

CONSTRUCTION: JOINING OF PIPES BY WELDING

Issued: 8-14-2007 Revised: 11-15-2022 Number: 6 Page: _____

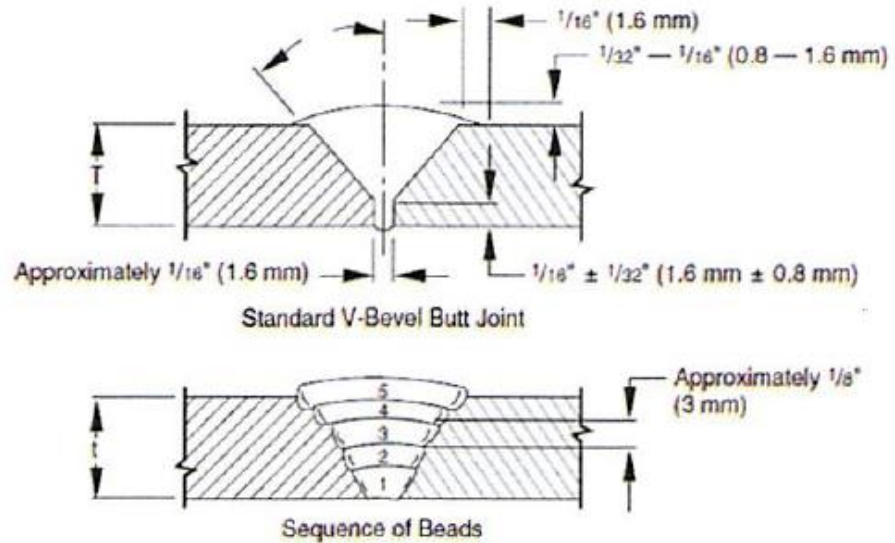
STANDARD WELDING PROCEDURE SPECIFICATION #: 6

- 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: Inclined 45 degrees
- 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
	If necessary, more passes may be made at bead #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>Aug 14, 2007</i>		WELDER'S NAME <i>Jimmie Moore</i>		SOCIAL SECURITY NUMBER <i>###-##-1536</i>	
LOCATION <i>Sumner</i>		NAME OF CONTRACTOR OR COMPANY <i>WTG</i>		RIGHT HANDED <input checked="" type="checkbox"/>	REQUALIFYING TEST <input checked="" type="checkbox"/>
POSITION <input checked="" type="checkbox"/> HORIZONTAL		ELECTRIC ARC <input checked="" type="checkbox"/>	INDOORS <input type="checkbox"/>	WEATHER <i>CL</i>	TEMPERATURE <i>100</i>
PIPE SPECIFICATION <i>API 5L X 60</i>		PIPE MANUFACTURER <i>Republic</i>		WALL THICKNESS <i>.281</i>	DIAMETER (OD) <i>20"</i>
MAKE OF WELDING MACHINE <i>Lin</i>		SIZE <i>300</i>	MAKE OF OX-ACETYLENE APPARATUS <i>N/A</i>	WELDING NOZZLE SIZE <i>N/A</i>	OX-ACETYLENE PRESSURE FLOWING <i>N/A</i>
BRAND OF ELECTRODE <i>Lin</i>		BRAND OF OX-ACETYLENE ROD AND SIZE <i>N/A</i>		NUMBER OF PASSES - OX-ACETYLENE WELD <i>N/A</i>	WELDING PROCEDURE NO. <i># 6</i>

PIPE WELD	ELECTRODE TYPE AND SIZE		MACHINE SETTINGS		AMPERAGE RG.	VOLTAGE RG.
			COARSE	FINE		
STRINGER	<i>Lin 5/32</i>	<i>5P+</i>	<i>120-190</i>	<i>55</i>	<i>110-130</i>	<i>22-30</i>
HOT PASS	<i>Lin 5/32</i>	<i>70+</i>	<i>160-240</i>	<i>70</i>	<i>120-155</i>	<i>24-30</i>
FILLER (S)	<i>Lin 5/32</i>	<i>70+</i>	<i>160-240</i>	<i>70</i>	<i>125-140</i>	<i>24-32</i>
CAP PASS	<i>Lin 3/16</i>	<i>70+</i>	<i>160-240</i>	<i>80</i>	<i>135-175</i>	<i>27-37</i>

*API-1104
Sawdust-5
20th Ed. 4-04*

TENSILE TESTS	COUPON			CROSS SEC. AREA SQ. IN.	LOAD	% ELONG.	COMPUTED TENSIL PSI	REMARKS	AC-CEPTED	RE-JECTED
	LOCATION	LENGTH	WIDTH							
1	<i>TR</i>	<i>8"</i>	<i>1"</i>	<i>.290</i>	<i>29,000</i>	<i>25%</i>	<i>68,965</i>	<i>Break in punch out</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	<i>TL</i>	<i>"</i>	<i>"</i>					<i>SAME</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	<i>TBR</i>	<i>"</i>	<i>"</i>					<i>SAME</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	<i>TBL</i>	<i>"</i>	<i>"</i>					<i>SAME</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

BEND TESTS	COUPON LOCATION	TYPE OF BEND	REMARKS	AC-CEPTED	RE-JECTED
	1	<i>R 1</i>	<i>ROOT</i>	<i>Small 1/16 opening on edge</i>	<input checked="" type="checkbox"/>
2	<i>R 2</i>	<i>ROOT</i>	<i>No Defect</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	<i>F 1</i>	<i>FACC</i>	<i>No Defect</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	<i>F 2</i>	<i>FACC</i>	<i>No Defect</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	<i>F 3</i>	<i>FACC</i>	<i>No Defect</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	<i>F 4</i>	<i>FACC</i>	<i>No Defect</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

NICK-BREAK TESTS	COUPON LOCATION	REMARKS	AC-CEPTED	RE-JECTED
	1	<i>TR1</i>	<i>No Defects Clean Gray Metal</i>	<input checked="" type="checkbox"/>
2	<i>TL1</i>	<i>Small slag inclusion near root 1/32 x 1/64</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	<i>TBR2</i>	<i>No Defect Clean Gray Metal</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	<i>TBL2</i>	<i>No Defect Clean Gray Metal</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

SIZE AND WALL THICKNESS OF MAIN	GAS PRESSURE ON MAIN PSIG	LOCATION OF FRACTURE NIPPLE <input type="checkbox"/> MAIN <input type="checkbox"/>
<i>This weld has been visually and radiographically tested in accordance with API 1104</i>		
DID WELD CONTAIN: PINHOLES	COLDROLL	UNDERCUT DEPTH OF UNDERCUT
REMARKS ON TEE WELD		

PIPE WELD	QUALIFIED <input checked="" type="checkbox"/> NOT QUALIFIED <input type="checkbox"/>	ELECTRIC ARC <input 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>J. Moore</i>		TITLE	TITLE <i>Welding Inspector</i>	