

IDEAL MACHINE & MANUFACTURING, INC.
Tacoma, Washington

WELDING PROCEDURE SPECIFICATION (WPS)

Procedure No. IM-26 Rev. 5 Date 3/18/04 Supporting PQR IM-26

Code: ASME Section IX AWS D1.1 AWS D1.6 AWS D1.2 OTHER

Welding Process: SMAW FCAW GMAW GTAW OTHER

Type: MANUAL SEMI-AUTOMATIC AUTOMATIC MACHINE

Joint Design:

Type: Groove Single Double Weld Root Opening: 1/16" - 3/8" Root Face Dimension: 0 - .030

Groove Angle: 25° - 40° Radius (J-U): N/A Back Gouging: Yes No Method:

Backing: Yes No Backing Material (Type): A36

Metal Non-Fusing Metal Non-Metallic Other

Retainers: Yes No Metal Non-Fusing Metal Non-Metallic Other

Position:

Position of Groove: 3G Fillet: N/A Vertical Progression: Up Down

Base Metals:

Specification ASTM Grade: A36 P-No. 1 ASME / AWS Group No. 1 / 1 to

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Thickness Range: ASME Section IX: Groove 3/16 - 8" Fillet Unlimited Diameter Pipe: N/A

AWS D1.1: Groove 1/8" - Unlimited Fillet Unlimited Diameter Pipe: N/A

Filler Material:

AWS Specification (SFA): 5.20 AWS Classification: E71T-1 F No. 6 A No. 1

Size: 1/16 Type: Tubular Consumable Insert: N/A

Weld Metal 'T' Range: ASME Section IX: Groove 3/16 - 8" Fillet Unlimited Diameter Pipe: N/A

AWS D1.1: Groove 1/8" - Unlimited Fillet Unlimited Diameter Pipe: N/A

Electrical Characteristics:

Transfer Mode (GMAW): Short-Circuiting Globular Spray

Current: AC DCEP DCEN Pulsed Polarity: Reverse

Electrode Amps Volts Tungsten Electrode (GTAW): Size: N/A Type: N/A

Diameter (Range) (Range)

.035 180-220 18-22

.045 184-225 18-22

1/16 198-242 20-23

Electrode Wire Feed Speed Range: 176 - 215 ipm

Shielding

Flux Trade Name: N/A Gas(es) Mixture(%) Flow Rate

Electrode-Flux Class: N/A Shielding: CO2 100 20 - 37 cfh

Trailing: N/A _____ cfh

Gas Cup Size: N/A Backing: N/A _____ cfh

Preheat:

Preheat Temperature: Min 50°F

Interpass Temperature: Min 50°F Max 350°F

Preheat Maintenance 50°F

Postweld Heat Treatment:

Temperature: Not Required°F

Time: N/A

Technique:

Stringer or Weave Bead: Stringer

Multi-pass or Single Pass (per side): Multi-pass

Number of Electrodes: 1

Electrode Spacing: Longitudinal: Lateral: N/A

Oscillation: N/A

Travel Speed (range): 7.5-12.5 ipm

Initial Cleaning Method: Sand Blast / Grind

Interpass Cleaning: Chipping / Grinding / Brushing

Peening: Not Allowed

Angle: N/A° Other: N/A

Contact Tube to Work Distance: 1 - 1 1/2"

No weld pass shall exceed 1/2" in thickness

Welder Name Darrell Davis

Employee No. 0412

Authorized by Darrell Davis Title QA Manager / CWI

Date 4/7/2004