



RINA



SGQ N° 002 A SSI N° 001 G
SGA N° 002 D DAP N° 001 H
PRD N° 002 B PRS N° 066 C
SCR N° 003 F LAB N° 0832

Signatory of EA, IAF and ILAC
Mutual Recognition Agreements

WELDING PROCEDURE QUALIFICATION RECORD (WPQR)

N. 15VE00038PO2/A

Manufacturer FACIPIERI S.R.L. - Gambellara (VI)

WPQR No. 03P/2015

Dated 27/02/2015

Manufacturer's welding procedure (WPS) No. 03P/2015

Dated 02/02/2015

RANGE OF APPROVAL

Welding process 135 Type Partly mechanized
Joint type Plates and Pipes FW
Single/Multiple pass Multiple
Parent material group(s) 1-1 ISO/TR 15608
with a specified minimum yield strength ≤ 355MPa
Parent material thickness (mm) Butt Joint = N.A. Fillet Joint t₁ = 5 and over t₂ = 5 and over
Throat thickness (mm) No restriction
Weld deposit thickness (mm) N.A.
Outside diameter (mm) Over 150 (PA - PB); over 500 (all other qualified positions)
Filler metal type Solid wire EN ISO 14341-A: G 42 4 M21 3Si1
Shielding gas (ISO 14175) M21 with max. CO₂ % = 22 Backing gas (ISO 14175) N.A.
Type of welding current DCEP Heat input kJ/cm Min. 4,5
Welding position All, vertical down excluded
Preheat min. (°C) 80 Interpass temp. Max. (°C) 200
Post weld heat treatment / Ageing None
Other information -

Welders name Rapiki Bledar

Stamp No. RB

Welding test conducted by FACIPIERI S.R.L. - Gambellara (VI)

Mechanical test conducted by SSM s.r.l. - Bolzaneto (GE)

Laboratory test No. 106B-15-MD

At presence of RINA Surveyor L. Mantovan

We certify that statements in this certificate are correct and that the test welds were prepared, welded and tested in accordance with the requirements of UNI EN ISO 15614-1: 2012 Standard

Issued at: Genova

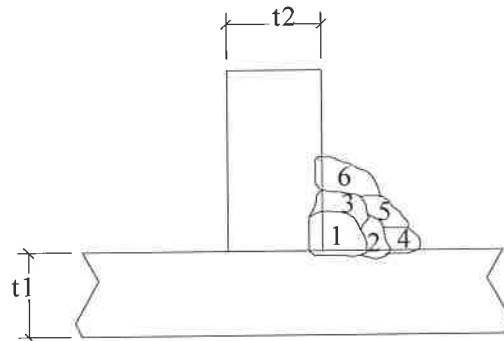
on 27/02/2015



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JOINT DETAILS AND WELDING SEQUENCES**PLATE TO PLATE FILLET WELD IN MULTIPASS**

Pass No.	Process	Filler metal diam. (mm)	Filler metal classification	Amps	Volt	Travel speed (cm/min)	Heat input (kJ/cm)	Other
1	135	1,0	G 42 4 M21 3Si1	200	27	30	8,6	-
2	135	1,0	G 42 4 M21 3Si1	200	27	40	6,5	-
3	135	1,0	G 42 4 M21 3Si1	200	27	41	6,3	-
4	135	1,0	G 42 4 M21 3Si1	200	27	33	7,9	-
5-6	135	1,0	G 42 4 M21 3Si1	200	27	32	6,1	-

**PARENT MATERIAL**

Material specification	EN 10025-2	
Type or grade	S355 J2+N	
Group(s)/Subgroup(s) No. (ISO/TR 15608)	1.2	
Thickness (mm)	$t_1=30$; $t_2=30$	Throat thickness (mm) 12,3
Diameter (mm)	N.A.	
Branch connection angle	N.A.	
Other	-	

WELDING CONSUMABLES

Process	135
Trade name(s)	FILCORD C
Specification	EN ISO 14341-A
Classification / designation	G3Si1
Size (mm)	1,0
Deposited metal thickness	
Groove	N.A.
Throat	12,3 mm
Flux trade name	N.A.
Consumable insert	N.A.
Other	-



GAS			
	Gas	Mixture	Flow rate (l/min.)
Shielding	-	Ar 80% + CO2 20%	16
Trailing	-	-	-
Backing	-	-	-

POSITION	
Welding position	PB
Other	-

PREHEAT		POSTWELD HEAT TREATMENT	
Preheat temperature	80 °C	Temperature	None
Interpass temperature	Max. 200 °C	Time	N.A.
Other	-	Other	-

ELECTRICAL CHARACTERISTICS			
Current	DCEP		
Ampere (range)	See table	Volts (Range)	See table
Mode of metal transfer	Pulsed arc		
Tungsten electrode size and type	N.A.		
Other	-		

TECHNIQUE	
Travel speed (range)	See table
String or weave bead	String
Oscillation (*)	N.A.
Method of groove/edge preparation	Grinding
Interpass cleaning	Grinding / Brushing
Method of back gouging	N.A.
Orifice or gas cup size	18 mm
Stand off distance (*)	N.A.
Multiple or single pass	Multiple
Multiple or single electrodes	Single
Torch angle (*)	N.A.
Other	(*) for fully mechanized/robotic only



HARDNESS TEST		
Location	Type/load	Maximum value
Parent metal(s)	HV10	170
H.A.Z.(s)	HV10	377
Weld metal	HV10	243

OTHER TEST

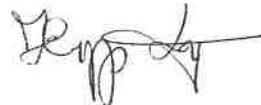
MACROGRAPHIC EXAMINATION **Acceptable**
MICROGRAPHIC EXAMINATION **Not required**

NON DESTRUCTIVE EXAMINATION

VISUAL EXAMINATION **Acceptable**
RADIOGRAPHIC EXAMINATION **Not required**
PENETRANT TEST **Not required**
MAGNETIC PARTICLE **Acceptable**
ULTRASONIC TEST **Not required**

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