

WELDING PROCEDURE QUALIFICATION RECORD (WPQR)

N. 18VE0048PO2\A

Manufacturer **ITAQUA Srl - Trieste (TS)**

WPQR No. **02\2018**

Dated **13/03/2018**

Manufacturer's welding procedure (WPS) No. **02\2018**

Dated **22/01/2018**

RANGE OF APPROVAL

Welding process	131	Type	Partly mechanized
Joint type	Plates and Pipes FW		
Single/Multiple pass	Multiple		
Parent material group(s)	23.1 to 23.1; all subgroups in group 22 and their combination		ISO/TR 15608
Parent material thickness (mm)	Butt Joint = N.A.	Fillet Joint $t_1 =$ 3 to 30	$t_2 =$ 3 to 30
Throat thickness (mm)	No restriction		
Weld deposit thickness (mm)	N.A.		
Outside diameter (mm)	Over 45 mm(*)		
Filler metal	Solid wire UNI EN ISO 18273 AlMg4,5 S Al5183 UNI EN 1011-4 group 5		
Shielding gas (ISO 14175)	II	Backing gas (ISO 14175)	With and without
Type of welding current	Pulsed EP	Heat input Kj/cm	All
Welding position	All positions except for PG and J-L045		
Preheat min. (°C)	+50	Interpass temp. Max. (°C)	+200
Post weld heat treatment / Ageing	None		
Other information	(*) Diameter limited to max. 180 mm , when Rina Rules apply		

Welders name **Cisic Ivica**

Stamp No. **CI**

Welding test conducted by **ITAQUA Srl - Trieste (TS)**

Mechanical test conducted by **METALSERVICES srl**

Laboratory test No. **18.109**

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 15614-2: 2006** Standard.

Requirements of **RINA Rules for the Classification of Ships** are also met.

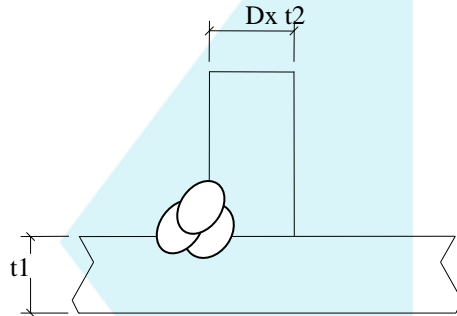
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on 13 March 2018



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JOINT DETAILS AND WELDING SEQUENCES								
PLATE TO PIPE FILLET WELD IN MULTI PASS								
Pass No.	Process	Filler metal diam. (mm)	Filler metal classification	Amps	Volt	Travel speed (cm/min)	Heat input (kJ/cm)	Other
1	131	1,2	Al5183	218	28,5	32,6	9,1	-
2	131	1,2	Al5183	216	25,8	48,4	5,5	-
3	131	1,2	Al5183	232	26,8	43,5	6,9	-



PARENT MATERIAL			
Material specification	EN 573		
Type or grade	Legra 6082 T6		
Group(s)/Subgroup(s) No. (ISO/TR 15608)	t₁= 23.1; t₂= 23.1		
Thickness (mm)	t₁= 15; t₂= 15	Throat thickness (mm)	N.A.
Diameter (mm)	90		
Branch connection angle	N.A.		
Other	-		

WELDING CONSUMABLES			
Process	131		
Trade name(s)	SAFRA S AL5183		
Specification	UNI EN ISO 18273		
Classification / designation	Al Mg 4,5Mn0,7 A		
UNI EN 1011-4 grouping	5		
Size (mm)	1,2		
Deposited metal thickness			
Groove	N.A.		
Throat	7,5 mm		
Flux trade name	N.A.		
Consumable insert	N.A.		
Other	-		

GAS			
	Gas	Mixture	Flow rate (l/min.)
Shielding	Ar 99,99%		17
Trailing			
Backing			

POSITION	
Welding position	PB
Other	-

PREHEAT		POSTWELD HEAT TREATMENT	
Preheat temperature	+50°C	Temperature	None
Interpass temperature	+200°C	Time	-
Other	-	Other	-

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

TECHNIQUE	
Travel speed (range)	See table
String or weave bead	Weave
Oscillation (*)	None
Method of groove/edge preparation	Machining/Grinding
Interpass cleaning	Grinding/Brushing
Method of back gouging	N.A.
Orifice or gas cup size	18 mm
Stand off distance (*)	15-20 mm
Multiple or single pass	Multiple
Multiple or single electrodes	Single
Torch angle (*)	N.A.
Other (*)	for fully mechanized/robotic only

OTHER TEST

MACROGRAPHIC EXAMINATION **Acceptable**
MICROGRAPHIC EXAMINATION **Acceptable**
FRACTURE TEST **Acceptable**

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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