

WPQR No.:
120048

WELDING PROCEDURE QUALIFICATION RECORD (WPQR)

according to EN ISO 15614-1:2004



Welding Procedure Qualification – Test Certificate

Manufacturer's WPQR No.: **120048** Examiner or examining body: **TÜV AUSTRIA HELLAS**
Manufacturer: **LASERTECH S.A.** Reference No.: **120048**
Address: **43rd km of Old National Road Elefsina-Thiva, 322 00 THIVA**
Code / Testing Standard: **EN ISO 15614-1:2004**
Date of Welding: **04.06.2012**

Range of Qualification

Welding Process(es): **EN ISO 4063-131**
Type of Joint and Weld: **Fillet Welds (FW)**
Parent Material Group(s) and Subgroups(s): **1.2 with equal or lower specified yield strength (acc. CR ISO 15608)- S355 (acc. EN 10025-2)**
Parent Material Thickness (mm): **≥ 5,00**
Weld Metal Thickness (mm): **N/A**
Throat Thickness (mm): **No restriction**
Single run / Multi run: **Multi run**
Pipe Outside Diameter (mm): **N/A**
Filler Material Designation: **G3Si1 / EN ISO 14341-A (ER70S-6 / AWS A5.18) and others with equivalent characteristics**
Filler Material Make: **All Manufacturers**
Filler Material Size: **All sizes allowed provided that heat input requirements are fulfilled**
Designation of Shielding Gas / Flux: **M21 (EN 439)**
Designation of Backing Gas: **N/A**
Type of Welding Current and Polarity: **DC (-)**
Mode of Metal Transfer: **Spray**
Heat Input: **0,55 ÷ 1,39 (kJ/mm)**
Welding Positions: **All positions except for PG and J-L045**
Preheat Temperature: **Ambient Temperature**
Interpass Temperature: **Max. 250 °C**
Post-Heating: **N/A**
Post-Weld Heat Treatment: **N/A**
Other Information: **%**

Certified that test welds prepared welded and tested satisfactorily in accordance with the requirements of the code / testing standard indicated above.

Athens
Location

13.06.2012
Date of issue



Stergios Mentzios
Examiner or examining body
Name, date and signature

WPQR No.:
120048

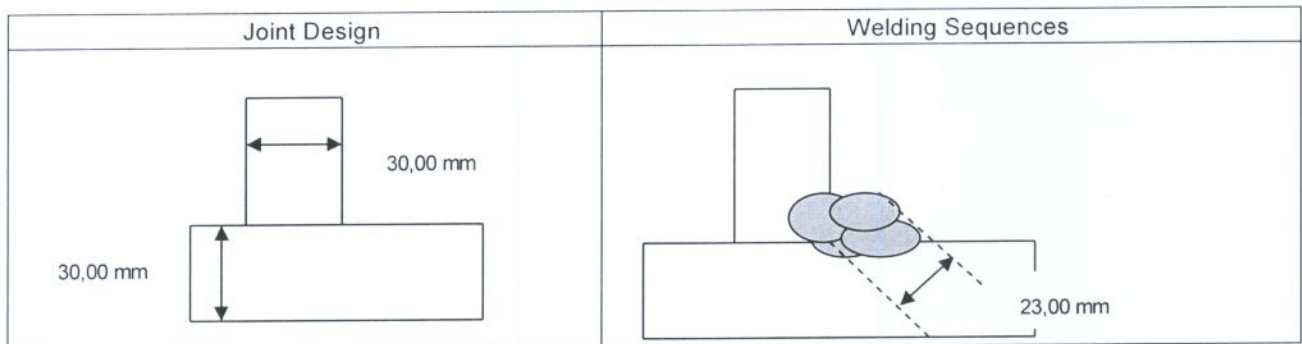
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Record of Weld Test

Location:	Thiva	Examiner or examining body:	TÜV AUSTRIA HELLAS
Manufacturer's pWPS No.:	LASERTECH-4	Method of Preparation and Cleaning:	Grinding and Brushing
Manufacturer's WPQR No.:	120048	Parent Material Specification:	S355 acc. to EN 10025-2
Manufacturer:	LASERTECH S.A.	Material Thickness (mm):	30,00 to 30,00
Welder's name:	Vrancianu Viorel (WR1)	Pipe Outside Diameter (mm):	%
Mode of Metal Transfer:	Spray Arc	Welding Position:	PA
Joint Type and Weld:	Fillet Weld (FW)		
Weld Preparation Details (Sketch):			



Weld Details

Run	Welding Process	Size of Filler Material (mm)	Current (A)	Voltage (V)	Type of current / Polarity	Wire Feed Speed (m/min)	Travel Speed* (mm/min)	Heat input* (kJ/mm)	Metal transfer
1	131	Ø 1,2	240 ÷ 250	26	DC (-)	5,80	3.75	1,33 ÷ 1,39	Spray
2	131	Ø 1,2	180 ÷ 195	19 ÷ 20	DC (-)	5,80	3.75	0,73 ÷ 0,83	Spray
3	131	Ø 1,2	190 ÷ 200	19 ÷ 20	DC (-)	5,80	3.75	0,77 ÷ 0,85	Spray
4-n	131	Ø 1,2	190 ÷ 200	19 ÷ 20	DC (-)	5,80	3.75	0,77 ÷ 0,85	Spray

Filler Material Designation and Make: G3Si1 / EN ISO 14341-A (ER70S-6 / AWS A5.18), ESAB OK AristoRod 12.50 (Lot AG809712)

Any Special Baking or Drying:	Manufacturer's recommendations	Other Information * e.g.:	Grinding after every pass
Gas/Flux – Shielding:	Ar (82%) + CO ₂ (18%)	Weaving (maximum width of run):	N/A
Backing :		Oscillation (amplitude, frequency dwell time):	N/A
Gas Flow Rate – Shielding:	15 ÷ 16 Lt/min	Pulse welding details:	N/A
Backing :		Distance contact tube / work piece:	N/A
Tungsten Electrode Type/Size:	N/A	Plasma welding details:	N/A
Details of Back Gouging/Backing :	N/A	Torch angle:	N/A
Preheat Temperature:	Ambient		
Interpass Temperature:	Max. 250 °C		
Post-Heating:	N/A		
Post-Weld Heat Treatment:	N/A		
(Time, Temperature, Method:	N/A		
Heating and Cooling Rates)*:	N/A		



Manufacturer
Name, date and signature

*) if required

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Test Results

Manufacturer's PQR No.: **120048** Examiner or test body: **TÜV AUSTRIA HELLAS**
Visual (acc. EN 970): **ACCEPT** Reference No.: **120048**
Radiography (acc. to EN 1435)*: **N/A** Ultrasonic (acc. to EN 1714)*: **N/A**
Penetrant (acc. to EN 571-1) / Magnetic Particles (acc. to EN ISO 17638)*: **ACCEPTABLE**

Tensile Tests (acc. to EN 895) – Report No.: %

Temperature: %

Type / No.	Re. (N/mm ²)	Rm. (N/mm ²)	A (%) on	Z (%)	Fracture Location	Remarks

Bend Tests (acc. to EN 910) – Report No.: %
Former Diameter: %

Type / No.	Bend Angle	Elongation*	Results

Macroscopic Examination (acc. to EN 1321) –
ACCEPTABLE
Reports Nos : **120613-2 / 13.06.2012**

Impact Tests (acc. to EN 875)* – Report No.: %

Type: % Size: % Requirement: %

Notch Location / Direction	Temperature °C	Values			Average	Remarks
		1	2	3		

Hardness Tests (acc. to EN 1043-1)* – Report No.: **120614-1**
Type/Load : **acc. to ISO 6507-1, ISO 6507-2 or EN 10003-1**
Parent Metal : **max. 165**
H.A.Z. : **max. 185**
Weld Metal : **max. 195**

Location of Measurements (Sketch*)

Other Tests: **N/A**

Remarks: **Laboratory tests performed by SPECTRUM LABS**

Test carried out in accordance with the requirements of: **EN ISO 15614-1, EN ISO 5817 Cl. B, EN 1435, EN 571-1, EN 1321, EN 875, EN ISO 5173, EN 895, EN 970, EN 10045-1**

Laboratory Report Reference No.: **120613-2/12.06.2012, 120613-2/12.06.2012, 120614-1/13.06.2012**

Test results were **ACCEPTABLE** / **NOT ACCEPTABLE** (Delete as appropriate)

Test carried out in the presence of:



Stergios Mentzios, 13.06.2012

Mechanical Engineer

Inspector Level II* (VT, UT, RI, PT, MT)

*) if required