: *Number of film in each film holder:* 1

Tipo di sviluppo- Lotto: *Developer type- Lot:* Carestream - 5089794 Scadenza: *Expiry:* 09-2023 Tipo di fissaggio- Lotto: *Fixer type- Lot:* Carestream - 5091867 Scadenza: *Expiry:* 11-2024

Trattamento pellicola: *Film processing:* Automatico *Automatic* Ciclo di sviluppo(min): *Development cycle(min):* 8 Temperatura di sviluppo(°C): *Development temperature(°C):* 28

IDENTIFICAZIONE DELLA SALDATURA Identification of welding					PARAMETRI RADIOGRAFICI Radiographic Parameters						
Saldatura *Welding*	Tratto *Stroke*	Diametro *Diameter* "	Materiale base *Base material* mm	Sovrametallo *Weld reinforcem.* mm	Distanza sorg.- ogg *Source - ob. Distance* mm	Distanza ogg - film *Ob. - film distance* mm	Voltaggio *Voltage* KVMA	Tipo film *Type film*	Saldatore *Welder*	Discontinuità *Discontinuity*	Esito *Result*
2308 I38-TC3	1-2	-	25	-	800	25	270/3/2'10"	T200	SP		A

ESITO/RESULT : A = Conforme - *Acceptable* - NC = Non Conforme - *Unacceptable*

OPERATORE CND ESAMINATORE *NDT TECHNICIAN AND EXAMINER*	ISPETTORE CLIENTE *CUSTOMER INSPECTOR*	ENTE COLLAUDATORE *SURVEYOR INSPECTOR*	*CONTROLLO QUALITA' QUALITY CONTROL*
Ionita Marius 2 liv. RT UNI EN ISO 9712 15-11-2023		RINA P. Banesin	SCANDIUZZI

voestalpine Böhler Welding Italia S.r.l.

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Tel. +39 02 39017.1
Fax +39 02 39017244

www.voestalpine.com/welding

Certificato di prova 3.1
Inspection certificate 3.1

secondo / as per : EN 10204
No. : No. : 2023-2014600986-10-1080412-014
Rev. 0 Page / Page : 1 / 1

SCANDIUZZI STEEL CONSTRUCTIONS S.P.A.

Via Piave 14
31040 VOLPAGO DEL MONTELLO
Italia

Ordine N°	PO no.	OA 11 231001	del / of	07.11.2023
Ordine N°	Order no.	1014267338		
Bolla di consegna/Pos./Splitt.	Delivery note/pos./split	2014600986/000000/000010	del / of	08.11.2023
Oggetto test	Product	filo animato / Tubular cored electrode		
Denominazione commerciale	Trade name	**diamondspark Ni1 MC**		275132 44933
Classificazione norma	Standard designation	EN ISO 17632-A: T50 6 1Ni M M21 1 H5		CU05120F 0140
		AWS A5.28/SFA-5.28: E80C-Ni1-H4		
Dimensione	Dimension	1,2 mm		
Colata	Serial no.	1080412		
Quantità fornita	Quantity	80,0 KG		

Composizione chimica in % del deposito **Chemical composition in % of the weld metal**

C	Si	Mn	P	S	Cr	Mo	Ni	V	Cu	Al	Nb			
0,09	0,44	1,25	0,006	0,007	0,03	0,10	0,88	< 0,01	0,09	< 0,01	< 0,01			

proprietà meccaniche **Mechanical properties** **EN 10204 - 2.2**

Prova di trazione Tensile test

T	ReL / Rp 0,2 MPa	Rp 1,0 MPa	Rm MPa	A (Lo = 5d) %	Z %	WBH PWHT	Note Remarks
20°C	≥ 500		570 - 690	≥ 18			

Prova di resilienza Impact test

T	Energia di impatto Impact energy KV / J	Medio Average KV / J	Espansione lat. Lateral expansion mm	Frattura cristalliina Shear fracture %	WBH PWHT	Note Remarks
-60°C	≥ 47					

Questo certificate è stato emesso con sistema automatizzato e non richiede firma
This certificate was issued by DP-equipment and does not require signature.

Centro / Town Milano
Data / Date 08.11.2023

Q.A. representative / Authorized representative
Faraone

voestalpine
ONE STEP AHEAD.

voestalpine Grobblech GmbH

A02
Inspection certificate

EN 10204 - 3.2

N1423VKR-4

voestalpine-Straße 3
4020 Linz, Austria
www.voestalpine.com/grobblech

A03 Document number	A0370744/A	A08 Order-No.:	1500639	A07 OrderDat.	15-04-2021

Date of dispatch 01-08-2021 400F

A06 Customer	Kroeger Staal B.V. Oostelljke Randweg 40 NL-4782 PZ MOERDIJK	B01 Product	Plate		
		B02 Material	S460MLO	B03 Standard	EN 10225-1 : 2019
A07 OrderNo.	6729	Supplementary requirements	Z35 - EN 10164		
A06 Consignee	Europe Steel Projects BV Oostelijke Randweg 40 NL-4782 PZ MOERDIJK	B04 Delivery condition	thermomechanical rolled + accelerated cooled		

B03 - Supplementary requirements

OPTIONS 1, 6, 7, 9, 11, 12, 17 OF EN 10225:2019 AND OPTION 18 OF EN 10225:2009
FINAL ROLLING DIRECTION IS PERPENDICULAR TO DIE STAMPING.
MATERIAL IS FINE GRAINED, VACUUM DEGASSED AND FULLY KILLED, PRODUCED BY BOF.
MATERIAL IS PRE-QUALIFIED ACC. TO EN10225:2019 OPTION 17.

D01 - Visual Examination and dimensional checking: satisfactory. The results of tests performed are in compliance with the requirements.

Detail of supply

B07 Heat No.	B06 Plate No	Item	Dimensions B09 Thickness mm	B10 Width mm	B11 Length mm	B08 Piece	ind. Weight kg	total Weight kg	A09 Disp-No 130 42	reference no.
735829	287565/1	200	60,00	2051,0	12000	1		11.863	55172	S460MLOVAS
735829	290462/1	170	50,00	2500,0	12000	1		12.006	55172	S460MLOVAS
736009	289410/1	100	25,00	2500,0	12000	1		5.962	55172	S460MLOVAS
736009	291133/1	30	15,00	2051,0	12000	1		2.932	55172	S460MLOVAS
736009	291133/2	30	15,00	2051,0	12000	1		2.932	55172	S460MLOVAS
736009	291135/1	60	16,00	2051,0	16000	1		4.168	55172	S460MLOVAS
736009	291137/1	60	16,00	2051,0	16000	1		4.195	55172	S460MLOVAS
736009	292575/1	120	30,00	2500,0	12000	1		7.146	55172	S460MLOVAS
736009	292577/1	120	30,00	2500,0	12000	1		7.147	55172	S460MLOVAS
736009	292579/1	120	30,00	2500,0	12000	1		7.147	55172	S460MLOVAS
736009	292581/1	120	30,00	2500,0	12000	1		7.170	55172	S460MLOVAS
736009	292583/2	40	15,00	2500,0	12000	1		3.597	55172	S460MLOVAS

A04
Symbol of the manufacturer's work

voestalpine

Z03
third party stamp

DNV — SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT — 1864
~~Witnessed~~ ☒ Reviewed
And found to comply with:
EN 10225-1 : 2019
Date: 2021-08-09
Sign: Antonio R. Zambrano C.

This document has been digitally signed and will therefore not have handwritten signatures.

Z02
Inspection representative voestalpine Grobblech
LINTNER Norbert

voestalpine
ONE STEP AHEAD

Dimensional tolerances acc. EN 10029/11
EN10163-2: Class B3 - Repair-welding not permitted
Thicknesstolerance acc. EN 10029/11 tab.1 class B

Chemical composition (Heat analysis) - part 1 of 2

B07 Heat No.	C %	Si %	Mn %	P %	S %	Al %	Cr %	Ni %	Mo %	Cu %	V %	Nb %	Ti %	N %	B %	Sn %	Ca %	As %	Sb %	Pb %	Cae %	Pcm %
>=						.015																
Set values <=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0200	.0050	.0300	.0100	.010	.41	.23
736009	.028	.316	1.580	.006	.0006	.040	.181	.170	.006	.159	.005	.037	.013	.0043	.0002	.0020	.0014	.0020	.0020	.002	.35	.14
736926	.030	.348	1.650	.006	.0007	.045	.175	.170	.005	.159	.004	.039	.012	.0044	.0002	.0020	.0018	.0020	.0020	.002	.36	.15
836634	.032	.337	1.640	.008	.0006	.038	.181	.190	.013	.161	.004	.037	.011	.0041	.0002	.0020	.0014	.0020	.0020	.002	.37	.15
929534	.028	.324	1.630	.008	.0005	.038	.166	.180	.005	.160	.004	.039	.012	.0045	.0002	.0020	.0017	.0020	.0020	.002	.36	.14
930314	.033	.343	1.620	.005	.0007	.036	.172	.160	.001	.157	.004	.036	.013	.0054	.0002	.0020	.0015	.0020	.0020	.002	.36	.15
>=						.015																
Set values <=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0200	.0050	.0300	.0100	.010	.41	.22
735829	.036	.341	1.610	.008	.0007	.041	.174	.170	.006	.160	.003	.038	.012	.0048	.0002	.0020	.0020	.0030	.0020	.002	.36	.15
736009	.028	.316	1.580	.006	.0006	.040	.181	.170	.006	.159	.005	.037	.013	.0043	.0002	.0020	.0014	.0020	.0020	.002	.35	.14
736926	.030	.348	1.650	.006	.0007	.045	.175	.170	.005	.159	.004	.039	.012	.0044	.0002	.0020	.0018	.0020	.0020	.002	.36	.15
736927	.030	.340	1.620	.005	.0010	.038	.170	.170	.002	.160	.003	.036	.013	.0047	.0002	.0020	.0014	.0020	.0020	.002	.36	.14
840986	.030	.337	1.640	.007	.0003	.038	.175	.170	.006	.151	.004	.040	.013	.0047	.0002	.0020	.0014	.0020	.0020	.002	.36	.14
841329	.027	.322	1.620	.008	.0005	.037	.172	.170	.005	.163	.005	.038	.014	.0040	.0003	.0020	.0010	.0030	.0020	.002	.36	.14
841750	.060	.393	1.540	.009	.0007	.041	.177	.280	.025	.155	.004	.030	.013	.0038	.0002	.0020	.0016	.0020	.0020	.002	.39	.17
841752	.060	.350	1.540	.008	.0007	.036	.174	.270	.016	.162	.004	.028	.014	.0037	.0002	.0020	.0014	.0020	.0020	.002	.38	.17
842367	.063	.348	1.530	.007	.0008	.037	.173	.280	.009	.157	.005	.029	.011	.0043	.0002	.0020	.0023	.0030	.0020	.002	.38	.17
929534	.028	.324	1.630	.008	.0005	.038	.166	.180	.005	.160	.004	.039	.012	.0045	.0002	.0020	.0017	.0020	.0020	.002	.36	.14
930314	.033	.343	1.620	.005	.0007	.036	.172	.160	.001	.157	.004	.036	.013	.0054	.0002	.0020	.0015	.0020	.0020	.002	.36	.15
931038	.029	.340	1.620	.008	.0008	.039	.165	.180	.024	.163	.005	.039	.012	.0051	.0003	.0020	.0023	.0030	.0020	.002	.36	.14

Z03
third party stamp

SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT - DNV 1864
~~Witnessed~~ Reviewed
And found to comply with:
EN 10225-1 : 2019
Date: 2021-08-09
Sign: Antonio R. Zambrano C.
This document has been digitally signed and will therefore not have handwritten signatures.

Z02
Inspection representative voestalpine
Gobbleen
Lilly-Yuki Norbert

voestalpine
ONE STEP AHEAD.

voestalpine

Test results: C10-C29 Tensile Test at room temperature acc. EN ISO 6892-1

B07 Heat No.	B06 Plate No	C41 Width	SpThickn mm	C01 loc.	PosTh.	C02 Dir	C11 Rp0,2 MPa	C12 Rm MPa	L0	C13 E %	C11 Rp0,2/Rm %	Sim.htm	WBH
>=							460	520		17.0			
Set values <=								700			93.00		
736009	291133	30,0	15.09	F	O	T	546	614	A5	18.5	88.94		
736926	292617	30,0	15.10	F	O	T	548	640	A5	19.6	85.67		
836634	296717	30,0	15.32	F	O	T	557	618	A5	17.9	90.10		
929534	298464	30,0	15.49	F	O	T	538	588	A5	23.4	91.53		
930314	295907	30,0	15.64	F	O	T	504	575	A5	22.3	87.63		
>=							440	520		17.0			
Set values <=								700			93.00		
736009	289410	30,0	25.36	F	O	T	536	590	A5	22.0	90.77		
736926	294666	30,0	20.42	F	O	T	577	651	A5	20.2	88.70		
736927	294046	30,0	20.28	F	O	T	489	597	A5	24.6	81.92		
930314	292635	30,0	20.76	F	O	T	567	612	A5	17.9	92.65		
	292661	30,0	25.18	F	O	T	552	605	A5	23.2	91.23		
>=							420	520		17.0			
Set values <=								700			93.00		
736009	292581	30,0	30.77	F	O	T	528	589	A5	24.7	89.61		
736926	294338	30,0	30.50	F	O	T	512	582	A5	25.0	87.94		
736927	292613	30,0	31.20	F	O	T	525	592	A5	23.4	88.69		
	292625	30,0	40.88	F	O	T	479	593	A5	23.1	80.76		
	292628	30,0	40.82	F	O	T	484	594	A5	24.4	81.43		
	292630	30,0	41.06	F	O	T	473	590	A5	23.5	80.09		
841329	288720	30,0	40.63	F	O	T	463	567	A5	23.8	81.55		
930314	292633	30,0	41.04	F	O	T	473	592	A5	23.8	79.93		
	292660	30,0	40.89	F	O	T	470	595	A5	24.3	78.93		
931038	298855	30,0	41.07	F	O	T	493	600	A5	23.3	82.20		
>=							415	500		17.0			
Set values <=								675			93.00		
735829	287565	Ø	9.99	F	V	T	438	551	A5	30.9	79.39		
	290462	Ø	10.01	F	V	T	474	593	A5	27.4	79.90		
	287565	Ø	10.01	F	V	T	485	563	A5	29.7	86.06	001	1
	290462	Ø	9.99	F	V	T	517	595	A5	27.7	86.85	001	1

Z03
third party stamp

DNV 1864 – SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT
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And found to comply with:
EN 10225-1 : 2019
Date: 2021-08-09
Sign: Antonio R. Zambrano C.
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Z02
Inspection representative voestalpine
Gobbleen
LIVIXER Norbert

voestalpine

voestalpine
ONE STEP AHEAD.

Test results: C10-C29 Tensile Test at room temperature acc. EN ISO 6892-1

B07 Heat No.	B06 Plate No	C41 Width mm	SpThickn	C01 loc.	PosTh.	C02 Dir	C11 Rp0,2 MPa	C12 Rm MPa	L0	C13 E %	C11 Rp0,2/Rm %	Sim.htm	WBH

F: Bottom
PosTh.: Pos Thickness
O: surface
V: ¼ t
C02;Dir:
T: transverse
C12; Rm: Tensile Strength
L0: gauge
A5: Length = 5.65 * sqr (area) mm
C13;E: elongation
Sim.htm: sim. heat treatment
001: Sim.htm group #1
WBH: sim. heat treatment

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Gobbi Kevin
LANXATH Norbert

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ONE STEP AHEAD.

Test results: C40-C49 Impact Test acc. EN ISO 148-1

B07 Heat No.	B06 Plate No	C40 shape	C01 loc.	PosTh.	C02 Dir	C03 temp °C	C42 SV J	C42 SV J	C42 SV J	C43 AV J	Sim.htm	WBH	samp.cond.
Set values >=						-40	42	42	42	60			
Set values <=													
735829	287565	CV 10x10	F	O	T	-40	367	363	363	364			
	290462	CV 10x10	F	O	T	-40	370	353	350	357			
	287565	CV 10x10	F	O	T	-40	349	344	341	345	001	1	
	290462	CV 10x10	F	O	T	-40	300	294	295	296	001	1	
	287565	CV 10x10	F	K	T	-40	361	359	358	359			
	290462	CV 10x10	F	K	T	-40	377	374	385	379			
	287565	CV 10x10	F	K	T	-40	316	144	337	266	001	1	
	290462	CV 10x10	F	K	T	-40	49	325	128	167	001	1	
736009	289410	CV 10x10	F	O	T	-40	348	364	357	356			
	291133	CV 10x10	F	O	T	-40	350	350	352	351			
	292581	CV 10x10	F	O	T	-40	352	352	341	348			

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Grobbleder
LANTNER Norbert

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ONE STEP AHEAD

Test results: C40-C49 Impact Test acc. EN ISO 148-1

B07 Heat No.	B06 Plate No	C40 shape	C01 loc.	PosTh.	C02 Dir	C03 temp °C	C42 SV J	C42 SV J	C42 SV J	C43 AV J	Sim.htm	WBH	samp.cond.
>=						-40	42	42	42	60			
Set values <=													
930314	292633	CV 10x10	F	O	T	-40	377	366	352	365			
	292635	CV 10x10	F	O	T	-40	360	379	383	374			
	292660	CV 10x10	F	O	T	-40	384	366	407	386			
	292661	CV 10x10	F	O	T	-40	350	386	367	367			
	294335	CV 10x10	F	O	T	-40	365	383	394	381			
	295907	CV 10x10	F	O	T	-40	404	399	426	410			
	294335	CV 10x10	F	O	T	-40	358	372	358	363	001	1	
	294335	CV 10x10	F	K	T	-40	384	368	393	382			
	294335	CV 10x10	F	K	T	-40	401	374	389	388	001	1	
931038	299142	CV 10x10	F	O	T	-40	381	389	340	370			
>=						-40	29	29	29	46			
Set values <=													
735829	287565	CV 10x10	F	ZB2	T	-40	321	286	313	307			strain aged 5%, 60 min. at 250°C

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Gobbleon
LIVA/VKR Siegbert

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ONE STEP AHEAD.

Test results: C40-C49 Impact Test acc. EN ISO 148-1

B07	B06	C40	C01		C02	C03	C42	C42	C42	C43			
Heat No.	Plate No	shape	loc.	PosTh.	Dir	temp	SV	SV	SV	AV	Sim.htm	WBH	samp.cond.
						°C	J	J	J	J			

Sim.htm: sim. heat treatment
001: Sim.htm group #1
WBH: sim. heat treatment
samp.cond.: sample condition

Test results: C30-C39 Hardness Test Vickers

B07	B06	C01			C31	C31	C31
Heat No.	Plate No	loc.	PosTh.	Hard.	HV	HV	HV
735829	285777	F	OS	HV10	230	226	224
736009	287890	F	OS	HV10	193	199	193
736926	294666	F	OS	HV10	214	230	215
736927	292613	F	OS	HV10	203	194	194
836634	296717	F	OS	HV10	215	212	211
840986	285718	F	OS	HV10	230	223	226
841329	288720	F	OS	HV10	203	205	204
841750	292002	F	OS	HV10	234	229	222
841752	292010	F	OS	HV10	235	235	227
842367	299193	F	OS	HV10	240	240	237
929534	292411	F	OS	HV10	203	207	204
930314	292635	F	OS	HV10	212	201	205
931038	298855	F	OS	HV10	203	208	203

C01;loc.:
F: Bottom
PosTh.: Pos Thickness
OS: upper side
Hard.: stress

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Gobbels
i.V. Vink Norbert

voestalpine
ONE STEP AHEAD.

Test results: C10-C29 through Thickness Test at room temperature acc. DIN / EN 10164:2018

B07 Heat No.	B06 Plate No	C40 Shape	SpThickn mm	C01 loc.	C02 Dir	C12 Rm MPa	C12 Rm MPa	C12 Rm MPa	Z(SV) %	Z(SV) %	Z(SV) %	Z(AV) %

S: through thickness direction
C12; Rm: Tensile Strength
Z(SV): reduction of area (single value)
Z(AV): reduction of area (average value)

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Z02
Inspection representative voestalpine
Gobbleck
Lindner Norbert

voestalpine
ONE STEP AHEAD.

Chemical composition (Product analysis) - part 1 of 2

B07 Heat No.	B06 Plate No	C %	Si %	Mn %	P %	S %	Al %	Cr %	Ni %	Mo %	Cu %	V %	Nb %	Ti %	N %	B %	Sn %	Ca %	As %	Sb %
	>=						.015													
Set values	<=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0050	.0300	.0200	.0100
736009	291133	.030	.315	1.630	.008	.0008	.041	.179	.180	.008	.160	.003	.038	.013	.0035	.0002	.0020	.0014	.0020	.0020
736926	292652	.031	.361	1.650	.007	.0007	.043	.175	.180	.005	.162	.004	.039	.012	.0049	.0002	.0020	.0018	.0030	.0020
836634	296717	.031	.344	1.630	.008	.0007	.039	.178	.180	.013	.154	.004	.038	.011	.0038	.0002	.0020	.0015	.0020	.0030
929534	292411	.032	.327	1.610	.008	.0011	.031	.175	.180	.005	.161	.004	.039	.011	.0063	.0003	.0020	.0015	.0020	.0020
930314	292623	.033	.349	1.650	.006	.0007	.040	.185	.170	.005	.158	.004	.038	.013	.0050	.0002	.0020	.0018	.0030	.0020
	>=						.015													
Set values	<=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0050	.0300	.0200	.0100
735829	287565	.034	.332	1.600	.008	.0010	.040	.171	.170	.006	.158	.003	.039	.012	.0042	.0002	.0020	.0017	.0030	.0020
736009	289509	.030	.317	1.610	.007	.0008	.040	.182	.180	.009	.163	.004	.035	.013	.0036	.0002	.0040	.0013	.0020	.0020
	291133	.030	.315	1.630	.008	.0008	.041	.179	.180	.008	.160	.003	.038	.013	.0035	.0002	.0020	.0014	.0020	.0020
	292579	.030	.314	1.630	.007	.0008	.043	.181	.190	.008	.159	.004	.038	.013	.0040	.0002	.0020	.0016	.0020	.0020
736926	294666	.058	.364	1.530	.008	.0006	.036	.165	.270	.015	.157	.003	.029	.011	.0050	.0002	.0020	.0016	.0020	.0020
736927	292613	.032	.353	1.650	.007	.0009	.043	.186	.180	.006	.163	.004	.039	.013	.0053	.0002	.0020	.0017	.0030	.0020
	292624	.032	.351	1.650	.006	.0011	.044	.184	.180	.006	.162	.004	.039	.013	.0051	.0002	.0020	.0018	.0030	.0020
	292626	.032	.350	1.650	.006	.0010	.045	.183	.180	.006	.162	.003	.039	.014	.0053	.0002	.0020	.0018	.0030	.0020
	292629	.031	.347	1.650	.006	.0010	.045	.181	.180	.006	.162	.003	.038	.013	.0049	.0002	.0030	.0018	.0030	.0020
	292645	.032	.350	1.640	.006	.0009	.044	.185	.180	.006	.161	.003	.038	.013	.0055	.0002	.0020	.0020	.0030	.0020
840986	285719	.031	.327	1.630	.007	.0003	.036	.172	.170	.006	.151	.003	.039	.013	.0042	.0002	.0020	.0013	.0030	.0020
	287720	.033	.326	1.590	.007	.0006	.035	.169	.170	.005	.155	.003	.037	.013	.0041	.0002	.0020	.0015	.0020	.0020
841329	288720	.027	.308	1.590	.009	.0007	.035	.169	.170	.005	.160	.004	.038	.013	.0041	.0002	.0020	.0010	.0030	.0020
	292008	.027	.317	1.610	.009	.0007	.035	.171	.170	.005	.163	.005	.038	.013	.0045	.0002	.0020	.0014	.0030	.0020
841750	292002	.059	.389	1.540	.010	.0007	.040	.177	.280	.024	.157	.004	.030	.013	.0040	.0002	.0020	.0017	.0030	.0020
	292003	.058	.387	1.530	.009	.0007	.041	.176	.280	.025	.155	.004	.029	.013	.0035	.0002	.0020	.0019	.0020	.0020
	292004	.060	.391	1.550	.009	.0007	.041	.176	.280	.026	.157	.004	.031	.013	.0039	.0003	.0020	.0018	.0020	.0020
841752	292010	.060	.377	1.530	.009	.0009	.037	.176	.270	.018	.161	.004	.029	.013	.0037	.0003	.0020	.0016	.0030	.0020
	294333	.060	.349	1.530	.008	.0007	.039	.173	.270	.016	.158	.004	.028	.013	.0040	.0002	.0020	.0014	.0020	.0020
842367	299193	.051	.346	1.520	.007	.0014	.039	.172	.270	.005	.161	.005	.027	.011	.0051	.0002	.0020	.0017	.0020	.0020
929534	292411	.032	.327	1.610	.008	.0011	.031	.175	.180	.005	.161	.004	.039	.011	.0063	.0003	.0020	.0015	.0020	.0020
930314	292623	.033	.349	1.650	.006	.0007	.040	.185	.170	.005	.158	.004	.038	.013	.0050	.0002	.0020	.0018	.0030	.0020
	292633	.033	.351	1.650	.007	.0009	.042	.186	.180	.006	.161	.004	.039	.013	.0055	.0002	.0030	.0018	.0030	.0020
	292635	.033	.354	1.660	.007	.0007	.041	.187	.180	.006	.160	.004	.040	.013	.0053	.0002	.0020	.0018	.0030	.0020
	292659	.033	.352	1.650	.007	.0007	.040	.185	.180	.005	.159	.004	.039	.013	.0056	.0002	.0020	.0018	.0030	.0020

Z03
third party stamp

SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT - DNV 1864
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EN 10225-1 : 2019
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Inspection representative voestalpine
Gobbicchi
Lantaler Norbert

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ONE STEP AHEAD.

Chemical composition (Product analysis) - part 2 of 2

B07 Heat No.	B06 Plate No	Pb %	Bi %	Cae %	Pcm %	LF01 %	LF02 %	Al/N
	>=							2.00
Set values	<=		.010	.0100	.41	.23	.120	.130	
736009	291133	.002	.0020	.36	.14	.041	.054	11.71
736926	292652	.002	.0020	.37	.15	.043	.055	8.78
836634	296717	.002	.0020	.36	.15	.042	.053	10.26
929534	292411	.002	.0020	.36	.15	.043	.054	4.92
930314	292623	.002	.0020	.37	.15	.042	.055	8.00
	>=							2.00
Set values	<=		.010	.0100	.41	.22	.120	.130	
735829	287565	.002	.0020	.36	.15	.042	.054	9.52
736009	289509	.002	.0020	.36	.14	.039	.052	11.11
	291133	.002	.0020	.36	.14	.041	.054	11.71
	292579	.002	.0020	.36	.14	.042	.055	10.75
736926	294666	.002	.0020	.38	.17	.032	.043	7.20
736927	292613	.002	.0020	.37	.15	.043	.056	8.11
	292624	.002	.0020	.37	.15	.043	.056	8.63
	292626	.002	.0020	.37	.15	.042	.056	8.49
	292629	.002	.0020	.37	.15	.041	.054	9.18
	292645	.002	.0020	.37	.15	.041	.054	8.00
840986	285719	.002	.0020	.36	.14	.042	.055	8.57
	287720	.002	.0020	.36	.14	.040	.053	8.54
841329	288720	.002	.0020	.35	.14	.042	.055	8.54
	292008	.002	.0020	.35	.14	.043	.056	7.78
841750	292002	.002	.0020	.39	.17	.034	.047	10.00
	292003	.002	.0020	.38	.17	.033	.046	11.71
	292004	.002	.0020	.39	.18	.035	.048	10.51
841752	292010	.002	.0020	.38	.17	.033	.046	10.00
	294333	.002	.0020	.38	.17	.032	.045	9.75
842367	299193	.002	.0020	.37	.16	.032	.043	7.65
929534	292411	.002	.0020	.36	.15	.043	.054	4.92
930314	292623	.002	.0020	.37	.15	.042	.055	8.00
	292633	.002	.0020	.37	.15	.043	.056	7.64
	292635	.002	.0020	.37	.15	.044	.057	7.74
	292659	.002	.0020	.37	.15	.043	.056	7.14

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Grobbauer
[illegible] Norbert

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Chemical composition (Product analysis) - part 2 of 2

B07 Heat No.	B06 Plate No	Pb %	Bi %	Cae %	Pcm %	LF01 %	LF02 %	Al/N
>=								2.00
Set values <=		.010	.0100	.41	.22	.120	.130	
931038	298855	.002	.0020	.36	.15	.046	.058	8.33

C99 - Supplementary information
Cae: C+(Mn/6)+(Cr+Mo+V)/5+(Ni+Cu)/15
Pcm: C+((Mn+Cu+Cr)/20)+(Si/30)+(Ni/60)+(Mo/15)+(V/10)+(B*5)
LF02: Nb+V+Ti
Al/N: Al/N
LF01: Nb+V

Remarks

Simulated heat treatment of test coupons:

Item 170-280, 300:
001/1: 1 cycle(s) sim. PWHT: furnace charge temperature at max. 400 °C, heating with max. 55 °C/h up to 580 °C, +10 °C/-10 °C, holding time 240 minutes, cooling with max. 55 °C/h down to 400 °C, final cooling in calm air.

We confirm that the above-mentioned delivery corresponds to the order (and standard).

C70 - Method of steelmaking: Basic oxygen furnace (BOF) steelmaking, continuous casting, steel is fully killed, vacuum degassed and melted by fine grain practice, austenitic grain size 5 or finer.

The signature of the inspection representative from voestalpine Grobblech GmbH is substituted by a electronic Signature, because the certificates of voestalpine Grobblech GmbH are prepared by a suitable data processing system (EN 10204, Pt.5).

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i.V. MEIX Norbert

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D02-D50 - ULTRASONIC EXAMINATION PLATE(S)

SPECIFICATION

Item 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 310
Ultrasonic test acc. EN 10160, EN 10160 class S3/Body, Grid 100 mm, EN 10160 class E4/Edge Zone, Edge zone longitudinal 50 mm, Edge zone transverse 50 mm; satisfactory
Item 170, 180, 190, 200, 210, 220, 230, 240, 270, 280, 300
Ultrasonic test acc. EN 10160, EN 10160 class S3/Body, Grid 100 mm, EN 10160 class E4/Edge Zone, Edge zone longitudinal 75 mm, Edge zone transverse 75 mm; satisfactory
Item 250, 260
Ultrasonic test acc. EN 10160, EN 10160 class S3/Body, Grid 100 mm, EN 10160 class E4/Edge Zone, Edge zone longitudinal 100 mm, Edge zone transverse 100 mm; satisfactory

VALID TEST EQUIPMENT
mechanized ultrasonic "In-Line testing system" (Manufacturer: NDT-Systems & Services) and
mechanized ultrasonic "off-line - testing system" (manufacturer: Windhoff Bahn- und Anlagentechnik GmbH) and
MUT (optional): Sonatest D20 no. 90006523 or Sonatest D20 no. 90007346 or Sonatest Masterscan 380 no. 90007347 or Sonatest Masterscan 380 no. 90006522 or Sonatest D50 no. 90010231 or GE - USM 36 no. 90010775

PROBE
(in-line AUT): 3STSE 18.3/8 P5, SEZ5R10RS, SE3 18.3/10 5A, (5MHz)
(off-line AUT): S140 (4MHz) 3T/1R
(MUT): SEB4E (4MHz), SEB4E0° (4MHz), MSEB4E (4MHz), B2SO (2MHz)
watergapcoupling

SURFACE CONDITION
Scaled surface - cleaned surface and free of loose scale.

RESULT
Plate(s) comply with the specification.

INSPECTION OPERATOR
Operators Level 1 or 2: qualified and certified according EN ISO 9712 (since 01.01.2013) respectively according the Written Practice „NDT-WP" (in accordance to Recommended Practice SNT-TC-1A). Operators Level 2 for ASME/ASTM.

INSPECTION SUPERVISOR
Responsible Level 3: Bindreiter Erich

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Inspection representative voestalpine
Globbiek
LIN1VKR Norbert

voestalpine
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SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT
1864
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Inspection representative voestalpine
Grobblech
i.V. Norbert

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ONE STEP AHEAD.

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO
ISP N° 069 E
Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

WELDING PROCEDURE QUALIFICATION RECORD (WPQR)

N. 23TO001006PW\4A

Manufacturer **SCANDIUZZI STEEL CONSTRUCTIONS SpA - Volpago del Montello (TV)**

WPQR No. **2308-136-TC4** Dated **01/12/2023**

Manufacturer's welding procedure (WPS) No. **p-2308-136-TC4** Dated **08/11/2023** Date of welding **13/11/2023**

RANGE OF APPROVAL

Welding process	**136** Type **Partly mechanized**
Joint type	**Plates and Pipes and build-up BW ssmb-bs/FWUNI EN ISO 15614-1** **Plates and Pipes BW ssmb-bs/FW RINA Rules**
Single/Multiple pass	**Multiple** (**Impact and hardness properties apply**)
Parent material group(s)	**2-2, 1-1, 2-1** ISO/TR 15608; ISO/TR20172; ISO/TR 20173; ISO/TR20174 Steels with a specified minimum yield strength ≤ 460 MPa
Steel grades	**EH460;DH460;EH420;DH420** according to Pt D, Ch 2, Sec1 of RINA Rules
Parent material thickness (mm)	Butt Joint = **12,5 to 50,0** Fillet Joint t_1 **= 3,0 to 50,0** t_2 **= 3,0 to 50,0 For EN 15614-1** Butt Joint = **12,5 to 50,0**Fillet Joint t_1 **= 12,5 to 50,0** t_2 **= 12,5 to 50,0 For RINA RULES**
Throat thickness (mm)	**No restriction** For EN 15614-1 **12,5 to 50,0** for RINA RULES
Weld deposit thickness (mm)	**Max 50,0**
Outside diameter (mm)	**Over 500 For EN 15614-1 and RINA RULES**
Filler metal type	**N.A. for EN 15614-1 ; Diamonspark Ni1 RC for RINA RULES**
Flux make	**N.A.** Flux Designation: **N.A.**
Filler metal type	**Flux-cored wire EN ISO 17632-A : T50 6 1Ni P M 1 H5**
Shielding gas (ISO 14175)	**M21 with CO_2% min.14,4 max.21,6** Backing gas (ISO 14175) **None**
Type of welding current	**DCEP** Heat input Kj/cm **Min. 8,0 ; Max 30,1**
Welding position	**PF** Transfer Mode **N.A.**
Preheat min. (°C)	**+50 ISO 15614-1** (if ISO/TR 17671-2 requirements are fulfilled) Interpass temp. Max. (°C) **+200 UNI EN ISO 15614-1**
Preheat min. (°C)	**50 RINA Rules** Interpass temp. Max. (°C) **+200 RINA Rules**
Post weld heat treatment / Ageing	**None**
Other information	-

Welders name **Radu Sandu** Stamp No. **RS**

Welding test conducted by **SCANDIUZZI STEEL CONSTRUCTIONS SpA - Volpago del Montello (TV)**

Mechanical test conducted by **GLOBAL TEST srl - Marcon (VE)** Laboratory test No. **30250**

At presence of RINA Surveyor **P. Danesin**

We certify that the statements in this certificate are correct and that the test welds were prepared, welded and tested in accordance with **UNI EN ISO 15614-1: 2019** Standard ; **RINA Rules for the Classification of Ships and EEMUA Pub. 158 Ed. 3** requirements**.**

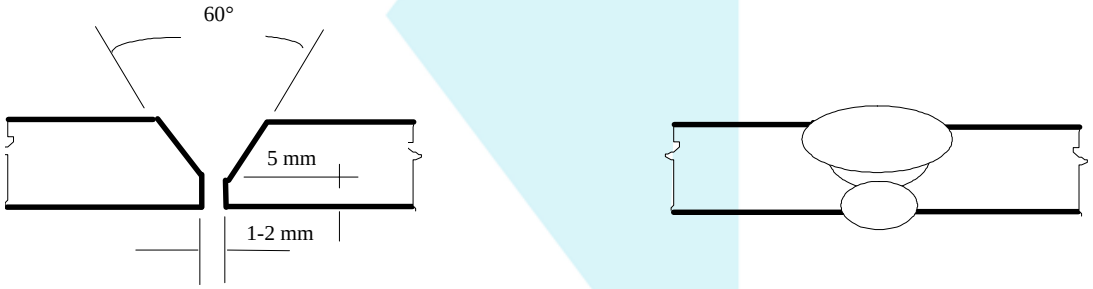
Issued at: Genova on **01 December 2023**

RINA Services S.p.A.
PED No. Bo. 0474

JOINT DETAILS AND WELDING SEQUENCES

PLATE TO PLATE SINGLE-V - BUTT JOINT; ONE SIDE WELDING WITH CERAMIC BACKING

Pass No.	Process	Filler metal diam. (mm)	Filler metal classification	Amps	Volt	Travel speed (cm/min)	Heat input (kJ/cm)	Metal Transfer mode
1	**136**	**1,2**	**T50 6 1Ni P M 1 H5**	**215**	**24,0**	**10,3**	**24,0**	**N.A.**
2-3	**136**	**1,2**	**T50 6 1Ni P M 1 H5**	**225**	**24,0**	**17,7**	**14,6**	**N.A.**
4	**136**	**1,2**	**T50 6 1Ni P M 1 H5**	**220**	**24,5**	**14,3**	**18,1**	**N.A.**
5	**136**	**1,2**	**T50 6 1Ni P M 1 H5**	**225**	**24,2**	**24,0**	**10,9**	**N.A.**
6-7	**136**	**1,2**	**T50 6 1Ni P M 1 H5**	**228**	**24,5**	**22,8**	**11,8**	**N.A.**
8-9	**136**	**1,2**	**T50 6 1Ni P M 1 H5**	**228**	**24,5**	**23,6**	**11,4**	**N.A.**
10-13	**136**	**1,2**	**T50 6 1Ni P M 1 H5**	**232**	**24,2**	**24,8**	**10,9**	**N.A.**
14-17	**136**	**1,2**	**T50 6 1Ni P M 1 H5**	**230**	**24,2**	**25,0**	**10,7**	**N.A.**
18-22	**136**	**1,2**	**T50 6 1Ni P M 1 H5**	**240**	**23,7**	**25,0**	**10,9**	**N.A.**



PARENT MATERIAL

Material specification	**T_1 = EN 10225-2 to T_2 = EN 10225-2**
Type or grade	**T_1 = S460 MLO to T_2 = S460MLO**
Steel grade	**N.A.(EH460)** according to Pt D, Ch 2, Sec 1 of RINA Rules
Group(s)/Subgroup(s) No. (ISO/TR 15608)	**T_1 = 2.1 to T_2 = 2.1**
Thickness (mm)	**T_1 = 25,0 to T_2 = 25,0** Throat thickness (mm) **N.A.**
Diameter (mm)	**D_1 = N.A. to D_2 = N.A.**
Branch connection angle	**N.A.**
Other	**Heat 736009**

WELDING CONSUMABLES

Process	**136**
Trade name(s)	**DIAMONDSPARK Ni1 RC**
Specification	**EN ISO 17632-A**
Classification / designation	**T 50 6 1Ni P M 1 H5**
Size (mm)	**1,2**
Deposited metal thickness	
Groove	**20,0 mm**
Throat	**N.A.**
Flux trade name	**N.A.**
Consumable insert	**N.A.**
Other	**Heat 1076112**

GAS

	Gas	Mixture	Flow rate (l/min.)
Shielding	-	**Ar 82% + CO_2 18%**	**18**
Trailing	-	-	-
Backing	-	-	-

POSITION

Welding position **PF**

Other

PREHEAT

Preheat temperature **Min +50°C**

Interpass temperature **Max +200°C**

Other

POSTWELD HEAT TREATMENT

Temperature **N.A.**

Time **None**

Other

ELECTRICAL CHARACTERISTICS

Current **DCEP**

Ampere (range) **See table** Volts (Range) **See table**

Mode of metal transfer **N.A.**

Tungsten electrode size and type **N.A.**

Other **N.A.**

TECHNIQUE

Travel speed (range) **See table**

String or weave bead **Weave**

Oscillation (*) **N.A.**

Method of groove/edge preparation **Machining/Grinding**

Interpass cleaning **Machining/Grinding**

Method of back gouging **N.A.**

Orifice or gas cup size **18 mm**

Stand off distance (*) **16-18 mm**

Multiple or single pass **Multiple**

Multiple or single electrodes **Single**

Torch angle (*) **N.A.**

Other (*) for fully mechanized/robotic only

TRANSVERSE TENSILE TEST						
Spec. (No.)	Width (mm)	Thickness (mm)	Area (mm^2)	Total load (N)	R_m. (N/mm^2)	Fracture location
13620\36	**25,01**	**24,55**	**614,0**	**366619**	**597**	**Ductile failure out weld**
13620\37	**25,02**	**24,78**	**620,0**	**372246**	**600**	**Ductile failure out weld**

ALL-WELD METAL TENSILE TEST							
Spec. (No.)	Diameter (mm)	Area (mm)	L_0 (mm)	Rp0,2% (N/mm^2)	Tensile strength (N/mm^2)	A (%)	Note
13620\38	**12,45**	**121,7**	**50,0**	**588**	**651**	**23,7**	**68,7**

BEND TEST			
Type	No.	Bend Angle	Result
SIDE TRANSVERSE	**4 OFF**	**180°**	**Acceptable**

IMPACT TEST

Full size 10x10x55

Spec No.	Notch location	Notch type	Test Temp. (°C)	Impact values (J)	Average (J)
VWT $_{0/2}$	**WELD**	**ISO-V**	**-40**	**294-293-281**	**289**
VHT $_{0/2}$	**FL**	**ISO-V**	**-40**	**274-277-261**	**271**
VHT $_{2,0/2}$	**FL+2**	**ISO-V**	**-40**	**265-266-254**	**262**
VHT $_{5,0/2}$	**FL+5**	**ISO-V**	**-40**	**284-273-222**	**260**
VWT $_{0/13}$	**WELD**	**ISO-V**	**-40**	**287-216-294**	**266**
VHT $_{0/13}$	**FL**	**ISO-V**	**-40**	**283-287-271**	**280**
VHT $_{2,0/13}$	**FL+2**	**ISO-V**	**-40**	**269-257-241**	**256**
VHT $_{5,0/13}$	**FL+5**	**ISO-V**	**-40**	**273-277-281**	**277**

HARDNESS TEST		
Location	Type/load	Maximum value
Parent metal(s)	**HV10**	**204**
H.A.Z.(s)	**HV10**	**215**
Weld metal	**HV10**	**236**

OTHER TEST

MACROGRAPHIC EXAMINATION	**Acceptable**
MICROGRAPHIC EXAMINATION	**Not required**

NON DESTRUCTIVE EXAMINATION

VISUAL EXAMINATION	**Acceptable See report 2300-136 PF VT**
RADIOGRAPHIC EXAMINATION	**Acceptable See report 2512-23**
PENETRANT TEST	**Not required**
MAGNETIC PARTICLE	**Acceptable See report 2300-136 PF MT**
ULTRASONIC TEST	**Not required**

Issued at: Genova on **01 December 2023**

RINA Services S.p.A.
PED No. Bo. 0474

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ORDINE / ORDER N° Conforme Ordine	DATA / DATE 17/11/2023
RAPPORTO DI PROVA N° / TEST REPORT **30250**	DATA / DATE 01/12/2023
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RAPPORTO DI PROVA / TEST REPORT

Prodotto Product	Id. Cliente Client Id.	Ricevuto il Received on	Id. Global Test Global Test Id.	Dimensioni dichiarate Declared dimensions	Materiale dichiarato Declared material	Note Remarks
Weld Coupon	WPS p-2308-136-TC4	15/11/2023	13620	Thk 25 mm	S460 MLO EN 10225-2	Welding Process: 136 Welding Type: Partly Mechanized Welding Process: PA Welder: Radu Sandu (RS) Pr. RINA: 2023 TO PW 1006 **Qualifica procedimento** **UNI EN ISO 15614-1:2019 Lev.2** **+ RINA RULES** **+ EEMUA Pub.158 Ed.3**

Prove eseguite e Normative di riferimento Performed Tests and Reference Standards	Eseguita il Performed on	Esecuzione Testing by
Room temperature tensile test according to UNI EN ISO 4136:2022 + UNI EN ISO 6892-1:2020	01/12/2023	Sede A ☒ Sede B ☐ Altro ☐
Room temperature tensile test according to UNI EN ISO 5178:2019 + UNI EN ISO 6892-1:2020	01/12/2023	Sede A ☒ Sede B ☐ Altro ☐
Bend test according to UNI EN ISO 5173:2023	27/11/2023	Sede A ☒ Sede B ☐ Altro ☐
Charpy Impact test according to UNI EN ISO 148-1:2016 + UNI EN ISO 9016:2022	01/12/2023	Sede A ☒ Sede B ☐ Altro ☐
Macrographic examination according to UNI EN ISO 17639:2022	27/11/2023	Sede A ☒ Sede B ☐ Altro ☐
Hardness test according UNI EN ISO 6507-1:2018	27/11/2023	Sede A ☒ Sede B ☐ Altro ☐

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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Room temperature tensile test according to UNI EN ISO 4136:2022 + UNI EN ISO 6892-1:2020

Standards Correlati - Related Standards
None

PROVA DI TRAZIONE / TENSILE TEST

Identificativo Campione Sample Identification		**Provino** Specimen	**Posizione** Position	**Dimensioni** Dimensions	**Area** Area	**Carico Max** Maximum Load F_m	**Carico Rottura** Ultimate Tensile Strength **Rm**	**Aspetto frattura** Fracture Appearance	**Zona rottura** Fracture Location
Cliente / Client	**Lab.** / Lab.			mm	mm^2	N	MPa		
WPS p-2308-136-TC4	13620 / 36	F	TW	24.55 x 25.01	614.0	366619	597	Ductile	Out Weld
WPS p-2308-136-TC4	13620 / 37	F	TW	24.78 x 25.02	620.0	372246	600	Ductile	Out Weld

Posizione: *Position:*	**Tipo di campione:** *Specimen Tipe:*	**Tipo di velocità di prova:** *Testing Rate method:*
TB: trasversale in materiale base / transversal on base metal LB: longitudinale in materiale base / longitudinal on base metal TW: trasversale attraverso saldatura / transversal across weld metal LW: longitudinale su saldatura / longitudinal on weld metal	F – prismatica / flat C – cilindrica / cilyndrical T – tubo intero / entire pipe P – provetta da tubo / specimen from pipe	"A224" method

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ORDINE / ORDER N°	DATA / DATE
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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Room Temperature tensile test according to UNI EN ISO 5178:2019 + UNI EN ISO 6892-1:2020

Standards Correlati - Related Standards
EEMUA Pub.158 Ed.3 Para 4.4.4.2

PROVA DI TRAZIONE / TENSILE TEST

Identificativo Campione Sample Identification		**Provino** Specimen	**Posizione** Position	**Dimensioni** Dimensions	**Area** Area	**Lunghezza Iniziale** Original Length L_0	**Snervamento** Yield Strength **Rp0.2%**	**Rottura** Tensile Strength **Rm**	**Allungamento** Elongation **A**	**Strizione** Area Reduction **Z**	**Zona di rottura** Break position
Cliente / Client	**Lab.** / Lab.			mm	mm^2	mm	MPa	MPa	%	%	
WPS p-2308-136-TC4	13620 / 38	C	LW	Ø 12.45	121.7	50.0	588	651	23.7	68.7	***

Posizione: *Position:*	**Tipo di campione:** *Specimen Tipe:*	**Tipo di velocità di prova:** *Testing Rate method:*
TB: trasversale in materiale base / transversal on base metal LB: longitudinale in materiale base / longitudinal on base metal TW: trasversale attraverso saldatura / transversal across weld metal LW: longitudinale su saldatura / longitudinal on weld metal	F – prismatica / flat C – cilindrica / cilyndrical T – tubo intero / entire pipe P – provetta da tubo / specimen from pipe	"A224" method

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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Bend test according to UNI EN ISO 5173:2023

Standards Correlati - Related Standards
None

PROVA DI PIEGA / BEND TEST

Identificativo Campione Sample Identification		Posizione Position	Dimensioni Dimensions	Mandrino Jig	Angolo Angle	Distanza Rulli Rolls Distance	Esito Results
Cliente / Client	**Lab.** / Lab.		mm	mm	mm	mm	
WPS p-2308-136-TC4	13620 / 39	SBB	24.7 x 10.3	40	180°	63	Not defects noted according to UNI EN ISO 15614-1:2019 Par. 7.4.2 (*)
WPS p-2308-136-TC4	13620 / 40	SBB	24.9 x 10.3	40	180°	63	Not defects noted according to UNI EN ISO 15614-1:2019 Par. 7.4.2 (*)
WPS p-2308-136-TC4	13620 / 41	SBB	24.7 x 10.4	40	180°	63	Not defects noted according to UNI EN ISO 15614-1:2019 Par. 7.4.2 (*)
WPS p-2308-136-TC4	13620 / 42	SBB	24.8 x 10.4	40	180°	63	Not defects noted according to UNI EN ISO 15614-1:2019 Par. 7.4.2 (*)

Tipo di provino: *Specimen Type:*	**Note:** Remarks:
TFBB: Piega trasversale al dritto / transversal face bend test TRBB: Piega trasversale al rovescio / transversal root bend test SBB: Piega trasversale laterali / transversal side bend test	Testing Procedure: Former Bend Test Test Temperature: (23±5)°C

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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Charpy Impact test according to UNI EN ISO 148-1:2016

Standards Correlati - Related Standards
UNI EN ISO 9016:2022 + EEMUA Pub.158 Ed.3 Para 4.4.4.2(*)

PROVA DI RESILIENZA / CHARPY IMPACT TEST

Identificativo Campione Sample Identification		Temperatura Temperature	Posizione Position	Dimensioni Dimensions	Intaglio Notch	Resilienza Impact energy Joule				Espansione laterale Lateral expansion mm			
Cliente / Client	**Lab.** / Lab.	°C		mm		1	2	3	AVG	1	2	3	AVG
WPS p-2308-136-TC4	13620 / 43	- 40	VWT 0/2	10.0 x 10.0	KV_2	294	293	281	289	2,21	2,19	2,11	2,17
WPS p-2308-136-TC4	13620 / 44	- 40	VHT 0/2	10.0 x 10.0	KV_2	274	277	261	271	2,11	2,16	2,03	2,10
WPS p-2308-136-TC4	13620 / 45	- 40	VHT 2/2	10.0 x 10.0	KV_2	265	266	254	262	2,08	2,09	2,01	2,06
WPS p-2308-136-TC4	13620 / 46	- 40	VHT 5/2	10.0 x 10.0	KV_2	284	273	222	260	2,11	2,07	1,84	2,01
WPS p-2308-136-TC4	13620 / 47	- 40	VWT 0/13	10.0 x 10.0	KV_2	287	216	294	266	2,14	2,11	2,31	2,19
WPS p-2308-136-TC4	13620 / 48	- 40	VHT 0/13	10.0 x 10.0	KV_2	283	287	271	280	2,18	2,03	2,14	2,12
WPS p-2308-136-TC4	13620 / 49	- 40	VHT 2/13	10.0 x 10.0	KV_2	269	257	241	256	2,15	2,07	2,61	2,28
WPS p-2308-136-TC4	13620 / 50	- 40	VHT 5/13	10.0 x 10.0	KV_2	273	277	281	277	2,11	2,01	2,41	2,18

Posizione provino: *Position of specimen:*	**Note:** *Remarks:*
BM: Materiale Base / Base Metal VHT: Linea di Fusione / Fusion Line VWT: Zona Fusa / Weld Metal	Tempo di condizionamento provini: >15 min Conditioning time: >15 min 1) Valore approssimativo KV eccede 80% della capacità dell'apparecchiatura - Approximate KV value exceeds 80% of the equipment's capacity 2) Valore approssimativo di provino non rotto – Approximate value of unbroken specimen

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LAB N° 1230 L

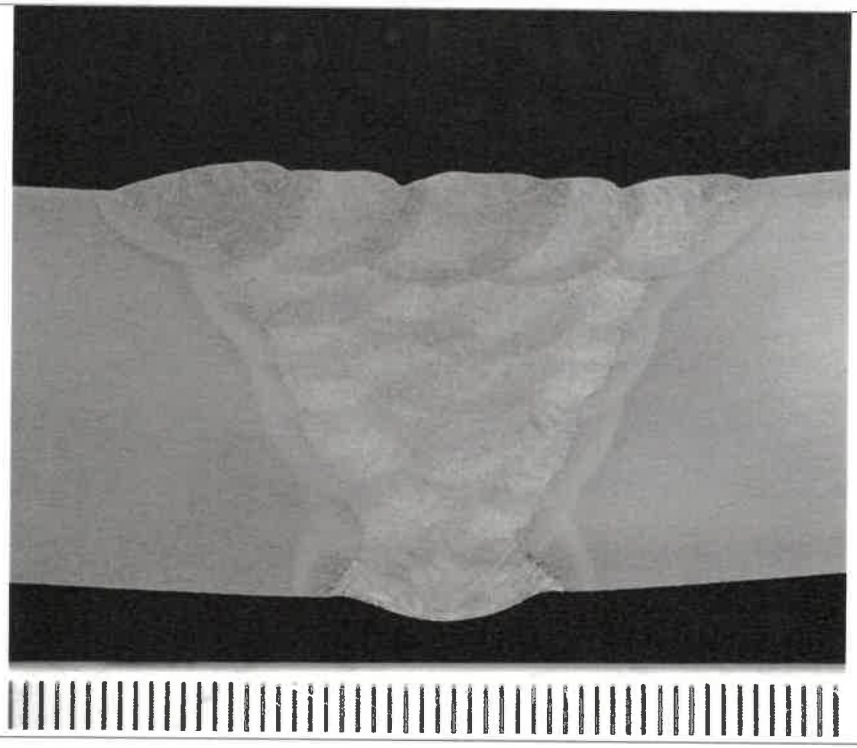
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30250	01/12/2023
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Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Macrographic examination according to UNI EN ISO 17639:2022

Standards Correlati - Related Standards
UNI 3138:1984

ESAME MACROGRAFICO / MACROGRAPHIC EXAMINATION



Identificativo Campione Sample Identification	**Cliente** Client	WPS p-2308-136-TC4
	Lab. Lab.	13620 / 51
Posizione Prelievo / Sampling position **Zona Esaminata** / Examinated Area		Transversal Weld Joint
Tipo di saldatura/ Weld Joint type		Butt Weld
Tipo di Attacco / Etching Type		Nital 10%
Metodo di attacco / Ethching method		Immersione – 30s Swabbing – 30s
Designazione / Designation		Esame-ISO 17639-A-E-2.1/2.1-2.1/2.1-A.1
Esito / Result (*)		No defects noted according to UNI EN ISO 5817:2023 Lev. B + UNI EN ISO 15614-1:2019 Lev.2 Para 7.5

Approvato da: RESPONSABILE LABORATORIO
Marco Canato
GLOBAL TEST Srl

Spazio riservato ad eventuali approvazioni esterne / Space reserved for possible external approvals

RINA
P. Dan...
RINA Services S.p.A.

GLOBAL TEST srl

LAB N° 1230 L

Seda A: legale, amministrativa e operativa
Via Venier,21/B – 30020 Marcon (VE)
Tel 041923994 - E-mail: laboratorio@globaltest.it
Seda B: operativa
Via A. Moro 10/C, 45026 Lendinara (RO)

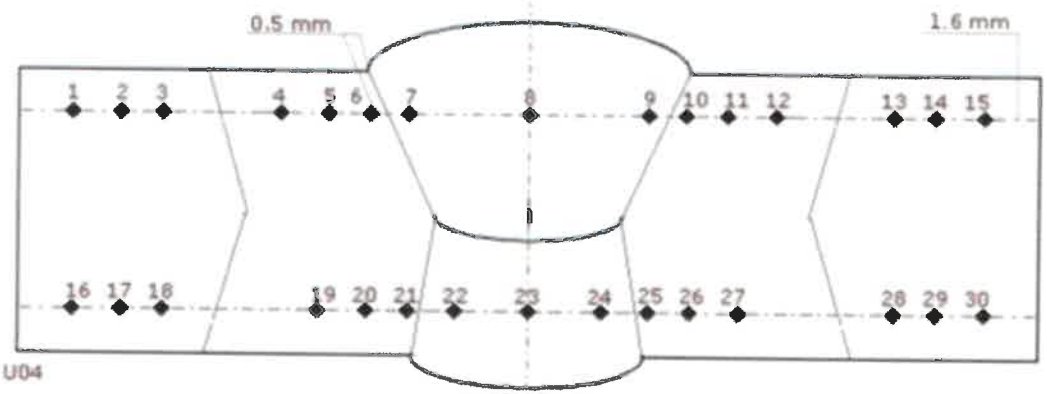
CLIENTE / CUSTOMER	
SCANDIUZZI STEEL CONSTRUCTIONS S.r.l. Via Piave, 14 - 31040 Volpago Del Montello (TV)	
ORDINE / ORDER N° Conforme Ordine	DATA / DATE 17/11/2023
RAPPORTO DI PROVA N° / TEST REPORT **30250**	DATA / DATE 01/12/2023
	PAG. 7 di 9

Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards
Hardness test according to UNI EN ISO 6507-1:2018

Standards Correlati - Related Standards
UNI EN ISO 9015-1:2011

PROVA DI DUREZZA / HARDNESS TEST

Identificativo Campione / Sample Identification		Prova di durezza / Hardness Test
Cliente / Client	**Lab.** / Lab.	
WPS p-2308-136-TC4	13620 / 51	HV10



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
193	197	195	197	194	201	221	229	236	215	197	196	204	198	203
16	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
190	188	195	186	192	193	188	193	192	204	203	198	201	201	195

Approvato da: RESPONSABILE LABORATORIO
Marco Canato
GLOBAL TEST Srl

Spazio riservato ad eventuali approvazioni esterne / Space reserved for possible external approvals

RINA
Danesin
RINA Services S.p.A.

GLOBAL TEST srl

LAB N° 1230 L

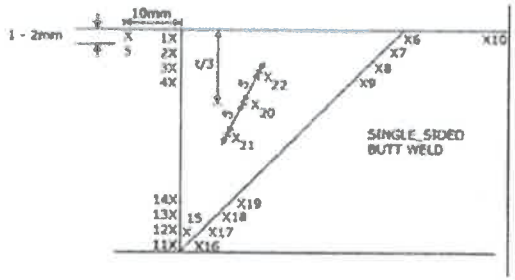
Seda A: legale, amministrativa e operativa
Via Venier,21/B – 30020 Marcon (VE)
Tel 041923994 - E-mail: laboratorio@globaltest.it
Seda B: operativa
Via A. Moro 10/C, 45026 Lendinara (RO)

CLIENTE / CUSTOMER	**SCANDIUZZI STEEL CONSTRUCTIONS S.r.l.** Via Piave, 14 - 31040 Volpago Del Montello (TV)
ORDINE / ORDER N°	DATA / DATE
Conforme Ordine	17/11/2023
RAPPORTO DI PROVA N° / TEST REPORT	DATA / DATE
30250	01/12/2023
	PAG. 8 di 9

Prove eseguite e Normative di riferimento - Performed Tests and Reference Standards	Standards Correlati - Related Standards (*)
Hardness test according to UNI EN ISO 6507-1:2018	EEMUA Pub.158 Ed.3 Para 4.4.4.4(*)

PROVA DI DUREZZA / HARDNESS TEST

Identificativo Campione Sample Identification		**Prova di durezza** Hardness Test
Cliente / Client	**Lab.** / Lab.	
WPS p-2308-136-TC4	13620 / 51	HV10



EEMUA Pub. 158 Ed.3 - Fig.8
Locations of indents for hardness surveys

1	2	3	4	5	6	7	8	9	10	11
195	198	197	193	191	192	199	191	194	197	207
12	13	14	15	16	17	18	19	20	21	22
212	211	219	216	207	211	219	209	197	193	192

Approvato da: RESPONSABILE LABORATORIO
Marco Canato
GLOBAL TEST Srl

Spazio riservato ad eventuali approvazioni esterne / Space reserved for possible external approvals

STRUMENTI USATI PER LE PROVE / EQUIPMENT USED FOR TESTS

Equipment used	Trademark		Calibration expiry (±15 days)
Digital Caliper	Borletti CDJB15	Sn: 032819-186295	27/10/2025
Tensile Test Machine – 1200kN	GALDABINI QUASAR 1200	Sn: VB3Z	13/03/2024
Electronic Exstensometer	GALDABINI MICRO	Sn: 34547	13/03/2024
Hydraulic Press	OMCN P30/MR	Sn: 589557	-
Charpy pendulum	Wolpert PW30/15K	Sn: 1216	13/03/2024
Digital Thermometer + Probe	TC Direct + PT100	Sn: 220606695 + 220606695/PT100	05/12/2023
Camera	CANON EOS 4000D	Sn: 153070020586	-
Hardness Testing Machine	QNESS Q30A+	Sn: Q1788/02/20	13/03/2024

(*) Metodo di prova non accreditata da ACCREDIA – Ente Italiano di Accreditamento
Test method not accredited by ACCREDIA - Italian Accreditation System

La decorrenza del presente Rapporto di Prova coincide con la data di emissione del documento, posta in alto a destra. Non rileva il fatto che la firma digitale sia eventualmente apposta successivamente.
The effective date of this Test Report corresponds with the emission date, placed in the upper right corner. It does not have relevance the fact that the digital signature is eventually affixed afterwards.

Approvato da: RESPONSABILE LABORATORIO	Spazio riservato ad eventuali approvazioni esterne / Space reserved for possible external approvals
Marco Canato GLOBAL TEST Srl	

SCANDIUZZI	RAPPORTO DI ESAME VISIVO VISUAL EXAMINATION REPORT	RAPPORTO n°: Report Nr.: ***2300-136PF - VT*** FOGLIO / SHEET 1

CLIENTE / CUSTOMER	PURCHASE ORDER	COMMESSA / JOB
Scandiuzzi	/	***2300 - 138***

PROGETTO / PROJECT:	Welding procedure qualification record acc. to **EN ISO 15614-1 : 2019**
ITEM	Test coupon marked **2308-136-TC4** – welder stamp : **"RS "** (*RADU SANDU*)

SPECIFICA DI RIFERIMENTO PER ESECUZIONE DEL CONTROLLO: Reference specification applied :	**EN 17637**
CRITERI DI ACCETTABILITA' DIFETTI: Acceptance criteria:	**EN 5817 level B**
CONDIZIONE SUPERFICIALE DEL MATERIALE BASE: Superficial condition of base material:	**As rolled – brushed**
CONDIZIONE SUPERFICIALE DELLE SALDATURE: Superficial condition of welding:	**As welded**
ESTENSIONE DEL CONTROLLO: Test Extension:	**100%**
DISEGNO: Drawing:	**see WPS 2308-136 –TC4**
IDENTIFICAZIONE DELL' OGGETTO DA ESAMINARE: Object identification	**West test coupon stamped 2308-136–TC4– welder stamp : "RS"**
MATERIALE: Material:	**S460 MLO EN 10225-2**
TIPO GIUNTO: Type of joint:	**single V butt weld - multipass – PF**
SPESSORE MATERIALE Material Thickness	**25 mm**
PROCESSO DI SALDATURA Welding process	**136– FCAW –rutile flux cored wire**
DISPOSITIVI D' ESAME USATI Examination devices used:	**weld gauge**

RISULTATO D' ESAME
Result of examination: [X] Conforme / **Acceptable** [ ] Non conforme / **Not acceptable**

Note : **test coupon welded in PF position –**
Light intensity during test : 1000lux

Data : Date:	SCANDIUZZI INSPECTOR	No.Bo. Inspector	T.P. INSPECTOR
13 /11/2023	SCANDIUZZI STEEL CONSTRUCTIONS S.p.A. ITALY QUALITY CONTROL A.Simonetto	RINA P. Dan...	

SCANDiUZZi

VERBALE DI CONTROLLO MAGNETOSCOPICO: 2300-136PF- MT

MT EXAMINATION REPORT

DATI METODO DI CONTROLLO

TEST METHOD

Data: 14-11-2023 *Date:*	Costruttore: *Manufacturer :*	Scandiuzzi Steel Constructions Spa

Oggetto: **Weld test coupon for WPQR and WPQ** (Welder Name : Radu Sandu) *Object:*

Sigla: *Item:*	2308-136-TC4	Commessa: *Shop Order:*	2300-138	Disegno: *Drawing:*	WPS 2308-138-TC3
Welder Stamp	"RS "	N.F. : *S.N.:*	See below	Proc. sald. : *Welding process*	136

Materiale : *Material:*	Sp. (mm) : *Thickness (mm):*	Particolare : *Component:*	Estensione controllo : *Test Extensions:*
S S60 MLO EN 10225 - 2	25	SINGLE V FULL PEN. WELD	100%

Specifica di riferimento : *Reference Specification :*	EN ISO 17638 Scandiuzzi proc. PR –MT- 00	Classe di accettabilità : *Acceptance Criteria:*	EN ISO 5817 level B - ISO 23278 LEV. 2X

Condizioni superficiali : *Surface conditions:*	Stadio di lavorazione : *Working Step:*	Preparazione superficiale : *Surface Pre-Cleaning:*	Temperatura d'esame (C°): *Test Temperature:*
As Welded	After welding	Brushed	Room

Apparecchiatura : YOKE TWIST CGM *Equipment:* — Matricola : / *Serial:* — Data ultima taratura : *Date of last sensitività test:* Pull test before check starting

☐ Puntali *Prodes*	☐ Bobina *Induction coil*	☒ Giogo *Yoke*
Direzione di magnetizzazione: *Direction of magnetization:* /	Direzione di magnetizzazione: *Direction of magnetization:* /	Direzione di magnetizzazione: *Direction of magnetization:* Longitudinal
Corrente: / *Current:*	Corrente: / *Current:*	Corrente: AC *Current:*
Distanza puntali (mm): / *Prodes spacing(mm):*	Lunghezza (mm): / *Lenght(mm):*	Distanza puntali (mm): 100 *Prodes spacing(mm):*
Copri puntali: / *Prodes cover:*	Diametro (mm): / *Diameter(mm):*	
	Numero di spire: / *Number of coil:*	

Metodo di controllo : Continuous *Examination method:*

Verifica campo magnetico : Lifting test 4,5 kg *Magnetic field check:*

☐ SECCO *DRY* — ☒ UMIDO *WET*

Rivelatore : / *Developer:*	☒ CONTRASTO COLORE ☐ FLUORESCENTE
Colore : / *Color:*	*Lacca di contrasto:* ELITE FLAW FINDR – WBL -5 *Paint contrast:*
Lanciapolvere : / *Dustlaunch:*	Rivelatore : ELITE FLAW FINDR – BLACK BW – 2 *Developer :*
Lacca di contrasto : / *Paint contrast:*	Sospensione liquida: KEROSENOIL *Wet:*
Smagnetizzazione : / *Demagnetization:*	Smagnetizzazione : NOT REQUIRED *Demagnetization:*

Luce d'ispezione : 1000 lux *Inspection light:*

ESITO DEL CONTROLLO

TEST RESULTS

IDENTIFICAZIONE *Identification*	N° Pcs.	DISCONTINUITA' *Discontinuity*	LARGHEZZA (mm) *Width(mm)*	LUNG.(mm) *Lenght(mm)*	DWG	ESITO *Result*
2308-136-TC4 + RS	1	-	-	-	WPS 2308-136-TC4	ACCEPTABLE

OPERATORE *Welder WPQ Result EN ISO 9712 Operator*	ISPETTORE CLIENTE *Customer Inspector*	AUTORITA' CONTROLLO *Authority Control*
SCANDIUZZI STEEL CONSTRUCTIONS S.p.A. ITALY QUALITY CONTROL A.Simonetto	RINA P.Dalesio RINA Services	

TRM ndt S.r.l.
Controlli non distruttivi

Via G. Tiepolo,16/B - 31021 Mogliano Veneto(TV)-Italy
Telefono - Fax: 041-5906946
p.I./c.f.:04005440278
info@trmndt.it tecnico@trmndt.it trmndtsrl@legalmail.it
www.trmndt.it

CERTIFICATO DI CONTROLLO RADIOGRAFICO – RADIOGRAPHIC EXAMINATION REPORT

RT 2512-23 Data: 15-11-2023

Cliente: *Customer:*	Scandiuzzi Steel Constructions SpA	Particolare: *Component:*	Saldature testa testa - Butt welds
Impianto: *Plant:*	Weld test coupon for welding procedure qualification record	Proc. saldat.: *Welding process:*	136
Oggetto: *Object:*	WPQR 2308 -136- TC4	Materiale: *Material:*	S460 MLO EN 10225-2
Ordine *Order:*		Estens. test: *Test Extension:*	100%
P.O.: *P.O. job:*	-	Spessore (mm) : *Thickness (mm):*	25
Sigla: *Item:*	-	Temperatura d'esame (°C): *Test Temperature (°C):*	-
Commessa: *Shop order:*	2300-138	Condizioni superficiali: *Surface conditions:*	Come saldato-As welded
Nr. Fabbrica: *Serial Nr.:*	2308 -136- TC4	Stadio lavorazione: *Working step:*	Dopo saldatura-After welding
Disegno: *Drawing:*	WPS 2308-136-TC4	Punzone saldatore *Welder stamp*	RS (Radu Sandu)

PROCEDURA E TECNICA DI CONTROLLO - *PROCEDURE AND TEST METHOD*

Specifica di riferimento: *Specific Reference:* UNI EN ISO 17636-1 Cl.B

Classe di accettabilità: *Acceptance criteria:* UNI EN ISO 10675-1 Liv.1

CODICI DELLE DISCONTINUITA' - *DISCONTINUITY CODE:*

12	Difetto film *Film Defect*	202	Cavità di ritiro *Shrinkage cavity*	402	Mancanza penetrazione *Lack of penetration*	517	Ripresa difettosa *Poor restart*	2013	Nido di soffiature *Clustered porosity*
100	Cricche *Crack*	300	Inclusioni solide *Solid inclusion*	500	Irregolarità di maglia *Irregular shape*	600	Difetto generico *Generic indication*	2014	Porosità allineate *Aligned porosity*
101	Cricche longitudinali *Longitudinal crack*	301	Inclusioni di scoria *Slag inclusion*	502	Sovrametallo *Excess weld metal*	601	Colpo d'arco *Arc strike*	2015	Cavità allungate *Elongated cavity*
102	Cricche trasversali *Transverse crack*	302	Inclusioni di flusso *Flux inclusion*	504	Eccesso penetrazione *Excess of penetration*	602	Spruzzo *Spatter*	2016	Tarlo *Worm hole*
103	Cricche a raggiera *Radiating cracks*	303	Inclusione di ossido *Oxide inclusion*	507	Sfilacciamento *Misalignment*	604	Colpo di mola *Grinding mark*	2024	Cavità cratere *Crater pipe*
104	Cricche di cratere *Crater crack*	304	Inclusione metallica *Metallic Inclusion*	511	Insellamento *External concavity*	2011	Poro *Isolated gas porosity*	5011	Incisione marginale *Undercut*
201	Soffiatura *Gas cavity*	401	Mancanza di fusione *Lack of fusion*	515	Insellam. al vertice *Root concavity*	2012	Porosità unif. distribuite *Porosity regularly distributed*	5013	Incisione al vertice *Shrinkage groove*

APPARECCHIATURA RADIOGRAFICA:

RADIOGRAFIC EQUIPMENT:

1	Apparecchio: *Testing equipment:*	Comet Evo Pxs Evo 300DS Matricola : 985483	Tipo di sorgente: *Source type:*	☑	Raggi X *X Ray*	☐	Raggi Y *Gamma ray*	Dimensione macchia focale: *Sources size:*	Ø 1 mm
2	Apparecchio: *Testing equipment:*		Tipo di sorgente: *Source type:*	☐	Raggi X *X Ray*	☐	Raggi Y *Gamma ray*	Dimensione macchia focale: *Sources size:*	mm
3	Apparecchio: *Testing equipment:*		Tipo di sorgente: *Source type:*	☐	Raggi X *X Ray*	☐	Raggi Y *Gamma ray*	Dimensione macchia focale: *Sources size:*	mm

ESITO/RESULT : A = Conforme - *Acceptable* - NC = Non Conforme - *Unacceptable*

OPERATORE CND ESAMINATORE *NDT TECHNICIAN AND EXAMINER*	ISPETTORE CLIENTE *CUSTOMER INSPECTOR*	ENTE COLLAUDATORE *SURVEYOR INSPECTOR*	*CONTROLLO QUALITA' QUALITY CONTROL*
Ionita Marius 2 liv. RT UNI EN ISO 9712 15-11-2023		RINA Services S.p.A. Danesin	SCANDIUZZI Via Piave

TRM ndt S.r.l.
Controlli non distruttivi
Via G. Tiepolo,16/B - 31021 Mogliano Veneto(TV)-Italy
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www.trmndt.it

CERTIFICATO DI CONTROLLO RADIOGRAFICO – RADIOGRAPHIC EXAMINATION REPORT

RT 2512-23 Data: 15-11-2023

TECNICA DI CONTROLLO RADIOGRAFICO:

RADIOGRAFIC TECHNIQUE:

Tecnica radiografica: *Radiographic technique:*	☐ Panoramica *Panoramic*	☑ Imm. singola parete singola *Single view, single wall exposure*	☐ Imm. singola parete doppia *Single view, double wall exposure*	☐ Imm. doppia parete doppia *Double view, double wall exposure*							
Apparecchio n: *Testing equipment n:*	1	Curie: *Activity*	-	IQI: *IQI:*	ISO 19232-1 10 FE-EN	☐ Lato film *Film side*	☑ Lato sorgente *Source side*	Sensibilità equivalente *Equivalent sensitivity:*	W12		
Penombra geometrica: *Geometrical unsharpness:*	ISO17636-1 fig.21	Numero di esposizioni: *Number of exposures:*	1 per giunto 1 for joint	Densità: *Density:*	≥2.3	Estens. test: *Extent of exam:*	100%				
Produttore film-Lotto: *Film manufacturer-Lot:*	Carestream – 0475 012	Scadenza: *Expiry:*	04-2025	Schermi protezione pellicola: *Film screens:*	0,10/0,10	Numero film per busta: *Number of film in each film holder:*	1				
Tipo di sviluppo- Lotto: *Developer type- Lot:*	Carestream - 5089794	Scadenza: *Expiry:*	09-2023	Tipo di fissaggio- Lotto: *Fixer type- Lot:*	Carestream - 5091867	Scadenza: *Expiry:*	11-2024				
Trattamento pellicola: *Film processing:*	Automatico *Automatic*	Ciclo di sviluppo(min): *Development cycle(min):*	8	Temperatura di sviluppo(°C): *Development temperature(°C):*	28						

IDENTIFICAZIONE DELLA SALDATURA
Identification of welding

PARAMETRI RADIOGRAFICI
Radiographic Parameters

Saldatura *Welding*	Tratto *Stroke*	Diametro *Diameter* "	Materiale base *Base material* mm	Sovrametallo *Weld reinforcem.* mm	Distanza sorg.- ogg. *Source - ob. Distance* mm	Distanza ogg - film *Ob. - film distance* mm	Voltaggio *Voltage* KV/MA	Tipo film *Type film*	Saldatore *Welder*	Discontinuità *Discontinuity*	Esito *Result*
2308 136-TC4	1-2	-	25	-	800	25	270/3/2'10"	T200	RS		A

ESITO/RESULT : A = Conforme - *Acceptable* - NC = Non Conforme - *Unacceptable*

OPERATORE CND ESAMINATORE *NDT TECHNICIAN AND EXAMINER*	ISPETTORE CLIENTE *CUSTOMER INSPECTOR*	ENTE COLLAUDATORE *SURVEYOR INSPECTOR*	*CONTROLLO QUALITA' QUALITY CONTROL*
Ionita Marius 2 liv. RT UNI EN ISO 9712 15-11-2023		RINA Manesin RINA Services S.p.A.	SCANDIUZZI

Certificato di prova 3.1
Inspection certificate 3.1

secondo / as per : EN 10204
No. : No. : 2023-2014599286-10-1076112-014
Rev. 0 Page / Page : 1 / 1

SCANDIUZZI STEEL CONSTRUCTIONS S.P.A.
Via Piave 14
31040 VOLPAGO DEL MONTELLO
Italia

Ordine N°	PO no.	OA11 230872	del / of	26.09.2023
Ordine N°	Order no.	1014266037		
Bolla di consegna/Pos./Splitt.	Delivery note/pos./split	2014599286/000000/000010	del / of	26.09.2023
Oggetto test	Product	filo animato / Tubular cored electrode		
Denominazione commerciale	Trade name	**diamondspark Ni1 RC**		275132 27098 CU05110F 0140
Classificazione norma	Standard designation	EN ISO 17632-A: T50 6 1Ni P M 1 H5 AWS A5.36: E81T1-M21A8-Ni1-H4		
Dimensione	Dimension	1,2 mm		
Colata	Serial no.	1076112		
Quantità fornita	Quantity	192,0 KG		

Composizione chimica in % del deposito **Chemical composition in % of the weld metal**

proprietà meccaniche **Mechanical properties** **EN 10204 - 2.2**

Prova di trazione Tensile test

T	ReL / Rp 0,2 MPa	Rp 1,0 MPa	Rm MPa	A (Lo = 5d) %	Z %	WBH PWHT	Note Remarks
20°C	≥ 500		560 - 690	≥ 18			

Prova di resilienza Impact test

T	Energia di impatto Impact energy KV / J	Medio Average KV / J	Espansione lat. Lateral expansion mm	Frattura cristalliina Shear fracture %	WBH PWHT	Note Remarks
-60°C	≥ 47					

Questo certificate è stato emesso con sistema automatizzato e non richiede firma
This certificate was issued by DP-equipment and does not require signature.

Centro / Town: Milano
Data / Date: 26.09.2023
Q.A. representative / Authorized representative: Faraone

voestalpine
ONE STEP AHEAD.

SCANDIUZZI STEEL CONSTRUCTIONS, User: Moreno Amoroso - Document Checked & Accepted - 26/10/2023 ID Number: 14556 page 1/1

voestalpine Grobblech GmbH

A02
Inspection certificate

EN 10204 - 3.2

N1423VKR-4

voestalpine-Straße 3
4020 Linz, Austria
www.voestalpine.com/grobblech

A03 Document number	A0370744/A	A08 Order-No.:	1500639	A07 OrderDat.	15-04-2021

Date of dispatch 01-08-2021 400F

A06 Customer	Kroeger Staal B.V. Oostelljke Randweg 40 NL-4782 PZ MOERDIJK	B01 Product	Plate		
		B02 Material	S460MLO	B03 Standard	EN 10225-1 : 2019
A07 OrderNo.	6729	Supplementary requirements	Z35 - EN 10164		
A06 Consignee	Europe Steel Projects BV Oostelijke Randweg 40 NL-4782 PZ MOERDIJK	B04 Delivery condition	thermomechanical rolled + accelerated cooled		

B03 - Supplementary requirements

OPTIONS 1, 6, 7, 9, 11, 12, 17 OF EN 10225:2019 AND OPTION 18 OF EN 10225:2009
FINAL ROLLING DIRECTION IS PERPENDICULAR TO DIE STAMPING.
MATERIAL IS FINE GRAINED, VACUUM DEGASSED AND FULLY KILLED, PRODUCED BY BOF.
MATERIAL IS PRE-QUALIFIED ACC. TO EN10225:2019 OPTION 17.

D01 - Visual Examination and dimensional checking: satisfactory. The results of tests performed are in compliance with the requirements.

Detail of supply

B07 Heat No.	B06 Plate No	Item	Dimensions B09 Thickness mm	B10 Width mm	B11 Length mm	B08 Piece	ind. Weight kg	total Weight kg	A09 Disp-No 130 42	reference no.
735829	287565/1	200	60,00	2051,0	12000	1		11.863	55172	S460MLOVAS
735829	290462/1	170	50,00	2500,0	12000	1		12.006	55172	S460MLOVAS
736009	289410/1	100	25,00	2500,0	12000	1		5.962	55172	S460MLOVAS
736009	291133/1	30	15,00	2051,0	12000	1		2.932	55172	S460MLOVAS
736009	291133/2	30	15,00	2051,0	12000	1		2.932	55172	S460MLOVAS
736009	291135/1	60	16,00	2051,0	16000	1		4.168	55172	S460MLOVAS
736009	291137/1	60	16,00	2051,0	16000	1		4.195	55172	S460MLOVAS
736009	292575/1	120	30,00	2500,0	12000	1		7.146	55172	S460MLOVAS
736009	292577/1	120	30,00	2500,0	12000	1		7.147	55172	S460MLOVAS
736009	292579/1	120	30,00	2500,0	12000	1		7.147	55172	S460MLOVAS
736009	292581/1	120	30,00	2500,0	12000	1		7.170	55172	S460MLOVAS
736009	292583/2	40	15,00	2500,0	12000	1		3.597	55172	S460MLOVAS

A04
Symbol of the manufacturer's work

voestalpine

Z03
third party stamp

DNV — SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT — 1864
~~Witnessed~~ ☒ Reviewed
And found to comply with:
EN 10225-1 : 2019
Date: 2021-08-09
Sign: Antonio R. Zambrano C.

This document has been digitally signed and will therefore not have handwritten signatures.

Z02
Inspection representative voestalpine Grobblech
LINTNER Norbert

voestalpine
ONE STEP AHEAD

Dimensional tolerances acc. EN 10029/11
EN10163-2: Class B3 - Repair-welding not permitted
Thicknesstolerance acc. EN 10029/11 tab.1 class B

Chemical composition (Heat analysis) - part 1 of 2

B07 Heat No.	C %	Si %	Mn %	P %	S %	Al %	Cr %	Ni %	Mo %	Cu %	V %	Nb %	Ti %	N %	B %	Sn %	Ca %	As %	Sb %	Pb %	Cae %	Pcm %
>=						.015																
Set values <=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0200	.0050	.0300	.0100	.010	.41	.23
736009	.028	.316	1.580	.006	.0006	.040	.181	.170	.006	.159	.005	.037	.013	.0043	.0002	.0020	.0014	.0020	.0020	.002	.35	.14
736926	.030	.348	1.650	.006	.0007	.045	.175	.170	.005	.159	.004	.039	.012	.0044	.0002	.0020	.0018	.0020	.0020	.002	.36	.15
836634	.032	.337	1.640	.008	.0006	.038	.181	.190	.013	.161	.004	.037	.011	.0041	.0002	.0020	.0014	.0020	.0020	.002	.37	.15
929534	.028	.324	1.630	.008	.0005	.038	.166	.180	.005	.160	.004	.039	.012	.0045	.0002	.0020	.0017	.0020	.0020	.002	.36	.14
930314	.033	.343	1.620	.005	.0007	.036	.172	.160	.001	.157	.004	.036	.013	.0054	.0002	.0020	.0015	.0020	.0020	.002	.36	.15
>=						.015																
Set values <=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0200	.0050	.0300	.0100	.010	.41	.22
735829	.036	.341	1.610	.008	.0007	.041	.174	.170	.006	.160	.003	.038	.012	.0048	.0002	.0020	.0020	.0030	.0020	.002	.36	.15
736009	.028	.316	1.580	.006	.0006	.040	.181	.170	.006	.159	.005	.037	.013	.0043	.0002	.0020	.0014	.0020	.0020	.002	.35	.14
736926	.030	.348	1.650	.006	.0007	.045	.175	.170	.005	.159	.004	.039	.012	.0044	.0002	.0020	.0018	.0020	.0020	.002	.36	.15
736927	.030	.340	1.620	.005	.0010	.038	.170	.170	.002	.160	.003	.036	.013	.0047	.0002	.0020	.0014	.0020	.0020	.002	.36	.14
840986	.030	.337	1.640	.007	.0003	.038	.175	.170	.006	.151	.004	.040	.013	.0047	.0002	.0020	.0014	.0020	.0020	.002	.36	.14
841329	.027	.322	1.620	.008	.0005	.037	.172	.170	.005	.163	.005	.038	.014	.0040	.0003	.0020	.0010	.0030	.0020	.002	.36	.14
841750	.060	.393	1.540	.009	.0007	.041	.177	.280	.025	.155	.004	.030	.013	.0038	.0002	.0020	.0016	.0020	.0020	.002	.39	.17
841752	.060	.350	1.540	.008	.0007	.036	.174	.270	.016	.162	.004	.028	.014	.0037	.0002	.0020	.0014	.0020	.0020	.002	.38	.17
842367	.063	.348	1.530	.007	.0008	.037	.173	.280	.009	.157	.005	.029	.011	.0043	.0002	.0020	.0023	.0030	.0020	.002	.38	.17
929534	.028	.324	1.630	.008	.0005	.038	.166	.180	.005	.160	.004	.039	.012	.0045	.0002	.0020	.0017	.0020	.0020	.002	.36	.14
930314	.033	.343	1.620	.005	.0007	.036	.172	.160	.001	.157	.004	.036	.013	.0054	.0002	.0020	.0015	.0020	.0020	.002	.36	.15
931038	.029	.340	1.620	.008	.0008	.039	.165	.180	.024	.163	.005	.039	.012	.0051	.0003	.0020	.0023	.0030	.0020	.002	.36	.14

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Test results: C10-C29 Tensile Test at room temperature acc. EN ISO 6892-1

B07 Heat No.	B06 Plate No	C41 Width	SpThickn mm	C01 loc.	PosTh.	C02 Dir	C11 Rp0,2 MPa	C12 Rm MPa	L0	C13 E %	C11 Rp0,2/Rm %	Sim.htm	WBH
>=							460	520		17.0			
Set values <=								700			93.00		
736009	291133	30,0	15.09	F	O	T	546	614	A5	18.5	88.94		
736926	292617	30,0	15.10	F	O	T	548	640	A5	19.6	85.67		
836634	296717	30,0	15.32	F	O	T	557	618	A5	17.9	90.10		
929534	298464	30,0	15.49	F	O	T	538	588	A5	23.4	91.53		
930314	295907	30,0	15.64	F	O	T	504	575	A5	22.3	87.63		
>=							440	520		17.0			
Set values <=								700			93.00		
736009	289410	30,0	25.36	F	O	T	536	590	A5	22.0	90.77		
736926	294666	30,0	20.42	F	O	T	577	651	A5	20.2	88.70		
736927	294046	30,0	20.28	F	O	T	489	597	A5	24.6	81.92		
930314	292635	30,0	20.76	F	O	T	567	612	A5	17.9	92.65		
	292661	30,0	25.18	F	O	T	552	605	A5	23.2	91.23		
>=							420	520		17.0			
Set values <=								700			93.00		
736009	292581	30,0	30.77	F	O	T	528	589	A5	24.7	89.61		
736926	294338	30,0	30.50	F	O	T	512	582	A5	25.0	87.94		
736927	292613	30,0	31.20	F	O	T	525	592	A5	23.4	88.69		
	292625	30,0	40.88	F	O	T	479	593	A5	23.1	80.76		
	292628	30,0	40.82	F	O	T	484	594	A5	24.4	81.43		
	292630	30,0	41.06	F	O	T	473	590	A5	23.5	80.09		
841329	288720	30,0	40.63	F	O	T	463	567	A5	23.8	81.55		
930314	292633	30,0	41.04	F	O	T	473	592	A5	23.8	79.93		
	292660	30,0	40.89	F	O	T	470	595	A5	24.3	78.93		
931038	298855	30,0	41.07	F	O	T	493	600	A5	23.3	82.20		
>=							415	500		17.0			
Set values <=								675			93.00		
735829	287565	Ø	9.99	F	V	T	438	551	A5	30.9	79.39		
	290462	Ø	10.01	F	V	T	474	593	A5	27.4	79.90		
	287565	Ø	10.01	F	V	T	485	563	A5	29.7	86.06	001	1
	290462	Ø	9.99	F	V	T	517	595	A5	27.7	86.85	001	1

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Gobbleen
LIVIXER Norbert

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Test results: C10-C29 Tensile Test at room temperature acc. EN ISO 6892-1

B07 Heat No.	B06 Plate No	C41 Width mm	SpThickn	C01 loc.	PosTh.	C02 Dir	C11 Rp0,2 MPa	C12 Rm MPa	L0	C13 E %	C11 Rp0,2/Rm %	Sim.htm	WBH

F: Bottom
PosTh.: Pos Thickness
O: surface
V: ¼ t
C02;Dir:
T: transverse
C12; Rm: Tensile Strength
L0: gauge
A5: Length = 5.65 * sqr (area) mm
C13;E: elongation
Sim.htm: sim. heat treatment
001: Sim.htm group #1
WBH: sim. heat treatment

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Gobbi Kevin
LANXATH Norbert

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Test results: C40-C49 Impact Test acc. EN ISO 148-1

B07 Heat No.	B06 Plate No	C40 shape	C01 loc.	PosTh.	C02 Dir	C03 temp °C	C42 SV J	C42 SV J	C42 SV J	C43 AV J	Sim.htm	WBH	samp.cond.
Set values >=						-40	42	42	42	60			
Set values <=													
735829	287565	CV 10x10	F	O	T	-40	367	363	363	364			
	290462	CV 10x10	F	O	T	-40	370	353	350	357			
	287565	CV 10x10	F	O	T	-40	349	344	341	345	001	1	
	290462	CV 10x10	F	O	T	-40	300	294	295	296	001	1	
	287565	CV 10x10	F	K	T	-40	361	359	358	359			
	290462	CV 10x10	F	K	T	-40	377	374	385	379			
	287565	CV 10x10	F	K	T	-40	316	144	337	266	001	1	
	290462	CV 10x10	F	K	T	-40	49	325	128	167	001	1	
736009	289410	CV 10x10	F	O	T	-40	348	364	357	356			
	291133	CV 10x10	F	O	T	-40	350	350	352	351			
	292581	CV 10x10	F	O	T	-40	352	352	341	348			

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LANTNER Norbert

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Test results: C40-C49 Impact Test acc. EN ISO 148-1

B07 Heat No.	B06 Plate No	C40 shape	C01 loc.	PosTh.	C02 Dir	C03 temp °C	C42 SV J	C42 SV J	C42 SV J	C43 AV J	Sim.htm	WBH	samp.cond.
>=						-40	42	42	42	60			
Set values <=													
930314	292633	CV 10x10	F	O	T	-40	377	366	352	365			
	292635	CV 10x10	F	O	T	-40	360	379	383	374			
	292660	CV 10x10	F	O	T	-40	384	366	407	386			
	292661	CV 10x10	F	O	T	-40	350	386	367	367			
	294335	CV 10x10	F	O	T	-40	365	383	394	381			
	295907	CV 10x10	F	O	T	-40	404	399	426	410			
	294335	CV 10x10	F	O	T	-40	358	372	358	363	001	1	
	294335	CV 10x10	F	K	T	-40	384	368	393	382			
	294335	CV 10x10	F	K	T	-40	401	374	389	388	001	1	
931038	299142	CV 10x10	F	O	T	-40	381	389	340	370			
>=						-40	29	29	29	46			
Set values <=													
735829	287565	CV 10x10	F	ZB2	T	-40	321	286	313	307			strain aged 5%, 60 min. at 250°C

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Gobbleon
LIVA/VKR Siegbert

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Test results: C40-C49 Impact Test acc. EN ISO 148-1

B07	B06	C40	C01		C02	C03	C42	C42	C42	C43			
Heat No.	Plate No	shape	loc.	PosTh.	Dir	temp	SV	SV	SV	AV	Sim.htm	WBH	samp.cond.
						°C	J	J	J	J			

Sim.htm: sim. heat treatment
001: Sim.htm group #1
WBH: sim. heat treatment
samp.cond.: sample condition

Test results: C30-C39 Hardness Test Vickers

B07	B06	C01			C31	C31	C31
Heat No.	Plate No	loc.	PosTh.	Hard.	HV	HV	HV
735829	285777	F	OS	HV10	230	226	224
736009	287890	F	OS	HV10	193	199	193
736926	294666	F	OS	HV10	214	230	215
736927	292613	F	OS	HV10	203	194	194
836634	296717	F	OS	HV10	215	212	211
840986	285718	F	OS	HV10	230	223	226
841329	288720	F	OS	HV10	203	205	204
841750	292002	F	OS	HV10	234	229	222
841752	292010	F	OS	HV10	235	235	227
842367	299193	F	OS	HV10	240	240	237
929534	292411	F	OS	HV10	203	207	204
930314	292635	F	OS	HV10	212	201	205
931038	298855	F	OS	HV10	203	208	203

C01;loc.:
F: Bottom
PosTh.: Pos Thickness
OS: upper side
Hard.: stress

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Gobbels
i.V. Vink Norbert

voestalpine
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Test results: C10-C29 through Thickness Test at room temperature acc. DIN / EN 10164:2018

B07 Heat No.	B06 Plate No	C40 Shape	SpThickn mm	C01 loc.	C02 Dir	C12 Rm MPa	C12 Rm MPa	C12 Rm MPa	Z(SV) %	Z(SV) %	Z(SV) %	Z(AV) %

S: through thickness direction
C12; Rm: Tensile Strength
Z(SV): reduction of area (single value)
Z(AV): reduction of area (average value)

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Gobbleck
Lindner Norbert

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Chemical composition (Product analysis) - part 1 of 2

B07 Heat No.	B06 Plate No	C %	Si %	Mn %	P %	S %	Al %	Cr %	Ni %	Mo %	Cu %	V %	Nb %	Ti %	N %	B %	Sn %	Ca %	As %	Sb %
	>=						.015													
Set values	<=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0050	.0300	.0200	.0100
736009	291133	.030	.315	1.630	.008	.0008	.041	.179	.180	.008	.160	.003	.038	.013	.0035	.0002	.0020	.0014	.0020	.0020
736926	292652	.031	.361	1.650	.007	.0007	.043	.175	.180	.005	.162	.004	.039	.012	.0049	.0002	.0020	.0018	.0030	.0020
836634	296717	.031	.344	1.630	.008	.0007	.039	.178	.180	.013	.154	.004	.038	.011	.0038	.0002	.0020	.0015	.0020	.0030
929534	292411	.032	.327	1.610	.008	.0011	.031	.175	.180	.005	.161	.004	.039	.011	.0063	.0003	.0020	.0015	.0020	.0020
930314	292623	.033	.349	1.650	.006	.0007	.040	.185	.170	.005	.158	.004	.038	.013	.0050	.0002	.0020	.0018	.0030	.0020
	>=						.015													
Set values	<=	.140	.550	1.700	.020	.0050	.055	.250	.700	.250	.300	.080	.050	.025	.0100	.0008	.0050	.0300	.0200	.0100
735829	287565	.034	.332	1.600	.008	.0010	.040	.171	.170	.006	.158	.003	.039	.012	.0042	.0002	.0020	.0017	.0030	.0020
736009	289509	.030	.317	1.610	.007	.0008	.040	.182	.180	.009	.163	.004	.035	.013	.0036	.0002	.0040	.0013	.0020	.0020
	291133	.030	.315	1.630	.008	.0008	.041	.179	.180	.008	.160	.003	.038	.013	.0035	.0002	.0020	.0014	.0020	.0020
	292579	.030	.314	1.630	.007	.0008	.043	.181	.190	.008	.159	.004	.038	.013	.0040	.0002	.0020	.0016	.0020	.0020
736926	294666	.058	.364	1.530	.008	.0006	.036	.165	.270	.015	.157	.003	.029	.011	.0050	.0002	.0020	.0016	.0020	.0020
736927	292613	.032	.353	1.650	.007	.0009	.043	.186	.180	.006	.163	.004	.039	.013	.0053	.0002	.0020	.0017	.0030	.0020
	292624	.032	.351	1.650	.006	.0011	.044	.184	.180	.006	.162	.004	.039	.013	.0051	.0002	.0020	.0018	.0030	.0020
	292626	.032	.350	1.650	.006	.0010	.045	.183	.180	.006	.162	.003	.039	.014	.0053	.0002	.0020	.0018	.0030	.0020
	292629	.031	.347	1.650	.006	.0010	.045	.181	.180	.006	.162	.003	.038	.013	.0049	.0002	.0030	.0018	.0030	.0020
	292645	.032	.350	1.640	.006	.0009	.044	.185	.180	.006	.161	.003	.038	.013	.0055	.0002	.0020	.0020	.0030	.0020
840986	285719	.031	.327	1.630	.007	.0003	.036	.172	.170	.006	.151	.003	.039	.013	.0042	.0002	.0020	.0013	.0030	.0020
	287720	.033	.326	1.590	.007	.0006	.035	.169	.170	.005	.155	.003	.037	.013	.0041	.0002	.0020	.0015	.0020	.0020
841329	288720	.027	.308	1.590	.009	.0007	.035	.169	.170	.005	.160	.004	.038	.013	.0041	.0002	.0020	.0010	.0030	.0020
	292008	.027	.317	1.610	.009	.0007	.035	.171	.170	.005	.163	.005	.038	.013	.0045	.0002	.0020	.0014	.0030	.0020
841750	292002	.059	.389	1.540	.010	.0007	.040	.177	.280	.024	.157	.004	.030	.013	.0040	.0002	.0020	.0017	.0030	.0020
	292003	.058	.387	1.530	.009	.0007	.041	.176	.280	.025	.155	.004	.029	.013	.0035	.0002	.0020	.0019	.0020	.0020
	292004	.060	.391	1.550	.009	.0007	.041	.176	.280	.026	.157	.004	.031	.013	.0039	.0003	.0020	.0018	.0020	.0020
841752	292010	.060	.377	1.530	.009	.0009	.037	.176	.270	.018	.161	.004	.029	.013	.0037	.0003	.0020	.0016	.0030	.0020
	294333	.060	.349	1.530	.008	.0007	.039	.173	.270	.016	.158	.004	.028	.013	.0040	.0002	.0020	.0014	.0020	.0020
842367	299193	.051	.346	1.520	.007	.0014	.039	.172	.270	.005	.161	.005	.027	.011	.0051	.0002	.0020	.0017	.0020	.0020
929534	292411	.032	.327	1.610	.008	.0011	.031	.175	.180	.005	.161	.004	.039	.011	.0063	.0003	.0020	.0015	.0020	.0020
930314	292623	.033	.349	1.650	.006	.0007	.040	.185	.170	.005	.158	.004	.038	.013	.0050	.0002	.0020	.0018	.0030	.0020
	292633	.033	.351	1.650	.007	.0009	.042	.186	.180	.006	.161	.004	.039	.013	.0055	.0002	.0030	.0018	.0030	.0020
	292635	.033	.354	1.660	.007	.0007	.041	.187	.180	.006	.160	.004	.040	.013	.0053	.0002	.0020	.0018	.0030	.0020
	292659	.033	.352	1.650	.007	.0007	.040	.185	.180	.005	.159	.004	.039	.013	.0056	.0002	.0020	.0018	.0030	.0020

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Chemical composition (Product analysis) - part 2 of 2

B07 Heat No.	B06 Plate No	Pb %	Bi %	Cae %	Pcm %	LF01 %	LF02 %	Al/N
	>=							2.00
Set values	<=		.010	.0100	.41	.23	.120	.130	
736009	291133	.002	.0020	.36	.14	.041	.054	11.71
736926	292652	.002	.0020	.37	.15	.043	.055	8.78
836634	296717	.002	.0020	.36	.15	.042	.053	10.26
929534	292411	.002	.0020	.36	.15	.043	.054	4.92
930314	292623	.002	.0020	.37	.15	.042	.055	8.00
	>=							2.00
Set values	<=		.010	.0100	.41	.22	.120	.130	
735829	287565	.002	.0020	.36	.15	.042	.054	9.52
736009	289509	.002	.0020	.36	.14	.039	.052	11.11
	291133	.002	.0020	.36	.14	.041	.054	11.71
	292579	.002	.0020	.36	.14	.042	.055	10.75
736926	294666	.002	.0020	.38	.17	.032	.043	7.20
736927	292613	.002	.0020	.37	.15	.043	.056	8.11
	292624	.002	.0020	.37	.15	.043	.056	8.63
	292626	.002	.0020	.37	.15	.042	.056	8.49
	292629	.002	.0020	.37	.15	.041	.054	9.18
	292645	.002	.0020	.37	.15	.041	.054	8.00
840986	285719	.002	.0020	.36	.14	.042	.055	8.57
	287720	.002	.0020	.36	.14	.040	.053	8.54
841329	288720	.002	.0020	.35	.14	.042	.055	8.54
	292008	.002	.0020	.35	.14	.043	.056	7.78
841750	292002	.002	.0020	.39	.17	.034	.047	10.00
	292003	.002	.0020	.38	.17	.033	.046	11.71
	292004	.002	.0020	.39	.18	.035	.048	10.51
841752	292010	.002	.0020	.38	.17	.033	.046	10.00
	294333	.002	.0020	.38	.17	.032	.045	9.75
842367	299193	.002	.0020	.37	.16	.032	.043	7.65
929534	292411	.002	.0020	.36	.15	.043	.054	4.92
930314	292623	.002	.0020	.37	.15	.042	.055	8.00
	292633	.002	.0020	.37	.15	.043	.056	7.64
	292635	.002	.0020	.37	.15	.044	.057	7.74
	292659	.002	.0020	.37	.15	.043	.056	7.14

Z03
third party stamp

SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT
DNV 1864
~~Witnessed~~ Reviewed
And found to comply with:
EN 10225-1 : 2019
Date: 2021-08-09
Sign: Antonio R. Zambrano C.

This document has been digitally signed and will therefore not have handwritten signatures.

Z02
Inspection representative voestalpine
Grobbauer
[illegible] Norbert

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Chemical composition (Product analysis) - part 2 of 2

B07 Heat No.	B06 Plate No	Pb %	Bi %	Cae %	Pcm %	LF01 %	LF02 %	Al/N
>=								2.00
Set values <=		.010	.0100	.41	.22	.120	.130	
931038	298855	.002	.0020	.36	.15	.046	.058	8.33

C99 - Supplementary information
Cae: C+(Mn/6)+(Cr+Mo+V)/5+(Ni+Cu)/15
Pcm: C+((Mn+Cu+Cr)/20)+(Si/30)+(Ni/60)+(Mo/15)+(V/10)+(B*5)
LF02: Nb+V+Ti
Al/N: Al/N
LF01: Nb+V

Remarks

Simulated heat treatment of test coupons:

Item 170-280, 300:
001/1: 1 cycle(s) sim. PWHT: furnace charge temperature at max. 400 °C, heating with max. 55 °C/h up to 580 °C, +10 °C/-10 °C, holding time 240 minutes, cooling with max. 55 °C/h down to 400 °C, final cooling in calm air.

We confirm that the above-mentioned delivery corresponds to the order (and standard).

C70 - Method of steelmaking: Basic oxygen furnace (BOF) steelmaking, continuous casting, steel is fully killed, vacuum degassed and melted by fine grain practice, austenitic grain size 5 or finer.

The signature of the inspection representative from voestalpine Grobblech GmbH is substituted by a electronic Signature, because the certificates of voestalpine Grobblech GmbH are prepared by a suitable data processing system (EN 10204, Pt.5).

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third party stamp

DNV
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And found to comply with:
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Date: 2021-08-09
Sign: Antonio R. Zambrano C.
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Z02
Inspection representative voestalpine Grobblech
i.V. MEIX Norbert

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D02-D50 - ULTRASONIC EXAMINATION PLATE(S)

SPECIFICATION

Item 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 310
Ultrasonic test acc. EN 10160, EN 10160 class S3/Body, Grid 100 mm, EN 10160 class E4/Edge Zone, Edge zone longitudinal 50 mm, Edge zone transverse 50 mm; satisfactory
Item 170, 180, 190, 200, 210, 220, 230, 240, 270, 280, 300
Ultrasonic test acc. EN 10160, EN 10160 class S3/Body, Grid 100 mm, EN 10160 class E4/Edge Zone, Edge zone longitudinal 75 mm, Edge zone transverse 75 mm; satisfactory
Item 250, 260
Ultrasonic test acc. EN 10160, EN 10160 class S3/Body, Grid 100 mm, EN 10160 class E4/Edge Zone, Edge zone longitudinal 100 mm, Edge zone transverse 100 mm; satisfactory

VALID TEST EQUIPMENT
mechanized ultrasonic "In-Line testing system" (Manufacturer: NDT-Systems & Services) and
mechanized ultrasonic "off-line - testing system" (manufacturer: Windhoff Bahn- und Anlagentechnik GmbH) and
MUT (optional): Sonatest D20 no. 90006523 or Sonatest D20 no. 90007346 or Sonatest Masterscan 380 no. 90007347 or Sonatest Masterscan 380 no. 90006522 or Sonatest D50 no. 90010231 or GE - USM 36 no. 90010775

PROBE
(in-line AUT): 3STSE 18.3/8 P5, SEZ5R10RS, SE3 18.3/10 5A, (5MHz)
(off-line AUT): S140 (4MHz) 3T/1R
(MUT): SEB4E (4MHz), SEB4E0° (4MHz), MSEB4E (4MHz), B2SO (2MHz)
watergapcoupling

SURFACE CONDITION
Scaled surface - cleaned surface and free of loose scale.

RESULT
Plate(s) comply with the specification.

INSPECTION OPERATOR
Operators Level 1 or 2: qualified and certified according EN ISO 9712 (since 01.01.2013) respectively according the Written Practice „NDT-WP" (in accordance to Recommended Practice SNT-TC-1A). Operators Level 2 for ASME/ASTM.

INSPECTION SUPERVISOR
Responsible Level 3: Bindreiter Erich

Z03
third party stamp

DNV
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And found to comply with:
EN 10225-1 : 2019
Date: 2021-08-09
Sign: Antonio R. Zambrano C.
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Z02
Inspection representative voestalpine
Globbiek
LIN1VKR Norbert

voestalpine
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Z03
third party stamp

DNV
SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT
1864
☐ Witnessed ☒ Reviewed
And found to comply with:
EN 10225-1 : 2019
Date: 2021-08-09
Sign: Antonio R. Zambrano C.

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Z02
Inspection representative voestalpine
Grobblech
i.V. Norbert

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WELDER AND WELDING OPERATOR LIST/

LISTA SALDATORI E OPERATORI DI SALDATURA

SCANDiUZZi

WELDING PERSONNEL LIST ACCORDING TO UNI EN ISO 9606-1 UNI EN ISO 14732 (Volpago Workshop)

EMESSO ISSUED 04/12/2023

SURNAME	NAME	STAMP	WELDIGN PROCESS	EN APPLICABLE STANDARD	NOTIFY BODY	CERTIFICATE N°	EXPIRATION DATE	PLATE (P) PIPE (T)	JOINT TYPE	BASE MATERIAL GROUP	FILLER METAL GROUP	MATERIAL THICKNESS	PIPE OUTSIDE DIAMETER	POSITION	STATE
MEZZI	HABIB	H	136	9606-1	RINA	23TO00500PW1	20/07/26	P	BW+FW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA-PF	Acceptable
MEZZI	HABIB	H	135-138	9606-1	RINA	WELD/21/06341	28/10/24	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA-PC)	PA-PC	Acceptable
MEZZI	HABIB	H	135-138	9606-1	RINA	WELD/21/06357	28/10/24	P	FW	1-11	FM1-FM2-FM3	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA-PB)	PA-PB	Acceptable
MEZZI	HABIB	H	121	14732	RINA	WELD/21/06365	28/10/27	P	FW	N.A.	N.A.	N.A.	N.A.	PA-PB	Acceptable
MEZZI	HABIB	H	136	9606-1	RINA	22TO00665PW5	07/09/25	T	BC	1-11	FM1-FM2	≥ 3	≥ 98,85 mm	PA-PC-PE-PF	Acceptable
CONTE	DOMENICO	CD	136	9606-1	RINA	23TO00500PW2	20/07/26	P	BW+FW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe - PA/PB/PC/PD)	PA-PB-PC-PD-PE	Acceptable
CONTE	DOMENICO	CD	136	9606-1	RINA	WELD/21/06343	28/10/24	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA-PF	Acceptable
CONTE	DOMENICO	CD	135-138	9606-1	RINA	WELD/21/06344	28/10/24	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA-PC)	PA-PC	Acceptable
CONTE	DOMENICO	CD	135-138	9606-1	RINA	WELD/21/06358	28/10/24	P	FW	1-11	FM1-FM2-FM3	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA-PB)	PA-PB	Acceptable
CONTE	DOMENICO	CD	135-138	9606-1	RINA	21TO00793PW3	26/10/24	P	BW	1-11	FM1-FM2-FM3	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA-PC)	PA-PC	Acceptable
CONTE	DOMENICO	CD	136	9606-1	RINA	22TO00665PW4	07/09/25	T	BC	1-11	FM1-FM2	≥ 3	≥ 98,85 mm	PA-PC-PE-PF	Acceptable
TOADER	ADRIAN Gheorghe	TA	136	9606-1	RINA	WELD/21/06351	28/10/24	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA-PF	Acceptable
TOADER	ADRIAN Gheorghe	TA	135-138	9606-1	RINA	WELD/21/06352	28/10/24	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA-PC)	PA-PC	Acceptable
TOADER	ADRIAN Gheorghe	TA	135-138	9606-1	RINA	WELD/21/06361	28/10/24	P	FW	1-11	FM1-FM2-FM3	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA-PB)	PA-PB	Acceptable
TOADER	ADRIAN Gheorghe	TA	135-138	9606-1	RINA	21TO00793PW2	26/10/24	P	BW	1-11	FM1-FM2-FM3	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA-PC)	PA-PC	Acceptable
TOADER	ADRIAN Gheorghe	TA	136	9606-1	RINA	22TO00320PW1	29/06/25	T	BC	1-11	FM1-FM2	≥ 3	≥ 96,85 mm	PA-PC-PE-PF	Acceptable
PETRU	VASILE	VP	136	9606-1	RINA	WELD/21/06354	28/10/24	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA-PF	Acceptable
PETRU	VASILE	VP	135-138	9606-1	RINA	WELD/21/06355	28/10/24	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA-PC)	PA-PC	Acceptable
PETRU	VASILE	VP	135-138	9606-1	RINA	WELD/21/06362	28/10/24	P	FW	1-11	FM1-FM2-FM3	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA-PB)	PA-PB	Acceptable
PETRU	VASILE	VP	135-138	9606-1	RINA	21TO00793PW4	26/10/24	P	BW	1-11	FM1-FM2-FM3	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA-PC)	PA-PC	Acceptable
RUSU	EMIL	RE	135-138	9606-1	RINA	22TO00740PW12	07/10/25	P	BW + FW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA (BW) PB (FW)	Acceptable
RUSU	EMIL	RE	136	9606-1	RINA	22TO00740PW8	07/10/25	P	FW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe - PA/PB/PC/PD)	PA-PB-PC-PD-PE	Acceptable
RUSU	EMIL	RE	136	9606-1	RINA	22TO00740PW4	07/10/25	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA-PF	Acceptable
MARIN	DUMITRU	MD	135-138	9606-1	RINA	22TO00740PW11	07/10/25	P	BW + FW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA (BW) PB (FW)	Acceptable
MARIN	DUMITRU	MD	136	9606-1	RINA	22TO00740PW7	07/10/25	P	FW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe - PA/PB/PC/PD)	PA-PB-PC-PD-PE	Acceptable
MARIN	DUMITRU	MD	136	9606-1	RINA	22TO00740PW3	07/10/25	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA-PF	Acceptable
COVACI	SAMBU	CS	135-138	9606-1	RINA	22TO00740PW10	07/10/25	P	BW + FW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA (BW) PB (FW)	Acceptable
COVACI	SAMBU	CS	136	9606-1	RINA	22TO00740PW6	07/10/25	P	FW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe - PA/PB/PC/PD)	PA-PB-PC-PD-PE	Acceptable
COVACI	SAMBU	CS	136	9606-1	RINA	22TO00740PW2	07/10/25	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA-PF	Acceptable
MARTIGNAGO	LEONARDO	Y	136	9606-1	RINA	23TO00500PW3	20/07/26	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA-PF	Acceptable
MARTIGNAGO	LEONARDO	Y	135-138	9606-1	RINA	23TO00500PW4	20/07/26	P	BW	1-11	FM1-FM2	≥ 3	≥75	PA-PC	Acceptable
MARTIGNAGO	LEONARDO	Y	121	14732	RINA	18VE00584PW1	11/09/24	P	BW	N.A.	N.A.	N.A.	N.A.	PA	Acceptable
MARTIGNAGO	LEONARDO	Y	121	14732	RINA	23TO00672PW1	25/07/29	P	FW	N.A.	N.A.	N.A.	N.A.	PA,PB	Acceptable
DARABAN	FILIP	DF	135-138	9606-1	RINA	22TO00740PW9	07/10/25	P	BW + FW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA (BW) PB (FW)	Acceptable
DARABAN	FILIP	DF	136	9606-1	RINA	22TO00740PW5	07/10/25	P	FW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe - PA/PB/PC/PD)	PA-PB-PC-PD-PE	Acceptable
DARABAN	FILIP	DF	136	9606-1	RINA	22TO00740PW3	07/10/25	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA-PF	Acceptable
SORICA	PETRICA	SP	135-138	9606-1	RINA	23TO01006PW1	12/11/26	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA	Acceptable
RADU	SANDU	RS	136	9606-1	RINA	23TO01006PW2	12/11/26	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA-PF	Acceptable
VLADULESCU	MARIUS	VM	135-138	9606-1	RINA	23TO01006PW3	12/11/26	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA	Acceptable
VLADULESCU	MARIUS	VM	136	9606-1	RINA	23TO01006PW4	12/11/26	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA-PF	Acceptable
TALETOVIC	OMER	TO	136	9606-1	RINA	23TO01006PW5	12/11/26	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA-PF	Acceptable
TALETOVIC	OMER	TO	135-138	9606-1	RINA	23TO01006PW6	12/11/26	P	BW	1-11	FM1-FM2	≥ 3	≥500(fixed pipe) ≥75 (rotated pipe -PA)	PA	Acceptable