

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION SINGLE V-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: Back Gouge with a grinder to sound metal prior to applying the back weld.

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 | | |

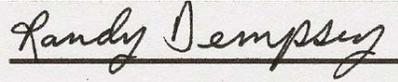
| PREHEAT | |
|-----------------------|------------|
| Thickness | Min. Temp. |
| Up to 3/4" | 100° |
| Over 3/4" to 1 1/2" | 100° |
| Over 1 1/2" to 2 1/2" | 150° |
| Over 2 1/2" | 225° |

COMMENTS:

Remove all coating, rust, dirt and mill scale within one inch of the area to be welded. Remove all slag, spatter and weld discontinuities between passes. Clean the completed weld of all debris, slag and spatter.

WPS Description: Single V-Groove With Back Gouge

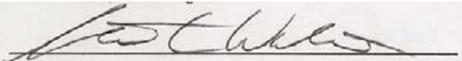
Written By: Randy Dempsey, CWI/CWE, TT IV

Signature: 

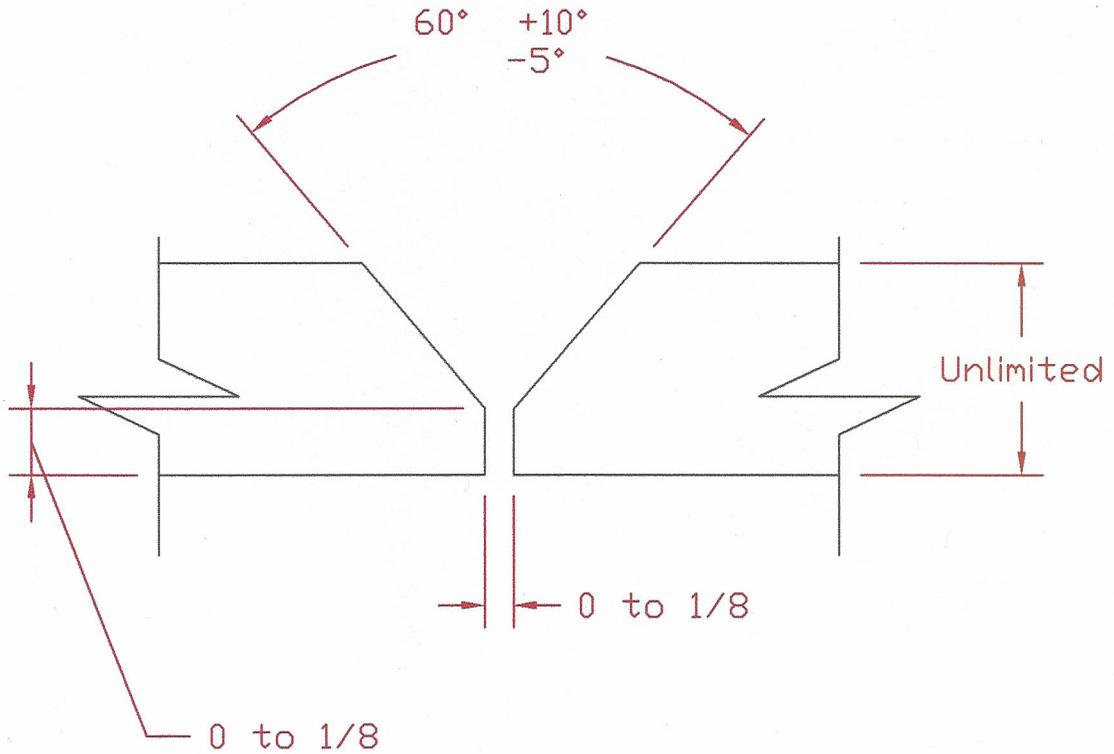
WPS #: 031711022

Authorized By: Steve Walton, Metals Engineer

Revision #: 1

Signature: 

WPS SINGLE V GROOVE with Back Gouge 031711022 R1
 JOINT DETAIL ATTACHMENT



SINGLE V GROOVE with Back Gouge
JOINT DETAILS

Weld Symbol definitions per AWS A2.4:2007

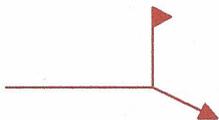


BACK
 WELD,
 OTHER
 SIDE



Back
 Gouge

Back Gouge
 Required before
 welding side two



FIELD
 WELD
 SYMBOL



60°

Single V Groove,
 w/ Groove Angle

Illustrations for a Single V-groove with Back Gouge.



Fit-up with a runoff tab.



Each pass is cleaned.



Completed Joint with edge finished with a grinder.

NCDOT MATERIALS & TESTS UNIT (STEEL SECTION)