



API WELDING PROCEDURE SPECIFICATION

WPS: API 1000-11 REV. NO.: 0 PROCESS: SMAW DATE: 9/9/2004

API-1104 QUALIFIED RANGES

Diameter: 2.375" o.d. thru 12.75" o.d. **Filler Metal Group:** API Group 1
Thickness: 0.187" thru 0.750" **Joint Type:** Butt/fillet/socket
Material: Yield greater than 42 kip to less than or equal to 65 kip
Positions: **Fixed:** **Rolled:** N/A **Progression:** Down

NOTE: This WPS shall be used in conjunction with the applicable sections of the Los Alamos National Laboratories Welding Standards Manual (GWS)

WELD JOINT: **Type:** Butt **Class:** Full Penetration

Joint Description: Open Butt single V- welded from one side only.

Sketch Number: See pg. 2 for typical sketch and bead sequence.

FILLER MATERIALS: **API Group No.:** 1 **AWS Class:** E-6010

SFA Class: 5.1 **F No.:** 3 **Sizes (s):**

1/8	5/32		
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Number of Beads: See pg. 2 for typical number and of beads

BASE MATERIALS: **Spec:** API 5L X42 /X52 **to Spec:** API 5L X42 /X52

Thickness Welded: 0.187" - 0.750" **to** 0.187" - 0.750"

Pipe Diameter: 2.375" o.d. thru 12.75" o.d. pipe **to Pipe Diameter** 2.375" o.d. thru 12.75" o.d. pipe

ASME P No.: 1 **Group:** 1 **to P No.:** 1 **Group:** 1

POSITIONS: **Fixed:** **Rolled:** N/A **PWHT: Time @ ° F Temp.:** N/A

Progression: Down **Temperature Range ° F:** N/A

PREHEAT: **Minimum Temp ° F:** 70 **GAS: Shielding:** N/A **Backing:** N/A

NOTE: See time between passes. **Composition:** N/A

INTERPASS TEMP.: N/A **Flow Rate:** **CFH** N/A

ELECTRICAL CHARACTERISTICS:

Current: DC **Polarity:** EP **Ranges Amps:** See pg. 2

Transfer Mode: N/A **WFS/IPM:** N/A **Volts:** See pg. 2

Electrode size and Type See pg. 2 **Travel/IPM** See pg. 2

MAX. TIME BETWEEN PASSES: 5 minutes between root pass and second pass.

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WELDING TECHNIQUE:

Line-Up Clamp: Optional, if used line-up clamp shall be left until 50% of root bead is complete.

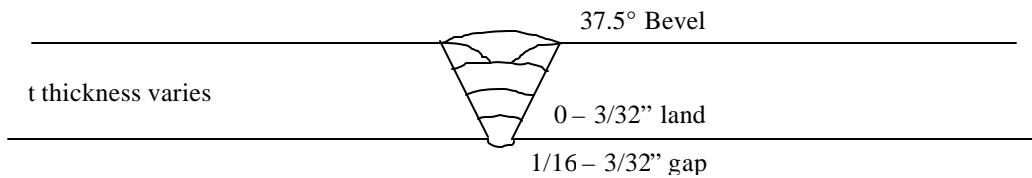
Stringer or Weave Bead: (S) Y (W) Y **Single Pass** N/A **Multi Pass** Y

Cleaning and/or Grinding: Power or hand wire brush, grinder or file

PROCEDURE QUALIFIED FOR: **Charpy V Notch** N/A **NDTT** N/A **D.T.** N/A

Maximum K/J Heat Input: N/A

JOINT SKETCH AND BEAD NUMBER AND SEQUENCE



NOTE: Weld layers are representative only ³/₄ actual number of passes and layer sequence may vary due to variation in joint design, thickness and fit-up.

TYPICAL WELDING PARAMETERS

Pass Number	Filler/ Electrode	Size	Amps	Volts	Travel Speed in/min.	Other
1	E-6010	1/8	70 -100	22 - 26	9 - 12"	
2	E-6010	5/32	125 -132	22 - 26	9 - 13	
3	E-6010	5/32	125 -132	22 - 26	9 - 13	
4	E-6010	5/32	125 -132	22 - 26	9 - 13	
5	E-6010	5/32	125 -132	22 - 26	9 - 13	
6	E-6010	5/32	125 -132	22 - 26	9 - 13	
7	E-6010	5/32	125 -132	22 - 26	9 - 13	
8	E-6010	5/32	125 -132	22 - 26	9 - 13	

PREPARED BY: Kelly Bingham **DATE:** 9/9/2004
Signature on File

APPROVED BY: Tobin Oruch **DATE:** 9/9/2004
Signature on File

API WELDING SPECIFICATION PROCEDURE

TEST PARAMETERS

Point Type: Full Penetration Single V Butt **Diameter:** 8.644" o.d.
Thickness: 0.322" wall **Filler:** 1/8" & 5/32" E-6010
Material: API 5L X42 /X52 **Preheat:** 70°F
Position: 5G Fixed **Current:** DCEP **Amps:** 70-125
Progression: Down **Volts:** 22-26

GUIDED BEND TESTS

No.	Type	Result	No.	Type	Result
1.	Face	Accept no indications	5.	N/A	
2.	Root	Accept no indications	6.	N/A	
3.	Face	Accept no indications	7.	N/A	
4.	Root	Accept no indications	8.	N/A	

TENSILE TESTS

No.	Specimen Type	Area Sq./ in	Applied Load	Ultimate Tensile	Character of failure and location
1.	Figure 4	.3726	23,530	63,144	Base metal cup and cone
2.	Figure 4	.3217	21,745	67,581	
3.	N/A				
4.	N/A				

NICK-BREAK TESTS

No.	Type	Remarks on Nick-Break tests
1.	Figure 5	Acc. Break is clean.
2.	Figure 5	Acc. Break is clean
3.	N/A	
4.	N/A	

Welders Name: Scott SimonichZ No.: 200360Stamp: SC002Tests Conducted By: Brett McNeil

We certify that the statements herein are correct and that the tests were conducted in accordance with API-1104.

Authorized By: Kelly BinghamDate: 10/30/03

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