



API WELDING PROCEDURE SPECIFICATION

WPS: API 1000-6 **REV. NO.:** 0 **PROCESS:** SMAW **DATE:** 9/9/2004

API-1104 QUALIFIED RANGES

Diameter: Less than 2.375" o.d. to all **Filler Metal Group:** API Group 1

Thickness: Less than 0.187" to 0.187" thru 0.750" **Joint Type:** Branch/ Fillet

Material: Yield less than or equal to 42,000 KPI

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:** Branch/Fillet **Class:** Full Penetration

Joint Description: Open Butt single V/Tee 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):**

3/32	1/8		
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Number of Beads: See pg. 2 for typical number and bead sequence

BASE MATERIALS: **Spec:** ASTM A-53 or A-106 A/B **to Spec:** ASTM A-53 or A-106 A/B

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

Pipe Diameter: Less than 2.375" o.d. **to Pipe Diameter** All

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: 200 **GAS: Shielding:** N/A **Backing:** N/A

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

INTERPASS TEMP.: 200 – 600 ° F **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 passes, or maintain strict preheat temperature.

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WELDING TECHNIQUE:

Line-Up Clamp: None it should be noted that the fit up on this joint is critical to successful weld.

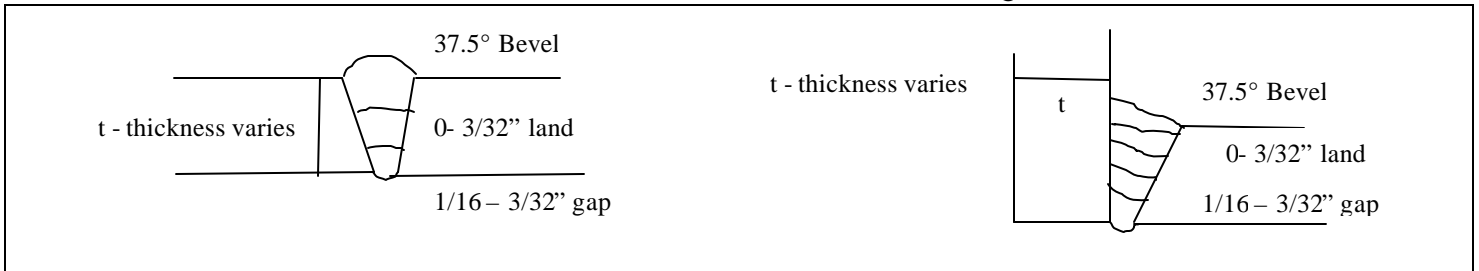
Stringer or Weave Bead: (S) Y (W) Y **Single Pass** N/A **Multi Pass** Y

Cleaning and/or Grinding: Stiff wire brush or power grinder. Grind tacks & stringer bead to a smooth contour.

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	3/32	55-70	22-26	4-9	
2	E-6010	3/32	55-80	22-26	4-6	
3	E-6010	1/8	60-90	22-26	5-10	
4						
5						
6						
7						
8						

PREPARED BY: Kelly L. 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 Pene. Butt	Diameter:	1.66 o.d. to	6.625 o.d.
Thickness:	.191 to .280 wall	Filler:	3/32 & 1/8	E6010 (6P+)
Material:	ASTM A-106 gr B	Preheat:	250 °F	
Position:	5G Fixed	Current:	DCEP	Amps: 55-70
Progression:	Down	Volts:	22-26	

GUIDED BEND TESTS

No.	Type	Result	No.	Type	Result
1.			5.	N/A	
2.			6.	N/A	
3.			7.	N/A	
4.			8.	N/A	

TENSILE TESTS

No.	Specimen Type	Area Sq./ in	Applied Load	Ultimate Tensile	Character of failure and location
1.	N/A				
2.	N/A				
3.	N/A				
4.	N/A				

NICK-BREAK TESTS

No.	Type	Remarks on Nick-Break tests
1.	Figure 11	Acc. Break was clean.
2.	Figure 11	Acc. Break was clean.
3.	Figure 11	Acc. Break was clean.
4.	Figure 11	Acc. One minor pore.

Welders Name: William McIntoshZ No.: 86261Stamp: PF009Tests Conducted By: Max Goforth

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

Authorized By: Kelly BinghamDate: 09/30/92