

WELDING PROCEDURE QUALIFICATION RECORD EN 15614.1 Ed.01/05

WPQR No : **CQP.10.1059.10.018**

Manufacturer

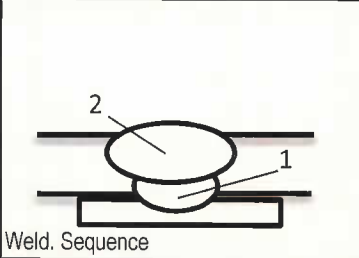
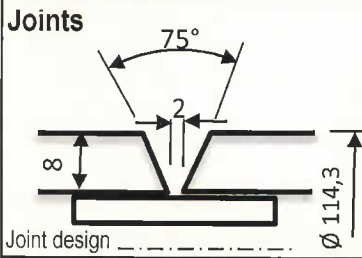
MERIGO SpA

Address

Via Don Maestrini, 63/65 - 25020 Flero (BS)

Range of approval :

Condition	Parameters	Range of validity
Welding process	135	135
Joint Type	BW	BW, FW, Nozzle with angle $\geq 60^\circ$
Base metal (S) and Group	1	1 with $Re \leq 360 \text{ N/mm}^2$
Metal thickness (mm)	8	BW: 3 to 16 / FW: 4 to 9,6
Pipe(s) outsider diameter (mm)	114,3	$\geq 57,15$
Shielding gas / flux	100% CO ₂	100% CO ₂
Current type / electrode polarity	DC Reverse	DC Reverse
Welding position	PA (rot.)	All except PG and J-L045
Preheat (°C) and Interpass temperature (°C)	Preh. min 20 / Int. max 200	Preheat min 20 / Interpass max 200
Post weld heat treatment	N.A.	N.A.



pWps of reference	W01	
Date of welding	17.03.2010	
	①	②
Base mater. Specif. :	EN10219-1 S355J0H	EN10219-1 S355J0H
Heat No :	3009384	3009384
Parent metal group :	1	1
Metal thk (mm):	8	8
Φ Base metal (mm) :	114,3	114,3

Run No	1	2	
Welding process	135	135	
Welding position	PA (rot.)	PA (rot.)	
Automatic welds - No heads	N.A.	N.A.	
Oscillation	N.A.	N.A.	
- Weaving (Max)	N.A.	N.A.	
- Frequency	N.A.	N.A.	
- Dweel time	N.A.	N.A.	
Welder or welding operator	DJELLID NEUREDDINE		
FM : Wire (F) or electrode (E)	F	F	
- Standard designation	EN440 - G3Si1	EN440 - G3Si1	
- Brand and type	LAFILI	LAFILI	
- Storage	N.A.	N.A.	
Shielding gas - Flux	N.A.	N.A.	
- Flux - Standard designation	N.A.	N.A.	
- Brand and type	N.A.	N.A.	
- Gas - Standard designation EN 14175	EN ISO 14175 C1	EN ISO 14175 C1	
- Mixture	100% CO ₂	100% CO ₂	
- Root - Flowrate l/min	N.A.	N.A.	
- Face - Flowrate l/min	15	15	
- Plasma gas - Flowrate l/min	N.A.	N.A.	
Weld deposit for each run (mm)	4	4	
Non consumable electrode / Type and diam.	N.A.	N.A.	
Preheat (°C)	20	20	
Welding feed rate (cm/min)			
Interpass temperature (°C)	N.A.	≤ 200	
Backing support (Nature) or gouging	mb	w.m.	

Welding conditions							PWHT <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Reference	/
Pass n°	Process	Filler dia. mm	Amps	Volts	Travel speed mm/s	HI (J/mm)	Temp.	Time	min
1	135	1,2	70	28	3,85	407,3	/	°C	/ min
2	135	1,2	80	28	4	448	Other :		
							Other information		
							Torch angle	Stick-out (mm)	
							Technique weld detail:	short and spray arc	Other

II. EXAMINATION AND TESTS RESULT

1 - NDT		Carried out by:	Report n°	Date
Visual :	APAVE ITALIA CPM Inspector		/	09.04.2010
Dye-penetrant :	APAVE ITALIA CPM Laboratory		10L.2467.PM/01	22.03.2010
Magnetic particle :	N.A.		/	/
Radiographic :	NEW CONTROLS		1003-225	19.03.2010
Ultrasonic :	N.A.		/	/

2 - Tensile tests		Carried out by: APAVE ITALIA CPM Laboratory		Report n° A.10.2467.PM/01	Date 22.03.2010		
Specimen No	Size of specimen section (mm)		Rm N/mm	Re N/mm ²	A%	Z%	Fracture location
	Cross section involving		Required values			BM	
	The Whole thk	Part of thk	490+630				
W01 T1	8,00 x 15,00			598			X
W01 T2	7,80 x 15,20			593			X

3 - Bend tests		Carried out by: APAVE ITALIA CPM Laboratory		Report n° A.10.2467.PM/01	Date 22.03.2010		
Specimen No	Specimen		ϕ Plugger	Direction of bending and size section			
	Trasverse	Longitudinal	(mm)	Face	Root	Side involving	
						All	Part of thk
W01 PD1	X		32	8,0 x 20,0		X	
W01 PD2	X		32	8,0 x 20,0		X	
W01 PR1	X		32		8,0 x 20,0	X	
W01 PR2	X		32		8,0 x 20,0	X	

4 - Impact tests		Carried out by: APAVE ITALIA CPM Laboratory		Report n° A.10.2467.PM/01	Date 22.03.2010					
Specimens sizes		<input type="checkbox"/> 10 x 10 mm	<input checked="" type="checkbox"/> 10 x 7,5 mm	<input type="checkbox"/> 10 x 5 mm	Required values (J)	Min 14	Average 20			
Specimen No	Temp. °C	Specim. location Surf = p Mid = e Root = r	KV (J)							
			VWT		WHT					
					①	②				
			Ind.	Average	Ind.	Average	Ind.	Average		
W01 KV1	-20	p	47	56	50	51				
W01 KV2	-20	p					43	46	49	46

5 - Hardness tests		Carried out by: APAVE ITALIA CPM Laboratory		Report n° A.10.2467.PM/01	Date 22.03.2010	
Max. Required values	With PWHT		Without PWHT	< 380	Sketch 	
Measurement location		Line 1	Line 2	Line 3		Line 4
Base material	Max result	190	265			
Heat affected zone	Max result	182	321			
Weld metal	Max result	196	217			

6 - Macrographic tests		Carried out by: APAVE ITALIA CPM Laboratory		Report n° A.10.2467.PM/01	Date 22.03.2010
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Macro 1	Etching agent	Nital 2%	Magnif.	X3	Macro 3	Etching agent	Magnif.
Macro 2	Etching agent		Magnif.		Macro 4	Etching agent	Magnif.

7 - Other tests		7 - Annexes list	
1	3	1 Pwps	3 Mechanical Test
2	4	2 Base material cert.	4 NDT Reports

Notified Body - APAVE ITALIA Cpm 0398			Manufacturer	
Name	Signature	Date	Name	Signature
F. Palma	 apave	29.04.2010		