



WELDER PERFORMANCE QUALIFICATIONS (WPQ)

| Welder's Name Mr. Prem Prasad | | Identification No: - W01 | | | | | | | | | | | | | |
|--|--------------|--|---|------|--------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|--|--|
| Test Description | | | | | | | | | | | | | | | |
| Identification Of WPS followed AE/WPQ/SMAW/22-01 | | <input checked="" type="checkbox"/> Test Coupon <input type="checkbox"/> Production Weld | | | | | | | | | | | | | |
| Specification of Base Metal(s) E 250 | | Thickness: 08 MM | | | | | | | | | | | | | |
| WPQ No. ITD/WPQ/SMAW/20/01 | | | | | | | | | | | | | | | |
| Testing Conditions and Qualification Limits | | | | | | | | | | | | | | | |
| Welding Variables | | | | | | | | | | | | | | | |
| Welding Process(es) | | Actual values | Range Qualified | | | | | | | | | | | | |
| Type (i.e. manual, semi-auto) used | | SMAW with backing Manual | SMAW with backing Manual | | | | | | | | | | | | |
| Backing (metal, weld metal, double-welded, etc.) | | Weld Metal | Weld Metal | | | | | | | | | | | | |
| Plate - Pipe (enter diameter if pipe or tube) | | Plate 08 mm thk | Plate 3 - 20 mm thk | | | | | | | | | | | | |
| Base metal P- or S- Number to P- or S-Number | | NA | NA | | | | | | | | | | | | |
| Filler metal or electrode specification(s) (SFA) | | NA | NA | | | | | | | | | | | | |
| Filler metal or electrode classification(s) | | E 7018 | E 7018 | | | | | | | | | | | | |
| Filler metal F-number (s) | | NA | NA | | | | | | | | | | | | |
| Consumable insert (GTAW or PAW) | | - | - | | | | | | | | | | | | |
| Filler metal product form (solid/metal or flux cored/powder) (GTAW or PAW) | | Electrode | Electrode | | | | | | | | | | | | |
| Deposit thickness for each process | | - | - | | | | | | | | | | | | |
| Process 1 SMAW 3 layers minimum Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | | 08 mm | Max to be welded | | | | | | | | | | | | |
| Process 2 NA 3 layers minimum Yes <input type="checkbox"/> No <input type="checkbox"/> | | - | - | | | | | | | | | | | | |
| Positions Qualified (2G, 6G, 3F, etc.) | | 3G | 1G & 1F (Flat position in Groove & Fillet Weld) | | | | | | | | | | | | |
| Vertical progression (uphill or downhill) | | - | - | | | | | | | | | | | | |
| Type of fuel gas (OFW) | | - | - | | | | | | | | | | | | |
| Inert gas backing (GTAW, PAW, GMAW) | | - | - | | | | | | | | | | | | |
| Transfer mode (spray/globular or pulse to short circuit-GMAW) | | - | - | | | | | | | | | | | | |
| Current type/polarity (AC, DCEP, DCEN) | | DCEP | DCEP | | | | | | | | | | | | |
| RESULTS | | | | | | | | | | | | | | | |
| Visual Examination of Completed Weld : Satisfactory | | | | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> Bend Test <input checked="" type="checkbox"/> Side <input type="checkbox"/> Plate Bend Specimen corrosion-resistance overlay <input type="checkbox"/> Plate specimen, macro test for fusion | | <input checked="" type="checkbox"/> Transverse root and face <input type="checkbox"/> Pipe Bend Specimen corrosion-resistance weld metal overlay <input type="checkbox"/> Pipe specimen, macro test for fusion | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Type</th> <th>Result</th> <th>Type</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Face Bend 1</td> <td>Satisfactory</td> <td>Root Bend 3</td> <td>Satisfactory</td> </tr> <tr> <td>Face Bend 2</td> <td>Satisfactory</td> <td>Root Bend 4</td> <td>Satisfactory</td> </tr> </tbody> </table> | | Type | Result | Type | Result | Face Bend 1 | Satisfactory | Root Bend 3 | Satisfactory | Face Bend 2 | Satisfactory | Root Bend 4 | Satisfactory | | |
| Type | Result | Type | Result | | | | | | | | | | | | |
| Face Bend 1 | Satisfactory | Root Bend 3 | Satisfactory | | | | | | | | | | | | |
| Face Bend 2 | Satisfactory | Root Bend 4 | Satisfactory | | | | | | | | | | | | |
| Alternative Volumetric Examination Results : RT or UT <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | |
| Fillet weld - fracture test | | NA | Length and percent of defects | | | | | | | | | | | | |
| Fillet welds in plate | | <input type="checkbox"/> Fillet weld in pipe | <input type="checkbox"/> | | | | | | | | | | | | |
| Macro Examination | | na | Fillet size (in) NA | | | | | | | | | | | | |
| Penetrant test | | Satisfactory | Concavity/Convexity (in) NA | | | | | | | | | | | | |
| Ultrasonic test specimens evaluated by: | | - | Report No: NIS/UT/26-01-2022/01 | | | | | | | | | | | | |
| Mechanical Test conducted by: | | C G METAL LAB-CHHATRAL | Report No: ULRTC52052200000796F | | | | | | | | | | | | |
| Welding supervised by: | | Mehul Bheda (Total Quality) | | | | | | | | | | | | | |
| We certify that the statement in this record are correct and that the test coupon were prepared, welded and tested in accordance with the requirements of section IX of the AWS D1.1/D1.1 m 2015 code or iso 9606-1 2017/5173 2009 | | | | | | | | | | | | | | | |
| Organization: | | M/s ITD CEMENTATION INDIA LIMITED | | | | | | | | | | | | | |
| Date: | | 25/01/2022 | Certified by | | | | | | | | | | | | |



Procedure Qualification Records (PQR) - Page 1 of 2
Record Actual condition used to Weld Test coupon

| |
|--|
| Company Name: M/s Atharva Engineering |
| PQR No: /PQR/SMAW/22/01 Dated :31/01/2022 |
| WPS No: /WPS/SMAW/22/01 Dated 31/01/2022 Revision: 00 |
| Welding Process: Shielded Metal Arc Welding(SMAW) & Manual |

| | |
|--|--|
| <p>Joints Joint Design: Single V Groove weld Joint Root Face: 1 to 1.5 MM Root Spacing: 2.5 to 3 MM Groove Angle: 60° Backing & Its Material: Weld Metal</p> | |
|--|--|

| <u>Base Metal</u> | | <u>Post Weld Heat Treatment</u> | |
|--------------------------|--------------------|-----------------------------------|---------------|
| Material Specification | E 250 | Temperature | NA |
| Type of Grade | IS 2062: E 250 | Shocking Time | NA |
| Thickness of Test coupon | 08 MM | Other | NA |
| Dia of Test Coupon | NA | <u>Gases</u> | |
| Max. Pass Thickness | NA | Shielding Gas | NA |
| <u>Filler Metal</u> | | Composition% | NA |
| AWS Specification | A 5.1 | Flow rate(LPM) | NA |
| AWS Classification | E 7018 | <u>Electrical Characteristics</u> | |
| Filler Metal -No | 4 | Current | DC |
| Weld Metal Analysis No | NA | Polarity | EP |
| Size of Filler Metal | Ø 3.15 | Amps | 70-140 A |
| Weld Metal Thickness | 08 MM | Volts | 20-30 V |
| <u>Position</u> | | <u>Technique</u> | |
| Position of Groove | 3G | Travel Speed | 60-150 mm/min |
| Other | Vertical & Up Hill | Heat Input | ---- |
| <u>Preheat</u> | | String or weave bead | String/Weave |
| Preheat temp | 100° C min | Orifice, Nozzle or Gas cup size | NA |
| Inter pass Temp | 250° C max | Method of back gauging | Grinding |
| Other | NA | Multiple or Single pass | Multiple |



Procedure Qualification Records (PQR) - Page 2 of 2

Tensile Test

| Specimen No | Width (mm) | Thickness (mm) | Area (mm ²) | Ultimate Total Load(KN) | Ultimate Tensile Strength(N/mm ²) | Type of failure & Location |
|-------------|------------|----------------|-------------------------|-------------------------|---|----------------------------|
| --- | --- | --- | --- | --- | --- | --- |
| --- | --- | --- | --- | --- | --- | --- |

Guided Bend Tests

| Bend Type and No | Results |
|--------------------------------------|--------------------|
| Face Bend 1 at 180 & 4t mandrill dia | Found satisfactory |
| Face Bend 2 at 180 & 4t mandrill dia | Found satisfactory |
| Root Bend 3 at 180 & 4t mandrill dia | Found satisfactory |
| Root Bend 4 at 180 & 4t mandrill dia | Found satisfactory |

Welder's name: MR. Prem Prasad Welder Stamp: W01
 Test Conducted by: C.G Metal Lab-chhatral & Test Report No: ULRTC520522000000796F
 UT Conducted by: NDT INSPECTION SERVICES & Test report No: NIS/UT/26-01-22/01
 DPT Conducted by: NDT INSPECTION SERVICES & Test report No: NIS/DPT/25-01-22/01
 We certify that the statements in this record are correct and the test welds were prepared, welded and tested in accordance with the requirements of AWS D 1.1/ D 1.1 M (2015) OR ISO 15614-1; 2017

Prepared By



Approved By

For Total Quality Partners

Welding Procedure Specification (WPS) - Page 1 of 2

| |
|--|
| Company Name M/s Atharva Engineering |
| WPS No: WPS/SMAW/22/01 Dated : 31/01/2022 Revision: 00 |
| Supporting PQR No: /PQR/SMAW/22/01 Dated : 31/01/2022 Revision: 00 |
| Welding Process: Shielded Metal Arc Welding(SMAW) & Manual |

| | |
|---|--|
| <p align="center">Joints</p> <p>Joint Design: Single V Groove weld Joint Root Face: 1 - 2 MM Root Spacing: 2 - 3 MM Groove Angle: 60° Backing & Its Material: Weld Metal Retainer: No</p> | |
|---|--|

| |
|---|
| Base Metals |
| Specification type and Grade: IS 2062: E 250 + : IS 2062: E 250 Base Metal Thickness Range : Groove: 3 mm to 20 mm Fillet : All Size Pipe Dia: ----- Max Pass Thickness: ----- |

| Filler Metal | |
|--------------------------------|---------------------------------------|
| Specification No: | 5.1 |
| AWS No: | E 7018 |
| Filler Metal -No: | 4 |
| Weld Metal Analysis No: | 20 mm Maxi |
| Size of Filler Meta/Electrode: | Ø 3.15 MM |
| Filler Metal Product form: | Flux coated Electrode |
| Flux: | NA |
| Supplemental Filler Metal: | NA |
| Weld Metal Thickness Range: | Groove: 20 mm Max Fillet: All Size |
| Electrode-Flux Class: | NA |
| Consumable Insert: | NA |
| Other: | ---- |

| | |
|---|--|
| <p align="center">Position</p> <p>Position of Groove: 3G Position Of Fillet: 3F Welding Progression: Backhand/Forehand</p> | <p align="center">Post Weld Heat Treatment</p> <p>Minimum Holding time: NA Holding Temperature: NA</p> |
|---|--|



Welding Procedure Specification (WPS) - Page 2 of 2

| | |
|--|---|
| Preheat | Gas |
| Preheat Temperature: Minimum 100° C Interpass Temperature: Maximum 250° C | Shielding Gas: NA % Composition: NA Flow Rate: NA |

Electrical Characteristics

Pulsing Current: NA
Current AC or DC: DCEP
Ampere: 60 – 125 A
Volt: 20 – 30 V
Mode of metal Transfer: NA

| Weld Pass | Filler wire AWS No | Filler wire dia(MM) | Polarity | Amp (A) | Volt (V) | Travel Speed (mm/min) | Heat Input(KJ/mm) |
|-------------|--------------------|---------------------|----------|---------|----------|-----------------------|-------------------|
| Root Run | E 7018 | Ø2.5 | DCEP | 60-90 | 20-30 | 60-150 | -- |
| Filling Run | E 7018 | Ø3.15 | DCEP | 80-130 | 20-30 | 60-150 | -- |

| Technique | |
|--|--|
| String or Weave Bead: | String Root/Weave balance (Weaving not more than 3times of core dia of electrode) |
| Orifice, Nozzle or Gas cup Size: | NA |
| Initial and Inter pass Cleaning: | Brushing or Grinding |
| Method of back gouging: | Grinding |
| Oscillation: | NA |
| Multiple or Single Pass: | Multiple Pass |
| Multiple or Single Electrode: | Single Electrode |
| Closed to out chamber: | NA |
| Electrode Spacing: | NA |
| Manual or Automatic or Semi automatic: | Manual |
| Penning: | NA |
| Use of thermal Process: | NA |

Prepared By



Approved By



CGML



C.G. METAL LAB

Chemical & Mechanical Testing of Metals & Alloys

TC-5205

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TEST REPORT

F/OPN/05, ISSUE NO 04, Page 1 of 1

Issue To : **Atharva Engineering**

Report No. : ULRTC520522000000796F

Date of Report : 31/01/2022

Letter Ref. No. & Date : NIL

Description : 8 mm Thick Plate, Test Coupon Size: 175 mm X 350 mm

: Welder Name: Gulam Husain, Welder No: 1

Material Specification : IS 2062 Gr. E250 A

Transverse Bend Test

Date of Sample Receipt : 31/01/2022

Date of Tested : 31/01/2022

Test Method : ISO 9606-1: 2017/ ISO 5173: 2009

| Test | Side Bend - 1 | Side Bend - 2 | Side Bend - 3 | Side Bend - 4 |
|----------------|--------------------|--------------------|--------------------|--------------------|
| Width (mm) | 40.02 | 40.20 | 40.31 | 40.10 |
| Thickness (mm) | 8.12 | 8.09 | 8.10 | 8.10 |
| Angle (Degree) | 180 | 180 | 180 | 180 |
| Result | Found Satisfactory | Found Satisfactory | Found Satisfactory | Found Satisfactory |

Remark: Above results are meeting to the requirements of ISO 9606-1: 2017.

End of Report

For Total Quality Partners



For: C.G Metal lab
G.B.Vamaja (Q.M.) / C.R.Patel (T.M.)



Note: Sample(s) not drawn by C.G METAL LAB. This test report refers only to the samples submitted by the customer. The test report shall not be reproduced except in full, without written approval of the laboratory. (* not in NABL Scope)

ULTRASONIC EXAMINATION REPORT

| | | | | | |
|--|---|-----------------------------|---|--------------------|-------------------------|
| Client: M/s. Atharva Engineering | | PO No. : NA | | Dated : 26/01/2022 | |
| Location of Work Site : M/s. Atharva Engineering, GIDC Sahand, Ahmedabad | | | | | |
| Test Report No. : NIS/UT/26-01-22/01 | | | Description of Item tested : | | |
| Test Date : 26/01/2022 | | | Weld Piece (Test Coupons) | | |
| Surface Condition : Clean & Smooth | | | Type of Weld:- Compound weld(T-Butt Joint) | | |
| Extent of examination: 100 % of Both Side Weld Joints | | | Material :- E 252 | | |
| | | | Surface Temperature: Room temp. | | |
| | | | Welding Process:- SMAW | | |
| | | | Size:- 08 mm thickness | | |
| | | | Limitations (if any) : No | | |
| Ultrasonic Flaw Detection Technique Details : | | | | | |
| Equipment Type & Model | MODSONIC Make - EINSTEIN-II DGS | M/c. Sr. No. | E2423-0210 | | |
| System Calibration | Checked : OK | M/c. Calibration Date : | 01/06/2021 | | |
| Calibration Block No. | IIW V 2 & Sample Test Piece. | M/c. Calibration Due Date : | 01/06/2022 | | |
| Technique | Pulse Echo A scan | Scanning Method | Continuous Zig-Zag | | |
| Couplant | Oil | | | | |
| Sketch --- | Probe Type | Frequency (MHz) | Range (MM) | Reference Db | Scanning Db(Ref. + 6db) |
| | TR probe with 10 mm Dia | 4 MHz | 0-50 | As per DGS | As per DGS |
| | 60,70 deg. 8 x 9 mm angle probe | 4 MHz | 0-100 | As per DGS | As per DGS |
| Reference Block | Recording Level | | Rejection Level | | |
| IIW V 2 block 1.5 mm SDH | ≥ 50 % OF DGS | | Flow Indication=Ref Level | | |
| Reference Sensitivity: | 1.5 mm SDH | | | | |
| Reference Documents : | BS EN 17640:2018 | | | | |
| Acceptance Standard | BS EN 11666:2018 ,Level-II | | | | |
| Tested By | Mr.Vishnu Prajapati (ASNT Level II UT,MT,PT,RT) | | | | |
| Sr. No. | Test Job Identification (Welder Name) | Welder No | Observation | Results | Qty. |
| 1 | Mr. Prem Prasad | W-1 | No Relevant Indication found | Acceptable | 01 Nos |

For

NDT INSPECTION SERVICES



LIQUID PENETRANT EXAMINATION REPORT

| | | | |
|------------|---------------------|-------------|------------|
| Report No. | NIS/DPT/25-01-22/01 | REPORT DATE | 25.01.2022 |
| | | TEST DATE | 25.01.2022 |

| | |
|-----------|--|
| CUSTOMER | M/s. Atharva Engineering |
| TEST SITE | M/s. Atharva Engineering, GIDC, Sanand |

Test Coopan details

| Sr. No. | Test Job Identification (Welder Name) | Welder No | Observation | Results | Qty. |
|---------|--|-----------|-----------------------------|------------|--------|
| 1 | Mr. Prem Prasad Size:- 08 mm thk weld Plates test coopan | W-1 | No Recordable Indication | Acceptable | 01 Nos |

Types of Materials used.

| | |
|------------------|---|
| Dye Penetrate | PP 110 B , Make-P MET, PD-11-38023 |
| Developer | PP 130 B, Make-P-MET.PD-11-20821 |
| Cleaner | Loose Condition |
| Test Method Used | Visible Solvent Removal Penetrate Examination |

Method of Inspect.

- (1). Pre- cleaning: - By Cleaner
- (2). Penetrate Applied By Spray & Penetrate Dwell Time 10 Minutes & Removed.
- (3). Developer Applied By Spray & Dwell Time 10 Minutes.
- (4). Illumination By Natural (Visible)

| | |
|---------------------------|---|
| Surface Condition & Temp. | As Oil, Dust, Free condition & Normal Temp. |
| Procedure | EN 3452-1/EN 23277 |
| Accept. Standard | EN 3452-1/EN 23277 |
| Tested Area. | DP has been done in 100% applicable weld area. |
| Observation | No relevant indication was found in weld root joints & Final Cap. |
| Remarks | As per STD Weld joints found ok-Accepted |
| Tested By | Mr. Vishnu Prajapati, (NDT LEVEL II UT,RT,PT,MT) |

For

NDT INSPECTION SERVICES



