



# Production Joint Welding Procedure Specification (D1.5-02)

Procedure No: B-FF-STUD-REP-01 Date Issued: 3-28-08 Revision No: 0 Rev. Date: \_\_\_\_\_

Contractor (Fabricator) D. S. Brown Company Prepared by: Brad Streeter, Quality Assurance Manager

1. Non-Fracture Critical  Fracture Critical  WPS Expiration Date: 3-6-13
2. Qualified in accordance with: AWS D1.5- 2002 (5.13)  
 Referenced PQR No(s). PQR-FCAW-01-(08)  
 Referenced FWST No(s). N/A, N/A
3. Material specification(s) ASTM A709 Gr. 36, 50, 50W, A500B to A108 Stud For DOT Approval
4. Material Thickness (es) Unlimited
5. Welding process FCAW
6. Manual , machine , or semiautomatic
7. Position(s) of welding 2F
8. Filler metal specification AWS A5.20
9. Filler metal class and brand name E71T-1CH8 (UltraCore71C)
10. Flux class & brand N/A, Type N/A
11. Shielding gas 100% CO2 Flow rate 45 CFH
12. Single pass  Or multiple pass
13. Single arc  Or multiple arc
14. Welding Current DCEP
15. Polarity Reverse
16. Welding progression stringers
17. Root treatment Clean to bright sound metal and per AWS D1.5 (3.2.1 & 3.11)
18. Postheat treatment N/A
19. Calculated Heat Input (KJ/In) Min 32.2 KJ/in Max 45.8 KJ/in
20. Electrode extension (electrical stickout) 3/4"

VTRANS  
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OK'D BY \_\_\_\_\_ OK'D BY JUC

NOV 17 2009

APPROVED BY \_\_\_\_\_

DATE 11/29/09

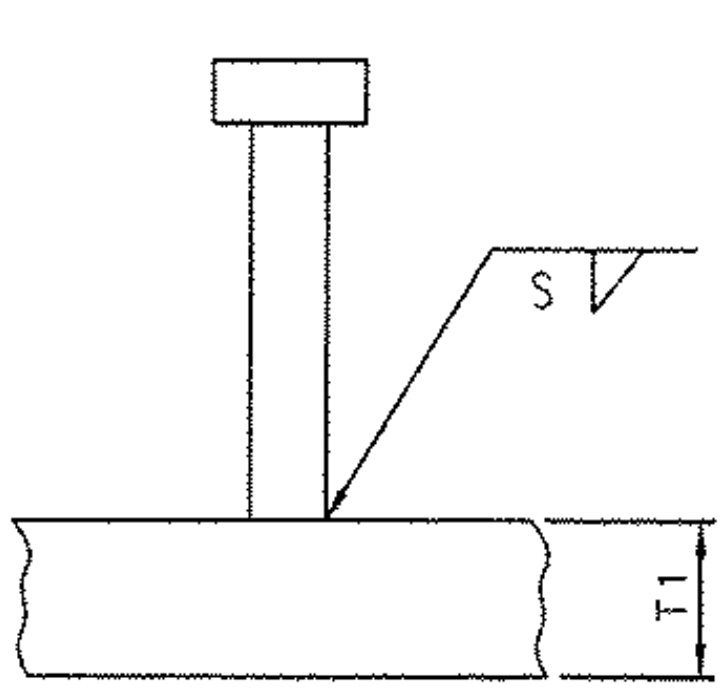
Weld size (In)	Pass No(s)	Electrode Size (In)	Welding Process Variables		Travel Speed (IPM)
			AMPS	VOLTS	
**1/4"	1	1/16"	257-295	26.1-29.5	11.4-12.5
5/16"	1	1/16"	257-295	26.1-29.5	11.4-12.5
3/8"	2-3	1/16"	257-295	26.1-29.5	11.4-12.5

**Table 7.2**

STUD DIAMETER	MIN. SIZE FILLET
3/8"(13MM)	1/4(6MM)
1/2", 5/8, 3/4, 7/8(13, 16, 19, 22MM)	5/16(8MM)
1"(25MM)	3/8(10MM)

**PROCEDURE:**  
1) REPAIR WELDMENT SHALL BE OF THE SIZE LISTED BELOW AND EXTEND AT LEAST 3/8" (9MM) BEYOND THE END OF EACH DISCONTINUITY BEING REPAIRED.

**Joint Detail (Fillet)**  
Show all dimensions, weld sizes, passes, and AWS symbols



T<sub>1</sub> =VARIES  
S =VARIES PER TABLE 7.2  
(AS SHOWN LEFT OF PAGE).

**APPLICATION:**  
REPAIR OF STUD WELDMENTS, WHICH DO NOT EXHIBIT A FULL 360° FLASH  
**\*\* T1 & T2 equal to or less than 3/4" for 1/4" welds**

Prepared By: <u>[Signature]</u> DSB QA Manager Project: <u>TH 62 OVER WEST RIVER</u> DSB Job: <u>27177-1011</u>	<b>Preheat and Interpass Temperature Chart</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Base Metal Thickness range</th> <th>Minimum Preheat (°F)</th> <th>Max Preheat &amp; Interpass (°F)</th> </tr> </thead> <tbody> <tr> <td>≤ 3/4"</td> <td>50°F</td> <td>450°F</td> </tr> <tr> <td>&gt;3/4" to ≤1.5"</td> <td>70°F</td> <td>450°F</td> </tr> <tr> <td>&gt;1.5" to ≤2.5"</td> <td>150°F</td> <td>450°F</td> </tr> <tr> <td>&gt;2.5"</td> <td>225°F</td> <td>450°F</td> </tr> </tbody> </table>	Base Metal Thickness range	Minimum Preheat (°F)	Max Preheat & Interpass (°F)	≤ 3/4"	50°F	450°F	>3/4" to ≤1.5"	70°F	450°F	>1.5" to ≤2.5"	150°F	450°F	>2.5"	225°F	450°F
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Note: When this procedure is used for A709Gr50W materials, it shall be limited to 5/16" single pass or material be coated.