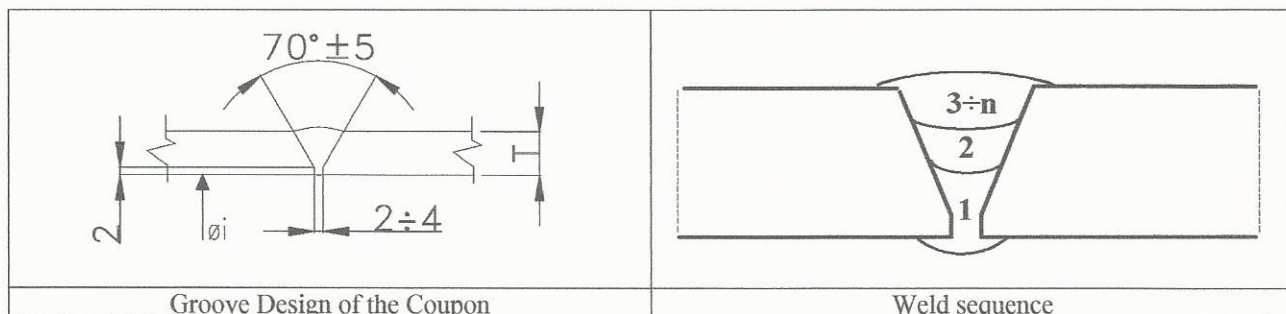


Welding Process(es)	<b>GTAW</b>
Types	<b>Manual</b>
pWPS	<b>WPS_BW_PQRMA003 Rev. 0</b>

### JOINTS (QW-402)



### BASE METALS (QW-403)

Material specification	<b>ASME SA 333 Gr. 6</b>
to Material specification	<b>ASME SA 333 Gr. 6</b>
P no./Gr. no. <b>1/1</b>	to P no./Gr. no. <b>1/1</b>
Thk of test coupon	<b>T=2,77 mm</b>
Dia. of test coupon	<b>O.D. 21,34 mm</b>
Other	-

### POSTWELD HEAT TREATMENT (QW-407)

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> None
Temperature	-
Holding time	-
Heating/cooling rate	-
Other: --	

### FILLER METALS (QW-404)

Process	<b>GTAW</b>		
SFA Spec.	<b>SFA 5.18</b>		
AWS Class.	<b>ER 70S-6</b>		
F no.	<b>6</b>		
A no.	<b>1</b>		
Size, mm	<b>2,4</b>		
Weld thk, mm	<b>t= 3 mm</b>		
<b>GTAW: Solid rod</b>			

### GAS (QW-408)

	Gas(es)	% Mixture	Flow rate
Shielding	<b>Ar*</b>	<b>N.A.</b>	<b>12 L/min.</b>
Trailing	<b>N.A.</b>	--	--
Backing	<b>N.A.</b>	--	--

\*Purity: 99,96%

### ELECTRICAL CHARACTERISTICS (QW-409)

See Weld data record

### POSITION (QW-405)

Position of groove	<b>6G</b>
Progression	<b>Uphill</b>
Other	-

### TECHNIQUE (QW-410)

Travel speed	See Weld data record
<input checked="" type="checkbox"/> String bead	<input type="checkbox"/> Weave bead
<input type="checkbox"/> Single pass	<input checked="" type="checkbox"/> Multipass

### PREHEAT (QW-406)

Preheat temperature	<b>Room temp. (10°C)</b>
Interpass temp. max	<b>200°C</b>
Other	-

Single electr.     Multiple elect.     N.A.

Other: -

### Weld data record

Layer	Process	Filler metal: class./dia. mm	Current Type/Pol.	Current A	Voltage V	Speed mm/min	Heat Input kJ/mm	Trade mark of consumables
<b>1</b>	<b>GTAW</b>	<b>ER 70S-6 / 2,4</b>	<b>DC/SP</b>	<b>110</b>	<b>13</b>	<b>90</b>	<b>0.953</b>	<b>CARBOROD 1 (OERLIKON)</b>
<b>2</b>	<b>GTAW</b>	<b>ER 70S-6 / 2,4</b>	<b>DC/SP</b>	<b>110</b>	<b>13</b>	<b>100</b>	<b>0.858</b>	<b>CARBOROD 1 (OERLIKON)</b>

SER. IN. SERVIZI INDUSTRIALI	PROCEDURE QUALIFICATION RECORD	PQR.MA.003 p. 2/2
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Tensile test (QW-150)

Specimen	Width mm	Thickness mm	Area mm <sup>2</sup>	Total load kN	Unit stress N/mm <sup>2</sup>	Type of fracture & location
QW-462.1(a) 003 – ba	6,01	2,18	13,10	6,56	501	Ductile, base metal
QW-462.1(a) 003 – bb	6,02	2,20	13,24	6,67	504	Ductile, base metal

Guided-bend test (QW-160)

Type and figure / Specimen	Bending angle	Result
QW-462.2 Root bend / (003 – bc)	180°	Satisfactory
QW-462.2 Root bend / (003 – bd)	180°	Satisfactory
QW-462.2 Face bend / (003 – be)	180°	Satisfactory
QW-462.2 Face bend / (003 – bf)	180°	Satisfactory

Toughness tests (QW-170)

Specimen mm	Notch location	Notch type	Test temperature °C	Impact values Joules	Average values Joules
003 bg/bh/bi	Parent metal	KV 2.5	-52°C	30-28-30	29
003 bl/bm/bn	HAZ	KV 2.5	-52°C	12-10-12	11
003 bo/bp/bq	Weld metal	KV 2.5	-52°C	14-12-14	13

Other tests

Type of test	Results	Certificates
Visual examination	Acceptable	STEEL SERVICE S.a.s. Cert. 092SLD15q
Penetrant test examination	Acceptable	STEEL SERVICE S.a.s. Cert. 092SLD15s
Radiographic examination	Acceptable	STEEL SERVICE S.a.s. Cert. 092SLD15r
Transverse tensile test	Acceptable	STEEL SERVICE S.a.s. Cert. 092SLD15t
Impact test	Acceptable	STEEL SERVICE S.a.s. Cert. 092SLD15v
Transverse bend test	Acceptable	STEEL SERVICE S.a.s. Cert. 092SLD15u
Hardness test & Macroscopic	Acceptable	STEEL SERVICE S.a.s. Cert. 092SLD15z

Hardness test

Type	Zone	Results (max values)
HB	Parent metal	175-173-174
HB	HAZ	182-181-186
HB	Weld metal	174-176-177
HB	HAZ	188-185-185
HB	Parent metal	172-171-173

Sample: PQRMA003

Welders' name	ESPOSITO LUIGI	Clock no. -	Stamp no. EL
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Tests conducted by: STEEL SERVICE S.a.s.	Laboratory test no. -
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We certify that the statements in this record are correct and that the test coupons were prepared, welded and tested in accordance with the requirements of Section IX of the ASME BOILER AND PRESSURE VESSEL and 97/23/EC PED DIRECTIVE.

Date 2015.04.27



Manufacturer  
SER. IN. SERVIZI INDUSTRIALI  
by Operation Manager (Esposito Luigi)  
Volturato a società Serin S.r.l. Evolution

SER. IN.  
di Esposito Luigi



SER. IN. SRL  
EVOLUTION