Lakeshore College

AWS D1.1 Prequalified Welding Procedure Specification (WPS)

WPS No. **WPS-Sparks-001** Date **8/25/2025** Rev. No. **0**

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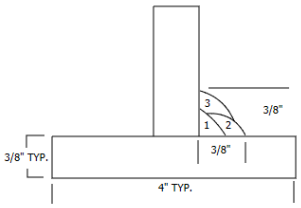
Welding Process(es)/Type(s): **GMAW / Semiautomatic**

Joint Design Used

Weld Type: Fillet welds
Fillet Type: T-joint
Double Welded: No
As Detailed (Tolerances): n/a
As Fit-UP (Tolerances): n/a
Backing: Yes Material: Base Metal
Root Opening: 0 in. Root Face: N/A
Groove Angle: N/A Radius: N/A
Back Gouging: No Method: N/A
3/8" Fillet weld to be done in 3 passes

Joint Detail



Base Metals

Base Metal: ASTM A 36
Thickness: Groove N/A
Thickness: Fillet 3/8 in.
Pipe Diameter: 3/8 in. min.
Clean off mill scale before welding

Filler Metals

AWS Specification: 5.18
AWS Classification: ER70S-6
Trade Name: Solid Wire
Weld Size: 3/8 in.

Shielding

Gas: 75% Argon, 25% CO2 Flow Rate: 35 CFH
Gas Cup Size: 1/2"
Electrode-Flux (Class): N/A
Flux Trade Name: N/A

Preheat

Preheat Temperature, Min.: 32°F
Interpass Temperature, Min.: 32°F Max.: 350°F
Minimum Preheat and Interpass Temperatures for given thickness:
1/8" thru 3/4" incl.: 32°F (70°F if less than 32°F)
Over 3/4" thru 1-1/2" incl.: 150°F
Over 1-1/2" thru 2-1/2" incl.: 225°F
Over 2-1/2": 300°F

Position

Weld Position: Fillet Horizontal only
Vertical Progression: N/A

Electrical Characteristics

Power Source: Miller XMT 350
Output: Constant Voltage
Current / Polarity: DCEP (reverse)
Transfer Mode: Globular arc
Tungsten Electrode: Type N/A
Tungsten Electrode: Size N/A
Heat Input: 31000 J/in

Technique

Stringer or Weave Bead: Stringer bead
Multi/Single Pass: Multipass
Number of Electrodes: N/A
Electrode Spacing: Longitudinal: N/A
Lateral: N/A Angle: N/A
Contact Tube to Work Distance: 1/2"
Peening: None
Interpass Cleaning: Chipping hammer / Wire Brush

Postweld Heat Treatment

Temperature: None
Time (hr.): None

Welding Procedure

Pass or Weld Layer(s)	Process	Filler Metal AWS Classification	Filler Metal Size (in.)	Current Type & Polarity	Current Amps	Wire Feed Speed (in/min)	Volts	Travel Speed (in/min)
1 - 3	GMAW	ER70S-6	0.035	DCEP (reverse)		500 - 550	25 - 27	10 - 14

Additional Notes

JOINT NOTES: Clean Base material before welding with sandblaster or grinder.

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