ALL PROCESSES TO BE COMPLETED WITH THE MATERIALS PROVIDED

1. WELD IN ACCORDANCE WITH WPS# 108
2. TACK COMPLETE ASSEMBLY IN ANY POSITION
3. WELDING TO BE COMPLETED WITH PLATE A FLAT TO THE TABLE
4. ALL VERTICAL WELDS TO BE UPHILL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
<table>
<thead>
<tr>
<th>ID</th>
<th>Qty.</th>
<th>Desc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>0.25 X 4.5 X 8 Steel Plate</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>3/8 x 7 x 3 22.5 Bevel One End</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>3 x 5.0# x 7 Steel Channel</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>0.25 x 2 x 7 Steel Plate</td>
</tr>
</tbody>
</table>

ALL PROCESSES TO BE COMPLETED WITH THE MATERIALS PROVIDED

1. TACK COMPLETE ASSEMBLY IN ANY POSITION

2. WELDING TO BE COMPLETED WITH THE GROOVE WELD IN THE 3G POSITION WITH PLATE A ON THE TABLE

SkillsUSA

SMAW

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

SIZE: A

SHEET 1 OF 1
# SkillsUSA

## Welding Procedure Specification

**WPS No.** WPS 101  
**Revision** 4  
**Date** 6/22/2017  
**By** NP  
**Authorized By** EN

### JOINT
- **Type**: Butt / T-Joint  
- **Back**: Yes [ ] No [ ] Single Weld [ ] Double Weld [ ]  
- **Rack**: A-36  
- **Opening**: Per Drawing  
- **Face Dim**: Per Drawing  
- **Groove Angle**: Per Drawing  
- **Radius (J-U)**: Per Drawing  
- **Back Gouge**: Yes [ ] No [ ] Method: N/A

### BASE METALS
- **Material Spec.**: A-36 to A-36  
- **Type**: N/A  
- **Thickness**: Groove (in.): 1/8in. - Unlimited  
- **Fillet**: Unlimited  
- **Diameter (Pipe, in.)**: 4in. - Unlimited

### FILLER METALS
- **AWS Specification**: A5.1  
- **AWS Classification**: E-7018

### SHIELDING
- **Flux**: Gas N/A  
- **Composition**: N/A  
- **Electrode-Flux (Class)**: Flow Rate N/A  
- **Gas Cup Size**: N/A

### 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**: Any  
- **Fillet**: Any  
- **Vertical Progression**: Up [ ] Down [ ]

### ELECTRICAL CHARACTERISTICS
- **Transfer Mode (GMAW)**: Short-Circuiting [ ] Globular [ ] Spray [ ]  
- **Current**: AC [ ] DCEN [ ] DCSP [ ] 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

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

- **OR**
Welding Procedure Specification

WPS No. WPS 106  Revision 3  Date 4/20/2012  By NP
Authorized By EN  Date 6/22/2017  Prequalified □
Welding Process(es) SMAW  Type: Manual □ Machine □ Semi-Auto □ Auto □
Supporting PQR(s)  

JOINT
Type  T-Joint  
Back ing Yes □ No ■ Single Weld □ Double Weld □
Back ing Material N/A  
Root Opening Per Drawing  Root Face Dimension Per Drawing
Groove Angle Per Drawing  Radius (J-U) Per Drawing
Back Gouge Yes □ No ■  
Method N/A  

BASE METALS
Material Spec. A-36 to A-36
Type or Grade  
Thickness: Groove (in ) 1/8in. - Unlimited  
Fillet ( ) Unlimited - Unlimited  
Diameter (Pipe, in ) 4in. - Unlimited

FILLER METALS
AWS Specification A5.1
AWS Classification E-6010  

SHIELDING
Flux Gas N/A  
N/A Composition N/A
Electrode-Flux (Class) Flow Rate N/A
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  

WELDING PROCEDURE
Layer/Pass Process Filler Metal Class Diameter Cur. Type Amps Volts Travel Speed Other Notes
All SMAW E-6010 1/8 DCEP 75-135 N/A 4-10 ipm

POSITION
Position of Groove Any  Fillet Any  
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) 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 Chip slag and wire brush

POSTWELD HEAT TREATMENT PWHT Required □  
Temp. N/A  Time N/A
SkillsUSA
Welding Procedure Specification

WPS No. WPS 107
Authorized By EN
Revision 3
Date 4/20/2012
By NP
Prequalified ☐
Welding Process(es) SMAW
Type: Manual ☐ Machine ☐ Semi-Auto ☐ Auto ☐
Supporting PQR(s)

JOINT
Type T-Joint
Backin Yes ☐ No ☐ Single Weld ☐ Double Weld ☐
Backing Material N/A
Root Opening Per Drawing Root Face Dimension Per Drawing
Groove Angle Per Drawing Radius (J-U) Per Drawing
Back Gouge Yes ☐ No ☐
Method N/A

BASE METALS
Material Spec. A-36 to A-36
Type or Grade N/A
Thickness: Groove ( ) 1/8in. Unlimited
Fillet ( ) Unlimited Unlimited
Diameter (Pipe, in ) 4in. Unlimited

FILLER METALS
AWS Specification A5.1
AWS Classification E-7024

SHIELDING
Flux N/A Gas N/A
Electrode-Flux (Class) N/A Flow Rate N/A
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 Fillet 1F, 2F (Plate)
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) 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 Chip slag and wire brush

POSTWELD HEAT TREATMENT
PWHT Required ☐
Temp. N/A Time N/A

<table>
<thead>
<tr>
<th>Layer/Pass</th>
<th>Process</th>
<th>Filler Metal Class</th>
<th>Diameter</th>
<th>Cur. Type</th>
<th>Amps</th>
<th>Volts</th>
<th>Travel Speed</th>
<th>Other Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>SMAW</td>
<td>E-7024</td>
<td>1/8</td>
<td>DCEP</td>
<td>130-150</td>
<td>N/A</td>
<td>4-10 ipm</td>
<td></td>
</tr>
</tbody>
</table>
SkillsUSA
Welding Procedure Specification

WPS No. WPS 108 Revision 2 Date 4/19/2016 By NP

Authorized By EN Prequalified □

Welding Process(es) FCAW-G Type: Manual □ Machine □ Semi-Auto ■ Auto □

Supporting PQR(s) ■

JOINT
Type T-Joint, Butt, Flanged
Backer Yes □ No ■ Single Weld ■ Double Weld ■
Backer Material N/A

Root Opening Per Drawing Root Face Dimension Per Drawing
Groove Angle Per Drawing Radius (J-U) Per Drawing
Back Gouge Yes □ No ■
Method N/A

BASE METALS
Material Spec. A-36 to A-36
Type or Grade to
Thickness: Groove (1/8 in.) Unlimited
Fillet (in) Unlimited
Diameter (Pipe, in) Unlimited

FILLER METALS
AWS Specification A5.20
AWS Classification E71T-1

SHIELDING
Flux Gas
N/A Composition 75%Argon/25%CO2
Electrode-Flux (Class) Flow Rate 35-45 CFH
N/A Gas Cup Size 1/2" - 3/4"

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

WELDING PROCEDURE

Layer/Pass Process Filler Metal Class Diameter Cur. Type Amps Volts Travel Speed Other Notes
All FCAW-G E71T-1M 0.045 DCEP 125-190 21-27 5-12 WFS:175-400 ipm

POSITION
Position of Groove Any Fillet Any
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) Multiple/Single
Number of Electrodes 1
Electrode Spacing: Longitudinal N/A
Lateral N/A
Angle N/A
Contact Tube to Work Distance 1/2" to 3/4"
Peening N/A
Interpass Cleaning Chip slag and wire brush

POSTWELD HEAT TREATMENT PWHT Required □
Temp. N/A Time N/A