GIBBONS ERECTORS

Welding Procedure Specification

GE-97-2

WPS No. **GE-97-2** Revision **3** Date **10/30/2008** By **GREG GIBBONS**

Authorized By **GREG GIBBONS** Date **1/5/1998** Prequalified ☒

Welding Process(es) **SMAW** Type: Manual ☒ Machine ☐ Semi-Auto ☐ Auto ☐

Supporting PQR(s)

JOINT

Type **T-Joint, Corner & Lap**

Backing Yes ☐ No ☐ Single Weld ☒ Double Weld ☐

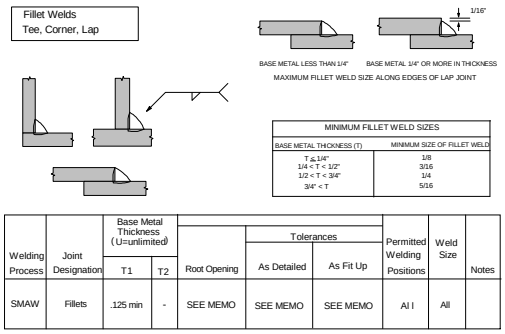
Backing Material **NA**

Root Opening **NA** Root Face Dimension **NA**

Groove Angle **NA** Radius (J-U) **NA**

Back Gouge Yes ☐ No ☐

Method **NA**



Welding Process	Joint Designation	Base Metal Thickness (U=unlimited) T1	T2	Root Opening	Tolerances As Detailed	Tolerances As Fit Up	Permitted Welding Positions	Weld Size	Notes
SMAW	Fillets	.125 min	-	SEE MEMO	SEE MEMO	SEE MEMO	All	All	

BASE METALS

Material Spec. **D1.1 GRP I & II** to **D1.1 GRP I & II**

Type or Grade **ALL** to **ALL**

Thickness: Groove ( ) -

Fillet (in) **.125** - **Unlimited**

Diameter (Pipe, in) **24** - **Unlimited**

FILLER METALS

AWS Specification	**AWS A5.1**	**AWS A5.1**
AWS Classification	**E7018**	**E7018**

SHIELDING

Flux **NA** Gas **NA**

Composition **NA**

Electrode-Flux (Class) **NA** Flow Rate **NA**

Gas Cup Size **NA**

PREHEAT

Preheat Temp., Min. **SEE MEMO**

Thickness	Temperature
Up to 3/4"	**32 DEGS F**
Over 3/4" to 1-1/2"	**50 DEGS F**
Over 1-1/2" to 2-1/2"	**150 DEGS F**
Over 2-1/2"	**225 DEGS F**

Interpass Temp., Min. **SEE MEMO** Max. **NOT REQ'D**

POSITION

Position of Groove Fillet **ALL**

Vertical Progression: ☒ Up ☐ Down

ELECTRICAL CHARACTERISTICS

Transfer Mode (GMAW):

Short-Circuiting ☐ Globular ☐ Spray ☐

Current: AC ☐ DCEP ☒ DCEN ☐ Pulsed ☐

Other **NA**

Tungsten Electrode (GTAW):

Size **NA** Type **NA**

TECHNIQUE

Stringer or Weave Bead **Both**

Multi-pass or Single Pass (per side) **Both**

Number of Electrodes **1**

Electrode Spacing: Longitudinal **NA**

Lateral **NA**

Angle **NA**

Contact Tube to Work Distance **NA**

Peening **NONE ALLOWED**

Interpass Cleaning **WIRE BRUSH, CHIP, GRIND**

POSTWELD HEAT TREATMENT

PWHT Required ☐

Temp. Time

WELDING PROCEDURE

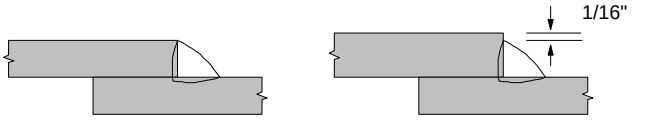
Layer/Pass	Process	Filler Metal Class	Diameter	Cur. Type	Amps or WFS	Volts	Travel Speed	Other Notes
ALL	SMAW	E7018	3/32"	DCEP	60-110	21-26	6-7 IPM	
	SMAW	E7018	1/8"	DCEP	100-160	22-27	5-8 IPM	
	SMAW	E7018	5/32"	DCEP	160-215	26-32	5-8 IPM	
	SMAW	E7018	3/16"	DCEP	200-275	30-38	5-8 IPM	

GIBBONS ERECTORS

Welding Procedure Specification

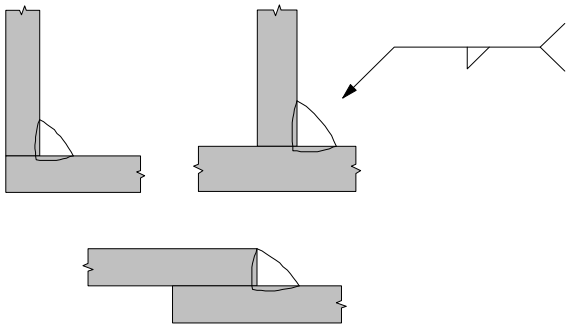
GE-97-2

Fillet Welds
Tee, Corner, Lap



BASE METAL LESS THAN 1/4" BASE METAL 1/4" OR MORE IN THICKNESS

MAXIMUM FILLET WELD SIZE ALONG EDGES OF LAP JOINT



MINIMUM FILLET WELD SIZES	
BASE METAL THICKNESS (T)	MINIMUM SIZE OF FILLET WELD
T ≤ 1/4"	1/8
1/4 < T < 1/2"	3/16
1/2 < T < 3/4"	1/4
3/4" < T	5/16

Welding Process	Joint Designation	Base Metal Thickness (U=unlimited) T1	T2	Root Opening	Tolerances As Detailed	As Fit Up	Permitted Welding Positions	Weld Size	Notes
SMAW	Fillets	.125 min	-	SEE MEMO	SEE MEMO	SEE MEMO	Al l	All	

MEMO

PREHEAT: WHEN THE BASE METAL TEMPERATURE IS BELOW 32 DEGS. F., THE BASE METAL SHALL BE PREHEATED TO A MINIMUM OF 70 DEGS. F. AND THE MINIMUM INTERPASS TEMPERATURE SHALL BE MAINTAINED DURING WELDING.PREHEAT:
PREHEAT TEMPERATURES SHOWN ARE FOR GROUP II MATERIALS, GROUP I MATERIALS ARE:
1/8 TO 3/4 IN. - 32 DEGS F.
3/4 THRU 1-1/2 IN. INCL - 150 DEGS F.
OVER 1-1/2 THRU 2-1/2 IN - 225 DEGS. F.
OVER 2-1/2 IN. - 300 DEGS. F.

This WPS applies to joints where the minimum angle between the joined pieces is 60 degs. and the maximum angle is 135 degs. The provisions of weld sizes and base metal thicknesses can be found in AWS D1.1-2004 Section 2.8 & 3.9. Acceptable weld profiles are defined in Figure 5.4

Fillet Weld Assembly. The parts to be joined by fillet welds shall be brought into as close contact as practicable. If the separation is greater than 1/16 in. (1.6 mm), the leg of the fillet weld shall be increased by the amount of the root opening.Fit up separations greter than 3/16 in. (5 mm) are unacceptable without prior approval of the engineer and demonstration that the required effective throat has been attained.