



# SENSE

Schools Excelling through National Skill standards Education

## **WELDING PROCEDURE SPECIFICATION (WPS): AWS-EDU-FCAW-01/02** **(This WPS is for AWS SENSE Educational Purposes only.)**

Since there were no WPS for FCAW-G in the original SENSE Level I documents, the committee felt that it was necessary to provide a WPS for the FCAW-G performance Qualification required in Level I. Also the original SENSE WPS was somewhat hard to follow; this revision was designed to enable consistency with all SENSE Level I WPS's, as well as to align the WPS with the drawings in QC-10 and EG2.0. With the combined revisions, the AWS SENSE process will be more effective and much easier for the participating educational institutions to follow. Also, the documentation and record keeping process for the both parties will be more effective.

This document was written by the Education committee for the AWS Education Services Department, for the **exclusive use with the AWS SENSE program.** It is intended **only** for the use of AWS SENSE participating educational institutions. **The use of this WPS in any other manner other educational purposes by an AWS SENSE participating educational institutions is prohibited.**

### **DISCLAIMER**

This WPS document is **NOT an AWS SWPS.** Furthermore; **“(This WPS is for AWS SENSE Educational Purposes only. This WPS shall not be misconstrued as a pre-qualified WPS for any code or specification, neither shall it be misconstrued as a Standard WPS published by the B2 Committee of AWS.)”**

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### **WELDING PROCESSES**

WELDING PROCESS  
METHOD

Flux Cored Arc Welding (FCAW) – Gas Shielded  
Semi-automatic

### **BASE METALS**

BASE METALS

ASTM A36  
M# 1, P# 1, Group 1 or 2 to M# 1, P# 1, Group 1 or 2

THICKNESS RANGE

Groove welds: 3/16 in. - 3/4 in.

Fillet welds: 1/8 in. minimum

DIAMETER

Groove welds: 4" minimum

Fillet welds: All diameters

### **FILLER METALS**

SPECIFICATION  
CLASSIFICATION

ANSI/AWS 5.20

E7XT-X

ELECTRODE F #

F #6

DEPOSIT THICKNESS RANGE

1/4" maximum plus reinforcement for groove welds

1/8" through 1/2" fillet weld size for fillet welds

SUPPLEMENTARY FILLER METAL

Not Permitted

### **JOINT DESIGNS**

JOINT DESIGNS

See drawings SENSE QC-10 & EG2.0

BACKING

As required

BACKING MATERIAL

ASTM A36

M# 1, P# 1, Group 1 or 2

WELDING POSITION(S)

All

### **PREHEAT AND INTERPASS TEMPERATURES**

PREHEAT TEMPERATURE

50°F Minimum

INTERPASS TEMPERATURE

50°F Minimum - 350°F Maximum

### **POSTWELD HEAT TREATMENT**

POSTWELD HEAT TREATMENT

As Welded Condition



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### ELECTRICAL CHARACTERISTICS

<u>Electrode</u>		<u>Current</u>			<u>WFS (IPM)</u>	<u>Travel Speed (IPM)</u>
<u>Classification</u>	<u>Diameter</u>	<u>Volts</u>	<u>Amperage</u>	<u>Polarity</u>		
E7XT-1	.045	18-21	110-175	DCEP	175-220	18-30
E7XT-1	.062	24-28	220-320	DCEP	250-450	18-30

CONTACT TUBE TO WORK DISTANCE

1/2 – 5/8

MODE OF TRANSFER

N/A

### SHIELDING GAS

COMPOSITION

75% Ar/25% CO<sub>2</sub>, 100% CO<sub>2</sub>

FLOWRATE

20-30 CFH

TRAILING

N/A

BACKING

N/A

NOZZLE SIZE

1/2in – 5/8in

### TECHNIQUE

WEAVE or STRINGER

Either

SINGLE OR MULTIPLE ELECTRODES

Single

SINGLE OR MULTIPLE PASS

As required

INITIAL CLEANING

Mechanical, Chipping, and/or brushing

INTERPASS CLEANING

Mechanical, Chipping, and/or brushing

MAXIMUM BEAD THICKNESS

1/4"

PEENING

NO

### SUPPORTING PQR(S)

AWS-EDU-PQ2

School Name \_\_\_\_\_

In the name of the school stated above, the following personnel are responsible for the acceptance and application of this welding procedure into school curriculum and corresponding documents.

Date \_\_\_\_\_ Implemented By \_\_\_\_\_ Title \_\_\_\_\_

Date \_\_\_\_\_ Approved By \_\_\_\_\_ Title \_\_\_\_\_

Date \_\_\_\_\_ Approved By \_\_\_\_\_ Title \_\_\_\_\_

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**Educational Purposes Only**