

TR-05654

Horizontal Clamp (800amp testing)



Test Date: 08/07/16

Operator: D.Maclachlan

TYPE AND DESCRIPTION OF TEST

HORIZONTAL CLAMP. DIRECT RESISTANCE WITH 800A CURRENT.

OBJECTIVE

The object of this test is to assess the current carrying capacity of the Horizontal Clamp.

TEST METHOD

A specified test current shall be applied to the contacts of the specimen for a minimum period of 3 hours or until equilibrium is reached. (Less than 1 degree per hour).

The Clamp will be fed with 800A from the 3000A load unit via a Powersafe Line Drain 800A connector on 300mm² cable and attached to a busbar which is connected to the other side of the load unit.

REQUIREMENTS

The clamp must be capable of carrying the specified test current for a minimum period of 3 hours without exceeding the specified temperature rise.

TEST ITEMS

- 1x Powersafe Horizontal Clamp
- 1x Powersafe 300mm² Line Drain Connector
- 1x Busbar

EQUIPMENT USED

| INSTRUMENT | DESCRIPTION | CALIBRATION EXPIRY DATE |
|---------------------|---|-------------------------|
| Current Generation | T & R PCU1 Mk3 P.C.I.T.S. (21TE0216) | 20/01/2017 |
| External Load Unit | 3000A Loading Unit | 20/01/2017 |
| Digital Thermometer | YF-160A Thermocoupler + 5 Probes | 04/02/2017 |



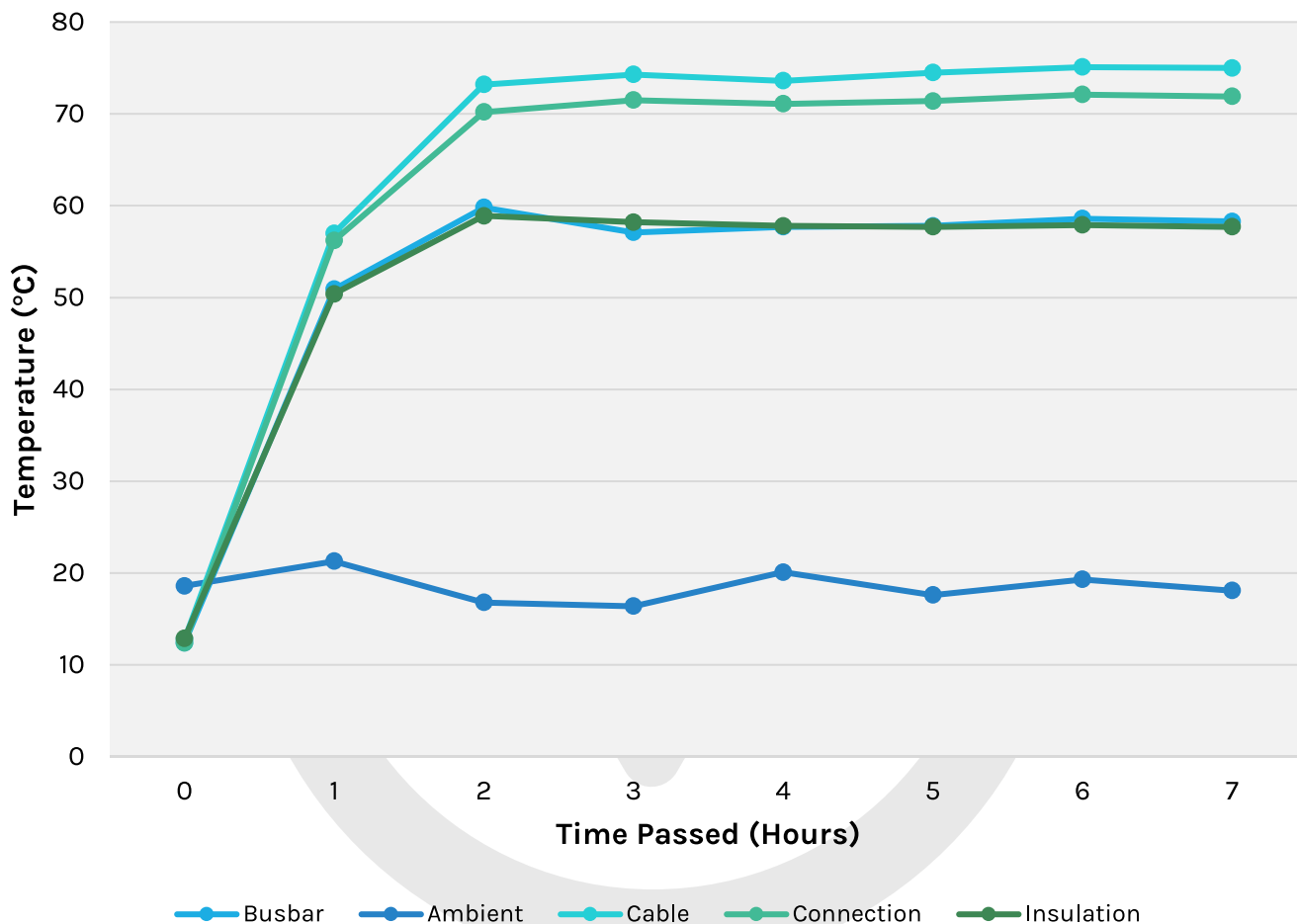
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| TIME | BUSBAR | AMBIENT | CABLE | CONNECTION | INSULATION | AMPS |
|------|--------|---------|-------|------------|------------|-------|
| 0 | 12.4 | 18.6 | 12.8 | 12.4 | 12.9 | 800.0 |
| 1 | 50.9 | 21.3 | 57.0 | 56.2 | 50.4 | 807.0 |
| 2 | 59.8 | 16.8 | 73.2 | 70.2 | 58.9 | 810.0 |
| 3 | 57.1 | 16.4 | 74.3 | 71.5 | 58.2 | 811.0 |
| 4 | 57.7 | 20.1 | 73.6 | 71.1 | 57.8 | 816.0 |
| 5 | 57.8 | 17.6 | 74.5 | 71.4 | 57.7 | 810.0 |
| 6 | 58.6 | 19.3 | 75.1 | 72.1 | 57.9 | 818.0 |
| 7 | 58.3 | 18.1 | 75.0 | 71.9 | 57.7 | 817.0 |

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FINAL RESULTS

| PROBE POSITION | TEMPERATURE (C) | T (MEASURED-AMBIENT) | AMPS |
|--|-----------------|----------------------|------|
| Ambient | 18.1 | N/A | N/A |
| Cable Core (P1) | 75.0 | 56.9 | 817A |
| Connection Between Clamp & Busbar (P2) | 71.9 | 53.8 | 817A |
| Busbar (P3) | 58.3 | 40.2 | 817A |
| Clamp Insulated Body (P4) | 57.7 | 39.6 | 817A |

CONCLUSION

| MEASUREMENT | RESULT |
|---|--------|
| Maximum Allowable Temperature | 125°C |
| Maximum Recorded Temperature Rise @ Insulated Body (above ambient) | 39.6°C |
| Maximum Allowable Temperature Between Clamp & Busbar | 125°C |
| Maximum Recorded Temperature Rise (above ambient) | 53.8°C |
| TEMPERATURE RISE WITHIN EN, BS AND VDE ALLOWABLE LIMITS. | PASS |
| ALL INSULATION ON THE CLAMP MEETS WITH IEC 60900 (LIVE WORKING, HAND TOOLS FOR USE UP TO 1000VAC AND 1500VDC) | |



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