



**BUREAU  
VERITAS**



SGQ	N° 009A	SGE	N° 009M
SGA	N° 008D	EMAS	N° 004P
PRD	N° 009B	GHG	N° 008O
SCR	N° 008F	ISP	N° 006E
FSMS	N° 003I	SSI	N° 013G
PRS	N° 076C		

Membro degli Accordi di Mutuo Riconoscimento EA e IAF  
Signatory of EA and IAF mutual Recognition Agreements

# WELDING PROCEDURE QUALIFICATION RECORD

## N° QP-ITA-17-00918-rev.0

**LEVEL**

	<b>2</b>
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Manufacturer's WPQR no.: : 01/17/E

Manufacturer: : Aldegani Angelo & Figli S.r.l.

Address: : Via dell'Artigianato, 1 - 24068 Seriate (BG) Italy

Date of welding: : 16/10/2017

Reference standard : : UNI EN ISO 15614-1 Ed. 2017

Code/ Standard Supplem./Client Req : : N.A.

Certificate issued by / Authorized Inspector : : - Bureau Veritas

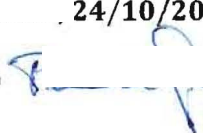

### BUREAU VERITAS

*certifies that test pieces were prepared, welded and tested satisfactorily in accordance with the requirements of the documents indicated above.*

*Permanent Joining Procedure Qualification Record complies with the Essential Safety Requirements stated by PED Directive Appendix 1- § 3.1.2.*

No

Yes

EXAMINATION BODY	MANUFACTURER
<p>Name, date and signature of authorized representant</p> <p>24/10/2017</p> <p>Stamp </p> 	<p>Name, date and signature of representant</p>

Other identification (if necessary) : 17.IT.2877708.138 M10166/17/GB/gb

# RECORD OF WELD TEST

Organization Name	Aldegani Srl			Date	24/10/2017
Mfr Procedure Qualification Record No.	01/17/E				
pWPS No.	01/17/E rev.0				
Welding Process(es)	A)	141	B)	C)	D)
Types (Manual, Autom., Partly mech.)	A)	Manual	B)	C)	D)

## WELDING PERFORMED WITNESSED BY :

PREPARATION		PARENT MATERIAL	
Joint type	Butt Weld Single side no backing	Parent material grade	EN 10028-7
Tungsten electrode (tipo & Ø)	EN ISO 6848: WTh 20; Ø2.4 mm	Material Standard	1.4404
Backing	No	Group / Subgroup	8.1
Gouging or grinding	N.A.	Thickness (mm)	2.0
Preparation and cleaning	Brushing and grinding	Outside diameter (mm)	N.A.



Note		Note	
Bevels	Angle 60° Root gap 2.0+2.5 mm Root face 1.0 mm	Tack weld	As per first pass

FILLER METALS				HEAT		
	A)	B)	C)	D)		
Filler Metal trade make	Raajratna Metal Industries AWSER316L-ENISO 14343 W1912 3 L				Preheat temperature	20 °C
Filler Metal designation	EN ISO 14343-A: W 19 12 3 L	EN ISO 3580-A: E Cr Mo B 22 H5	-	-	Interpass temperature	150 °C
F-No. (Only for level 1)	-	-	-	-	Postheat temp and time	- °C
A-No. (Only for level 1)	-	-	-	-	<b>POST WELD HEAT TREATMENT</b>	
Flux trade make	-	-	-	-	Holding temp.	- °C
Flux designation	-	-	-	-	Holding time	- min.
Weld Metal deposit	2.0 mm	7.15 mm	-	-	Heating rate	- °C/h
Flux batch (recrushed slag)	-	-	-	-	Cooling rate	- °C/h
Other	-	-	-	-	Other info	

GAS				TECHNIQUE		
	A)	B)	C)	D)		
Shielding gas type	Ar 99.998%	N.A.	-	-	Weaving (max width of run)	-
Designation (EN ISO 14175)	11	-	-	-	Oscillation amplitude	-
flow rate	10+12	-	-	-	Oscillat. frequ. - dwell time	-
Backing gas type	Ar 99.998%	-	-	-	Single or Multiple Electr.	Single
Designation (EN ISO 14175)	11	-	-	-	Pulse welding details	-
flow rate	6+8	-	-	-	Dist. cont. tube/work piece	-
Plasma gas type	-	-	-	-	Plasma welding details	-
Designation (EN ISO 14175)	-	-	-	-	Torch angle	-
flow rate	-	-	-	-	Other	-

Run	Process	Transfert mode	Position	Filler metal (mm)	Current (A)	Voltage (V)	Curr. type and polar.	Wire speed (m/min)	Welding speed (mm/min)	Heat input (KJ/mm)
1	141	-	PA	2.4	77	11 - 12	DC EN	-	125 - 130	0.23 - 0.27
2	141	-	PA	2.4	80	13 - 14	DC EN	-	105 - 110	0.33 - 0.38

Welders and/or welding operators :

Visa of examining body's representative 	Certificate n° QP-ITA-17-00918- rev.0	PAGE 2
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# TESTS RESULTS

## NON DESTRUCTIVE TEST

	Carried out by	Result	Report No
Visual test	BV Inspector (I.W.I. n. 92254)	Satisfactory	16/10/2017
Penetrant test	IRTEC s.r.l. Trezzo sull'Adda MI Italy	Satisfactory	6633 / 17 23.10.2017
Magnetoscopic test			
Radiographic test	IRTEC s.r.l. Trezzo sull'Adda MI Italy	Satisfactory	6634 / 17 23.10.2017
Ultrasonic test			
Other test			

## MECHANICAL TEST WITNESSED BY :

G. Bonello - Bureau Veritas

## TENSILE TEST

### Report No

6635/17

Test No	Direction	Position	Dimensions (mm)		Temp. °C	Rm (MPa) Required ≥ 485	Rp* (MPa) Required Info	A* (%) Required Info	Z* (%) Required Info	Fracture location	Results and remarks
			Thickness	Width - Diam.							
1	Transv.		1.7	25.0	+ 20°	609				Base Material	Satisfactory
2	Transv.		1.8	25.0	+ 20°	596				Base Material	Satisfactory
Note	Ductile Fracture										

## BEND TEST

### Report No

6635/17

Test No	Direction	Specimen type			Dimensions (mm)		Former diameter 4/t (mm)	Angle °	Results and remarks
		Face	Root	Side	Thickness	Width			
3	Transv.-Long	X			2.0	25.0	8.0	180°	Satisfactory
4	Transv.		X		2.0	25.0	8.0	180°	Satisfactory
5	Transv.	X			2.0	25.0	8.0	180°	Satisfactory
6	Transv.		X		2.0	25.0	8.0	180°	Satisfactory
Note	-								

## IMPACT TEST

### Report No

N.A.

Test No	Direction	Position	Location	Dimens. (mm)		Temp °C	Values J Acceptance			Shear area			Lateral expansion				
				Thk	W		I	II	III	Av.	I	II	III	I	II	III	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Note	B = Bottom M = Middle T = Top Required Value: Single ≥ ; Average ≥																

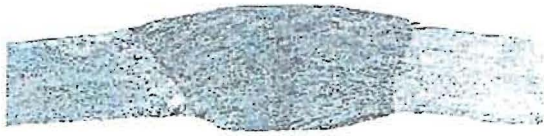
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**TEST RESULTS****MACROSCOPIC EXAMINATION****Report No** 6635/17

X 6

Note The Macro Section show the complete Fusion of Edges and the Absence of Defects.

Note

**HARDNESS TEST****Report No** N.A.

Hardness type HV10

Required Max HV

Line

Max Results

Note

Note Satisfactory

**OTHER TESTS****Report No****CERTIFICATE ATTACHMENT**

pWPS 01/17/E rev. 0

Mechanical Tests and Macrographic Examination Certificate :  
IRTEC s.r.l. No. : 6635/ 17

Filler material certificate (n. RMI/SS/2472)

Range of qualification

Base Material Certificate (n. 1752035)

NDT Certificates : IRTEC s.r.l. No. : P.T. 6633 / 17 + R.T. 6634 / 17

**NOTE - OBSERVATION**
 Visa of examining body's  
representative

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**RANGE OF QUALIFICATION**

**LEVEL**

**2**

**General for all process**

Welding process(es)	141											
Degree of mechanization	Manual											
Type of joint and weld	Butt weld on plate and pipe (partial and complete penetration): single side no backing, single side material backing, both side; Fillet weld on plate and pipe.											
Parent material group(s) and sub group(s) included permanent backing material	Group 8-8 Note b: Test piece materials in groups 8 qualify steels in the same sub-group and any lower sub-group within the same group.											
Parent Material Thickness (mm) without impact	<b>BW</b>	1.0	to	4.0	<b>FW</b>	1,4	to	4.0	<b>Branch</b>	/	to	/
Parent Material Thickness (mm) with impact	<b>BW</b>	/	to	/	<b>FW</b>	/	to	/	<b>Branch</b>	/	to	/
Deposited weld Metal Thickness (mm) each process :	141: up to 4,0 mm											
Throat Thickness (mm) :	No restriction											
Outside Pipe Diameter (mm) :	≥ 150,0											
Single run / Multi run :	When impact or hardness requirements apply, it is not permitted to change a multi-run deposit into a single run deposit (or single run on each side) or vice versa for a given process											
Angle of branch connection	N.A.											
Filler Material	141: Equivalent mechanical properties and same nominal composition											
Filler Material Size	No restriction if heat input is respected No limitation if hardness and impact not required											
Type of Welding Current	141 : DC EN											
Heat Input (ISO/TR 18491)	Same use in procedure test						- 25 % when hardness requirements apply + 25 % when impact requirements apply					
Welding Positions :	PA and PB.											
Preheat Temperature :	N.A.											
Interpass Temperature :	A increase until to 50°C from the recorded permitted on root and fill pass. Increase on cap passes not permitted For materials groups 8, 10 and from 41 to 48 upper limit is the highest recorder during welding of test sample											
Post-Heating for hydrogen release :	N.A.											
Post-Weld Heat Treatment	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Addition or deletion not permitted											
Post-Weld Heat Treatment temp.	N.A.											
Other informations	N.A.											

**Process 14**

Shielding Gas:	Same (+0,1 of any gas)											
Content of He	±10 % of that used to qualify the procedure test											
Filler metal used	Welding with filler material does not qualify for welding without filler material or visa versa											

**Backing Gas**

Backing gas	N.A.											
Backing gas main group (ISO 14175)	Qualifies with backing gas group I l											
Change backing gas (material groups 7 and 10)	Not admitted											
Deletion if production are made with mb > 5 mm	Admitted											

