
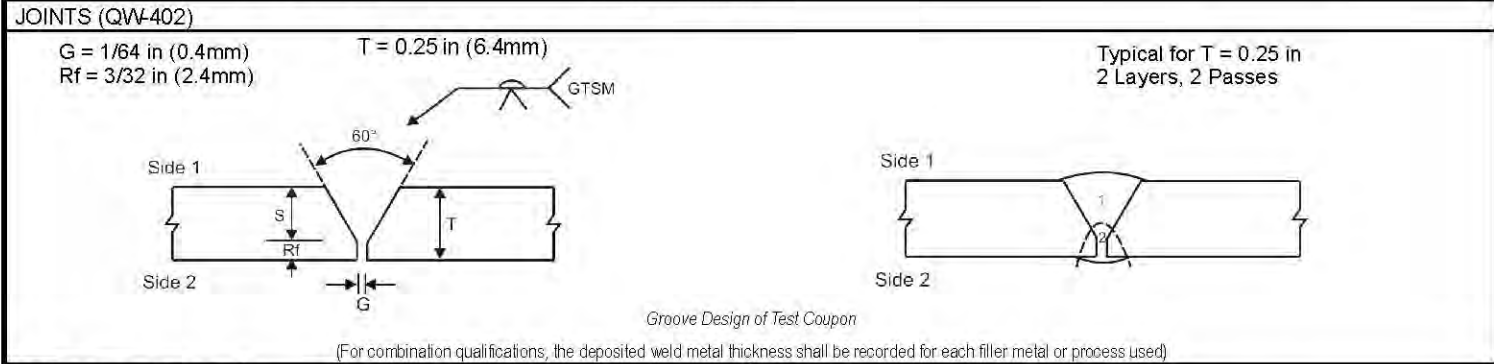


QW-483 suggested format for procedure qualification records (PQR)
(see QW-200.2, Section IX, ASME Boiler and Pressure Vessel Code)
Record Actual Conditions Used to Weld Test Coupons

Company Name National Energy Equipment Inc.		By: 
Procedure Qualification Record (PQR) No.:	GMAW-AL-02	Revision: 0
Welding Procedure Specification (WPS) No.:	GMAW-AL-02	Issue Date: 5-Feb-2019
Welding Process(es):	GMAW	WO: W13939-D2
Type(s) (Manual, Automatic, Semi-automatic):	Semi-automatic	



BASE METALS (QW-403)		POST WELD HEAT TREATMENT (QW-407)		
Material Spec:	ASTM B209	ASTM B209	PWHT	
Type or Grade	6061	6061	None	
P no.	P23	P23	Temperature	N/A Time N/A
Group no.	N/A	N/A	GAS (QW-408)	
Thickness of test coupon	0.25 in (6.4 mm)		Gases	Percent Composition (Mixture)
T Qualified	N/A		Shielding Gas (GTAW)	Argon 100% Ar
T- Limits impact	N/A		Backing Gas	N/A N/A
Passes > 1/2 in (13 mm)	None		Trailing Gas	N/A N/A
T- Limits (S. cir. arc.)	N/A		Flow Rate (cfph)	25
FILLER METALS (QW-404)		ELECTRICAL CHARACTERISTICS (QW-409)		
SFA Specification	All Passes	Heat Input (KJ/in), Max	All Passes	
Filler Metal Classification	ER5356	Current	18.6	
Filler Metal F- no.	F22	Polarity	DC	
Weld Metal Analysis A No.	ER5356	Amperes	RP (EP)	
Size of Filler Metal	0.035 in (0.9 mm)	Volts	210	
Filler Metal Product Form	Solid Wire	Mode of Transfer	23	
Consumable insert	None	Tungsten electrode	Spray	
Weld Metal Thickness (t)	0.25 in (6.4 mm)	Wire Feed Speed (ipm)	N/A	
Supplemental Filler Metal	None	Other-ATS (ipm)	560-575	
Alloy Element	None	Technique (QW-410)		
T Limits (S. cir. arc.)	N/A	String or Weave Bead	Stringer	
Other/Brand name	Linde ER536	Orifice, cup, or Nozzle Size	9/16 in (14 mm)	
POSITION (QW-405)		Cleaning Method	Grinding, brushing	
Welding Process	GMAW	Back Gouge Method	Grinding	
Position of groove	1G (Flat)	Oscillation	None	
Weld Progression	N/A	Multipass or Single Pass/side	Single Pass	
Other		Single or Multiple electrodes	Single	
PREHEAT (QW-406)		Contact Tube to Work Distance	1 in (25 mm)	
Preheat Temperature	65°F (18°C)	Electrode spacing	N/A	
Min. Interpass Temperature	65°F (18°C)	Manual or automatic	Semi-automatic	
Max. Interpass Temperature	80°F (27°C)	Peening	None	
Other		Use of thermal processes	None	

QW-483 (BACK)

PQR No.

GMAW-AL-02

TENSILE TEST (QW-150)

Specimen No.	Thickness mm.	Width mm.	Area mm ² .	Ultimate Force kN	Ultimate Stress Mpa	Type of Failure & Location
6T1	6.35	18.9	120	25.8	215	Base Metal - Ductile
6T2	6.35	18.9	120	25.4	212	Base Metal - Ductile

Comments : **Specified UTS: 165 Mpa min. SKC Report No. W13939-P1901301140T, dated 30/01/2019**

GUIDE BEND TEST (QW-160)

Specimen No.	Type of Test	Figure Number	Bending Angle	Results	Comments
6F1	Transverse, Face	QW-462.3(a)	180°	Acceptable	No visible discontinuities
6F2	Transverse, Face	QW-462.3(a)	180°	Acceptable	No visible discontinuities
6R1	Transverse, Root	QW-462.3(a)	180°	Acceptable	Discontinuities within limit
6R2	Transverse, Root	QW-462.3(a)	180°	Acceptable	Discontinuities within limit

Comments : **SKC Report No. W13939-P1901311557B, dated 31/01/2019**

TOUGHNESS TEST (QW-170)

Specimen No.	Notch Location	Test Temperature °C	Impact Energies	Average Energy	Shear Fracture %	Lateral Expansion mils
			J	J		
N/A						

Comments :

Hardness Test

Traverse	Base Metal (HV10)	Heat affected zone (HV10)	Weld Metal (HV10)	Heat affected zone (HV10)	Base Metal (HV10)
N/A					

Comments :

WELDING EQUIPMENT AND SETTINGS DETAILS

Process	GMAW				
Power Source	CV				
Wire Feed	N/A				
Program Number	N/A				
Trim Value	N/A				
Welder's Name	Michael Critchlow		Welder's ID	BCSA Reg. # 384846	
Test coupon No.	1G MC 6061 13939		Date test coupon welded	18-Jan-2019	
Mechanical test conducted by	SKC Engineering Ltd.		Laboratory Tests No.	W13939-P1901301140T & W13939-P1901311557B	
Welding Supervised by:	Christopher Ross, Applus RTD				

Notes:

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 ASME IX .

Manufacturer : **National Energy Equipment Inc.**



Zanyar Farhadi, National Quality Systems Manager

Approval

2019-02-06



Authorized by: **Mathew Smith, P. Eng.**



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Date: 2019-02-13