Base Load Power Hub (BLPH)

CIMOLAI TUBULARS – WELDING BOOK

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Document Class: 2

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Rev.	Date	Description	Prepared	Reviewed	Approved

CIMOLAI
Pordenone - Italy

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Revision / Change Log

Rev.	Description
0	Issue for Review (IFR)
1	Approved for Construction (AFC) after comments implemented

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.

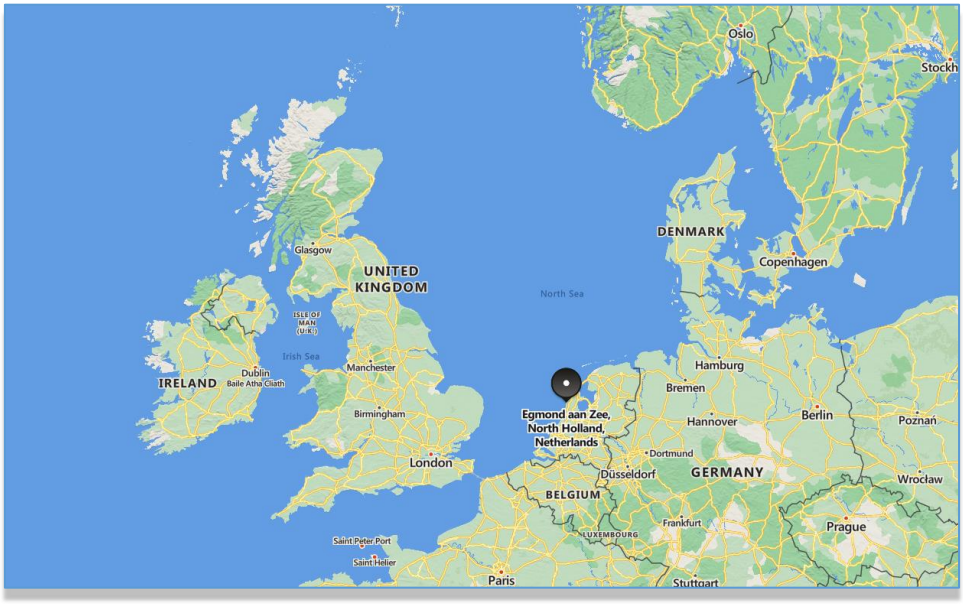


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map

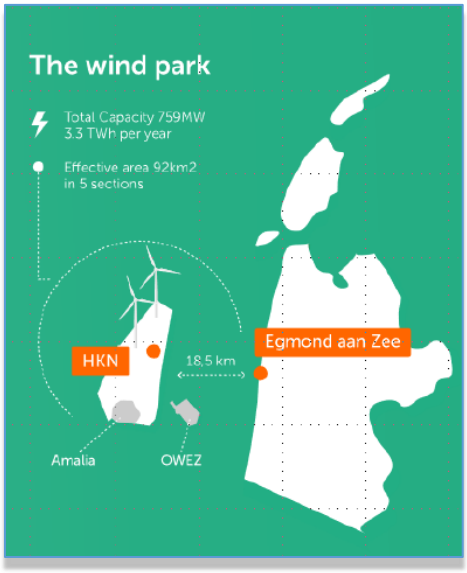


Figure 2 - Wind Park Details

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.

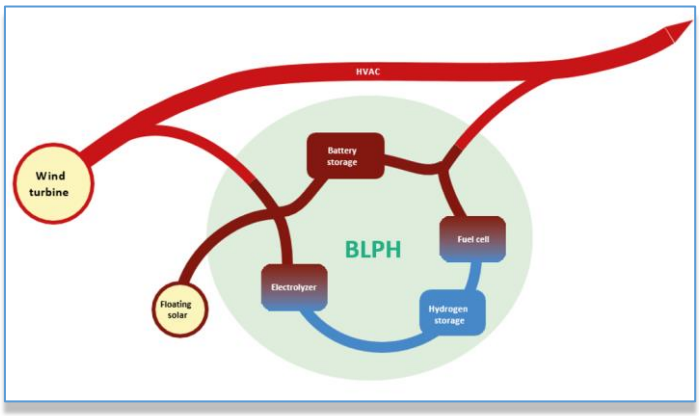


Figure 3 – BLPH Concept

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 Welded Tubulars fabricated at CIMOLAI.

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: CIMOLAI PACKAGE FOR WELDING

Annex is inclusive of:

- WPS
- WPQR
- CONSUMABLES
- WELDERS LIST

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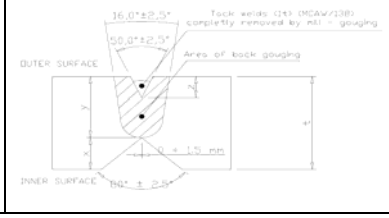
CIMOLAI Pordenone - Italy	**WPS n.**	**2023263-01**	**Rev.**	**00**
			Date	**29/11/2023**

Diameter (thickness): 550, 600, 800 (20)

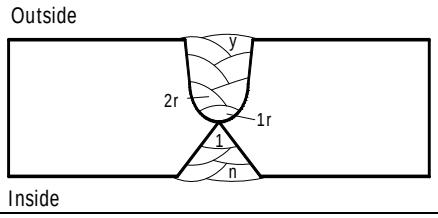
☑	**Sald. Int. 4F**
☐	**Sald. Int. 2F**
☑	**Sald. Est. 5F**
☐	**Sald. Est. 4F**
☐	**Giunzione lam.**

WELDING PROCESS(ES)	**MCAW (138) + SAW (121)**	TYPE(S)	**Fully mechanised**
SUPPORTING WPQR	**S2014-05**	Reference Standard	**EEMUA 158 ed. 3**

JOINTS
Type: double Vee- Butt weld
Back Gouging: Yes / performed by machine milling
Backing material: with
Root spacing: See sketch at side
Groove Angle: See sketche at side



t	**20**
x	**8**
y	**12**
z	**5**



WELDING SEQUENCE AND PARAMETERS

LAYER	PROCESS	CONSUMABLES BRAND NAME	CONSUMABLES Ø (mm)	Polarity	Wire Feed Speed [mm/min.] AMPS	VOLTS	TRAVEL SPEED [mm/min]	Heat input [kj/mm]
1t**	MCAW (138)	Wire: Steelcored SAF-FRO M10	2,4	DCEP	3050 ÷ 3150 500 ÷ 530	24 ÷ 25	680 ÷ 750	0,77 ÷ 0,94
1	SAW (121)	Wire: Oerlikon OE-SD3 1Ni 1/4 Mo Flux: Oerlikon OP121TT	1E: 4	DCEP	590 ÷ 640	28 ÷ 30	750 ÷ 850	2,23 ÷ 2,92
			2E: 4	AC	520 ÷ 560	29 ÷ 31		
2 ÷ n	SAW (121)	Wire: Oerlikon OE-SD3 1Ni 1/4 Mo Flux: Oerlikon OP121TT	1E: 4	DCEP	590 ÷ 620	29 ÷ 31	1150 ÷ 1200	2,46 ÷ 2,92
			2E: 4	AC	520 ÷ 560	31 ÷ 33		
			3E: 4	AC	500 ÷ 540	32 ÷ 34		
1r-3r	SAW (121)	Wire: Oerlikon OE-SD3 1Ni 1/4 Mo Flux: Oerlikon OP121TT	1E: 4	AC	520 ÷ 620	29 ÷ 31	800 ÷ 1000	1,80 ÷ 2,88
			2E: 4	AC	500 ÷ 600	30 ÷ 32		
4r ÷ nr	SAW (121)	Wire: Oerlikon OE-SD3 1Ni 1/4 Mo Flux: Oerlikon OP121TT	1E: 4	DCEP	580 ÷ 640	30 ÷ 32	1250 ÷ 1350	2,14 ÷ 2,69
			2E: 4	AC	500 ÷ 540	31 ÷ 33		
			3E: 4	AC	480 ÷ 520	32 ÷ 34		

**Note: PASS 1t completely removed by machine gouging

BASE METALS

Mat. Specification	EN 10225-1
Type or grade	S460MLO
Ceq qualified	≤ 0.40%
Pcm qualified	N.A.
Diameter	N.A.
Thickness	20 mm

FILLER METALS

	MCAW (138)	SAW (121)
Spec. No. (SFA) - Wire	AWS A 5.18	AWS A5.23
AWS No. (Class) - Wire	E70T15-M21A2-CS3-H4	ENi5
Size of filler metal	ø 2.4 mm	ø 4 mm
Filler metal product form	Metal cored wire	Solid wire
Supplementary filler metal	N.A.	N.A.
Weld metal thickness range qualified		
Groove	N.A.	15 ÷ 40 mm
Fillet	-	-
Electrode-Flux (Classification)	N.A.	AWS A 5.23: F8A10-ENi5-Ni5
Flux type	N.A.	Neutral
Wire / flux trade name	FRO Steelcored M10	Wire: Oerlikon OE-SD3 1Ni 1/4 Mo Flux: Oerlikon OP121TT
Consumable insert	N.A.	N.A.
Other	N.A.	N.A.

POSITION

Position of groove	FLAT
Weld progression	N.A.
Other	-

PREHEAT

Preheat temperature	50 °C min (20°C min. for 1t)
Interpass temperature	250 °C max
Method	Gas burners
Other	

POSTWELD HEAT TREATMENT

Temperature range	N.A.
Time range	N.A.
Other	N.A.

GAS - MCAW (138) ONLY

	Gas(es)	Mixture (%)	Flow rate (l/min)
Shielding	Ar-CO_2	80%Ar-20%CO_2	50÷55
Trailing	N/A	N/A	N/A
Backing	N/A	N/A	N/A

ELECTRICAL CHARACTERISTICS

Current & Polarity	SEE WELDING SEQUENCE & PARAMETERS
Tungsten Electrode Size and Type	N.A.
Model of Metal Arc Transfer for MCAW (138)	Spray arc
Amps	SEE WELDING SEQUENCE & PARAMETERS
Volts	SEE WELDING SEQUENCE & PARAMETERS
Other	SEE WELDING SEQUENCE & PARAMETERS

TECHNIQUE

String of weave bead	STRING			
Orifice, nozzle or gas cap size	24 mm			
Initial and interpass cleaning	Brushing / grinding (if necessary)			
Oscillation	NONE			
Multipass or single pass (per side)	MULTIPASS			
Single or multiple electrode	SINGLE (pass 1t) AND MULTIPLE (other passes)			
Electrode spacing	1 ÷ n	1st Wire: inclination -0° Spacing between 1st and 2nd wire: 23 mm 2nd Wire inclination: 12° Spacing between 2nd and 3rd wire: 23 mm 3rd Wire inclination: 24°	1r ÷ nr	1st Wire: inclination -0° Spacing between 1st and 2nd wire: 22 mm 2nd Wire inclination: 12° Spacing between 2nd and 3rd wire: 23 mm 3rd Wire inclination: 24°
Stick out (MCAW)	25 ÷ 30 mm			
Stick out (SAW)	33 ÷ 38 mm			
Peening	N.A.			
Other				

Prepared by	**CQ**	**Approved by**	**RCQ**
Date	**29/11/2023**	**Date**	**29/11/2023**
A. Gianessi		**M. Macor**	

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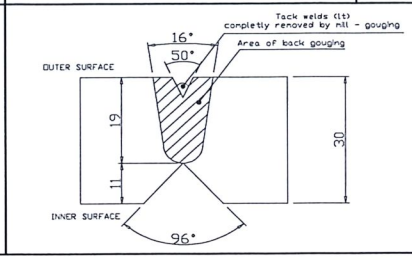
WELDING PROCEDURE QUALIFICATION RECORD

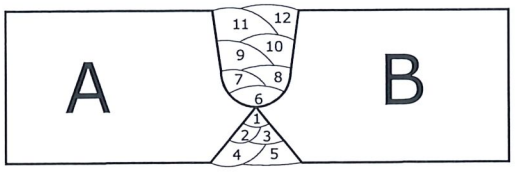
WPQR S2014-05

WPQR: S2014-05 rev.0
Date: 29/08/2014

WELDING PROCESS(ES)	MCAW + SAW	TYPE(S)	Fully mechanised
		Reference Standard	EEMUA 158

JOINTS
Design: Double Vee groove weld - Butt joint
Backing material: weld metal / base metal
Root spacing: See sketch at side
Retainers: Not used
Groove Angle: See sketches
Gouging: Yes - performed by machine gouging (milling)





WELDING SEQUENCE AND PARAMETERS

Date of welding		22/07/2014 - 24/07/2014							
LAYER	PROCESS	CONSUMABLES			Wire feed speed [mm/min.]	VOLTS	TRAVEL SPEED	Heat input	Actual temp.
		BRAND NAME	Ø (mm)	Polarity	AMPS		(mm/min)	kj/mm	°C
1t	MCAW	Wire: Fro Steelcored M10	2.4	DCEP	3150 520	24	800	0,94	20
1	SAW	Wire1: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	DCEP	620	29	900	2,28	50
		Wire2: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	540	30			
2	SAW	Wire1: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	DCEP	620	31	1050	3,07	115
		Wire2: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	540	32			
		Wire3: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	520	33			
3	SAW	Wire1: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	DCEP	620	31	1100	2,93	175
		Wire2: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	540	32			
		Wire3: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	520	33			
4	SAW	Wire1: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	DCEP	620	31	1100	2,93	212
		Wire2: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	540	32			
		Wire3: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	520	33			
5	SAW	Wire1: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	DCEP	620	31	1100	2,91	220
		Wire2: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	520	33			
		Wire3: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	500	34			
6	SAW	Wire1: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	520	30	800	2,39	50
		Wire2: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	510	32			
7	SAW	Wire1: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	540	29	1000	1,89	105
		Wire2: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	530	30			
8	SAW	Wire1: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	580	29	780	2,61	158
		Wire2: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	570	30			
9	SAW	Wire1: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	DCEP	620	31	1300	2,42	185
		Wire2: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	520	32			
		Wire3: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	500	33			
10	SAW	Wire1: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	DCEP	620	31	1300	2,42	210
		Wire2: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	520	32			
		Wire3: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	500	33			
11	SAW	Wire1: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	DCEP	620	31	1250	2,51	250
		Wire2: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	520	32			
		Wire3: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	500	33			
12	SAW	Wire1: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	DCEP	620	31	1300	2,42	145
		Wire2: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	520	32			
		Wire3: Oerlikon OE-SD3 1Ni1/4Mo - Flux Oerlikon OP 121TT	4.0	AC	500	33			

BASE METALS

Material specification (A - B)	EN 10225
Grade (A - B)	S460G2+M
Group no. / Sub group no. (A-B)	N.A.
Group no. Qualified	N.A.
Test coupon thickness	30
Test coupon thickness qualified range	-
Outside pipe diameter	N.A.
Outside pipe diameter range	N.A.
Carbon equivalent	0.37 %
Carbon equivalent qualified	Ceq ≤ 0.40%
Pcm	-
Pcm qualified	-
Other	N.A.

FILLER METALS

Process type (wire - flux trade name)	MCAW (M10)	SAW (OE-SD3 1Ni1/4Mo - OP121TT)
Spec. No. (SFA) - wire	A5.18	AWS A 5.23
AWS No. (Class) - wire	E70C-6MH4	EG
Spec No. (EN) - wire	EN ISO 17632-A	EN ISO 14171
EN No. (Class) - wire	T 46 4 M M 1 H5	A-SZ
Wire diameter	2.4	4.0
Filler metal product form	Metal cored wire	Solid wire
Deposited weld metal:		
Groove	5	30 + reinforcement
Fillet	-	-
Electrode-Flux (Classification)	N.A.	EN 760: SA FB 1 55 AC H5 AWS A 5.23: F8A10-EG-G
Flux type	N.A.	Neutral
Flux trade name	N.A.	Oerlikon OP121TT
Consumable insert	N.A.	N.A.
Other	N.A.	N.A.

POSITION

Position of groove	Flat
Weld progression	N.A.
Other	-

PREHEAT

Preheat temperature	50 °C MIN
Interpass temperature	250 °C MAX
Method of preheat (if any)	Gas Burners
Other	**20°C min. (pass 1t only)** **Tack welds completly removed by machine gouging (milling)**

POSTWELD HEAT TREATMENT / POST-HEATING / AGING

Temperature range	N.A.
Time range	N.A.
Other	N.A.

GAS - MCAW ONLY

		Mixture (%)	Flow rate (l/min)
Shielding	Ar-CO_2	80%Ar-20%CO_2	54
Trailing	N.A.	N.A.	N.A.
Backing	N.A.	N.A.	N.A.

ELECTRICAL CHARACTERISTICS

Current & Polarity	SEE WELDING SEQUENCE & PARAMETERS
Amps	SEE WELDING SEQUENCE & PARAMETERS
Volts	SEE WELDING SEQUENCE & PARAMETERS
Other	SEE WELDING SEQUENCE & PARAMETERS

TECHNIQUE

Travel speed	SEE WELDING SEQUENCE AND PARAMETERS
String of weave bead	STRING
Orifice, nozzle or gas cap size	24 mm
Oscillation	None
Multipass or single pass (per side)	MULTIPASS
Single or multiple electrode	SINGLE (GMAW) AND MULTIPLE (SAW)
Electrode spacing	1 ÷ 5: 1st Wire: inclination -0°; Spacing between 1st and 2nd wire: 23 mm; 2nd Wire inclination: 12°; Spacing between 2nd and 3rd wire: 23 mm; 3rd Wire inclination: 24° 6 ÷ 12: 1st Wire: inclination -0°; Spacing between 1st and 2nd wire: 22 mm; 2nd Wire inclination: 12°; Spacing between 2nd and 3rd wire: 23 mm; 3rd Wire inclination: 24°
Other	25 mm STICKOUT pass 1t (GMAW) 35 mm STICKOUT pass 1 ÷ 12 (SAW)

CIMOLAI S.p.A. Cimolai S.p.A.	WELDING PROCEDURE QUALIFICATION RECORD **WPQR S2014-05**	WPQR : Date:	S2014-05 rev.0 29/08/2014 Sheet 2 of 2

WELDING PROCESS(ES)	MCAW + SAW	TYPE(S) Reference Standard	Fully mechanised EEMUA 158

OTHER TESTS / CERTIFICATES

Type of test	Result	Certificate No.	Certificate issued by
VISUAL EXAMINATION	Satisfactory	S2014-05/VT/01 rev. 0	Cimolai S.p.a.
MAGNETIC EXAMINATION	Satisfactory	S2014-05/MT/01 rev. 0	Tecnocontrol
ULTRASONIC EXAMINATION	Satisfactory	S2014-05/UT/01 rev. 0	Tecnocontrol
MECHANICAL TEST	Satisfactory	R.14.754 rev. 1	Metalservices
MACROGRAPHIC EXAMINATION	Satisfactory	R.14.754 rev. 1	Metalservices
CTOD test	N.A.	N.A.	N.A.
PLATES CERTIFICATE	Satisfactory	cert. No. **367985-001** heat: **364220** plate: **748156-01**	Dillinger Hutte
CONSUMABLE CERTIFICATE	Satisfactory	**Cert no.:** ALW0311202-6 **Steelcored M10 - Lot:** 0913007232 **Cert. No.:** ALW03101164-98 **1Ni1/4Mo- Lot:** 09140AL057 **Cert. No.:** ALW00120600-193 **Oerlikon OP121TT** - Lot.: 01790644	Consumable certificate SAF/FRO - Oerlikon
OTHERS			

List of the Welders involved in the WPQR: Nicu Stan (1t); Marcin Gilis (1 ÷ 12);

Identification No. NS, CG;

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in conformance with the requirements of EEMUA 158

CIMOLAI S.p.A.
Quality Control Department
Date 29/08/2014
Signature

SGS Italia S.p.A.
WITNESSED ☒ REVIEWED ☒
DATE 29/08/2014
S Verificatore Manuel

Third Party Signature _____

Date

CIMOLAI S.p.A.

San Giorgio di Nogaro (UD)

VISUAL AND DIMENSIONAL INSPECTION OF WELDS – REPORT

RAPPORTO DI ISPEZIONE VISIVA E DIMENSIONALE SALDATURE

Report No. S2014-05/VT/01 rev. 0

Date / Data 06.08.2014

Page / Pagina 1/1

General Data / Dati Generali

Client & Project / Cliente e Progetto	-	Job / Commessa	WPQR S2014-05
Purchase Order / Ordine d'acquisto	-	QCP / PCQ	-
Date of testing / Data controllo	28/07/2014		

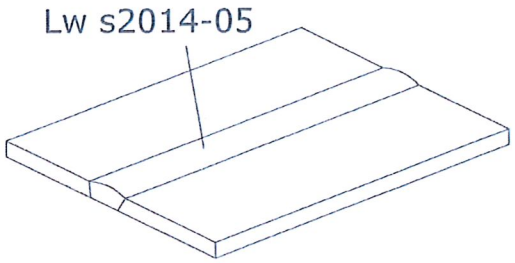
Product Data / Dati del prodotto

Product Serial No. / Marca pezzo	See below	☐	Before PWHT / Prima del t. termico
P.O. ID / Posizione nell'ordine	See below	☐	After PWHT / Dopo t. termico
Steel / Acciaio	See below	☑	No PWHT / t. termico non previsto
Thickness/Spess.	See below	Extent/Estensione	100% of weld
Surf. Conditions / Condizioni sup.	As Welded / Come saldato		

Reference Documents / Documenti di riferimento

Procedure / Procedura	EEMUA 158 par. 7.5.2 + CLB-FC-0X-ST-SPE-0100 rev. C3
Acceptance Criteria / Criteri di acc.	EEMUA 158 - table 5 + CLB-FC-0X-ST-SPE-0100 rev. C3

Welded Particular Sketch / Schizzo particolare saldato



Test Record / Registrazione del controllo

Pos. Cliente Client Pos.	Cimolai Mk.	Materiale di Base Base Material	Weld Id Numero saldatura	Analyzed / Analizzati						Not Accept.	Accept.
				Cracks	Under-cuts	Reinforce ment	Reinf. Shape	Weld to b. met..	Porosity		
				Cricche	Incis.	Sovramet.	Forma cordone	transizione	Porosità		
	s2014-05	EN 10225: S460G2+M	LW S2014-05	✓	✓	✓	✓	✓	✓	☐	☑

Test Result / Risultato del controllo

☑ Accettable / Accettabile: ☐ Not Acceptable / Non Accettabile

Remarks / Note

Stamps and Signatures / Timbri e firme

VT Operator / Operatore VT	Cimolai S.p.A.	Testing Authority / Ente collaudatore	Client Representative / Rappr. cliente
Lw-C IT410065A 06.08.2014	CIMOLAI S.p.A. Quality Control Department Date 06.08.2014 Signature	SGS Italia S.p.A. WITNESSED ☐ REVIEWED ☐ DATE 6.8.2014 5	

TECNOCONTROL SRL
NON DESTRUCTIVE EXAMINATION
RUDA - (UD) Italy

CERTIFICATO DI CONTROLLO MAGNETOSCOPICO

Magnetic Particles Examination Report

CERT. N./Report n. S2014-05/MT/01
Foglio / Sheet 1 di/of 2
Data / Date 06/08/2014

COSTRUTTORE / Manufacturer: Cimolai S.p.A.	COMM. COSTRUTT./ Manufacturer job: WPQR s2014-05
CLIENTE / Customer: Cimolai S.p.A.	COMM. CLIENTE - Customer job: -
DESTINATARIO / Consignee: -	COMM. DEL DESTIN.- Consignee job: -
ITEM / Item: See next page	ORDINE DEL CLIENTE - Customer order: -
MARCA / Serial no.: See next page	LUOGO DELL'ESAME - Place of examination: Porto Nogaro (Italy)
	DATA DELL'ESAME - Date of examination: 28.07.2014

ATTREZZ. IMPIEGATA/Equipment employed

COSTRUTTORE-Manufacturer	C.G.M.
TIPO-Type	Magiscop twist – ort
SIST. DI MAGN./Sist. of magn.	Magnetic – magnetico
CORRENTE/Current	Alterning – alternata
INTENSITÁ/Intensity	Forza di sollevamento Lifting power 4,5 Kg
Dist. Puntali/Prodes space	150 ÷ 180 mm
Verifica/verification	Pie shaped indicator Burmah Type II
Note/Remarks	

SI CERTIFICA CHE LA PROVA E' STATA ESEGUITA SECONDO LE NORME DI RIFERIMENTO INDICATE E CHE I RISULTATI SONO QUELLI TRASCRITTI
This is to certify that the test has been performed according to indicated reference code, and the results are those recorded

OGGETTO DEL PRESENTE CERTIFICATO-Subject of this certificate
CONTROLLO MAGNETOSCOPICO SALDATURA TESTA-TESTA
MAGNETIC PARTICLE INSPECTION OF BUTT WELD

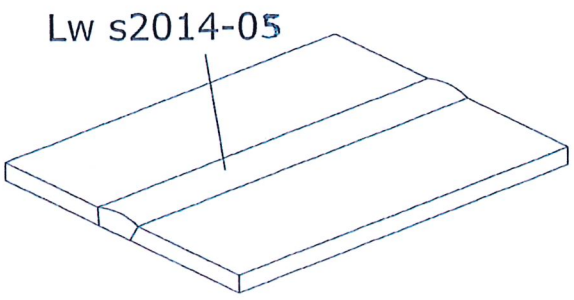
PROCEDURA-Procedure
EEMUA 158 + CLB-FC-0X-ST-SPE-0100 rev. C3

STANDARDS DI ACCETT.-Acceptance standards
EEMUA 158 table 5
EEMUA 158 par 7.4.1
CLB-FC-0X-ST-SPE-0100 rev. C3

MATERIALE / Material	EN10225: S460G2+M	SP.	30 mm

DISEGNO DI RIFER.-Reference drawing: -	P.C.Q./Q.c.p.	
COND. SUP. surface condict.	MAT. BASE / Base material	Wrought
	SALDATURA/weld	As Welded
FASE DI LAV./ Working step: (FINAL CHECK)	PROC. DI SALD.-Welding process	GMAW + SAW (136 + 121)
	TIPO DI GIUNTO / Joint type	BUTT WELD
	ESTENS. DELL'ESAME / Extent of Examin.	100%

SCHIZZO DEL PARTICOLARE CONTROLLATO / Sketch of examinated particular



RILEVATORE IMPIEGATO
Type of magnetic particles employed

- [ ] FLUORESCENTE/Fluorescent
- [X] A CONTRASTO DI COLORE/Visible
- [ ] SECCO/Dry
- [X] UMIDO/Wet

MARCA/Trade mark: C.G.M.
TIPO/type: LK 35

VERNICE DI CONTRASTO
Background paint

MARCA/Trade mark: C.G.M.
TIPO/Type: VECOPLAST

SMAGNETIZZAZ./demagnetization
- [ ] SI/Yes
- [X] NO/No

ESITO/Result
- [X] ACCETTABILE / Acceptable:
- [ ] NON ACCETTABILE / Not acceptable

THE OPERATOR/L'operatore	THE MANUFACT.-Il costrutt.	INSPECT.AUTH.-Ente d'isp.	THE CUSTOMER-Il cliente	CONSIGNEE - Destinatario
TECNOCONTROL CAPACCHIONE LORIS LIV 2 EN 473 LIV 2 SNT-TC-1A	CIMOLAI S.p.A. Quality Control Department Date 06.08.2014 Signature	SGS Italia S.p.A. WITNESSED ☐ REVIEWED ☑ DATE 06/08/14		

TECNOCONTROL SRL NON DESTRUCTIVE EXAMINATION RUDA – (UD) Italy	**CERTIFICATO DI CONTROLLO MAGNETOSCOPICO** **Magnetic Particles Examination Report**	**CERT. N./Report n.** S2014-05/MT/01 **Foglio / Sheet** 2 di/of 2 **Data / Date** 06/08/2014

COSTRUTTORE-Manufacturer	COMM.COSTRUTT.-Manufacturer job	DATA DELL'ESAME-Date of examination	
Cimolai S.p.A.	**WPQR s2014-05**	**28/07/2014**	
CLIENTE/Customer **Cimolai S.p.A.**	COMM. CLIENTE-Customer job -	DISEGNO DI RIFER.-Reference drawing -	
DESTINATARIO/Consignee -	COMM. DEL DESTIN.-Consignee job -	ITEM/Item **See below**	MARCA – Serial no. **See below**

SI CERTIFICA CHE LA PROVA E' STATA ESEGUITA SECONDO LE NORME DI RIFERIMENTO INDICATE E CHE I RISULTATI SONO QUELLI TRASCRITTI
This is to certify that the test has been performed according to indicated reference code, and the results are those recorded

REGISTRAZIONI DELLE INDICAZIONI RILEVATE - Record of the indications detected

Num. CND NDE Id	Item Cliente Client Item	Marca Mark	Sigla Saldatura – WPS utilizzata WELD ID – used WPS	N. Indicaz. Indicat. no.	Dist. da 0-MPI / Start from 0-MPI		Lungh. Lenght (mm)	Difetto Defect	GIUDIZ. JUDGEM. (**)
					Rifer. di partenza Start point ref. (0 – MPI)	Misura Value (mm)			
-	-	s2014-05	Lw s2014-05	-	-	-	-	-	A

(**) A = Accettabile / Acceptable
NA = Non accettabile / Not Acceptable

THE OPERATOR-L'operatore	THE MANUFACT.-Il costrutt	INSPECT.AUTH.-Ente d'isp.	THE CUSTOMER-Il cliente	CONSIGNEE - Destinatario
TECNOCONTROL CAPACCHIONE LORIS LIV 2/EN473 LIV 2 SNT-TC-1A	CIMOLAI S.p.A. Quality Control Department Date 06.08.2014 Signature	SGS Italia S.p.A. WITNESSED ☐ REVIEWED ☐ DATE 06/08/2014 5		

TECNOCONTROL SRL
NON DESTRUCTIVE EXAMINATION
RUDA – (UD) Italy

CERTIFICATO DI CONTROLLO ULTRASONORO

Ultrasonic Examination Report

CERT. N./Report n.	S2014-05/UT/01 rev. 0
Foglio / Sheet	1 di/of 2
Data / Date	06/08/2014

COSTRUTTORE - Manufacturer	Cimolai S.p.A.
CLIENTE - Customer	Cimolai S.p.A.
DESTINATARIO – Consignee	
ITEM - Item	See next page
MARCHE – Serial nos	See next page
COMM.COSTRUTT.-Manufacturer job	WPQR S2014-05
COMM. CLIENTE - Customer job	-
COMM. DEL DESTIN.- Consignee job	-
ORDINE DEL CLIENTE - Customer order	
LUOGO DELL'ESAME-Place of examination	Porto Nogaro (Italy)
DATA DELL'ESAME - Date of examination	28/07/2014

STRUMENTO IMPIEGATO-Instrument employed

COSTRUTT.-Manuf. Olympus

TIPO-Type Epoch 600

N. DI SERIE /Serial n. 100033510

SONDE / Probes

N.	TIPO / Type	f (Mz)	Dim. (mm)	Ang.
1	KRAUTK. MWB 60-4	4	8 x 9	60°
2	KRAUTK. MWB 70-4	4	8 x 9	70°
3	KRAUTK. MWB 45-4	4	8 x 9	45°
4				

THE OPERATOR-L'operatore

TECNOCONTROL
CAPACCHIONE LORIS
LIV 2 EN 473
LIV 2 SNT-TC-1A

THE MANUFACT.-Il costrutt.

CIMOLAI S.p.A.
Quality Control Department
Date 06.08.2014

INSPECT.AUTH-Ente d'isp. Signature

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☐
DATE 6.8.2014
5

SI CERTIFICA CHE LA PROVA E' STATA ESEGUITA SECONDO LE NORME DI RIFERIMENTO INDICATE E CHE I RISULTATI SONO QUELLI TRASCRITTI
This is to certify that the test has been performed according to indicated reference code, and the results are those recorded

OGGETTO DEL PRESENTE CERTIFICATO - Subject of this certificate

CONTROLLO ULTRASONORO SALDATURA TESTA-TESTA
ULTRASONIC EXAMINATION OF BUTT WELD

PROCEDURA-Procedure

EMMUA 158 + CLB-FC-0X-ST-SPE-0100 rev. C3

STANDARDS DI ACCETT.-Acceptance standards

EEMUA 158 para.7.4.2 + CLB-FC-0X-ST-SPE-0100 rev. C3

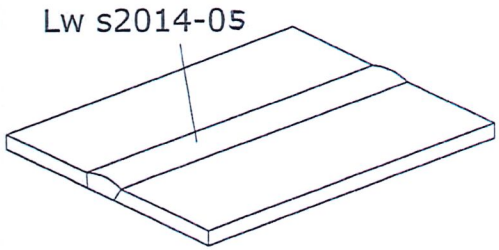
MATERIALE / Material	1 see next page	TCK	30 mm

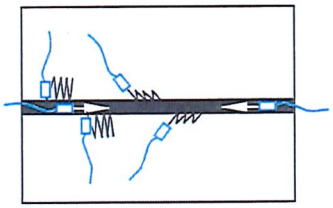
DISEGNO DI RIFER./* Reference drawing	TRATT. TERMICO / Head treatment	Condiz. Sup / Surface condiction	MAT. BASE/Base mat.	Wrought
-	-		SALDATURA/Weld	As Welded
FASE DI LAV./ Working step		PROC. DI SALD.- Welding process		121 / SAW – 136 / GSFCAW
FINAL CHECK		MEZZO DI ACCOPP.- Couplant		Paste C.G.M. " U-49"

THE CUSTOMER-Il cliente

CONSIGNEE - Destinatario

SCHIZZO DEL PARTICOLARE CONTROLLATO/Particular examinated sketch





ESITO – Result GIUDIZIO - Judgement

[x] ACCETTABILE – Acceptable:

[ ] NON ACCETTABILE - Unacceptable

NOTE/Remarks:

Controllo eseguito dalla superficie esterna
Test carried out from outside surface

TECNOCONTROL SRL NON DESTRUCTIVE EXAMINATION RUDA – (UD) Italy	CERTIFICATO DI CONTROLLO ULTRASONORO Ultrasonic Examination Report	CERT. N./Report n. Foglio / Sheet Data / Date	S2014-05/UT/01 rev. 0 2 di/of 2 06/08/2014

COSTRUTTORE-Manufacturer	COMM.COSTRUTT.-Manufacturer job	DATA DELL'ESAME-Date of examination	CLIENTE/Customer	ORDINE DEL CLIENTE - Customer order
Cimolai S.p.A.	WPQR S2014-05	28/07/2014	Cimolai S.p.a.	-

SI CERTIFICA CHE LA PROVA E' STATA ESEGUITA SECONDO LE NORME DI RIFERIMENTO INDICATE E CHE I RISULTATI SONO QUELLI TRASCRITTI
This is to certify that the test has been performed according to indicated reference code, and the results are those recorded

REGISTRAZIONI DELLE INDICAZIONI RILEVATE - Record of the indications detected

Pos. Cliente	Marca Cimolai	Materiale di base	Sigla Saldatura	N. Indicaz.	SONDA	Dist. da 0-UT / Start from 0-UT		Lungh.	Prof. / Depht (mm)		Ampiezza	Probabile natura del difetto	GIUDIZIO
Client Position	Cimolai Mark	Base Material	WELD ID	Indicat. no.	Probe (*)	Rifer. di partenza Start point reference (0 – U.T.)	Misura Value (mm)	Length (mm)	Dall'int. From inside	Dall'est. From outside	Amplitude (% DAC)	Probable nature of the defect	JUDGEM. (**)
	S2014-05	EN 10225:S460 G2+M	LW s2014-05	-	1 – 2 – 3	A	-	-	-	-	-	-	A

(*) Vedi sonde impiegate su Pag. 1
See probes employed on page-1

(**) A = Accettabile / Acceptable
NA = Non accettabile / Not Acceptable

THE OPERATOR-L'operatore	THE MANUFACT.-Il costrutt.	INSPECT.AUTH.-Ente d'isp.	THE CUSTOMER-Il cliente	CONSIGNEE - Destinatario
TECNOCONTROL CAPACCHIONE LORIS LIV 2 EN 473 LIV 2 SNT-TC-1A	CIMOLAI S.p.A. Quality Control Department Date 06.08.2014 Signature	SGS Italia S.p.A. WITNESSED ☒ REVIEWED ☐ DATE 06/08/14 5		

METAL SERVICES MATERIALS TESTING

TEST REPORT No. R.14.754 Rev.1
ISSUED ON 29/08/2014

Customer
CIMOLAI Spa
Via Ungaresca, 38
33170 Pordenone

MATERIAL DESCRIPTION	
Sample no.	**Identification mark**
1694	Sample identified "S2014-05–heat no. 364220–plate no. 748156-01–S460G+M thk. 30 mm - CLB-FC-OX-ST-SPE-0100 Rev. C3"

MATERIAL RECEPTION			
Data	**ddt no.**	**Offer no.**	**Order no.**
29/07/2014	1391/S	14.044	-
Sampling data			
Sampling and identification executed by the Customer			

INFORMATION

The present test report cannot be reproduced in a partial way without the formal written approval of Metal Services Materials Testing Srl.
Test results are only related to the supplied tested samples; the remains of them will be stored and available for not more than 30 days after the test report issuing date, unless differently agreed on the purchase order.
This document, if transmitted via e-mail, cannot be modified without the written authorization of Metal Services Materials Testing Srl.
Equipment used are to be intended under metrological validity.
The uncertainty of measurement is expressed as expanded uncertainty obtained by multiplying the combined uncertainty for the coverage factor of k = 2, corresponding to a confidence interval of about 95%.
(+) Supervised test by 3rd part inspector.

TEST INDEX

Serial no.	Test	Standard	Page
1	Transverse tensile test on welds	UNI EN ISO 4136	2
2	Longitudinal tensile test on welds	UNI EN ISO 5178	2
3	Bend test on welds	UNI EN ISO 5173	2
4	Impact test on welds	UNI EN ISO 9016	2
5	Hardness test on arc welded joints	UNI EN ISO 9015-1	3
6	Hardness test on arc welded joints	EEMUA 158	4
7	Photographic report	-	5

NOTE

This document replace the test report no. 14.754 Rev.0 (as for customer request by 19/08/2014 mail)
//

RESERVED FOR DIGITAL SIGNATURE

Firmato digitalmente da
ANDREA QUERIN
CN = QUERIN ANDREA
O = non presente
C = IT

Laboratory Manager	Inspector (+)
METAL SERVICES MATERIALS TESTING S.R.L.	SGS Italia S.r.l. WITNESSED ☒ REVIEWED ☒ DATE 29 AGO. 2014 5

METAL SERVICES
MATERIALS TESTING

TEST REPORT No. R.14.754 Rev.1
ISSUED ON 29/08/2014

1. TRANSVERSE TENSILE TEST ON WELDS

Sample no.	Date	Position	T °C	a mm	b mm	So mm²	Fm N	Rm MPa	Fracture Position
1694	04/08/2014	T to weld	23	15.9	25.1	399.1	235000	589	Base material
1694	04/08/2014	T to weld	23	15.9	25.0	397.5	234000	589	Base material
1694	04/08/2014	T to weld	23	16.0	25.0	400.0	233000	583	Base material
1694	04/08/2014	T to weld	23	15.9	25.1	399.1	232000	581	Base material
Reference limits in according to customer sampling list	Min.	-	-	-	-	-	520	-
	Max.	-	-	-	-	-	680	-

Instruments: Galdabini PM40 (Serial no.29359)
Glossary: //
Note: //

2. LONGITUDINAL TENSILE TEST ON WELDS

Sample no.	Date	Position	T °C	Reh MPa	$Rp_{0.02}$ MPa	$Rp_{0.2}$ MPa	$Rp_{1.0}$ MPa	$Rt_{0.5}$ MPa	Rm MPa	A %	Z %	Rs/Rm
1694	04/08/2014	All weld	23	-	-	603	-	604	744	23.0	64	-
Reference limits in according to customer sampling list	Min.	-	-	-	420	-	420	520	20.0	-	-
	Max.	-	-	-	-	-	-	680	-	-	-

Instruments: Galdabini Quasar 250 (Serial no.V901)
Glossary: //
Note: //

3. BEND TEST ON WELDS

Sample no.	Date	Type of test	T °C	t_s mm	l mm	d mm	Bend angle °	Test Result
1694	04/08/2014	SBB	23	10	75	50	180	Satisfactory
1694	04/08/2014	SBB	23	10	75	50	180	Satisfactory
1694	04/08/2014	SBB	23	10	75	50	180	Satisfactory
1694	04/08/2014	SBB	23	10	75	50	180	Satisfactory

Instruments: Galdabini PM40 (Serial no.29359)
Glossary: //
Note: //

4. IMPACT TEST ON WELDS

Sample no.	Date	Position	w mm	T °C	KV_8 J			KV_8 AVG J
1694	04/08/2014	VHT 5/2	10	-40	125	146	150	140
1694	04/08/2014	VHT 2/2	10	-40	197	221	202	207
1694	04/08/2014	VHT 0/2	10	-40	191	200	186	192
1694	04/08/2014	VWT 0/2	10	-40	80	84	84	83
1694	04/08/2014	VHT 5/14	10	-40	180	134	121	145
1694	04/08/2014	VHT 2/14	10	-40	88	100	69	86
1694	04/08/2014	VHT 0/14	10	-40	82	237	285	201
1694	04/08/2014	VWT 0/14	10	-40	177	148	121	149
1694	04/08/2014	VHT 5/18	10	-40	220	204	222	215
1694	04/08/2014	VHT 2/18	10	-40	151	215	190	185
1694	04/08/2014	VHT 0/18	10	-40	125	248	211	195
1694	04/08/2014	VWT 0/18	10	-40	140	132	138	137
Reference limits in according to customer sampling list	Min.	-	-	50			60
	Max.	-	-	-			-

Instruments: Galdabini Impact 300 (Serial no.V88G)
Glossary: //
Note: When absorbed energy ≥ 240 J the values are approximate

NOTE

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Laboratory Manager

METAL SERVICES MATERIALS TESTING S.R.L.

Inspector (*)

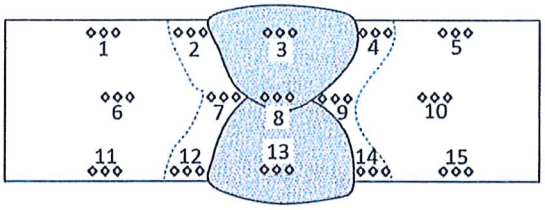
SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☐
DATE 29 AGO 2014
5

METAL SERVICES
MATERIALS TESTING

TEST REPORT No. R.14.754 Rev.1
ISSUED ON 29/08/2014

HARDNESS TEST ON ARC WELDED JOINTS

Sample no.	Data	Type of test	Position				
1694		HV10	BM	HAZ	WM	HAZ	BM
			1	2	3	4	5
			180 179 181	172 196 206	227 239 231	208 187 184	179 181 178
			BM	HAZ	WM	HAZ	BM
			6	7	8	9	10
			168 166 167	183 185 198	223 222 224	199 183 175	168 166 169
			BM	HAZ	WM	HAZ	BM
			11	12	13	14	15
			176 170 171	179 198 199	221 225 211	212 185 176	178 170 175
			Maximum recorded value		BM: 181	HAZ: 212	WM: 239



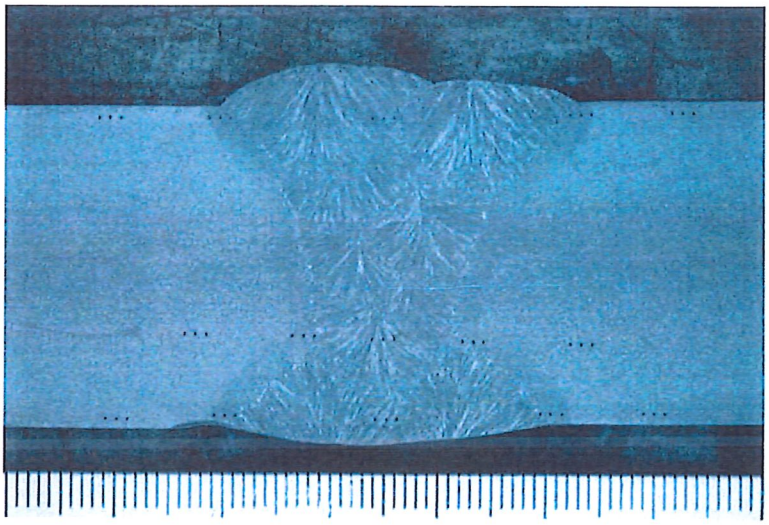
Instruments: Wolpert Diatestor 2RC (Serial no. 8965)
Glossary: //
Note: //

PHOTOGRAPHIC REPORT

Picture no.	Sample no.	Position	Etching
1	1694	Transversal weld joint	Nitac

Note

//



Laboratory Manager

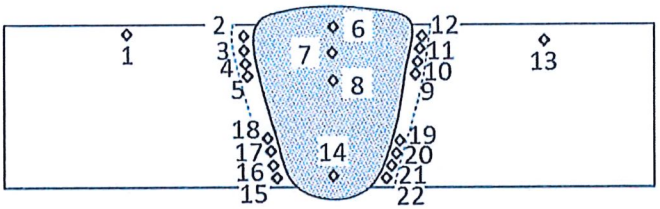
METAL SERVICES MATERIALS TESTING S.r.l.

Inspector (*)

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☒
DATE 29 AGO. 2014
5

HARDNESS TEST ON ARC WELDED JOINTS

Sample no.	Data	Type of test	Position				
1694		HV10	BM	HAZ	HAZ	WM	HAZ
			1	2 – 3	4 – 5	6 – 7 – 8	9 – 10
			166	202 206	210 214	210 225 209	208 207
			HAZ	BM	WM	HAZ	HAZ
			11 – 12	13	14	15 – 16	17 – 18
			195 188	176	222	183 195	192 176
			HAZ	HAZ	-	-	-
			19 – 20	21 – 22	-	-	-
			191 189	189 179	-	-	-
			Maximum recorded value		BM: 176	HAZ: 214	WM: 225



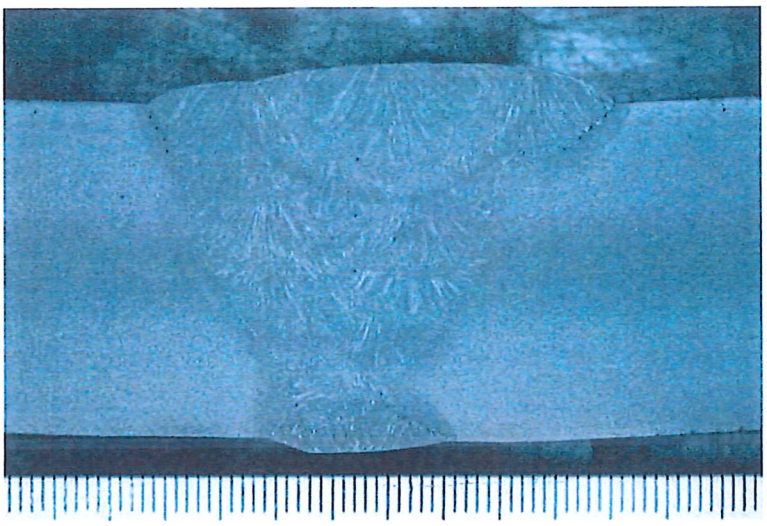
Instruments: Wolpert Diatestor 2RC (Serial no. 8965)
Glossary: //
Note: //

PHOTOGRAPHIC REPORT

Picture no.	Sample no.	Position	Etching
2	1694	Transversal weld joint	Nitac

Note

//



Laboratory Manager

METAL SERVICES MATERIALS TESTING S.R.L.

Inspector

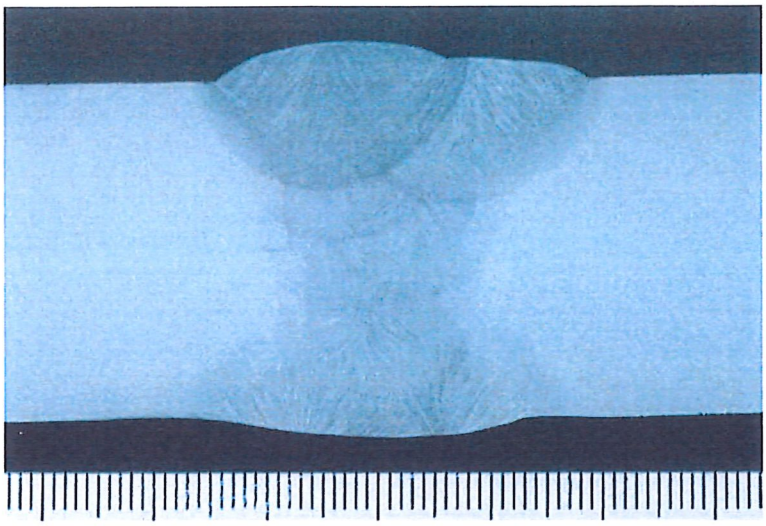
SGS ITALIA S.p.A.
WITNESSED ☐ REVIEWED ☒
DATE 29 AUG. 2014

PHOTOGRAPHIC REPORT

Picture no.	Sample no.	Position	Etching
3	1694	Transversal weld joint	Nitac

Note

//



OPINIONS AND INTERPRETATIONS

//

INSPECTOR NOTES(+)

//

NOTE

//

Laboratory Manager

METAL SERVICES MATERIALS TESTING S.R.L.

Inspector (*)

SGS Italia S.p.A.
WITNESSED / REVIEWED
DATE 29/08/2014

QM-System: Certification as per ISO 9001

DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.2 AS PER EN 10204:2004 INSPECTION REPORT 3.2 AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991		A10 Advice of dispatch No./ Date of dispatch 2379970-19.10.11	A08/ Manufacturer's order/ A03 Certificate No. 367985-001 Sheet 1/...
A05 Established Inspecting body TUVC KUND	A06 Purchaser SPS,SUTTON COLDFIELD A07.1 No. 0057939 CALL OFF 4 Final receiver BROEKMAN,ROTTERDAM A07.2 No. 168397-100-PO-2380E		B01 Product HOT ROLLED PLATES
B02/ Steel design. TYPE-I-S460G2+M B03 Any suppl. requirements 168397-100-MW-SP-0002:REV.D1-15.12.2010 EN-10225:09/MOM:17.05.2011			

B01-B99 Description of the product

B14 Item No.	B08 Number of pieces	B09 Thickness	B10 Width	B11 Length	B12 Theoretical mass KG	B04 Product delivery condition	B07.2 Heat No.	B07.1 Rolled plate No./ Test No.	A09 Purchaser article number
			MM						
03	1	30,00	x 3050	x 13500	9697	TM	364207	748164-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364207	748165-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364207	748166-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364207	748630-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364209	748160-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364209	748486-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364209	750446-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364209	750461-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364212	748154-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364212	748158-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364212	748159-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364212	750458-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364212	750460-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364212	750462-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364212	750463-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364214	750459-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364215	750457-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364218	748162-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364220	748155-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364220	748156-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364220	748163-01	ITEM 012 PJT130A
03	1	30,00	x 3050	x 13500	9697	TM	364220	748631-01	ITEM 012 PJT130A
**	22				213334				

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☑
DATE 20.10.11
5

A04 TFK
Manufacturer's mark

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

6022/11/0346

GEPRÜFT / CHECKED / VERIFIE
Technischer Überwachungs-Verein Saarland e.V.
Druckgeräte Herstellung

Dipl.Ing. Steinmill
Inspector

POISSONNET
Test House Manager

A01
GTS Industries - Groupe Dillinger Hütte
Port 3032
3032 rue du Comte Jean - CS 56317
F-59379 Dunkerque Cedex 1 - FRANCE
Service Qualité-Essais
Date 20.10.11 LM 1

QM-System: Certification as per ISO 9001

DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.2 AS PER EN 10204:2004
INSPECTION REPORT 3.2 AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991

A10 Advice of dispatch No./ Date of dispatch: 2379970-19.10.11

A08/ Manufacturer's order/ A03 Certificate No.: 367985-001

Sheet: 2/...

A05 Established Inspecting body: TUVC KUND

A06 Purchaser: SPS, SUTTON COLDFIELD — A07.1 No.: 0057939 CALL OFF 4

Final receiver: BROEKMAN, ROTTERDAM — A07.2 No.: 168397-100-PO-2380E

B01 Product: HOT ROLLED PLATES

B02/ Steel design.: TYPE-I-S460G2+M

B03 Any suppl. requirements: 168397-100-MW-SP-0002:REV.D1-15.12.2010
EN-10225:09/MOM:17.05.2011

B01-B99 Description of the product

B14 Item No.	B08 Number of pieces	B09 Thickness	B10 Width MM	B11 Length	B12 Theoretical mass KG	B04 Product delivery condition	B07.2 Heat No.	B07.1 Rolled plate No./ Test No.	A09 Purchaser article number
04	1	30,00	x 3050	x 11000	7901	TM	364209	750453-01	ITEM 013 PJT130B
04	1	30,00	x 3050	x 11000	7901	TM	364209	750455-01	ITEM 013 PJT130B
04	1	30,00	x 3050	x 11000	7901	TM	364215	748172-01	ITEM 013 PJT130B
**	3				23703				
07	1	30,00	x 3050	x 8000	5746	TM	364209	750464-01	ITEM 016 PJT130E
07	1	30,00	x 3050	x 8000	5746	TM	364209	750466-01	ITEM 016 PJT130E
**	2				11492				
09	1	35,00	x 3050	x 13500	11313	TM	364343	748609-01	ITEM 018 PJT135B
09	1	35,00	x 3050	x 13500	11313	TM	364343	750473-01	ITEM 018 PJT135B
**	2				22626				
***	29				271155				

B06 Marking of the product

ITEM NO.: 01,03-07,09,12
STEEL DESIGNATION TYPE I S460G2 M
HEAT NO. / TRADEMARK / ROLLED PLATE NO.-TEST NO. / INSPECTOR'S STAMP

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☒
DATE 03/08/11
5

A04 TFK
Manufacturer's mark

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

6022/11/0346

GEPRÜFT / CHECKED / VERIFIE
Technischer Überwachungs-Verein Saarland e.V.
Druckgeräte Herstellung

Dipl.Ing. Steinmill
Inspector

POISSONNET
Test House Manager

A01
GTS Industries - Groupe Dillinger Hütte
Port 3032
3032 rue du Comte Jean - CS 56317
F-59379 Dunkerque Cedex 1 - FRANCE
Service Qualité-Essais
Date 20.10.11 LM 1

QM-System: Certification as per ISO 9001

DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.2 AS PER EN 10204:2004
INSPECTION REPORT 3.2 AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991

A10 Advice of dispatch No./ Date of dispatch: 2379970-19.10.11

A08/ Manufacturer's order/ A03 Certificate No.: 367985-001

Sheet: 3/...

A05 Established Inspecting body: TUVC KUND

A06 Purchaser: SPS,SUTTON COLDFIELD — A07.1 No.: 0057939 CALL OFF 4

Final receiver: BROEKMAN,ROTTERDAM — A07.2 No.: 168397-100-PO-2380E

B01 Product: HOT ROLLED PLATES

B02/ Steel design.: TYPE-I-S460G2+M

B03 Any suppl. requirements: 168397-100-MW-SP-0002:REV.D1-15.12.2010
EN-10225:09/MOM:17.05.2011

C10-C29 Tensile test

B14 Item No.	B07.2 Heat No.	B07.1 Rol.plate/ Test No.	B05 Reference (heat) treatment	C01	C02/ C01	C03 Temp. GR.C	C10	C11 MPA RP02	C12 RM	C13	A % L0=5D	C14-C15 RP02/RM
01	364218	750309*		K4	QO	RT		478	579		27	0,82
03	364207	748164		K4	QO	RT		476	586		27	0,81
03	364207	748165		K4	QO	RT		475	589		25	0,80
03	364207	748166		K4	QO	RT		476	590		26	0,80
03	364207	748630		K4	QO	RT		485	588		26	0,82
03	364209	748160		K4	QO	RT		491	597		27	0,82
03	364209	748486		K4	QO	RT		491	596		27	0,82
03	364209	750446		K4	QO	RT		478	589		21	0,81
03	364209	750461		K4	QO	RT		482	590		27	0,81
03	364212	748154		K4	QO	RT		470	584		25	0,80
03	364212	748158		K4	QO	RT		490	589		27	0,83
03	364212	748159		K4	QO	RT		471	577		30	0,81
03	364212	750458		K4	QO	RT		497	596		28	0,83
03	364212	750460		K4	QO	RT		492	596		29	0,82
03	364212	750462		K4	QO	RT		483	593		27	0,81
03	364212	750463		K4	QO	RT		488	596		27	0,81
03	364214	750459		K4	QO	RT		492	588		23	0,83
03	364215	750457		K4	QO	RT		496	592		27	0,83
03	364218	748162		K4	QO	RT		482	586		28	0,82
03	364220	748155		K4	QO	RT		490	589		27	0,83
03	364220	748156		K4	QO	RT		486	590		28	0,82
03	364220	748163		K4	QO	RT		469	585		28	0,80
03	364220	748631		K4	QO	RT		498	596		28	0,83

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☒
DATE 20/10/11
5

A04 TFK
Manufacturer's mark

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

6022/11/0346

GEPRÜFT / CHECKED / VERIFIE
Technischer Überwachungs-Verein Saarland e.V.
Druckgeräte Herstellung

Dipl.Ing. Steinmill
Inspector

POISSONNET
Test House Manager

A01
GTS Industries - Groupe Dillinger Hütte
Port 3032
3032 rue du Comte Jean - CS 56317
F-59379 Dunkerque Cedex 1 - FRANCE
Service Qualité-Essais
Date 20.10.11 LM 1

QM-System: Certification as per ISO 9001

DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02	A10 Advice of dispatch No./ Date of dispatch	A08/ Manufacturer's order/ A03 Certificate No.	Sheet
INSPECTION CERTIFICATE 3.2 AS PER EN 10204:2004 INSPECTION REPORT 3.2 AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991	2379970-19.10.11	367985-001	4/...

A05 Established Inspecting body	A06 Purchaser		A07.1 No.	B01 Product
TUVC KUND	SPS, SUTTON COLDFIELD		0057939 CALL OFF 4	HOT ROLLED PLATES
	Final receiver	BROEKMAN, ROTTERDAM	A07.2 No. 168397-100-PO-2380E	

B02/ Steel design. TYPE-I-S460G2+M

B03 Any suppl. requirements 168397-100-MW-SP-0002:REV.D1-15.12.2010
EN-10225:09/MOM:17.05.2011

C10-C29 Tensile test

B14 Item No.	B07.2 Heat No.	B07.1 Rol.plate/ Test No.	B05 Reference (heat) treatment	C01	C02/ C01	C03 Temp. GR.C	C10	C11 MPA RP02	C12 RM	C13 A % L0=5D	C14-C15 RP02/RM
04	364209	750453		K4	QO	RT		501	606	27	0,82
04	364209	750455		K4	QO	RT		496	601	27	0,82
04	364215	748172		K4	QO	RT		490	593	27	0,82
07	364209	750464		K4	QO	RT		475	585	28	0,81
07	364209	750466		K4	QO	RT		515	606	28	0,85
09	364343	748609		K4	QO	RT		491	589	30	0,83
09	364343	750473		K4	QO	RT		499	596	27	0,83

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☒
DATE 26.10.11
5

C40-C49 Impact test

B14 Item No.	B07.2 Heat No.	B07.1 Rol.plate/ Test No.	B05 Reference (heat) treatment	C01	C02/ C01	C03 Temp. GR.C	C41 Width of test piece	C40 Type of test piece	C44 Testing method	C46 Energy Joule	C45	C42 Individual values AV=J			C43 Mean value
01	364218	750309	*	K4	QX	-40		CHP-V		600	AV	147	176	165	163
			*	K7	QX	-40		CHP-V	5,0%-250C/60MN	600	AV	100	79	99	93
03	364207	748164		K4	QX	-40		CHP-V		600	AV	198	183	191	191
03	364207	748165		K4	QX	-40		CHP-V		600	AV	181	167	141	163
03	364207	748166		K4	QX	-40		CHP-V		600	AV	170	171	123	155
03	364207	748630		K4	QX	-40		CHP-V		600	AV	218	205	206	210
03	364209	748160		K4	QX	-40		CHP-V		600	AV	176	192	149	172
03	364209	748486		K4	QX	-40		CHP-V		600	AV	137	124	124	128
03	364209	750446		K4	QX	-40		CHP-V		600	AV	173	182	177	177
03	364209	750461		K4	QX	-40		CHP-V		600	AV	179	187	188	185
03	364212	748154		K4	QX	-40		CHP-V		600	AV	191	162	196	183
03	364212	748158		K4	QX	-40		CHP-V		600	AV	128	194	143	155
				K7	QX	-40		CHP-V	5,0%-250C/60MN	600	AV	112	105	96	104

A04 TFK
Manufacturer's mark

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

6022/11/0346

GEPRÜFT / CHECKED / VERIFIE
Technischer Überwachungs-Verein Saarland e.V.
Druckgeräte Herstellung

Dipl.Ing. Steinmill
Inspector

POISSONNET
Test House Manager

A01
GTS Industries - Groupe Dillinger Hütte
Port 3032
3032 rue du Comte Jean - CS 56317
F-59379 Dunkerque Cedex 1 - FRANCE
Service Qualité-Essais
Date 20.10.11 LM 1

QM-System: Certification as per ISO 9001

DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.2 AS PER EN 10204:2004
INSPECTION REPORT 3.2 AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991

A10 Advice of dispatch No./ Date of dispatch: 2379970-19.10.11

A08/ Manufacturer's order/ A03 Certificate No.: 367985-001

Sheet: 5/...

A05 Established Inspecting body: TUVC KUND

A06 Purchaser: SPS, SUTTON COLDFIELD — A07.1 No.: 0057939 CALL OFF 4

Final receiver: BROEKMAN, ROTTERDAM — A07.2 No.: 168397-100-PO-2380E

B01 Product: HOT ROLLED PLATES

B02/ Steel design.: TYPE-I-S460G2+M

B03 Any suppl. requirements: 168397-100-MW-SP-0002:REV.D1-15.12.2010
EN-10225:09/MOM:17.05.2011

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☒
DATE ..... 08/08/11 .....
5 .....

C40-C49 Impact test

B14 Item No.	B07.2 Heat No.	B07.1 Rol.plate/ Test No.	B05 Reference (heat) treatment	C01	C02/ C01	C03 Temp. GR.C	C41 Width of test piece	C40 Type of test piece	C44 Testing method	C46 Energy Joule	C45	C42 Individual values AV=J			C43 Mean value
03	364212	748159		K4	QX	-40		CHP-V		600	AV	199	178	129	169
03	364212	750458		K4	QX	-40		CHP-V		600	AV	150	136	151	146
03	364212	750460		K4	QX	-40		CHP-V		600	AV	134	132	123	130
03	364212	750462		K4	QX	-40		CHP-V		600	AV	144	151	159	151
03	364212	750463		K4	QX	-40		CHP-V		600	AV	115	120	109	115
03	364214	750459		K4	QX	-40		CHP-V		600	AV	140	137	116	131
03	364215	750457		K4	QX	-40		CHP-V		600	AV	128	128	130	129
03	364218	748162		K4	QX	-40		CHP-V		600	AV	166	178	184	176
				K7	QX	-40		CHP-V	5,0%-250C/60MN	600	AV	88	85	94	89
03	364220	748155		K4	QX	-40		CHP-V		600	AV	209	192	137	179
03	364220	748156		K4	QX	-40		CHP-V		600	AV	203	201	135	180
				K7	QX	-40		CHP-V	5,0%-250C/60MN	600	AV	100	84	98	94
03	364220	748163		K4	QX	-40		CHP-V		600	AV	184	185	154	174
03	364220	748631		K4	QX	-40		CHP-V		600	AV	137	159	138	145
04	364209	750453		K4	QX	-40		CHP-V		600	AV	115	118	144	126
04	364209	750455		K4	QX	-40		CHP-V		600	AV	134	141	116	130
04	364215	748172		K4	QX	-40		CHP-V		600	AV	178	146	130	151
04	364215	748173	*	K7	QX	-40		CHP-V	5,0%-250C/60MN	600	AV	101	95	81	92
05	364214	748180	*	K7	QX	-40		CHP-V	5,0%-250C/60MN	600	AV	91	93	98	94
07	364207	748189	*	K7	QX	-40		CHP-V	5,0%-250C/60MN	600	AV	75	89	79	81
07	364209	748185	*	K7	QX	-40		CHP-V	5,0%-250C/60MN	600	AV	102	98	110	103
07	364209	750464		K4	QX	-40		CHP-V		600	AV	157	120	151	143
07	364209	750466		K4	QX	-40		CHP-V		600	AV	173	170	117	153
09	364343	748609		K4	QX	-40		CHP-V		600	AV	173	170	150	164

A04 TFK
Manufacturer's mark

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

6022/11/0346

GEPRÜFT / CHECKED / VERIFIE
Technischer Überwachungs-Verein Saarland e.V.
Druckgeräte Herstellung

Dipl.Ing. Steinmill
Inspector

POISSONNET
Test House Manager

A01
GTS Industries - Groupe Dillinger Hütte
Port 3032
3032 rue du Comte Jean - CS 56317
F-59379 Dunkerque Cedex 1 - FRANCE
Service Qualité-Essais

Date 20.10.11 LM 1

QM-System: Certification as per ISO 9001

DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.2 AS PER EN 10204:2004
INSPECTION REPORT 3.2 AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991

A10 Advice of dispatch No./ Date of dispatch: 2379970-19.10.11

A08/ Manufacturer's order/ A03 Certificate No.: 367985-001 Sheet: 6/...

A05 Established Inspecting body: TUVC KUND

A06 Purchaser: SPS,SUTTON COLDFIELD A07.1 No. 0057939 CALL OFF 4

Final receiver: BROEKMAN,ROTTERDAM A07.2 No. 168397-100-PO-2380E

B01 Product: HOT ROLLED PLATES

B02/ Steel design. TYPE-I-S460G2+M

B03 Any suppl. requirements 168397-100-MW-SP-0002:REV.D1-15.12.2010
EN-10225:09/MOM:17.05.2011

C40-C49 Impact test

B14 Item No.	B07.2 Heat No.	B07.1 Rol.plate/ Test No.	B05 Reference (heat) treatment	C01	C02/ C01	C03 Temp. GR.C	C41 Width of test piece	C40 Type of test piece	C44 Testing method	C46 Energy Joule	C45	C42 Individual values AV=J			C43 Mean value
09	364343	748613 *		K7	QX	-40		CHP-V	5,0%-250C/60MN	600	AV	99	109	98	102
09	364343	750473		K4	QX	-40		CHP-V		600	AV	208	209	173	197

C40-C49 Further information about impact test

ITEM NO.: 01,03,06,12
X=SUB-SURFACE -2MM

C66-C68 Supplementary tests on test samples

ITEM NO.: 01,03-07,09,12
DEEP ETCH TESTING AS PER DH-STANDARD =<2B : SATISFACTORY

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☒
DATE 03/08/11
5

C70-C99 Chemical composition % - Heat analysis

B07.2 Heat	C70	C	SI	MN	P	S	N	CU	MO	NI	CR	V	NB	AS	SN
364207	Y	0,101	0,479	1,57	0,013	0,0008	0,0043	0,027	0,015	0,046	0,032	0,001	0,026	0,002	0,001
364209	Y	0,105	0,483	1,60	0,014	0,0006	0,0036	0,024	0,009	0,034	0,034	0,001	0,027	0,004	0,001
364212	Y	0,110	0,466	1,58	0,014	0,0007	0,0038	0,034	0,007	0,047	0,032	0,001	0,027	0,003	0,001
364214	Y	0,106	0,445	1,57	0,009	0,0023	0,0069	0,045	0,008	0,071	0,026	0,001	0,027	0,002	0,001
364215	Y	0,113	0,466	1,59	0,013	0,0012	0,0044	0,035	0,008	0,052	0,029	0,001	0,026	0,003	0,001
364218	Y	0,101	0,484	1,59	0,012	0,0031	0,0053	0,033	0,008	0,042	0,035	0,001	0,026	0,004	0,001
364220	Y	0,110	0,487	1,60	0,011	0,0011	0,0046	0,031	0,008	0,040	0,028	0,001	0,027	0,003	0,001
364343	Y	0,111	0,482	1,58	0,012	0,0013	0,0041	0,039	0,013	0,046	0,037	0,002	0,026	0,004	0,002

A04 TFK
Manufacturer's mark

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

6022/11/0346

GEPRÜFT / CHECKED / VERIFIE
Technischer Überwachungs-Verein Saarland e.V.
Druckgeräte Herstellung

Dipl.Ing. Steinmill
Inspector

POISSONNET
Test House Manager

A01
GTS Industries - Groupe Dillinger Hütte
Port 3032
3032 rue du Comte Jean - CS 56317
F-59379 Dunkerque Cedex 1 - FRANCE
Service Qualité-Essais
Date 20.10.11 LM 1

QM-System: Certification as per ISO 9001

DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.2 AS PER EN 10204:2004
INSPECTION REPORT 3.2 AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991

A10 Advice of dispatch No./ Date of dispatch: 2379970-19.10.11

A08/ Manufacturer's order/ A03 Certificate No.: 367985-001 Sheet: 7/...

A05 Established Inspecting body: TUVC KUND

A06 Purchaser: SPS,SUTTON COLDFIELD A07.1 No. 0057939 CALL OFF 4

Final receiver: BROEKMAN,ROTTERDAM A07.2 No. 168397-100-PO-2380E

B01 Product: HOT ROLLED PLATES

B02/ Steel design. TYPE-I-S460G2+M

B03 Any suppl. requirements 168397-100-MW-SP-0002:REV.D1-15.12.2010
EN-10225:09/MOM:17.05.2011

C70-C99 Chemical composition % - Heat analysis

B07.2 Heat	C70	TI	PB	B	SB	CA	BI	AL-T
364207	Y	0,003	0,001	0,0002	0,0010	0,0029	0,0001	0,034
364209	Y	0,002	0,001	0,0001	0,0009	0,0025	0,0001	0,035
364212	Y	0,003	0,001	0,0002	0,0004	0,0029	0,0001	0,031
364214	Y	0,003	0,001	0,0002	0,0007	0,0030	0,0001	0,051
364215	Y	0,003	0,001	0,0001	0,0001	0,0025	0,0001	0,055
364218	Y	0,003	0,001	0,0002	0,0005	0,0030	0,0001	0,036
364220	Y	0,002	0,001	0,0001	0,0006	0,0025	0,0001	0,033
364343	Y	0,003	0,001	0,0002	0,0013	0,0023	0,0001	0,040

C94 Heat analysis Carbon equivalent / Alloying restrictions

B07.2 Heat										
364207	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,12	FO-A1=	7,91
364209	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,10	FO-A1=	9,72
364212	FO-02=	0,39	FO-51=	0,03	FO-52=	0,03	FO-55=	0,12	FO-A1=	8,16
364214	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,15	FO-A1=	7,39
364215	FO-02=	0,39	FO-51=	0,03	FO-52=	0,03	FO-55=	0,12	FO-A1=	12,50
364218	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,12	FO-A1=	6,79
364220	FO-02=	0,39	FO-51=	0,03	FO-52=	0,03	FO-55=	0,11	FO-A1=	7,17
364343	FO-02=	0,39	FO-51=	0,03	FO-52=	0,03	FO-55=	0,14	FO-A1=	9,76

C95 Ladle treatment

ITEM NO.: 01,03-07,09,12
HEAT OF THE INDICATED ITEM: VACUUM DEGASSED

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☑
DATE 25.10.11
5

A04 TFK
Manufacturer's mark

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

6022/11/0346

GEPRÜFT / CHECKED / VERIFIE
Technischer Überwachungs-Verein Saarland e.V.
Druckgeräte Herstellung

Dipl.Ing. Steinmill
Inspector

POISSONNET
Test House Manager

A01
GTS Industries - Groupe Dillinger Hütte
Port 3032
3032 rue du Comte Jean - CS 56317
F-59379 Dunkerque Cedex 1 - FRANCE
Service Qualité-Essais
Date 20.10.11 LM 1

QM-System: Certification as per ISO 9001

DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.2 AS PER EN 10204:2004
INSPECTION REPORT 3.2 AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991

A10 Advice of dispatch No./ Date of dispatch: 2379970-19.10.11

A08/ Manufacturer's order/ A03 Certificate No.: 367985-001 Sheet: 8/...

A05 Established Inspecting body: TUVC KUND

A06 Purchaser: SPS,SUTTON COLDFIELD A07.1 No. 0057939 CALL OFF 4

Final receiver: BROEKMAN,ROTTERDAM A07.2 No. 168397-100-PO-2380E

B01 Product: HOT ROLLED PLATES

B02/ Steel design. TYPE-I-S460G2+M

B03 Any suppl. requirements 168397-100-MW-SP-0002:REV.D1-15.12.2010
EN-10225:09/MOM:17.05.2011

C70-C99 Chemical composition % - Product analysis

B07.2 Heat	B07.1 Test No.	C01	C	SI	MN	P	S	N	CU	MO	NI	CR	V	NB	TI	B
364207	748175	K40	0,105	0,476	1,55	0,012	0,0006	0,0029	0,027	0,016	0,045	0,030	0,000	0,026	0,002	0,0002
364207	748181	K40	0,105	0,471	1,53	0,013	0,0008	0,0048	0,027	0,015	0,045	0,031	0,000	0,025	0,002	0,0002
364207	748182	K40	0,108	0,475	1,53	0,013	0,0007	0,0058	0,028	0,015	0,044	0,031	0,000	0,026	0,002	0,0003
364207	748189	K40	0,107	0,486	1,54	0,012	0,0006	0,0058	0,029	0,016	0,045	0,031	0,000	0,026	0,002	0,0003
364209	748183	K40	0,108	0,483	1,55	0,014	0,0007	0,0024	0,024	0,009	0,033	0,031	0,000	0,026	0,002	0,0002
364209	748184	K40	0,109	0,490	1,56	0,014	0,0006	0,0037	0,025	0,008	0,032	0,031	0,000	0,027	0,002	0,0002
364209	748185	K40	0,111	0,488	1,57	0,014	0,0006	0,0025	0,025	0,009	0,033	0,032	0,000	0,028	0,002	0,0002
364209	748186	K40	0,110	0,489	1,57	0,014	0,0006	0,0029	0,024	0,009	0,033	0,032	0,000	0,028	0,002	0,0002
364212	748158	K40	0,097	0,464	1,54	0,013	0,0008	0,0030	0,034	0,008	0,045	0,030	0,000	0,026	0,003	0,0002
364212	748161	K40	0,107	0,474	1,55	0,014	0,0007	0,0031	0,036	0,008	0,047	0,030	0,000	0,027	0,003	0,0003
364214	748178	K40	0,103	0,460	1,54	0,012	0,0016	0,0068	0,041	0,008	0,056	0,029	0,000	0,027	0,003	0,0003
364214	748180	K40	0,107	0,454	1,55	0,011	0,0020	0,0051	0,041	0,008	0,061	0,027	0,000	0,028	0,003	0,0003
364215	748172	K40	0,107	0,465	1,55	0,012	0,0010	0,0040	0,035	0,009	0,050	0,027	0,000	0,026	0,002	0,0003
364215	748173	K40	0,106	0,467	1,55	0,013	0,0010	0,0036	0,034	0,009	0,049	0,027	0,000	0,026	0,002	0,0003
364218	748162	K40	0,102	0,491	1,56	0,012	0,0039	0,0061	0,035	0,009	0,041	0,034	0,000	0,026	0,003	0,0003
364218	750309	K40	0,102	0,495	1,58	0,011	0,0035	0,0047	0,035	0,008	0,041	0,033	0,000	0,024	0,003	0,0003
364220	748156	K40	0,102	0,486	1,55	0,010	0,0006	0,0038	0,031	0,008	0,038	0,025	0,001	0,025	0,002	0,0002
364220	748174	K40	0,108	0,488	1,57	0,011	0,0015	0,0037	0,032	0,009	0,040	0,028	0,001	0,027	0,002	0,0002
364343	748603	K40	0,104	0,496	1,55	0,011	0,0012	0,0040	0,039	0,014	0,045	0,034	0,002	0,026	0,003	0,0003
364343	748613	K40	0,102	0,485	1,53	0,011	0,0012	0,0034	0,037	0,013	0,044	0,034	0,002	0,025	0,003	0,0002
364343	748617	K40	0,105	0,486	1,55	0,011	0,0013	0,0030	0,039	0,014	0,045	0,034	0,001	0,026	0,003	0,0003

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☒
DATE 28/10/11
5

A04 TFK
Manufacturer's mark

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

6022/11/0346

GEPRÜFT / CHECKED / VERIFIE
Technischer Überwachungs-Verein Saarland e.V.
Druckgeräte Herstellung

Dipl.Ing. Steinmill
Inspector

POISSONNET
Test House Manager

A01
GTS Industries - Groupe Dillinger Hütte
Port 3032
3032 rue du Comte Jean - CS 56317
F-59379 Dunkerque Cedex 1 - FRANCE
Service Qualité-Essais
Date 20.10.11 LM 1

QM-System: Certification as per ISO 9001

DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.2 AS PER EN 10204:2004
INSPECTION REPORT 3.2 AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991

A10 Advice of dispatch No./ Date of dispatch: 2379970-19.10.11

A08/ Manufacturer's order/ A03 Certificate No.: 367985-001 Sheet: 9/...

A05 Established Inspecting body: TUVC KUND

A06 Purchaser: SPS,SUTTON COLDFIELD A07.1 No. 0057939 CALL OFF 4

Final receiver: BROEKMAN,ROTTERDAM A07.2 No. 168397-100-PO-2380E

B01 Product: HOT ROLLED PLATES

B02/ Steel design. TYPE-I-S460G2+M

B03 Any suppl. requirements 168397-100-MW-SP-0002:REV.D1-15.12.2010
EN-10225:09/MOM:17.05.2011

C70-C99 Chemical composition % - Product analysis

B07.2 Heat	B07.1 Test No.	C01	AL-T
364207	748175	K4O	0,034
364207	748181	K4O	0,029
364207	748182	K4O	0,029
364207	748189	K4O	0,032
364209	748183	K4O	0,034
364209	748184	K4O	0,032
364209	748185	K4O	0,034
364209	748186	K4O	0,034
364212	748158	K4O	0,030
364212	748161	K4O	0,030
364214	748178	K4O	0,039
364214	748180	K4O	0,041
364215	748172	K4O	0,054
364215	748173	K4O	0,053
364218	748162	K4O	0,035
364218	750309	K4O	0,035
364220	748156	K4O	0,031
364220	748174	K4O	0,031
364343	748603	K4O	0,040
364343	748613	K4O	0,040
364343	748617	K4O	0,039

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☑
DATE 28.10.11
5

A04 TFK
Manufacturer's mark

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

6022/11/0346

GEPRÜFT / CHECKED / VERIFIE
Technischer Überwachungs-Verein Saarland e.V.
Druckgeräte Herstellung

Dipl.Ing. Steinmill
Inspector

POISSONNET
Test House Manager

A01
GTS Industries - Groupe Dillinger Hütte
Port 3032
3032 rue du Comte Jean - CS 56317
F-59379 Dunkerque Cedex 1 - FRANCE
Service Qualité-Essais
Date 20.10.11 LM 1

QM-System: Certification as per ISO 9001

DILLINGER HÜTTE

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A02 INSPECTION CERTIFICATE 3.2 AS PER EN 10204:2004
INSPECTION REPORT 3.2 AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991

A10 Advice of dispatch No./ Date of dispatch: 2379970-19.10.11

A08/ Manufacturer's order/ A03 Certificate No.: 367985-001 Sheet: 10/...

A05 Established Inspecting body: TUVC KUND

A06 Purchaser: SPS,SUTTON COLDFIELD A07.1 No. 0057939 CALL OFF 4

Final receiver: BROEKMAN,ROTTERDAM A07.2 No. 168397-100-PO-2380E

B01 Product: HOT ROLLED PLATES

B02/ Steel design. TYPE-I-S460G2+M

B03 Any suppl. requirements 168397-100-MW-SP-0002:REV.D1-15.12.2010
EN-10225:09/MOM:17.05.2011

C94 Product analysis Carbon equivalent / Alloying restrictions

B07.2 Heat	B07.1 Test No.	C01											
364207	748175	K40	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,12	FO-A1=	11,72
364207	748181	K40	FO-02=	0,37	FO-51=	0,03	FO-52=	0,03	FO-55=	0,12	FO-A1=	6,04
364207	748182	K40	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,12	FO-A1=	5,00
364207	748189	K40	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,12	FO-A1=	5,52
364209	748183	K40	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,10	FO-A1=	14,17
364209	748184	K40	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,10	FO-A1=	8,65
364209	748185	K40	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,10	FO-A1=	13,60
364209	748186	K40	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,10	FO-A1=	11,72
364212	748158	K40	FO-02=	0,37	FO-51=	0,03	FO-52=	0,03	FO-55=	0,12	FO-A1=	10,00
364212	748161	K40	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,12	FO-A1=	9,68
364214	748178	K40	FO-02=	0,37	FO-51=	0,03	FO-52=	0,03	FO-55=	0,13	FO-A1=	5,74
364214	748180	K40	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,14	FO-A1=	8,04
364215	748172	K40	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,12	FO-A1=	13,50
364215	748173	K40	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,12	FO-A1=	14,72
364218	748162	K40	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,12	FO-A1=	5,74
364218	750309	K40	FO-02=	0,38	FO-51=	0,02	FO-52=	0,03	FO-55=	0,12	FO-A1=	7,45
364220	748156	K40	FO-02=	0,37	FO-51=	0,03	FO-52=	0,03	FO-55=	0,10	FO-A1=	8,16
364220	748174	K40	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,11	FO-A1=	8,38
364343	748603	K40	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,13	FO-A1=	10,00
364343	748613	K40	FO-02=	0,37	FO-51=	0,03	FO-52=	0,03	FO-55=	0,13	FO-A1=	11,76
364343	748617	K40	FO-02=	0,38	FO-51=	0,03	FO-52=	0,03	FO-55=	0,13	FO-A1=	13,00

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☒
DATE 21/08/11
5

A04 TFK
Manufacturer's mark

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

6022/11/0346

GEPRÜFT / CHECKED / VERIFIE
Technischer Überwachungs-Verein Saarland e.V.
Druckgeräte Herstellung

Dipl.Ing. Steinmill
Inspector

POISSONNET
Test House Manager

GTS Industries - Groupe Dillinger Hütte
Port 3032
3032 rue du Comte Jean - CS 56317
F-59379 Dunkerque Cedex 1 - FRANCE
Service Qualité-Essais

A01

Date 20.10.11 LM 1

QM-System: Certification as per ISO 9001

DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.2 AS PER EN 10204:2004 INSPECTION REPORT 3.2 AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991		A10 Advice of dispatch No./ Date of dispatch 2379970-19.10.11	A08/ Manufacturer's order/ A03 Certificate No. Sheet 367985-001 11
A05 Established Inspecting body TUVC KUND	A06 Purchaser SPS,SUTTON COLDFIELD A07.1 No. 0057939 CALL OFF 4 Final receiver BROEKMAN,ROTTERDAM A07.2 No. 168397-100-PO-2380E		B01 Product HOT ROLLED PLATES
B02/ Steel design. TYPE-I-S460G2+M B03 Any suppl. requirements 168397-100-MW-SP-0002:REV.D1-15.12.2010 EN-10225:09/MOM:17.05.2011			

C94 Carbon equivalent formula / Alloying restrictions

FO-02 = C+(MN/6)+(CR+MO+V)/5+(NI+CU)/15
FO-51 = V +NB
FO-52 = V +NB+TI
FO-55 = CU+MO+NI+CR
FO-A1 = AT/N

D01 Marking and identification, surface appearance, shape and dimensional properties

ITEM NO.: 01,03-07,09,12
RESULT OF MARKING, SURFACE, SHAPE AND DIMENSIONS: NO REMARKS

SURFACE	AS PER EN-10225
THICKNESS	AS PER EN-10029:10-A
LENGTH AND WIDTH	AS PER EN-10029:10
FLATNESS	AS PER EN-10029:10-T4L

D02 Non-destructive tests - Ultrasonic testing

ITEM NO.: 01,03-07,09,12

UT-SPECIFICATION	: EN-10160 CLASS S1 AND E2
SCANNING PLAN BODY	: LONGITUDINALLY SCAN LINES SPACING 100 MM
EDGES	: 100 MM
PERSONNEL QUALIFICATION	: LEVEL 2 IN ACCORDANCE TO EN 473

THE TEST RESULTS MEET THE REQUIREMENTS OF THE ORDER.

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☑
DATE 03/03/15
5

A04 TFK Manufacturer's mark

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

6022/11/0346

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Druckgeräte Herstellung

Dipl.Ing. Steinmill
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F-59379 Dunkerque Cedex 1 - FRANCE
Service Qualité-Essais
Date 20.10.11 LM 1

AIR LIQUIDE WELDING FRANCE
13 Rue d'Epluches, Saint-Ouen l'Aumône
95315 Cergy Pontoise Cedex - France

Phone: +33134213333
Fax: +33134213130

SAF-FRO

Certificato di Prodotto / Product Certificate

Certificato N°: / Certificate n°:
ALW03111202-6

Ordine N°: / Order n°:

Bolla N°: / Delivery Note n°:
47387

Cliente: / Customer:
CIMOLAI SPA
VIA ETTORE MAJORANA ,7

33058 S. GIORGIO DI NOGARO

Data: / Date:
25/11/2013

Quantità: / Quantity;

UM: / Unit:
KG

Designazione: / Trade name:
W000273683
STEELCORED M10 2.4X0250XDRUM

Lotto N°: / Batch n°:
0913007232

Classificazione: / Classification:
EN ISO 17632-A:T464MM1H5
AWS A5.18:E70C-6MH4

In combinazione con: / In combination with:
Mix: Ar/CO2

Si confermano le proprietà sotto riportate per i consumabili di saldatura da noi forniti

We confirm following properties for the welding filler metals delivered by us

Analisi chimica del deposito: / Weld metal chemical analysis (%):

In accordo a / According to EN 10204-2.2

C	Mn	Si	P	S	Al	Cr	Ni	Mo	V
0.08	1.5	0.4	0.008	0.009	0.015	0.02	0.03	0.01	0.002

Cu	Nb								
0.12	0.002								

Proprietà meccaniche del deposito / Weld metal mechanical properties:

In accordo a / According to EN 10204-2.2

Trattamento Termico Heat treatment	Test temp. °C	Snervamento Yield Strength ReH [N/mm²]	Trazione Tensile Strength Rm [N/mm²]	Allungamento Elongation A [%]	Durezza Hardness HB	Resilienza - Impact strength (Charpy-V)		
						Temp: °C	Joule	Media Average
Come Saldato as Welded	20	480	570	28		-40		90

Note:
Remarks:

Questo certificato è stato stampato da computer e non necessita di firma

This certificate is printed by computer and needs no signature

Quality Departement - Cittadella Plant

Bizzotto Manuele

Emesso da - issued by: Olivieri Elena

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☒
DATE ....
5 ....

AIR LIQUIDE WELDING

AIR LIQUIDE WELDING FRANCE
13 Rue d'Epluches, Saint-Ouen l'Aumône
95315 Cergy Pontoise Cedex - France

Phone: +33134213333
Fax: +33134213130

SAF-FRO

Certificato di Prodotto / Product Certificate

Certificato N°: / Certificate n°: ALW03101164-98

Ordine N°: / Order n°:

Bolla N°: / Delivery Note n°: 20498

Cliente: / Customer:
CIMOLAI SPA (S.GIORGIO)
VIA UNGARESCA 38

Data: / Date: 30/05/2014

Quantità: / Quantity;

UM: / Unit: KG

33170 PORDENONE
ITALY

Designazione: / Trade name: W000376348
OE-SD3 1NI 1/4MO 4.00X0025XB450*CIMOLAI

Lotto N°: / Batch n°: 09140AL057

Classificazione: / Classification: EN ISO 14171-A : SZ
AWS A5.23 : EG

Si confermano le proprietà sotto riportate per i consumabili di saldatura da noi forniti

We confirm following properties for the welding filler metals delivered by us

Analisi chimica prodotto / Product chemical analysis (%):

In accordo a / According to EN 10204-2.2

C	Mn	Si	P	S	Ni	Mo			
0.097	1.49	0.21	0.007	0.003	0.96	0.23			

Note:

Remarks:

Questo certificato è stato stampato da computer e non necessita di firma

This certificate is printed by computer and needs no signature

Emesso da - issued by: Benedini Francesca

Quality Departement - Cittadella Plant

Bizzotto Manuele

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☒
DATE ...
5 ...

AIR LIQUIDE WELDING

AIR LIQUIDE WELDING FRANCE
13 Rue d'Epluches, Saint-Ouen l'Aumône
95315 Cergy Pontoise Cedex - France

Phone: +33134213333
Fax: +33134213130

SAF-FRO

Certificato di Prodotto / Product Certificate

Certificato N°: / Certificate n°: ALW00120600-193

Ordine N°: / Order n°:

Bolla N°: / Delivery Note n°: 15961

Cliente: / Customer:
CIMOLAI SPA (S.GIORGIO)
VIA UNGARESCA 38

33170 PORDENONE
ITALY

Data: / Date: 30/04/2014

Quantità: / Quantity;

UM: / Unit: KG

Designazione: / Trade name: W000280042
OP 121TT DRYX0025

Classificazione: / Classification: EN 760 - S A FB 1 55 AC H5

Lotto N°: / Batch n°: 01790644

Si confermano le proprietà sotto riportate per i consumabili di saldatura da noi forniti

We confirm following properties for the welding filler metals delivered by us

Analisi chimica prodotto / Product chemical analysis (%):

In accordo a / According to EN 10204-2.2

SiO2	CaF2	MnO	Al2O3	MgO	CaO	Fe2O3			
14	25	1	18	30	7	2			

Analisi granulometrica / Sieve analysis (%):

In accordo a / According to EN 10204-2.2

> 1600 µm	> 1000 µm	> 315 µm	> 315 µm	> 500 µm					
5	35	10	1	50					

Note:

Remarks:

Questo certificato è stato stampato da computer e non necessita di firma

This certificate is printed by computer and needs no signature

Emesso da - issued by: Benedini Francesca

Quality Departement - Verona Unit

Piubello Andrea

SGS Italia S.p.A.
WITNESSED ☐ REVIEWED ☐
DATE .....
5 .....

AIR LIQUIDE WELDING

Inspection Certificate 3.1

LINCOLN ELECTRIC
THE WELDING EXPERTS

Product Line	
Product	**STEELCORED M 10**
Size(s) mm	**2.4X0025XK415 COIL**
Item No.	**W001273683**
Lot/Batch	**M1FC234271**
Class	**AWS A5.18 E70C-6M H4** **EN ISO 17632-A T 46 4 MM 1 H5**

Customer Ref	**2023082906**
Our Reference	**819456525**
Quantity	**900.0 KG**
Customer	**CIMOLAI S.P.A. S.GIORGIO MAJORANA** **VIA ETTORE MAJORANA 7** **S.GIORGIO DI NOGARO 33058** **Italy**

Chemical analysis (%) According to EN10204 3.1

C	Si	Mn	P	S	Cr	Ni	Mo	Nb	Cu	V	Al
0.067	**0.30**	**1.31**	**0.009**	**0.009**	**0.04**	**0.01**	**0.01**	**<0.01**	**0.09**	**<0.01**	**0.012**

Mechanical tests, all weld metal

Remarks

The product identified above has been manufactured, tested and supplied in compliance with a certified ISO 9001 Quality Assurance Programme.

Company	Issued By	Printed		Cert. No.
Lincoln Electric Italia srl **Loc. Casalmenini 3** **37010 Rivoli Veronese** **Italy**	C.Dascalu Position: QES Manager	By Function Date	Massimo Dall'Agnola Warehouse 25/OCT/2023	**02189532** ZEU_CMN_FCW , 1

OERLIKON SAF-FRO METRODE WELDING CONSUMABLES SPECIAL ALLOYS

Inspection Certificate 3.1

Cimolai S.p.A.	SVINCOLATO PER FABBRICAZIONE / RELEASED FOR FABRICATION
Structural application under: - AWS D1.1 Code / AWS D1.5 Code - EN 1090-2 Code	
Except otherwise noted in WB/ITP	
AWS A5.01	ISO 14344
Schedule: H Lot Class: x1	Schedule: 3 Lot Class: x1
Welding coordination dept	

LINCOLN ELECTRIC
THE WELDING EXPERTS

Product Line	**SAW Wire**
Product	**OESD3 1Ni-1/4Mo SF DRUM EXP**
Size(s) mm	**4.0x300**
Item No.	**OE14MO-4-300E**
Lot/Batch	**F1SW230353**
Class	**AWS A5.23/A5.23M: ENi5** **ISO14171-A: S3Ni1Mo0.2**

Customer Ref	**2023041327**
Our Reference	**818911182**
Quantity	**4800.0 KG**
Customer	**CIMOLAI SPA**

VIA ETTORE MAJORANA 7
S.GIORGIO DI NOGARO 33058
Italy

Chemical analysis (%) According to EN10204 3.1

C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V	Al	Co	N
0.100	**0.22**	**1.42**	**0.012**	**0.006**	**0.03**	**0.98**	**0.24**	**0.04**	**<0.01**	**0.001**	**0.006**	**0.003**

Mechanical tests, all weld metal

Remarks

The product identified above has been manufactured, tested and supplied in compliance with a certified ISO 9001 Quality Assurance Programme.

Company
Lincoln Electric Italia srl
Loc. Casalmenini 3
37010 Rivoli Veronese
Italy

Issued By
F.Wera
Manager Quality

Printed By: Michele Galante
Function: CSC Verona
Date: 16/JUN/2023

Cert. No.
02081504
ZEU_CRMO , 1

OERLIKON SAF-FRO METRODE WELDING CONSUMABLES SPECIAL ALLOYS

Inspection Certificate 3.1

Product Line	**Flux**
Product	**OP 121TT**
Item No.	**W000280042**
Lot/Batch	**D1FX230176**
Wire Class	**OESD3-4-25VCI OE-SD3 4.0x25 STEIN + VCI**
	EN ISO 14174: S A FB 1 55 AC H5
	AWS/ASME Sec. II C / SFA 5.17 F7A8-EH12K

Customer Ref	**2023041332**
Our Reference	**818875441**
Quantity	**6000.0 KG**
Customer	**CIMOLAI SPA**

VIA ETTORE MAJORANA 7
S.GIORGIO DI NOGARO 33058
Italy

Flux Composition (%) According to EN10204 3.1

Al2O3	Fe2O3	SiO2	**TiO2**	MnO	CaO	MgO	CaF2
20.0	**2.5**	**12.1**	**1.3**	**1.2**	**6.5**	**31.8**	**21.1**

Sieve analysis (%) According to EN10204 3.1

<0,315 mm	0,315-0,5	0,5-1 mm	1-1,6 mm	>1,6 mm
0.30	**6.70**	**35.60**	**43.70**	**13.80**

Diffusible hydrogen **Moisture check (1000º)** According to EN10204 2.2

HDM as Manufactured	Moisture 1000C
3.0 ml/100g	**0.03 %**

Chemical analysis (%) / Batch: F1SW211057 OE-SD3 4.0x25 STEIN + VCI 25KG According to EN10204 3.1

C	Si	Mn	P	S	Cr	Ni	Mo	Cu	V	Al	N
0.11	**0.31**	**1.75**	**0.006**	**0.003**	**0.03**	**0.01**	**<0.01**	**0.010**	**<0.01**	**<0.01**	**0.005**

Chemical analysis (%) / Weld Metal According to EN10204 2.2

C	Si	Mn	P	S
0.11	**0.25**	**1.54**	**0.013**	**0.004**

Mechanical tests, all weld metal According to EN10204 2.2

Tensile testing

Cond.	Temp. °C	Rp0.2 MPa	Rm MPa	A5 %	Z %
AW	**20**	**501**	**590**	**29**	**77**

Impact testing

Cond.	Temp. °C	C1a J	C1b J	C1c J	KV J
AW	**-60**	**200**	**196**	**187**	**194**

Remarks



The product identified above has been manufactured, tested and supplied in compliance with a certified ISO 9001 Quality Assurance Programme.

Company
Lincoln Electric Italia srl
Loc. Casalmenini 3
37010 Rivoli Veronese
Italy

D.Weismann
QC Manager

Printed
By Eros Alberini
Function Warehouse
Date 08/JUN/2023

Cert. No.
02074468
ZEU_FLUX , 1

CIMOLAI

Welders and welding operator list according to EN standard

Doc. n: WL-2023263-01 rev. 00
Date: 29/11/2023

First Name	Family Name	Identification/ Punch number	Method	Weld Unit	Visual control	Thickness qualification range	Filler material group	Qualified position	Certificate No.	Next renewal date	Expire date	Standard applied
Almir	Bosnijak	56	121 (Fully mechanised)	UHRHAN SCHWILL est.	Direct	Not essential variable	Not essential variable	PA	WELD/22/00831	02/02/2024	02/02/2028	ISO 14732:2013
Denis	Camuffo	134	121 (Fully mechanised)	ESAB 1250	Direct	Not essential variable	Not essential variable	PA	WELD/22/00834	12/04/2024	21/10/2027	ISO 14732:2013
Denis	Camuffo	134	121 (Fully mechanised)	UHRHAN SCHWILL int.	Remote	Not essential variable	Not essential variable	PA	WELD/22/00824	02/02/2024	02/02/2028	ISO 14732:2013
Denis	Camuffo	134	121 (Fully mechanised)	UNIWELD	Remote	Not essential variable	Not essential variable	PA	WELD/22/00815	02/02/2024	02/02/2028	ISO 14732:2013
Dumitru Nicu	Stan	92	138 (Fully mechanised)	GREABENER 1000A	Direct	Not essential variable	Not essential variable	PA	WELD/22/00826	13/01/2024	13/01/2028	ISO 14732:2013
Dumitru Nicu	Stan	92	121 (fully mechanised)	UHRHAN SCHWILL int.	Remote	Not essential variable	Not essential variable	PA	WELD/22/00825	02/02/2024	02/02/2028	ISO 14732:2013
Dumitru Nicu	Stan	92	121 (fully mechanised)	UNIWELD	Remote	Not essential variable	Not essential variable	PA	WELD/22/00817	02/02/2024	02/02/2028	ISO 14732:2013
Matteo	Brocchetta	148	121 (Fully mechanised)	UHRHAN SCHWILL est.	Direct	Not essential variable	Not essential variable	PA	WELD/22/00829	02/02/2024	02/02/2028	ISO 14732:2013
Oszkar	Kelemen	112	121 (Fully mechanised)	ESAB 1250	Direct	Not essential variable	Not essential variable	PA	WELD/22/00833	25/03/2024	20/10/2027	ISO 14732:2013
Oszkar	Kelemen	112	121 (fully mechanised)	UNIWELD	Remote	Not essential variable	Not essential variable	PA	WELD/22/00814	25/03/2024	26/09/2027	ISO 14732:2013
Oszkar	Kelemen	112	121 (fully mechanised)	UHRHAN SCHWILL int.	Remote	Not essential variable	Not essential variable	PA	WELD/22/00823	20/01/2024	20/01/2028	ISO 14732:2013
Slavko	Vucic	102	121 (Fully mechanised)	UNIWELD	Remote	Not essential variable	Not essential variable	PA	WELD/22/00819	08/02/2024	08/02/2028	ISO 14732:2013
Slavko	Vucic	102	121 (Fully mechanised)	UHRHAN SCHWILL int.	Remote	Not essential variable	Not essential variable	PA	WELD/22/00822	19/01/2024	19/01/2028	ISO 14732:2013
Smail	Hakic	162	121 (Fully mechanised)	UNIWELD	Remote	Not essential variable	Not essential variable	PA	WELD/22/00818	08/02/2024	08/02/2028	ISO 14732:2013
Smail	Hakic	162	121 (Fully mechanised)	UHRHAN SCHWILL int.	Remote	Not essential variable	Not essential variable	PA	WELD/22/00821	19/01/2024	19/01/2028	ISO 14732:2013
Zoran	Jovanovic	126	138 (Fully mechanised)	GREABENER 1000A	Direct	Not essential variable	Not essential variable	PA	WELD/22/00828	20/01/2024	20/01/2028	ISO 14732:2013
Zoran	Jovanovic	126	121 (Fully mechanised)	UHRHAN SCHWILL int.	Remote	Not essential variable	Not essential variable	PA	WELD/22/00820	18/01/2024	18/01/2028	ISO 14732:2013
Zoran	Jovanovic	126	121 (Fully mechanised)	UNIWELD	Remote	Not essential variable	Not essential variable	PA	WELD/22/00816	02/02/2024	02/02/2028	ISO 14732:2013
Dumitru Nicu	Stan	92	138 (Partially mechanised)	Manual welding	Not essential variable	≥ 3mm	FM1 - FM2	BW: PA	WELD/22/00805	02/02/2024	02/02/2024	EN 9606-1:2017
Zoran	Jovanovic	126	138 (Partially mechanised)	Manual welding	Not essential variable	≥ 3mm	FM1 - FM2	BW: PA	WELD/22/00807	02/02/2024	02/02/2024	EN 9606-1:2017
Oszkar	Kelemen	112	138 (Partially mechanised)	Manual welding	Not essential variable	≥ 3mm	FM1 - FM2	BW: PA	WELD/22/00808	02/02/2024	02/02/2024	EN 9606-1:2017
Denis	Camuffo	134	138 (Partially mechanised)	Manual welding	Not essential variable	≥ 3mm	FM1 - FM2	BW: PA	WELD/22/00809	02/02/2024	02/02/2024	EN 9606-1:2017
Smail	Hakic	162	136 (partly mechanized)	Manual welding	Not essential variable	≥ 3mm	FM1 - FM2	BW: PF-PA	WELD/22/00813	02/02/2024	02/02/2024	EN 9606-1:2017
Smail	Hakic	162	138 (party mechanized)	Manual welding	Not essential variable	≥ 3mm	FM1 - FM2	BW: PC-PA	WELD/22/00811	02/02/2024	02/02/2024	EN 9606-1:2017