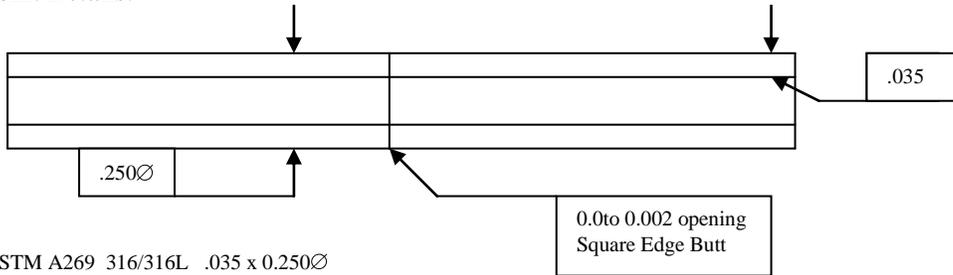


Welding Procedure Specification

Welding Procedure Specification No.: WPS AMI/Orbital 001			Date: 12/29/2009**
Revision No.:	Revision Date:	Remarks:	Supporting PQR No.(s): PQR AMI/Orbital 001
Welding Processes: GTAW/Automatic		(2)	
(Manual, Automatic, Machine, Semi-automatic)			

Joints (QW-402):			
Joint Design: Square Edge Groove	Backing: Gas	Backing Material (Type): Argon Gas	Remainder:
Retainer: No	Type: Non-Metallic *** Metallic (Non fusing)		

Joint Details:



ASTM A269 316/316L .035 x 0.250Ø

AMI Orbital Welding Machine (Autogenous only)

Base Metals (QW403):	S-No.: 8 Group1	TO	S-No.: 8 Group 1	
Specification Type and Grade: ASTM A 269 Type 316/316L				
TO Specification Type and Grade: ASTM A 269 Type 316/316L				
OR Chemical Analysis and Mechanical Properties:				
TO Chemical Analysis and Mechanical properties:				
Thickness Range:	Process 1		Process 2	
Base Metal:	Groove: .035	Fillet: Unlimited	Groove:	Fillet:
Deposited Weld Metal:	Groove: .035	Fillet: Unlimited	Groove:	Fillet:
Pipe Diameter Range:	Groove: .250 Minimum	Fillet: Unlimited	Groove:	Fillet:
Other:				

Filler Metals (QW-404)	Process 1		Process 2	
Specification No. (SFA):	Autogenous – No Filler			
AWS No, (Class):				
F-No.:				
A No.:	8			
Size of Filler Metals:				
Deposited Weld Metal Thickness Range:	Groove:	Fillet: Unlimited	Groove:	Fillet:
Electrode-Flux (Class):				
Flux Trade Name:				
Consumable Insert:				
Other:				

Each Base Metal-Filler Metal Combination should be recorded individually

Welding Procedure Specification

Positions (QW-405)		Post Heat Treatment (QW-407)	
Positions of Groove:	All	Temperature Range:	None
Welding Progression	Upward & downward	Time Range	N/A
Positions of Fillet	All		

Preheat (QW-408)		Gas (QW-408)			
Preheat Temperature:	Minimum 50 °F			% Composition	
Interpass Temperature:	Maximum-Not Recorded		Gases	Mixture	Flow Rate
Preheat Maintenance:	None	Shielding	Argon	99.9%	10-15 CFH
Minimum Welding Temperature	32 °F	Trailing	None	***	***
		Backing	Argon	99.9%	8-12 CFH

Electrical Characteristics (QW-409)				
Current – AC or DC:	Direct Current	Polarity: Straight	Characteristics	Pulsing
Tungsten Electrode:	Size: .040Ø	EWCe-2	.030" arc gap	
Mode of Metal Transfer for GMAW:	N/A			
Electrode Wire Feed Speed Range:	N/A			

Technique (QW-410)	
String or Weave Bead:	String
Orifice or Gas Cup Size:	AMI Orbital Head 9-500
Initial Interpass Cleaning (Brushing, Grinding, etc.):	Initial Solvent Clean****Do not Brush after Welding
Method of Back Gouging:	None
Oscillation:	None
Contact Tube to Work Distance:	N/A
Multiple or Single Pass (per side):	Single
Multiple or Single Electrode(s):	Single
Travel Speed (Range):	See Sequence Chart
Peening:	None
Other: Use manufacturer shaped and sized electrode. .040"Ø tungsten with a .020" tipØ and a .30" arc gap	

Sequence Chart : AMI Orbital Model 227 STD2.1 with Model 9-500 Weld Head and .40"Ø Tungsten .035"wall x .500"xØ ASTM A 269										
Weld Levels	Pulse	Rotation	RPM		Time	AMPS		PULSE		Manual GTAW Tacking of assembly optional by qualified welder. Use pre-shaped and pre-sized factory supplied tungsten
			Primary	Back		Primary	Back	Primary	Back	
1	ON	Continuous	1.00	--	109	24	5	.20	.20	
2										
3										
4										
5										
6										