



RINA

SINCERT

CONFORME A NORMA UNI EN ISO 15614-1

892 N° 006 - 894 N° 000
PRN N° 000 - PRN N° 000
COP N° 000 - CCI N° 000

Verificato secondo il Metodo
Accreditato SA e INF
a garanzia di un'alta Qualità
Riconosciuta a livello Internazionale

WELDING PROCEDURE QUALIFICATION RECORD (WPQR)

N. 10TA00036PO1/A

Manufacturer M & G METALMECCANICA sas - Torrecuso (Bn)

WPQR No. 01/010 Dated 21/04/2010

Manufacturer's welding procedure (WPS) No. 01/010 Dated 22/03/2010

RANGE OF APPROVAL

Welding process 135 Type Partly mechanized

Joint type Plates and Pipes BW bsgg-bsng/FW

Single/Multiple pass Multiple

Parent material group(s) 1-1 (Subgroup 1.1 only) ISO/TR 15608
with a specified minimum yield strength \leq 275 Mpa

Parent material thickness (mm) Butt Joint = 3.0 to 20.0 Fillet Joint $t_1 = 5.0$ to 12.0 $t_2 = 5.0$ to 12.0

Throat thickness (mm) No restriction

Weld deposit thickness (mm) 3.0 to 20.0

Outside diameter (mm) Over 150

Filler metal type Solid wire EN ISO 14341-A: G3 SII

Shielding gas (ISO 14175) M21 with max. CO2 % = 21.6 Backing gas (ISO 14175) N.A.

Type of welding current DCEP Heat input Kj/cm Max. 17.6

Welding position PA, PB

Preheat min. (°C) None Interpass temp. Max. (°C) 200

Post weld heat treatment / Ageing None

Other information -

Welders name GOGLIA Nicolino Stamp No. GN

Welding test conducted by M & G METALMECCANICA sas - Torrecuso (Bn)

Mechanical test conducted by TECNOLAB srl - Civitavecchia (Rm) Laboratory test No. 176 dated 21/04/2010

At presence of RINA Surveyor D. Eranio

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: 2008 Standard

Issued at: Genova

on 16 June 2010

[Signature]

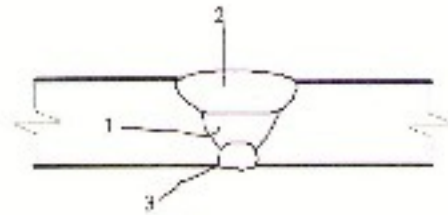
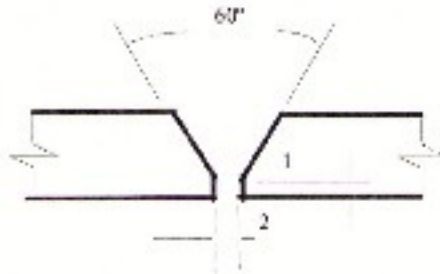


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JOINT DETAILS AND WELDING SEQUENCES

SINGLE V, BUTT WELD; BOTH SIDES WELDING, WITH BACKGOUING.

Pass No.	Process	Filler metal diam. (mm)	Filler metal classification	Amps	Volt	Travel speed (cm/min)	Heat input (kJ/cm)	Other
1	135	1.2	EN ISO 14341-A	210	23	25	9.3	-
2	135	1.2	EN ISO 14341-A	245	24	20	14.1	-
3	135	1.2	EN ISO 14341-A	220	24	30	8.4	-

**PARENT MATERIAL**

Material specification	EN 10025-2:2005		
Type or grade	S275JR + AR		
Group(s)/Subgroup(s) No. (ISO/TR 15508)	1.1		
Thickness (mm)	10	Throat thickness (mm)	N.A.
Diameter (mm)	N.A.		
Branch connection angle	N.A.		
Other	-		

WELDING CONSUMABLES

Process	135		
Trade name(s)	SPIRA FERRO		
Specification	EN ISO 14341-A		
Classification / designation	G3 Si1		
Size (mm)	1.2		
Deposited metal thickness			
Groove	10 mm		
Throat	N.A.		
Flux trade name	N.A.		
Consumable insert	N.A.		
Other	-		



GAS	Gas	Mixture	Flow rate (l/min.)
	Shielding	-	Argon 82% + CO2 18%
Trailing	None	-	-
Backing	None	-	-

POSITION	
Welding position	PA
Other	-

PREHEAT		POSTWELD HEAT TREATMENT	
Preheat temperature	15 °C min.	Temperature	None
Interpass temperature	200 °C max.	Time	N.A.
Other	-	Other	-

ELECTRICAL CHARACTERISTICS			
Current	DC EP		
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 and weave
Oscillation (*)	N.A.
Method of groove/edge preparation	Machining/Grinding
Interpass cleaning	Grinding/Brushing
Method of back gouging	Grinding to sound metal
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



TRANSVERSE TENSILE TEST						
Spec. (No.)	Width (mm)	Thickness (mm)	Area (mm ²)	Total load (N)	R _m (N/mm ²)	Fracture location
TT1	25.04	9.50	237.88	121081	509	Base metal
TT2	25.08	9.50	238.26	122704	515	Base metal

BEND TEST		
Type	No.	Result
FACE TRANSVERSE	2 OFF	Acceptable
ROOT TRANSVERSE	2 OFF	Acceptable

IMPACT TEST				
Subsize test specimen 10x7.5x55 mm				
Spec No.	Notch location	Notch type	Test Temp. (°C)	Impact values (J)
VWT 01,5	WELD	ISO-V	+ 20	75 - 64 - 75
VHT 1,5/1,5	H.A.Z.	ISO-V	+ 20	95 - 99 - 118

OTHER TEST

MACROGRAPHIC EXAMINATION Acceptable
 MICROGRAPHIC EXAMINATION Not required

NON DESTRUCTIVE EXAMINATION

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

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