

# CONSTRUCTION: JOINING OF PIPES BY WELDING

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Issued: 8-14-2007 Revised: 12-05-2022 Number: 6H Page: \_\_\_\_\_

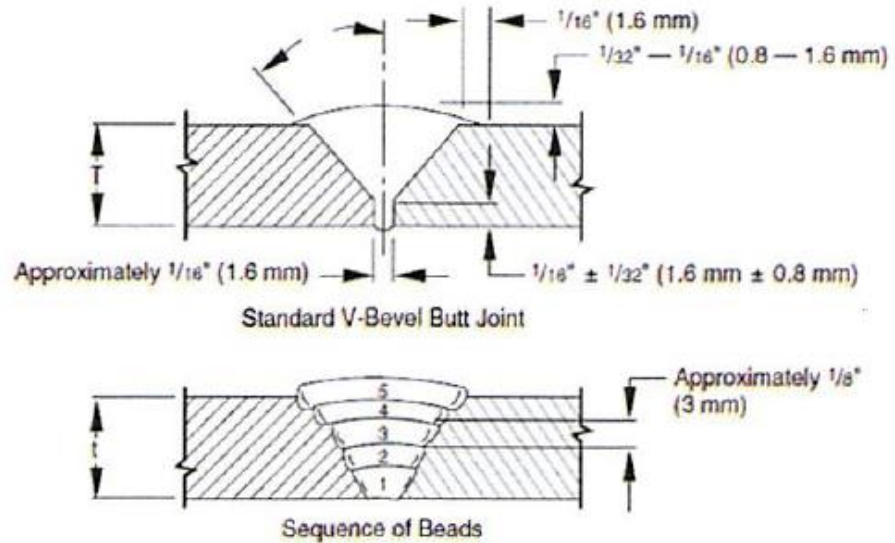
## STANDARD WELDING PROCEDURE SPECIFICATION #: 6H

- A. Process: Manual Electric Arc
- B. Material: API 5L Grade A thru X42
- C. Diameter and Wall Thickness: Greater than 12" and .188 thru .500 wall thickness
- D. Joint Design: Standard Vee Groove, 30 Degree bevel
- E. Filler Metal and Number of Beads: Electrode Classification  
Electrode E6010 and E8010, AWS Class A5.1 – A5.5, minimum of 4 passes
- F. Electrical or Flame Characteristics: Reverse Polarity, Electrode Positive
- G. Position: Fixed Horizontal
- H. Direction of Welding: Vertical Down
- I. Number of Welders: 1
- J. Time Lapse Between Passes: Maximum of 5 minutes between stringer and hot pass;  
3 minutes maximum when temperature is below 35° F.
- K. Type of Line-Up Clamp: External
- L. Removal of Line-Up Clamp: After 50% completion of stringer bead.
- M. Cleaning: Taper grind starts and craters and flatten crown by grinding stringer bead,  
power buff all remaining passes.
- N. Speed of Travel: String bead 10 to 12 inches per minute maximum.
- O. \*Preheat, Stress Relief: Maximum of 300°F. Minimum of 150°F. Preheating shall  
be done with device or equipment which will heat entire circumference(s) in single  
application 2" back from pipe ends.
- P. Notes: Welded pipe strings shall be temporarily capped to prevent air draft cooling  
of stringer beads. Weld shall be completely protected from moisture until it has  
cooled to ambient temperature. Weld zone shall be protected so that the wind  
velocity near it does not exceed 8 miles per hour.

\*X-Rated pipe must be stress relief if the carbon content exceeds 32% or C+1/4 Mn  
exceeds 65%. Heating of X-Rated pipe is limited to 600°F.

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Note: Dimensions are for example only.

Bead No.	Electrode Diameter	Amperage Range	Voltage Range	Type Rod	Notes
1	5/32	110-130	22-30	E6010 5P+	
2	5/32	120-155	24-35	E8010	
3	5/32	125-160	24-32	E8010	
4	3/16	135-175	27-37	E8010	
5					

Bead No.	Notes
5	Additional beads may be applied at same settings as pass 4 amperage and voltage settings
	Electrodes may be substituted within rod group 1&2 of AWS specification A5.1-A5.5

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## WELD TEST REPORT

(USE SEPARATE FORM FOR EACH WELDING PROCEDURE)

DATE <i>1-17-08</i>		WELDER'S NAME <i>Dennell Langford</i>		SOCIAL SECURITY NUMBER <i>2519</i>	
LOCATION <i>Swanton</i>		NAME OF CONTRACTOR OR COMPANY <i>West Texas Gas</i>		REQUALIFYING TEST <input checked="" type="checkbox"/> QUALIFYING TEST <input type="checkbox"/> LINE TEST <input type="checkbox"/>	
POSITION INCLINED <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> FIXED <input type="checkbox"/>		ELECTRIC ARC <input checked="" type="checkbox"/> INDOORS <input checked="" type="checkbox"/> OX-ACETYLENE <input type="checkbox"/> OUTDOORS <input type="checkbox"/>		WEATHER <i>CL</i>	
PIPE SPECIFICATION <i>API-5L GR X42</i>		PIPE MANUFACTURER <i>Republic</i>		TEMPERATURE <i>80</i>	
MAKE OF WELDING MACHINE <i>Lincoln</i>		WALL THICKNESS <i>0.281</i>		TIME OF DAY <i>11:00</i>	
SIZE <i>300</i>		WELDING NOZZLE SIZE <i>—</i>		WIND BREAK USED <i>N/A</i>	
BRAND OF ELECTRODE <i>Lin</i>		BRAND OF OX-ACETYLENE ROD AND SIZE <i>—</i>		DIAMETER (OD) <i>20</i>	
		NUMBER OF PASSES - OX-ACETYLENE WELD <i>—</i>		WEIGHT PER FOOT <i>59.18</i>	
				OX-ACETYLENE PRESSURE FLOWING <i>—</i>	
				WELDING PROCEDURE NO. <i>6-H</i>	

	ELECTRODE TYPE AND SIZE		MACHINE SETTINGS		AMPERAGE RG.	VOLTAGE RG.
			COARSE	FINE		
PIPE WELD	STRINGER	<i>5/32 Lin 5P+</i>	<i>120-190</i>	<i>55</i>	<i>110-130</i>	<i>22-30</i>
	HOT PASS	<i>5/32 Lin 70+</i>	<i>160-240</i>	<i>70</i>	<i>120-155</i>	<i>24-30</i>
	FILLER (S)	<i>5/32 Lin 70+</i>	<i>160-240</i>	<i>70</i>	<i>125-160</i>	<i>24-32</i>
	GAP PASS	<i>3/16 Lin 70+</i>	<i>160-240</i>	<i>80</i>	<i>135-175</i>	<i>27-30</i>

*API 5L wall 0.281  
2014 5000/120V*

	COUPON			CROSS SEC. AREA SQ. IN.	LOAD	% ELONG.	COMPUTED TENSIL PSI	REMARKS	AC-CEPTED	RE-JECTED
	LOCATION	LENGTH	WIDTH							
TENSILE TESTS	1	<i>T1</i>	<i>8</i>	<i>1"</i>	<i>.290</i>	<i>20000</i>	<i>20%</i>	<i>68965</i>	<i>No defect</i>	<input checked="" type="checkbox"/>
	2	<i>T2</i>	<i>8</i>	<i>1"</i>	<i>.290</i>	<i>same</i>	<i>same</i>	<i>same</i>	<i>"</i>	<input checked="" type="checkbox"/>
	3	<i>B1</i>	<i>8</i>	<i>1"</i>	<i>.290</i>	<i> </i>	<i> </i>	<i> </i>	<i>"</i>	<input checked="" type="checkbox"/>
	4	<i>B2</i>	<i>8</i>	<i>1"</i>	<i>.290</i>				<i>"</i>	<input checked="" type="checkbox"/>

	COUPON LOCATION	TYPE OF BEND	REMARKS	AC-CEPTED	RE-JECTED
	2	<i>R2</i>	<i>"</i>	<i>"</i>	<input checked="" type="checkbox"/>
	3	<i>R3</i>	<i>Root</i>	<i>"</i>	<input checked="" type="checkbox"/>
	4	<i>R4</i>	<i>"</i>	<i>Small openings on edge</i>	<input checked="" type="checkbox"/>
	1	<i>F1</i>	<i>Face</i>	<i>No defect</i>	<input checked="" type="checkbox"/>
	2	<i>F2</i>	<i>"</i>	<i>"</i>	<input checked="" type="checkbox"/>
	3	<i>F3</i>	<i>Face</i>	<i>"</i>	<input checked="" type="checkbox"/>
	4	<i>F4</i>	<i>"</i>	<i>"</i>	<input checked="" type="checkbox"/>

	COUPON LOCATION	REMARKS	AC-CEPTED	RE-JECTED
	2	<i>T2</i>	<i>Clean Metal</i>	<input checked="" type="checkbox"/>
	3	<i>B2</i>	<i>"</i>	<input checked="" type="checkbox"/>
	4	<i>B4</i>	<i>"</i>	<input checked="" type="checkbox"/>

This weld has been visually and destructively tested in accordance with API-1104.

TEE WELD TEST		SIZE AND WALL THICKNESS OF MAIN		GAS PRESSURE ON MAIN PSIG		LOCATION OF FRACTURE WELD <input type="checkbox"/> NIPPLE <input type="checkbox"/> MAIN <input type="checkbox"/>			
		DID WELD CONTAIN: PINHOLES <input type="checkbox"/> COLDROLL <input type="checkbox"/> UNDERCUT <input type="checkbox"/>		DEPTH OF UNDERCUT			LENGTH OF UNDERCUT		
		REMARKS ON TEE WELD							

PIPE WELD	QUALIFIED <input checked="" type="checkbox"/> NOT QUALIFIED <input type="checkbox"/>	ELECTRIC ARC <input checked="" type="checkbox"/> OX-ACETYLENE <input type="checkbox"/>	TEE WELD	QUALIFIED <input type="checkbox"/> NOT QUALIFIED <input type="checkbox"/>	ELECTRIC ARC <input type="checkbox"/> OX-ACETYLENE <input type="checkbox"/>
TESTED BY	SIGNATURE <i>Ed Maschak</i>			TITLE <i>Welding Inspector</i>	