SkillsUSA

Welding Procedure Specification

WPS 103

WPS No. **WPS 103** Revision **2** Date **04/20/2013** By **NP**

Authorized By **GH** Date **5/15/2011** Prequalified ■

Welding Process(es) **GTAW** Type: Manual ■ Machine ☐ Semi-Auto ☐ Auto ☐

Supporting PQR(s) **Prequalified**

JOINT

Type **T-Joint / Corner**

Backing Yes ☐ No ■ Single Weld ■ Double Weld ☐

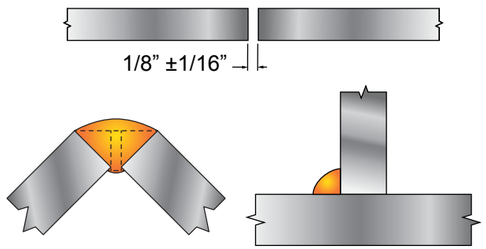
Backing Material **N/A**

Root Opening **0** Root Face Dimension **0**

Groove Angle **30-90** Radius (J-U) **N/A**

Back Gouge Yes ☐ No ■

Method **N/A**



BASE METALS

Material Spec. **3003** to **3003**

Type or Grade to

Thickness: Groove ( ) **Unlimited** - **N/A**

Fillet (in) **Unlimited** -

Diameter (Pipe,) **N/A** - **N/A**

FILLER METALS

AWS Specification **A5.10**

AWS Classification **ER4043**

SHIELDING

Flux **N/A**

Gas **100%Argon**

Composition **100%Argon**

Flow Rate **15-25 CFH**

Electrode-Flux (Class) **N/A**

Gas Cup Size **3/8" Min. (#6)**

PREHEAT

Preheat Temp., Min. **60 Deg.F**

Thickness Up to 3/4" Temperature **N/A**

Over 3/4" to 1-1/2" **N/A**

Over 1-1/2" to 2-1/2" **N/A**

Over 2-1/2" **N/A**

Interpass Temp., Min. **N/A** Max. **N/A**

POSITION

Position of Groove **All** Fillet **All**

Vertical Progression: ■ Up ☐ Down

ELECTRICAL CHARACTERISTICS

Transfer Mode (GMAW):

Short-Circuiting ☐ Globular ☐ Spray ☐

Current: AC ■ DCEP ☐ DCEN ☐ Pulsed ☐

Other **N/A**

Tungsten Electrode (GTAW):

Size **3/32"** Type **EWCe2**

TECHNIQUE

Stringer or Weave Bead **Stringer**

Multi-pass or Single Pass (per side) **Multiple/Single**

Number of Electrodes **1**

Electrode Spacing: Longitudinal **N/A**

Lateral **N/A**

Angle **N/A**

Contact Tube to Work Distance **N/A**

Peening **N/A**

Interpass Cleaning

POSTWELD HEAT TREATMENT

PWHT Required ☐

Temp. **N/A** Time **N/A**

WELDING PROCEDURE

Layer/Pass	Process	Filler Metal Class	Diameter	Cur. Type	Amps	Volts	Travel Speed	Other Notes
All	GTAW	ER4043	3/32"	AC	110-175	N/A	4-8 ipm	AC Bal. 65-75%EN
								AC Hz. 60 - 120

SkillsUSA

Welding Procedure Specification

WPS 101

WPS No. **WPS 101** Revision **3** Date **4/21/2013** By **NP**

Authorized By **GH** Date **5/15/2011** Prequalified ■

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

Supporting PQR(s) **Prequalified**

JOINT

Type **Butt / T-Joint**

Backing Yes ■ No ☐ Single Weld ■ Double Weld ☐

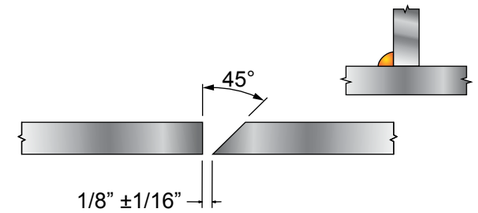
Backing Material **A-36**

Root Opening **1/8" ±1/16"** Root Face Dimension **0" - 1/8"**

Groove Angle **45 Deg.** Radius (J-U) **N/A**

Back Gouge Yes ☐ No ■

Method **N/A**



BASE METALS

Material Spec. **A-36** to **A-36**

Type or Grade to

Thickness: Groove (in) **1/8** - **3/4**

Fillet ( ) **Unlimited** -

Diameter (Pipe, in) **4** - **Unlimited**

FILLER METALS

AWS Specification **A5.1**

AWS Classification **E-7018**

SHIELDING

Flux **N/A**

Gas **N/A**

Composition **N/A**

Flow Rate **N/A**

Electrode-Flux (Class) **N/A**

Gas Cup Size **N/A**

PREHEAT

Preheat Temp., Min. **60 Deg.F**

Thickness Up to 3/4" Temperature **N/A**

Over 3/4" to 1-1/2" **N/A**

Over 1-1/2" to 2-1/2" **N/A**

Over 2-1/2" **N/A**

Interpass Temp., Min. **N/A** Max. **N/A**

POSITION

Position of Groove **1G,2G,3G,4G** Fillet **1F,2F,3F,4F**

Vertical Progression: ■ Up ☐ Down

ELECTRICAL CHARACTERISTICS

Transfer Mode (GMAW):

Short-Circuiting ☐ Globular ☐ Spray ☐

Current: AC ☐ DCEP ■ DCEN ☐ Pulsed ☐

Other **N/A**

Tungsten Electrode (GTAW):

Size **N/A** Type **N/A**

TECHNIQUE

Stringer or Weave Bead **Both**

Multi-pass or Single Pass (per side) **Single / Multiple**

Number of Electrodes **1**

Electrode Spacing: Longitudinal **N/A**

Lateral **N/A**

Angle **N/A**

Contact Tube to Work Distance **N/A**

Peening **N/A**

Interpass Cleaning **Chip slag and wire brush**

POSTWELD HEAT TREATMENT

PWHT Required ☐

Temp. **N/A** Time **N/A**

WELDING PROCEDURE

Layer/Pass	Process	Filler Metal Class	Diameter	Cur. Type	Amps	Volts	Travel Speed	Other Notes
All	SMAW	E-7018	3/32	DCEP	70-110	N/A	4-10 ipm	
			OR					
All	SMAW	E-7018	1/8	DCEP	90-150	N/A	4-10 ipm	