# VISHAL ENTERPRISE & VRISHAL ENGINEERING PVT.LTD. GROUP OF COMPANIES

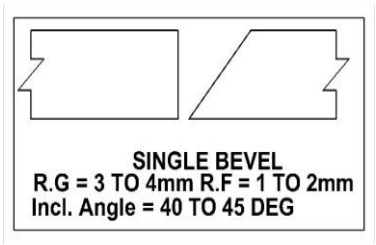
## WELDING PROCEDURE SPECIFICATION

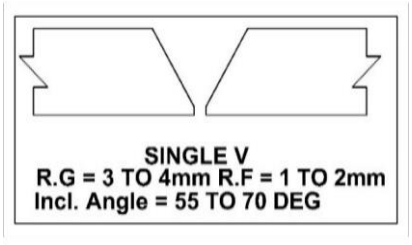
**(As per AWS D1.1)**

| | | |
|---|---|---|
| **WELDING PROCEDURE SPEC. NO. : VEPL/WPS/006** | **REV NO. 01** | **DATE : 23.12.2024** |
| **SUPPORTING PQR NO.: VEPL/PQR/006** | **REV NO. 00** | **DATE : 08.09.2022** |
| **WELDING PROCESS: FCAW** | **TYPE: SEMI-AUTOMATIC** | |

| **JOINT DESIGN** | |
|---|---|
| GROOVE DESIGN | ***AS PER APPROVED AFC DRAWING (For PQR : Single V)*** |
| BACKING | NO FOR ROOT / YES FOR REST |
| BACKING MATERIAL | BASE / WELD METAL |
| ROOT SPACING | 3 - 4 mm |
| ROOT FACE | 1-2 mm |
| GROOVE ANGLE | ***AS PER APPROVED DRAWING / WELD BOOK*** |

| **BASE METALS** | |
|---|---|
| MATERIAL SPEC. & GROUP | IS2062 E350 Gr.BR/C, or IS2062 R250 Gr. BO/BR/A or Equivalent |
| TEST PLATE THICKNESS | 25 mm |
| QUALIFIED THICKNESS | 3 mm to Unlimited |
| FILLET | Any |




**NOTE: WELD DESIGN WILL BE CONSIDERED AS PER THE APPROVED DRAWINGS ONLY.**

| **FILLER METALS** | |
|---|---|
| AWS SPECIFICATIONS | SFA 5.20 |
| AWS CLASSFICATION | E71T-1C |

| **POSITION** | |
|---|---|
| PQR TEST PLATE POSITION | 2G,3G & 4G |
| QUALIFIED POSITION FOR GROOVE | ALL |
| VERTICAL PROGRESSION | UPHILL |

| **POST WELD HEAT TREATMENT** |
|---|
| NA |

| **SHIELDING GAS** | |
|---|---|
| TYPE OF GAS | CO2 |
| COMPOSITION | 100% |
| FLOW RATE (LPM) | 10-20 |
| GAS CUP SIZE | NA |

| **ELECTRICAL CHARACTERISTICS** | |
|---|---|
| TRANSFER MODE(GMAW) | NA |
| SHORT CIRCUITING | NA |
| CURRENT | DC |
| POLARITY | DCEP |
| OTHER | NA |

| **PREHEAT/INTERPASS TEMPERATURE (As per table 5.8 of AWS D1.1)** | | |
|---|---|---|
| THICKNESS | ≤ 38 | >38 to 65 |
| PREHEAT TEMPERATURE | 10°C | 65°C |
| INTERPASS TEMPERATURE, Max. | **250°C** | |

| **PREHEAT METHOD** |
|---|
| PREHEAT SHALL BE CHECKED AT A DISTANCE OF 3" OR 3 TIMES THE THICKNESS WHICHEVER IS GREATER FROM THE WELD TOE AND THROUGH THE THICKNESS |

| **TECHNIQUE** | |
|---|---|
| STRING OR WEAVE BEAD | STRING / WEAVING |
| MULTIPASS OR SINGLE PASS | MULTIPASS |
| NUMBER OF ELECTRODE | SIGNLE |
| CONTACT TUBE TO WORK DISTANCE | 15-25 mm |
| PEENING | NA |
| INTERPASS CLEANING | GRIND / WIRE BRUSHING |
| TACK WELD TECHNIQUE | SAME AS WITH ROOT PASS |
| TACK LENGTH | REFER NOTE 1 |

| PASS OR WELD LAYER | WELDING PROCESS | FILLER METALS | | CURRENT | | VOLTS (V) | ELECTRODE RUNOUT LENGTH MINIMUM (mm) | TRAVEL SPEED mm/min (Min.) | HEAT INPUT kJ / mm ( Max.) |
|---|---|---|---|---|---|---|---|---|---|
| | | CLASS | DIA. mm | TYPE OF POLARITY | AMPS | | | | |
| ROOT PASS / BACK CHIP | FCAW | E71T-1C | 1.20 | DCEP | 130-200 | 20-30 | 50 | 100-180 | 2.5 |
| HOT PASS | FCAW | E71T-1C | 1.20 | DCEP | 130-200 | 20-30 | 50 | 100-180 | 2.5 |
| FILL UP | FCAW | E71T-1C | 1.20 | DCEP | 130-220 | 20-30 | 50 | 120-180 | 2.5 |
| CAPPING | FCAW | E71T-1C | 1.20 | DCEP | 130-220 | 20-30 | 50 | 120-180 | 2.5 |

NOTE :
1) 50 mm OR 4 times the thickness whichever is less, with a min. throat size of 6mm - 2 Pass maximum
2) Pre-heating shall be strictly followed for tacking also
3) Weaving should not exceed 2.5 times of electrode

| | PREPARED BY | APPROVED BY |
|---|---|---|
| NAME | SHIVANG DIWAKAR | HARDIK PRAJAPATI |
| SIGNATURE | | |
| DATE | 23.12.2024 | 23.12.2024 |

VISHAL ENTERPRISE QA/QC