

Welding Procedure Specification (WPS)

Sheet 1 of 3

ASME Boiler and Pressure Vessel Code , Section IX

Company Name: Chicago Tube and Iron

Company Address: 421 Browns Hill Road, Locust, North Carolina, 28097, USA

Welding Procedure Specification WPS No.: 183.43

Revision No.: 1

Date: 09/07/10

Supporting PQR No. (s): GTAW83.43

Date: 02/01/01

BASE METALS (QW-403)

P-No.: 8	Group No.:	Material Specification:	Type or Grade:
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Welded to

P-No.: 3	Group No.:	Material Specification:	Type or Grade:
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OR

Chem. Analysis and Mech. Prop.

Welded to Chem. Analysis and Mech. Prop.

Qualified Thickness Range mm (in)	Groove: (.0625-0.440)	Fillet: All
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Qualified Diameter Range mm (in)	Groove: All	Fillet: All
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Other information: Also applicable for A-297 HH to P-No.3, fillets only

Welding Process (es):	Gas Tungsten Arc Welding (GTAW)
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Type (s):	Manual
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FILLER METALS (QW-404)

AWS Classification Electrode-Flux Class (SAW)	ERNiCr-3
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SFA Specification	5.14
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Filler Metal F-No.	43
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Weld Metal Analysis A-No.

Size of Filler Metals mm (in)	(.093)
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Filler Metal Product Form	Solid
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Max. Weld Pass Thickness mm (in)

Qualified Weld Metal Range: Groove mm (in)	(0.440)
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Qualified Weld Metal Range: Fillet mm (in)	
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Weld Deposit Chemistry

Flux Trade Name and Flux Type (SAW)

Consumable Insert, Class and Size

Other information:

POSITIONS (QW-405)

Position (s) of Groove	ALL Position
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Welding Progression	Up
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Position (s) of Fillet	ALL Position
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PREHEAT (QW-406)

Preheat Temp. °C (°F)	(50)
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Interpass Temp. Max. °C (°F)	(500)
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Preheat Maintenance °C (°F)

GAS (QW-408)

Shielding Gas Type (Mixture)	100% Ar
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Flow Rate lt/min. (CFH)	10-30 CFH
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Trailing Gas Type (Mixture)

Flow Rate lt/min. (CFH)	
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Gas Backing (Mixture)	n/a
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Flow Rate lt/min. (CFH)	
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POSTWELD HEAT TREATMENT (QW-407)

Holding Temperature Range °C (°F): N/A	Holding Time Range: N/A
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Heating Rate °C/hr (°F/hr): N/A	Method:
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Cooling Rate °C/hr (°F/hr): N/A	Method:
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ELECTRICAL CHARACTERISTICS (QW-409)

Following data may also shown on Table below in this sheet

Current/ Polarity	DCEN
Amps (Range)	65-250
Volts (Range)	10-40
Wire Feed Speed (Range) mm/min (in/min)	As Required
Travel Speed (Range) mm/min (in/min)	As Required
Mode of Metal Transfer for GMAW (FCAW)	
Tungsten Electrode Size mm (in)	(.093)
Tungsten Type	SFA 5.12 EWTh-2

TECHNIQUE (QW-410)

String or Weave Bead	Both
Multiple or Single Electrodes	Single
Multiple or Single Pass (per side)	Multiple
Orifice or Gas Cup Size	6 or larger
Contact Tube to Work Distance mm (in)	
Initial and Interpass Cleaning	As Required
Method of Back Gouging	
Oscillation	N/A
Peening	None

Other information:

JOINTS (QW-402)

Joint Design: See Sketch Backing Type: No Backing Backing Material (Refer to both backing and retainers.):

Joint Details/ Sketch: Groove Details (or as per production drawing): Root Opening G: .093 Root Face RF: Groove Angle: 150 Radius (J-U):

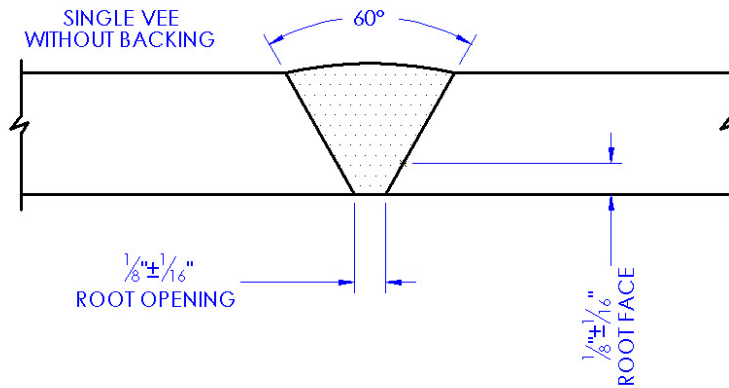


Table for recorded welding parameters; Refer to QW-409

Weld Layer(s)	Pass No. (s)	Process	Filler Metal Classification	Filler Size Diameter mm (in)	Current Amps Range	Current Type & Polarity	Wire Feed Speed Range mm/min (in/min)	Volts Range	Travel Speed Range mm/min (in/min)	Max. Heat Input kJ/mm (kJ/in) Or Remarks

Additional Notes: INITIAL AND INTERPASS CLEANING: As required to produce groove and adjacent surface free of dirt, grease or other contaminant prior to and after each succeeding weld pass.

METHOD OF BACK GOUGING: When required, use methods such as chipping, grinding, or thermal gouging so as to secure sound metal at the base of weld deposited on the groove or face side and prepare the surface for inspection or welding.

Manufacturer or Contractor's Welding Engineer:

Name:

Signature:

Title:

Date:

Authorized by:

Name: Randy Nix

Signature: Signed copy on file

Title: Manager of Quality Control

Date: 06/19/12

Heat Treatment (ASME Code's Guideline):

PREHEAT TABLE:

POSTWELD HEAT TREATMENT TABLE:

WPS Qualified Range (ASME IX Guideline):