|  |  |  |  |
| --- | --- | --- | --- |
| Company -  | WPS # - **WPS-D1.1-001** | Rev # - **0** | Date – **11/16/2017** |
| Authorized By –  | Date – **11/13/2017** | Supporting PQR(s) – **Prequalified BTC-P10-GF** | CVN Report - **No** |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **BASE METALS** | Specification | Type or Grade | AWS Group # | **BASE METAL THICKNESS** | As Welded | With PWHT |
| Base Material | ASTM A500 | C | I | CJP Groove Welds | NQ | NQ |
| Welded To | ASTM A500 | C | 1 | CJP Groove W/CVN | NQ | NQ |
| Backing Material | NONE | NA | NA | PJP Groove Welds | 3/16” – 3/4" | NQ |
| Details – Procedure for performing flare groove welds in butt joints in matched square tubing | Fillet Welds | NQ | NQ |
| **DIAMETER** | NQ | NQ |

**WELDING PROCEDURE SPECIFICATION – AWS D1.1**

|  |  |
| --- | --- |
| **JOINT DETAILS** | **JOINT DETAILS** (Sketch) |
| Groove Type | Flare Bevel Groove | **See Page 2 For Sketch** |
| Groove Angle | See Sketch for Details |
| Root Opening | 0” – 1/8” |
| Root Face | 3/16” Minimum  |
| **Backgouging** | None |
|  Method | None |
| **POSTWELD HEAT TREATMENT** |
| Temperature | None |
| Time at Temperature | None |
| Other | None |
|  **PROCEDURE** |
| Weld Layer(s) | 1 |  |  |  |  |
| Weld Pass(es) | 1 |  |  |  |  |
| **Process** | GMAW |  |  |  |  |
|  Type (manual, mechanized, etc) | Semi-Automatic |  |  |  |  |
| **Position** | Flat |  |  |  |  |
| **Filler Metal (AWS Spec)** | A5.18 |  |  |  |  |
|  AWS Classification | ER70S-6 |  |  |  |  |
|  Diameter | .035” |  |  |  |  |
| **Shielding Gas Composition** | Don Will Advise – 90/10 likely |  |  |  |  |
|  Flow Rate CFH | Don Will Advise – 90/10 likely |  |  |  |  |
| **Minimum Preheat Temperature** | 32°F (If the base metal temperature is below 32°F, it is to be brought to 70°F before welding and the minimum Interpass temperature shall be maintained during welding) |  |  |  |  |
| **Minimum Interpass Temperature** | 32°F |  |  |  |  |
| **Electrical Characteristics**  |  |  |  |  |  |
|  Current Type and Polarity | DCEP |  |  |  |  |
|  Transfer Mode | Spray |  |  |  |  |
|  Power Source Type (cc, cv, etc) | CV |  |  |  |  |
|  Amps | 190 - 280 |  |  |  |  |
|  Volts | 22 – 30 (to be narrowed after trials) |  |  |  |  |
|  Wire Feed Speed | 350 – 600 (to be narrowed after trials) |  |  |  |  |
|  Travel Speed | Time welder to calculate |  |  |  |  |
|  Maximum Heat Input | Calculate using Heat Input = (60 x Amps x Volts) / (1,000 x Travel Speed in in/min) = KJ/in |  |  |  |  |
| **Technique** |  |  |  |  |  |
| Weld Size  | 1/16” minimum, reinforcement not to exceed 1/8” |  |  |  |  |
| Stringer or Weave | Either |  |  |  |  |
|  Multi or Single Pass (per side) | Single |  |  |  |  |
|  Oscillation (mechanized, auto) | NA |  |  |  |  |
|  Contact Tube to Work Distance | 1/2" – 3/4" |  |  |  |  |
|  Peening | None |  |  |  |  |
|  Interpass Cleaning | NA |  |  |  |  |
| **Other** | Allowed per 9.10.1 (1) |  |  |  |  |

Joint Details – Sketch

(Figure 3.2, P.72)

Effective Weld Size (E) = 5/8 Radius

Notes

* T1 shall be 3/16” minimum *per Figure 3.2*
* T3 shall be greater than or equal to T1 *per Figure 3.2*
* Weld are to be filled flush with the surface of the Joint
* Radius minimum = 2(T1) *per 2.4.1.4*
* Effective Weld Size (E) = 5/8 Radius for welds filled flush *per Table2.1*
* Maximum reinforcement is not to exceed 1/8” *per Table 5.9*

T3

Root Face = 3/16” min

T1

(E)

Radius

Root Opening = 0” (+1/8”, -0”)