AAIS All Asset Integrity Systems	WELDING PROCEDURE SPECIFICATION(WPS) QW-200.1, SECTION IX, ASME B-31.3 ED 2008	WPS No. AAIS-WPS-PP-4
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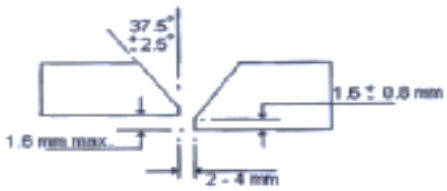
Applicable Code : ASME SEC. IX Ed 2013 ASMEB31.3 Ed 2008 QP-STD-R-002 REV.1			**WPS No.:** WPS-HOSC-04 Rev.: 0 **DATE** : 04.04.2015	
Welding Process (es): GTAW + SMAW Type(s) : Manual			**Supporting PQR : PQR-HOSC-04**	
BASE METALS (QW-403)				
P.No. : 1	Group No. : 1	TO	P.No. :1	Group No. : 1
Specification Type & Grade : ASTM A106 Gr.B TO ASTM A106 Gr.B				C_{EV}=0.38
Thickness	Groove : 5 mm to 20 mm			Fillet : N/A
Diameter : NPS 3" and above				
JOINTS (QW-402)  **PQR Test Specimen Size : Ø 6" x Sch 80 (10.97 mm)**			Backing GTAW : None Backing SMAW: Weld Metal Type of Tack: Bridge cleat 3nos@120°	

FILLER METALS (QW 404)		
Process(es)	GTAW	SMAW
Spec.No.(SFA):	5.18	5.1
AWS No.(Class)	ER 70S-2	E7018
F.No.	6	4
A.No.	1	1
Size of Filler Metal	2.4 mm	2.5/ 3.2 mm
Weld Metal Thickness (Groove)	6 mm max	14 mm max
Weld Metal Thickness (Fillet)	All	All
Electrode-Flux Class	N/A	N/A
Supplemental Filler Metal	N/A	N/A
Trade Name	ESAB	ESAB
Flux Type	N/A	N/A
Filler Metal product form	SOLID	N/A
Consumable Insert	NONE	N/A

Prepared By.	Reviewed /Witnessed By.	Approved By.
AAIS	VELOSI	AAIS
Date.		

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POSITIONS (QW-405)	POSTWELD HEATTREATMENT (QW-407)
Position (s) of Groove: All	Temperature range: N/A
Welding Progression : Uphill	Time Range: N/A
Position (s) of Fillet : All	Heating Rate/Hr : N/A , Cooling Rate/Hr : N/A
PREHEAT (QW-406)	**Gas(QW-408)**
Preheat Temp. (Min): 20°C.	
Inter Pass temp(Max): 150 °C	
Preheat maintenance : N/A	
Other : N/A	

	Gas(es)	Mixture	Flow Rate
Shielding	ARGON	99.99%	10 – 15 LPM
Trailing	NONE	NONE	NONE
Purging	NONE	NONE	NONE

TECHNIQUE(QW-410)	
String or weave bead: String and/or weave	Oscillation: N/A
Max. weave width: 3 x dia of electrode	Contact tube to work distance: N/A
Orifice/Gas Cup Size: 12 mm	Multiple/Single pass (per Side): Multiple
Initial Cleaning: Brushing/Grinding	Multiple/Single Electrode: Single
Inter pass Cleaning: Brushing/Grinding.	Travel Speed (Range): As per Table below
Method of Back gouging: N/A	Close Out Chamber : N/A

ELECTRICAL CHARACTERISTICS (QW-409)	
Current (AC/DC): DC	Polarity: As per table below
Amps (Range) : As per Table below	Volts(Range): As per table below
Tungsten Electrode Size & Type: 2.4 mm & 2% Thoriated (EWTh-2)	Mode Of Metal Transfer for GMAW(FCAW) : N/A

Weld Passes	Process	Filler Metal		Current		Volts - Range	Travel Speed (Range) mm/min	Heat Input Max. (KJ/mm)
		Class	Dia. mm	Type/ Polarity	Amp. range			
Root	GTAW	ER70S-2	2.4	DCEN	95-100	10-12	51.5	1.15
Hot	GTAW	ER70S-2	2.4	DCEN	145-15	11-13	72.5	1.54
FILL 1-n	SMAW	E7018	2.5,3.2	DCEP	80-85	23-25	66.1	1.85
CAP 1-n	SMAW	E7018	2.5,3.2	DCEP	80-82	22-25	74.2	1.47

Notes:

1) **For GTAW welding, high frequency start up unit to be used.**
2) **Bridge Piece material shall be same as parent material**

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