

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

SINGLE U-GROOVE WITH BACK GOUGE

WELDING PROCEDURE SPECIFICATION (WPS) AWS D1.5

Specifications & Codes: NCDOT Standard Specifications/AASHTO/AWS D1.5, Section 2, 5 and 12

Material Specifications: ASTM A-36, A572, (A709-36, 50), (M270-GR250, 345) Unlimited Thickness

Welding Process: SMAW Manual or Semi- Automatic or Automatic: Manual

Filler Metal Specification: AWS A5.1 Classification: E-7018

Manufacturer: NCDOT Approved Electrodes Single or Multiple Pass both Position of Weld Flat, Horizontal, Vertical, Overhead

Welding Current: DC Polarity: Positive Progression: N/A

Root Treatment: N/A

Preheat Temp: 100° minimum Interpass: 450° maximum Post Heat: N/A

Pass Num.	Electrode Size	Welding Current		Travel Speed	Position	Joint Details
		Amperes	Volts			
All	1/8"	90-150	20-23	6-9 ipm	All Flat, Horizontal	SEE ATTACHMENT
	5/32"	120-200	21-24	6-10 ipm		
	3/16"	170-280	21-24	6-11 ipm		

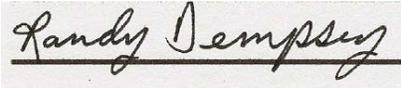
PREHEAT	
Thickness	Min. Temp.
Up to 3/4"	100°
Over 3/4" to 1 1/2"	100°
Over 1 1/2" to 2 1/2"	150°
Over 2 1/2"	225°

COMMENTS:

Remove all coating, rust, dirt and mill scale within one inch of the area to be welded. If the Air Arc process is used to develop the groove, ensure that all carbon deposits have been removed from the area to be welded. Remove all slag, spatter and weld discontinuities between passes. Clean the completed weld of all debris, slag and spatter.

WPS Description: Single U-Groove with Back Gouge

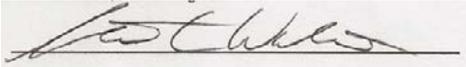
Written By: Randy Dempsey, CWI/CWE, TT IV

Signature: 

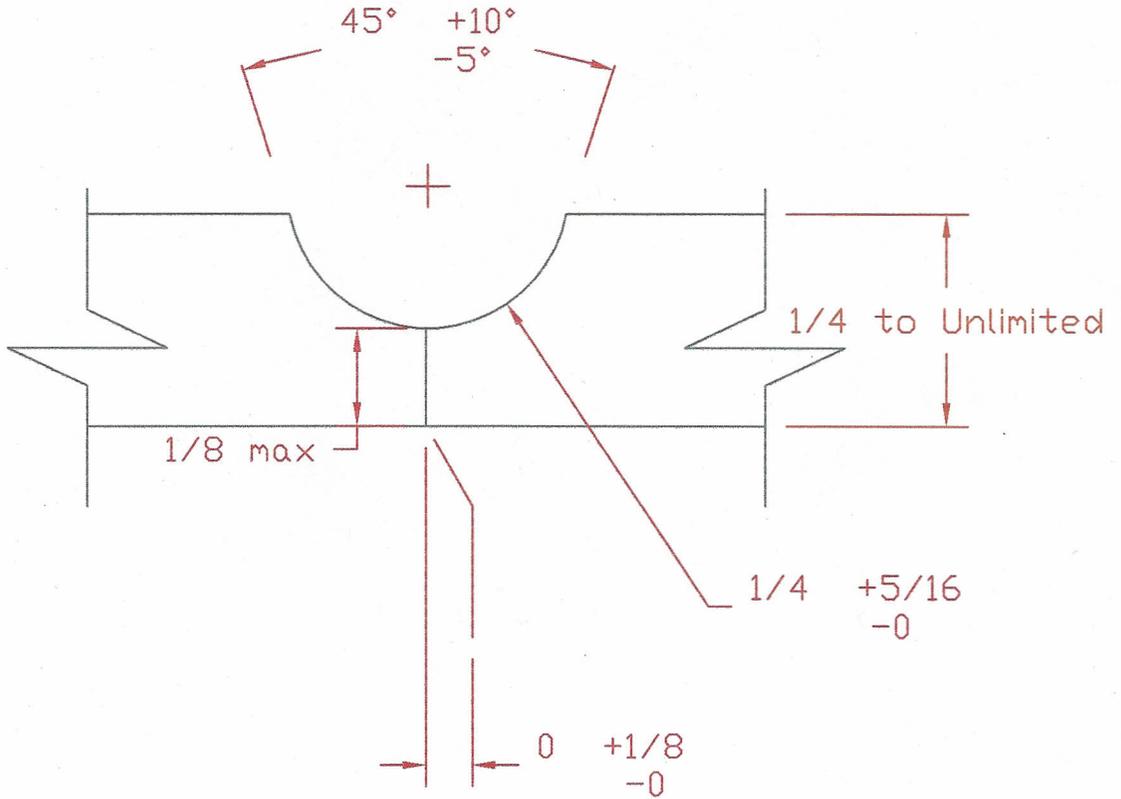
WPS #: 050511029

Authorized By: Steve Walton, Metals Engineer

Revision #: 1

Signature: 

WPS SINGLE U GROOVE BACKGOUGE 050511029 R1
JOINT DETAIL ATTACHMENT 1



SINGLE U GROOVE BACKGOUGE
JOINT DETAIL

Weld Symbol definitions per AWS A2.4:2007



FIELD
WELD
SYMBOL



Backgouge

Single U Groove, w/Root
Opening and Groove
Angle

Illustrations for a Single U-groove with Back Gouge.



Fit-up of a groove joint developed with a grinder.



Completed Joint.

NCDOT MATERIALS & TESTS UNIT (STEEL SECTION)