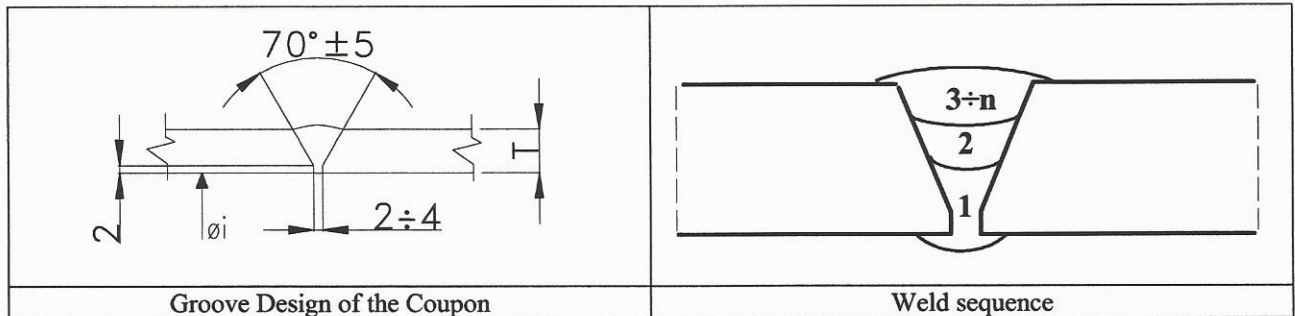


SER. IN. SERVIZI INDUSTRIALI	PROCEDURE QUALIFICATION RECORD	PQR.MA.006 p. 1/2
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Welding Process(es)	GTAW +SMAW
Types	Manual
pWPS	WPS_BW_PQRMA006 Rev. 0

#### JOINTS (QW-402)



#### BASE METALS (QW-403)

Material specification	ASME SA 333 Gr. 6
to Material specification	ASME SA 333 Gr. 6
P no./Gr. no. 1/1	to P no./Gr. no. 1/1
Thk of test coupon	T=9,09 mm
Dia. of test coupon	O.D. 33,4 mm
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	GTAW	SMAW
SFA Spec.	SFA 5.18	SFA 5.1
AWS Class.	ER 70S-6	E 7018-1 H4
F no.	6	4
A no.	1	1
Size, mm	2,4	2,5
Weld thk, mm	t= 3 mm	t= 6,10 mm
<b>GTAW: Solid rod</b>		

#### GAS (QW-408)

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

\*Purity: 99,96%

#### ELECTRICAL CHARACTERISTICS (QW-409)

See Weld data record
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#### POSITION (QW-405)

Position of groove	6G
Progression	Uphill
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	Room temp. (10°C)
Interpass temp. max	200°C
Other	-

<input type="checkbox"/> Single electr.	<input type="checkbox"/> Multiple elect.	<input checked="" type="checkbox"/> N.A.
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Other: -
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#### 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
1	GTAW	ER 70S-6 / 2,4	DC/SP	110	14	70	1.320	CARBOROD 1 (OERLIKON)
2÷4	SMAW	E 7018-1 H4 / 2,5	DC/EP	120	22	140	1.131	ETC PH 35S (OERLIKON)

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) 006 - a	8,43	6,25	52,69	26,82	509	Ductile, base metal
QW-462.1(a) 006 - b	8,45	6,20	52,39	26,82	512	Ductile, base metal

Guided-bend test (QW-160)

Type and figure / Specimen	Bending angle	Result
QW-462.2 Root bend / (006 - c)	180°	Satisfactory
QW-462.2 Root bend / (006 - d)	180°	Satisfactory
QW-462.2 Face bend / (006 - e)	180°	Satisfactory
QW-462.2 Face bend / (006 - f)	180°	Satisfactory

Toughness tests (QW-170)

Specimen mm	Notch location	Notch type	Test temperature °C	Impact values Joules	Average values Joules
006 g/h/i	Parent metal	KV 7.5	-52°C	130-132-134	132
006 l/m/n	HAZ	KV 7.5	-52°C	122-130-112	121
006 o/p/q	Weld metal	KV 7.5	-52°C	28-30-30	29

Other tests

Type of test	Results	Certificates
Visual examination	Acceptable	STEEL SERVICE S.a.s. Cert. 092SLD15br
Penetrant test examination	Acceptable	STEEL SERVICE S.a.s. Cert. 092SLD15bt
Radiographic examination	Acceptable	STEEL SERVICE S.a.s. Cert. 092SLD15bs
Trasverse tensile test	Acceptable	STEEL SERVICE S.a.s. Cert. 092SLD15bu
Impact test	Acceptable	STEEL SERVICE S.a.s. Cert. 092SLD15bz
Trasverse bend test	Acceptable	STEEL SERVICE S.a.s. Cert. 092SLD15bv
Hardness test & Macroscopic	Acceptable	STEEL SERVICE S.a.s. Cert. 092SLD15ca

Hardness test

Type	Zone	Results (max values)
HB	Parent metal (Line 1) / (Line 2)	139-144-145 / 143-145-145
HB	HAZ (Line 1) / (Line 2)	201-209-212 / 188-196-199
HB	Weld metal (Line 1) / (Line 2)	177-179-177 / 168-167-172
HB	HAZ (Line 1) / (Line 2)	205-203-199 / 198-192-192
HB	Parent metal (Line 1) / (Line 2)	136-139-139 / 142-140-146

Sample: PQRMA006

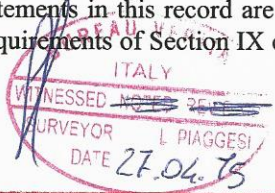
Welders' name	ESPOSITO LUIGI	Clock no. -	Stamp no. EL
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Tests conducted by: STEEL SERVICE S.a.s.	Laboratory test no. -
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We certify that the statements in this record are correct and that the test coupons 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

Volturato 2016.08.03



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

  
**SER. IN.**  
 di Esposito Luigi  