

## Weld qualification test report

**Report number** LP26-1109-03 WPWQ

**Customer** ASGARD Engineering / APC Infra

**Address** 51 Miguel Road Bibra Lake WA Australia 6163

**Requested by** QAQC

**Purchase Order** WOR-PR-040

**Test activity dates** 01/05/2026 to 08/05/2026

**Description** Welder qualification testing

**Identification** LP26-1109-03

**WPQR No.** AGE-WPQR-BW008

**Welders name** Ferdinard Matibag

**Welders ID** 682

**Material shape** Plate to plate

**Joint type** Butt weld - single bevel

**Thickness** T1: 6 mm T2: 6 mm

**Weld process** GMAW (Position 1G)

**Material Grade** AS/NZS 3678 Grade 350L0,Hardox 450

**Material Heat No.** AS/NZS 3768 Gr350: V66139 FD38465502,Hardox: E4D104-61700369.

**Test results** Refer to the following summary and details on the following pages.



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|               |          |
|---------------|----------|
| Macro test    | Complied |
| Tension test  | Complied |
| Bend test     | Complied |
| Hardness test | Complied |



Accreditation No. 15840

**Accredited for compliance with  
ISO/IEC 17025-Testing**

*Refer to the following pages for details of test conducted and Signatories.*

**Issue date : 11/05/2026**

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## Macro test

|                              |                                                                             |
|------------------------------|-----------------------------------------------------------------------------|
| <b>Accredited laboratory</b> | LMATS Perth Laboratory                                                      |
| <b>Job address</b>           | LMATS Perth Laboratory                                                      |
| <b>Test specification</b>    | AS/NZS 1554.1:2014 - Category SP (WPS/Welder Qualification tests)           |
| <b>Test method</b>           | AS/NZS 2205.5.1:2024 (ISO 17639:2022)-Macro test - weld                     |
| <b>Specimen location</b>     | Location as per specification Standard                                      |
| <b>Preparation</b>           | Cold cutting followed by stage grinding to P#1200 coated abrasives          |
| <b>Etchant &amp; process</b> | 10% Nital swabbing                                                          |
| <b>Weld geometry</b>         | Scale indicates 1mm graduation Refer to the photographs on following pages. |
| <b>Approved tester</b>       | Alex Khomoutov                                                              |
| <b>Other testers</b>         | Sophia Stevenson                                                            |

### Specimen 1 :

|                         |                                                                                                                           |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Test date</b>        | 01/05/2026                                                                                                                |
| <b>Magnification</b>    | x 5 approximately (refer to the photograph)                                                                               |
| <b>Width</b>            | 10.8                                                                                                                      |
| <b>Throat thickness</b> | 5.4 mm                                                                                                                    |
| <b>Discontinuities</b>  | Nil                                                                                                                       |
| <b>Comments</b>         | The etched cross-section showed complete penetration and fusion with no evidence of cracks, gross porosity or inclusions. |
| <b>Test results</b>     | The test results comply with the specification requirements.                                                              |

### Specimen 2 :

|                         |                                                                                                                           |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Test date</b>        | 01/05/2026                                                                                                                |
| <b>Magnification</b>    | x 5 approximately (refer to the photograph)                                                                               |
| <b>Width</b>            | 10.8                                                                                                                      |
| <b>Throat thickness</b> | 5.5 mm                                                                                                                    |
| <b>Discontinuities</b>  | Nil                                                                                                                       |
| <b>Comments</b>         | The etched cross-section showed complete penetration and fusion with no evidence of cracks, gross porosity or inclusions. |
| <b>Test results</b>     | The test results comply with the specification requirements.                                                              |

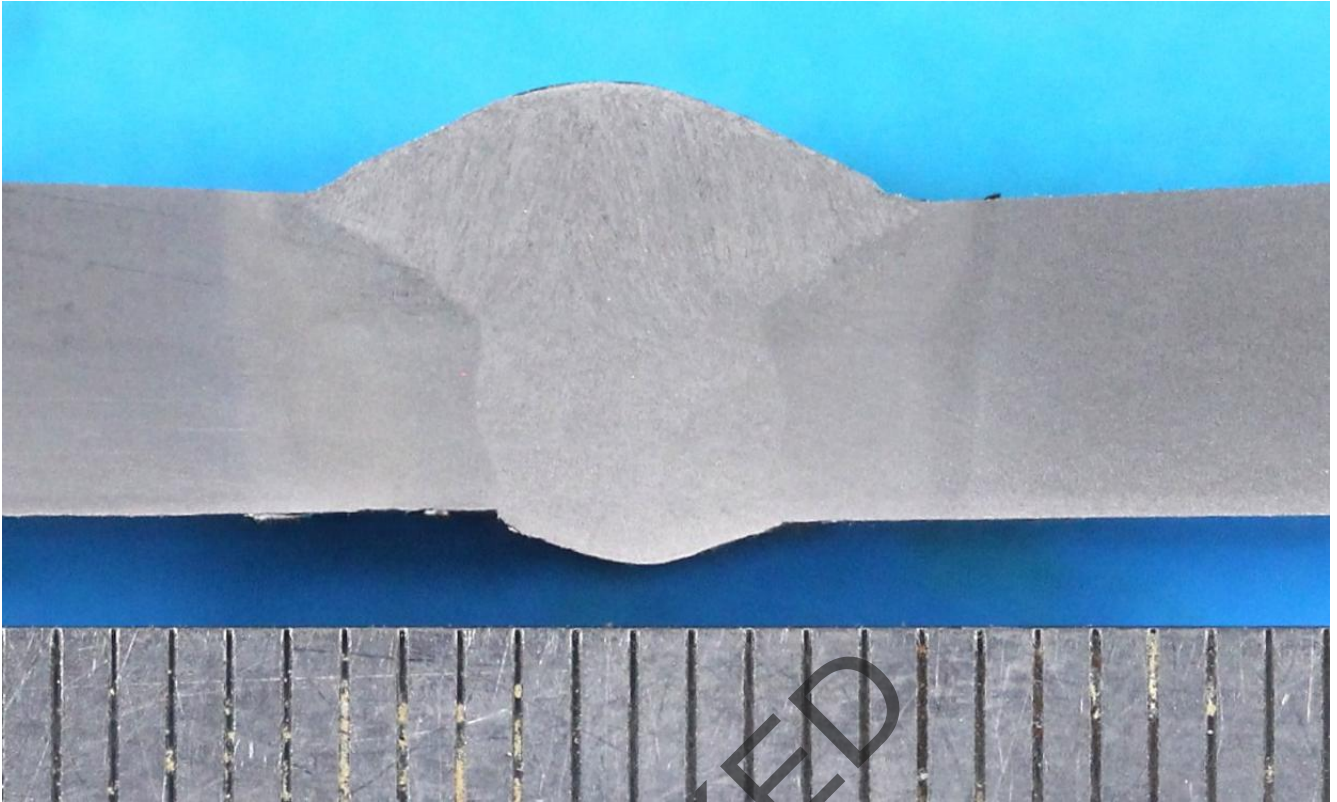


Image 1 of 2 - Macro Specimen 1 (1 Graduation = 1 mm)

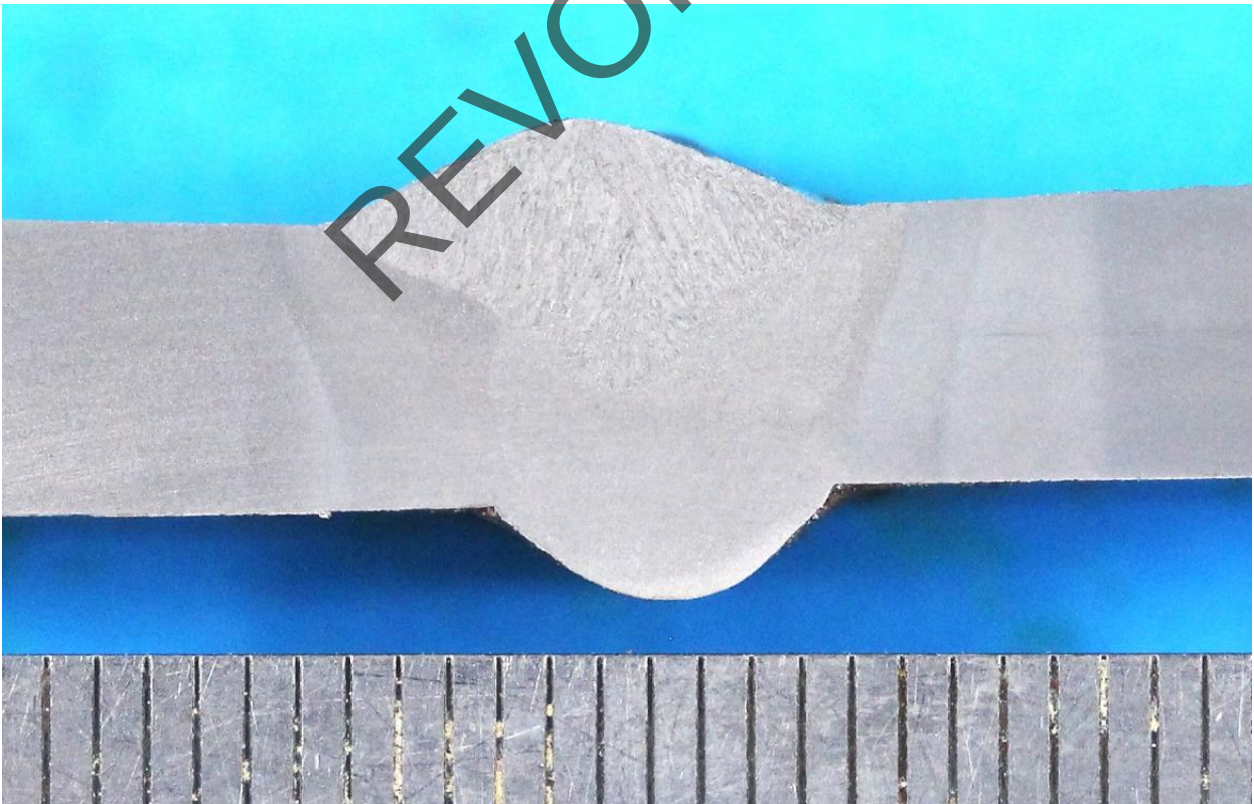


Image 2 of 2 - Macro Specimen 2 (1 Graduation = 1 mm)

## Tension test

**Accredited laboratory** LMATS Perth Laboratory

**Job address** LMATS Perth Laboratory

**Test specification** AS/NZS 1554.1:2014 - Category SP (WPS/Welder Qualification tests)

**Test method** AS 2205.2.1-2003 (R2018)-Tensile test - transverse weld

**Specimen location** As per specification Standard

**Specimen type** Machined, transverse, full thickness, reduced section

**Weld reinforcement** Reinforcement crown and root bead ground flush

| Specimen identification                | Thickness (mm) | Width (mm) | Fracture position | Max force (kN) | UTS (MPa) | Result | Test date  |
|----------------------------------------|----------------|------------|-------------------|----------------|-----------|--------|------------|
| LP26-1109-03 TT1                       | 5.80           | 25.40      | Parent metal      | 83.20          | 565       | C      | 11/05/2026 |
| Requirements : AS/NZS 3678 Grade 350L0 |                |            |                   | Minimum        | 450       |        |            |
|                                        |                |            |                   | Maximum        | N/A       |        |            |

**Test result** The test results complied with the specification requirements.

**Comments** Tensile fracture occurred on parent material AS/NZS 3678 Grade 350L0.

**Approved tester** Santhosh Kallam

**Other testers** Hemaka Randeniya

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## Bend test

**Accredited laboratory** LMATS Perth Laboratory

**Job address** LMATS Perth Laboratory

**Test date** 08/05/2026

**Test specification** AS/NZS 1554.1:2014 - Category SP (WPS/Welder Qualification tests)

**Acceptance criteria** No crack or defect in the weld or HAZ shall be >3 mm in any direction on the outer surface of the specimen.

**Test method** AS/NZS 2205.3.1:2024 (ISO 5173:2023)-Bend test

**Test type symbol** TRBB (Transverse Root Bend), TFBB (Transverse Face Bend)

**Specimen location** Location as per specification Standard

**Test temperature** Ambient

**Bend method** 180° with a former and roller support

| Specimen ID | Dimensions (mm) | Former (mm) | Roller distance (mm) | Type & dimensions of imperfections observed | Result |
|-------------|-----------------|-------------|----------------------|---------------------------------------------|--------|
| TRBB 1      | 6.00 X 25.00    | 24.00       | 39.00                | No cracks or tears were observed.           | C      |
| TRBB 2      | 6.00 X 25.00    | 24.00       | 39.00                | No cracks or tears were observed.           | C      |
| TFBB 1      | 6.00 X 25.00    | 24.00       | 39.00                | No cracks or tears were observed.           | C      |
| TFBB 2      | 6.00 X 25.00    | 24.00       | 39.00                | A tear of 0.2mm was observed.               | C      |

**Test result** The test results complied with the specification requirements.

**Approved tester** Alex Khomoutov

**Other testers** Sophia Stevenson

## Vickers hardness test

|                              |                                                                           |
|------------------------------|---------------------------------------------------------------------------|
| <b>Accredited laboratory</b> | LMATS Perth Laboratory                                                    |
| <b>Job address</b>           | LMATS Perth Laboratory                                                    |
| <b>Test date</b>             | 01/05/2026                                                                |
| <b>Test specification</b>    | AS/NZS 1554.1:2014 - Category SP (WPS/Welder Qualification tests)         |
| <b>Test method</b>           | AS 2205.6.1: 2003 (R2018)-Hardness test - Vickers survey                  |
| <b>Hardness type</b>         | As shown in the photograph included in the report                         |
| <b>Indenter &amp; force</b>  | Diamond pyramid, refer hardness values for test force                     |
| <b>Acceptance criteria</b>   | Maximum 350HV10 HAZ,WELD                                                  |
| <b>Measured Hardness</b>     | Refer to Table(s) on following pages for hardness values on each specimen |
| <b>Approved tester</b>       | Alex Khomoutov                                                            |
| <b>Other testers</b>         | Sophia Stevenson                                                          |

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ISO / IEC 17025 - Testing

**Signatory**  
Alex Khomoutov

Report issued on 11/05/2026

### Specimen 1

| Zone            | Traverse 1 | Traverse 2 | Traverse 3 | Traverse 4 |  |  |
|-----------------|------------|------------|------------|------------|--|--|
| Parent Material | 197HV10    | 281HV10    | 177HV10    | 279HV10    |  |  |
| Parent Material | 198HV10    | 257HV10    | 189HV10    | 279HV10    |  |  |
| HAZ             | 248HV10    | 202HV10    | 213HV10    | 225HV10    |  |  |
| HAZ             | 246HV10    | 207HV10    | 209HV10    | 213HV10    |  |  |
| HAZ             | 244HV10    | 232HV10    | 203HV10    | 210HV10    |  |  |
| HAZ             | 22HV10     | 227HV10    | 204HV10    | 240HV10    |  |  |
| Weld            | 187HV10    | 189HV10    | 190HV10    | 191HV10    |  |  |
| Weld            | 186HV10    | 176HV10    | 186HV10    | 181HV10    |  |  |

The test results complied with the specification requirements.

#### Comments :

Specimen 1 – Traverse 1 : Not applicable  
 Specimen 1 – Traverse 2 : Not applicable  
 Specimen 1 – Traverse 3 : Not applicable  
 Specimen 1 – Traverse 4 : Not applicable

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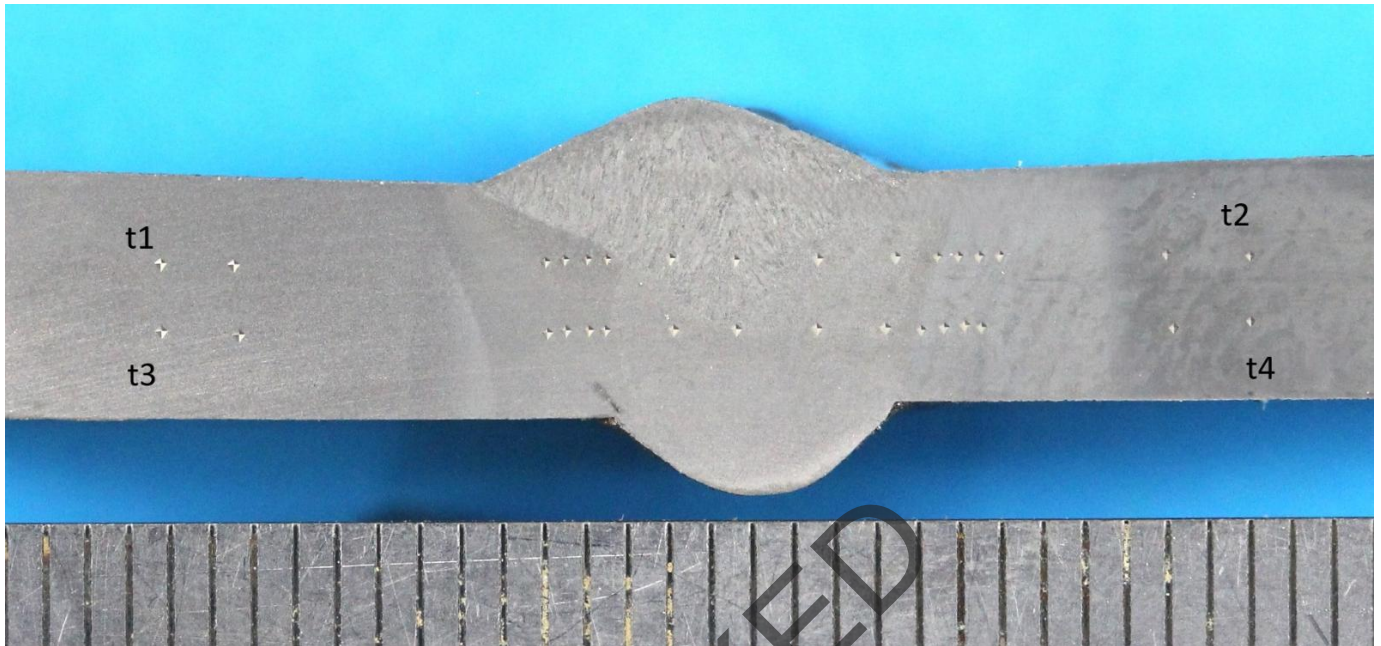


Image 1 of 1 - General view of the test area: Grade 350L0 left side, Hardox 450 right side

### **Normative general notes**

1. Test and inspection items may be discarded after 6 weeks, unless alternative arrangements are made with LMATS.
2. Samples, identification of samples and all job specific details were supplied by the client. The test results relate only to the items tested or sampled.
3. Any stated nominal pipe sizes and nominal thickness of the material were provided by the client.
4. Where applicable, the Measurement Uncertainty (MU) applies to the test results as per LMATS procedure. MU can be obtained by contacting one of LMATS ISO 17025 accredited laboratories.
5. Acceptance criteria is applied from the test specification. If the test specification does not include acceptance criteria, then the test or inspection results should be referred to a competent authority for further action.
6. Refer to the attached revision notes if this report has been revised. This report shall not be reproduced except in full without approval of the issuing laboratory to ensure that parts of a report are not taken out of context. The client or their representatives shall not edit this report.
7. LMATS or its professional indemnity insurance provider do not indemnify the contents within this report or the conformity of a tested product unless the invoice for the reported work is paid in full within the agreed credit terms. Reports will be revoked if the invoice for the completed work is not paid in full.

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### **Abbreviations used in this report**

|                                     |                                                      |                                          |
|-------------------------------------|------------------------------------------------------|------------------------------------------|
| A - No discontinuities detected     | KC - Crater crack                                    | RP - Report findings                     |
| BT - Burn (melt) Through            | KL - Longitudinal crack                              | SED - Excessive Dressing (underflushing) |
| C - Comply                          | KT - Transverse crack                                | SGI - Incompletely filled Groove         |
| CP - Crater Pipe                    | LI - lack of Inter-run fusion                        | SGS - Shrinkage Groove                   |
| DNC - Does Not Comply               | LP - Incomplete root Penetration                     | SMG - Grinding Mark                      |
| EC - Elongated Cavity (hollow bead) | LR - lack of Root fusion (missed edge)               | SMH - Hammer Mark                        |
| F - Failed                          | LS - lack of Side fusion                             | SMT - Tool Mark (chipping mark)          |
| GP - Gas Pore                       | NRRD - No Recordable Reflections Detected            | SRC - Root Concavity (Suck back)         |
| HiLo - Linear misalignment          | NUSID - No unacceptable Surface Indications Detected | SSP - Spatter                            |
| IC - Copper Inclusion               | P - Passed                                           | SUC(e) - Undercut External               |
| IL - Linear Inclusion (slag line)   | p.d. - Processing / film Defects                     | SUC(i) - Undercut Internal               |
| IN - Inclusion                      | PG - Localized Porosity                              | SXP - Excessive Penetration              |
| IO - Oxide Inclusion (wagon tracks) | PL - Linear Porosity                                 | WH - Worm Hole                           |
| IT - Tungsten Inclusion             | PU - Uniform Porosity                                |                                          |