



Welding Procedure Qualification Record

(PQR) ASME IX

Energy - Downstream, Power and Manufacturing

Company Name **Mosman Stainless Steel**

Procedure Qualification Record No.

Date **01 December 2012**WPS No. **301012/01**Welding Process(es) **GTAW**Types (Manual, Automatic, Semi-Auto.) **Manual**

Joins (QW-402)

See WPS 301012/01

Groove Design for Test Coupon
(For combination qualifications, the deposited weld metal thickness shall be recorded for each filler metal or process used.)

Base Metals (QW-403)

Material Spec. **SA 312**Type or Grade **TP316(L)**P.No. **8** to P-No. **8**Thickness of Test Coupon **14 mm**Diameter of Test Coupon **160 mm**

Other

Postweld Heat Treatment (QW-407)

Temperature **n.a.**Time **n.a.**

Other

Gas (QW-408)

Percent Composition

	Gas(es)	(Mixture)	Flow Rate
Shielding	Ar	99,9995%	12 l/min
Trailing			
Backing	H2 + N2	0,5-50% + rest	8 l/min

Filler Metals (QW-404)

SFA Specification **ER 316LSi**AWS Classification **A5.9**Filler Metal F-No. **6**Weld Metal Analysis A-No. **8**Size of Filler Metal **2,0 mm**

Other

Electrical Characteristics (QW-409)

Current **DC**Polarity **EN**Amps. **1: 60-80, 2-n: 80-120** Volts **1: 12, 2-n: 14**Tungsten Electrode Size **2,4 mm**Other **Lincoln Gold 2% Lanthane**

Technique (QW-410)

Travel Speed **1: 1-2, 2-n: 2-4 mm/sec**String or Weave Bead **String**Oscillation **n.a.**Multipass or Single Pass (per side) **Multipass**Single or Multiple Electrodes **Single**

Other

Preheat (QW-406)

Preheat Temp. **min. 10°C**Interpass Temp. **max. 150°C**

Other

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Tensile Test (QW-150)						PQR No.
Specimen No.	Width mm	Thickness mm	Area mm ²	Ultimate Total Load kN	Ultimate Unit Stress MPa	Type of Failure & Location
1	19,2	12,9			565	Base metal
2	19,2	13,3			565	Base metal

Guided- Bend Tests (QW-160)		Results
Type and Figure No.		
Side bend, 4xt, 180°		Acceptable
Side bend, 4xt, 180°		Acceptable
Side bend, 4xt, 180°		Acceptable
Side bend, 4xt, 180°		Acceptable

Toughness Tests (QW-170)							
Specimen No.	Notch Location	Specimen Size mm	Test Temp. °C	Impact Value J	% Shear	Mils	Drop Weight Break (Y/N)

Comments:
 WPS 301012/01, report EAM008065-2 rev. 0, RT-report 123760427, PT-report123760429

Fillet-Weld Test (QW-180)

Result- Satisfactory: Yes No Penetration into Parent Metal: Yes No

Macro - Results

Other Tests

Type of Test **VT, RT, PT**

Deposit Analysis

Other

Welder's Name **M.M.J. Tijans** Clock No. Stamp No.

Test Conducted By: **C.W. Verkerk (LR)** Laboratory Test No: **EAM008065-2 rev. 0**

We certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

Date Issued: **01 December 2012**

 Manufacturer's Representative **Mosman Stainless Steel**

 R.M.G.D. Houtvast (IWE)
 Surveyor to Lloyd's Register EMEA

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