

WELDING PROCEDURE QUALIFICATION RECORD (WPQR)



N. 07DG01012PO2/A

Manufacturer **BRUTTI ENRICO & C. snc – Jesi (AN)**
WPQR No. **02/08** Dated **29/07/2008**
Manufacturer's welding procedure (WPS) No. **02/08** Dated **11/06/2008**

RANGE OF APPROVAL

Welding process **135** Type **Partly mechanized**
Joint type **Plates and Pipes FW**
Single/Multiple pass **Single**
Parent material group(s) **1-1 (subgroups 1.1 and 1.2 only) CEN ISO/TR 15608**
with a specified minimum yield strength ≤ 355 Mpa
Parent material thickness (mm) **Butt Joint = N.A. Fillet Joint $t_1 = 5$ to 12 $t_2 = 3$ to $7,2$**
Throat thickness (mm) **3,0 to 6,0**
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 440 G4 Si1**
Shielding gas (EN 439) **M21 with max. CO₂ % = 8,8 Backing gas (EN 439) N.A.**
Type of welding current **DCEP Heat input Kj/cm **Min. 19****
Welding position **PA - PB - PF**
Preheat min. (°C) **20 Interpass temp. Max. (°C) N.A.**
Post weld heat treatment / Ageing **None**
Other information **-**

Welders name **Vasconi Fabio** Stamp No. **VF**
Welding test conducted by **BRUTTI ENRICO & C. snc – Jesi (AN)**
Mechanical test conducted by **CONTROL snc - Ravenna (RA)** Laboratory test No. **153**
At presence of RINA Surveyor **G. Cortini**

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: 2005** Standard

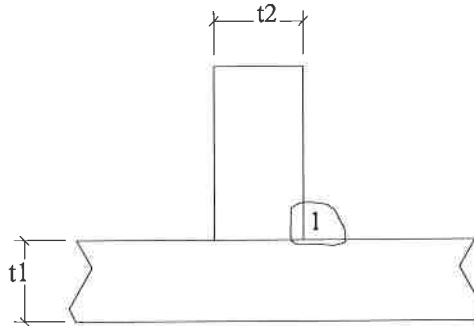
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on 4 August 2008



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JOINT DETAILS AND WELDING SEQUENCES								
PLATE TO PLATE FILLET WELD IN SINGLE PASS								
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	G4Si1	240	27	26	25,4	-



PARENT MATERIAL

Material specification	EN 10025		
Type or grade	S 355 J2G3		
Group(s)/Subgroup(s) No. (CEN ISO/TR 15608)	1.2		
Thickness (mm)	$t_1 = 10 ; t_2 = 6$	Throat thickness (mm)	4
Diameter (mm)	N.A.		
Branch connection angle	N.A.		
Other	-		

WELDING CONSUMABLES

Process	135
Trade name(s)	PITTARC G9
Specification	EN 440
Classification / designation	G4Si1
Size (mm)	1,0
Deposited metal thickness	
Groove	N.A.
Throat	4 mm
Flux trade name	N.A.
Consumable insert	N.A.
Other	-

GAS			
	Gas	Mixture	Flow rate (l/min.)
Shielding	-	92% Ar - 8% CO2	17
Trailing	-	-	-
Backing	-	-	-

POSITION	
Welding position	PB
Other	-

PREHEAT		POSTWELD HEAT TREATMENT	
Preheat temperature	20° C	Temperature	None
Interpass temperature	N.A.	Time	N.A.
Other	-	Other	-

ELECTRICAL CHARACTERISTICS			
Current	DCEP		
Ampere (range)	See table	Volts (Range)	See table
Mode of metal transfer	Spray 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	N.A.
Method of back gouging	N.A.
Orifice or gas cup size	19 mm
Stand off distance (*)	N.A.
Multiple or single pass	Single
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	178
H.A.Z.(s)	HV10	312
Weld metal	HV10	224

OTHER TEST

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

NON DESTRUCTIVE EXAMINATION

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

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