

TR-05652

# Rotary (FRED) Clamp (800amp testing)



Test Date: 05/07/16

Operator: D.Maclachlan

## TYPE AND DESCRIPTION OF TEST

ROTARY (FRED) CLAMP. DIRECT RESISTANCE WITH 800A CURRENT.

## OBJECTIVE

The object of this test is to assess the current carrying capacity of the Rotary 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 300mm<sup>2</sup> 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 Rotary Clamp
- 1x Powersafe 300mm 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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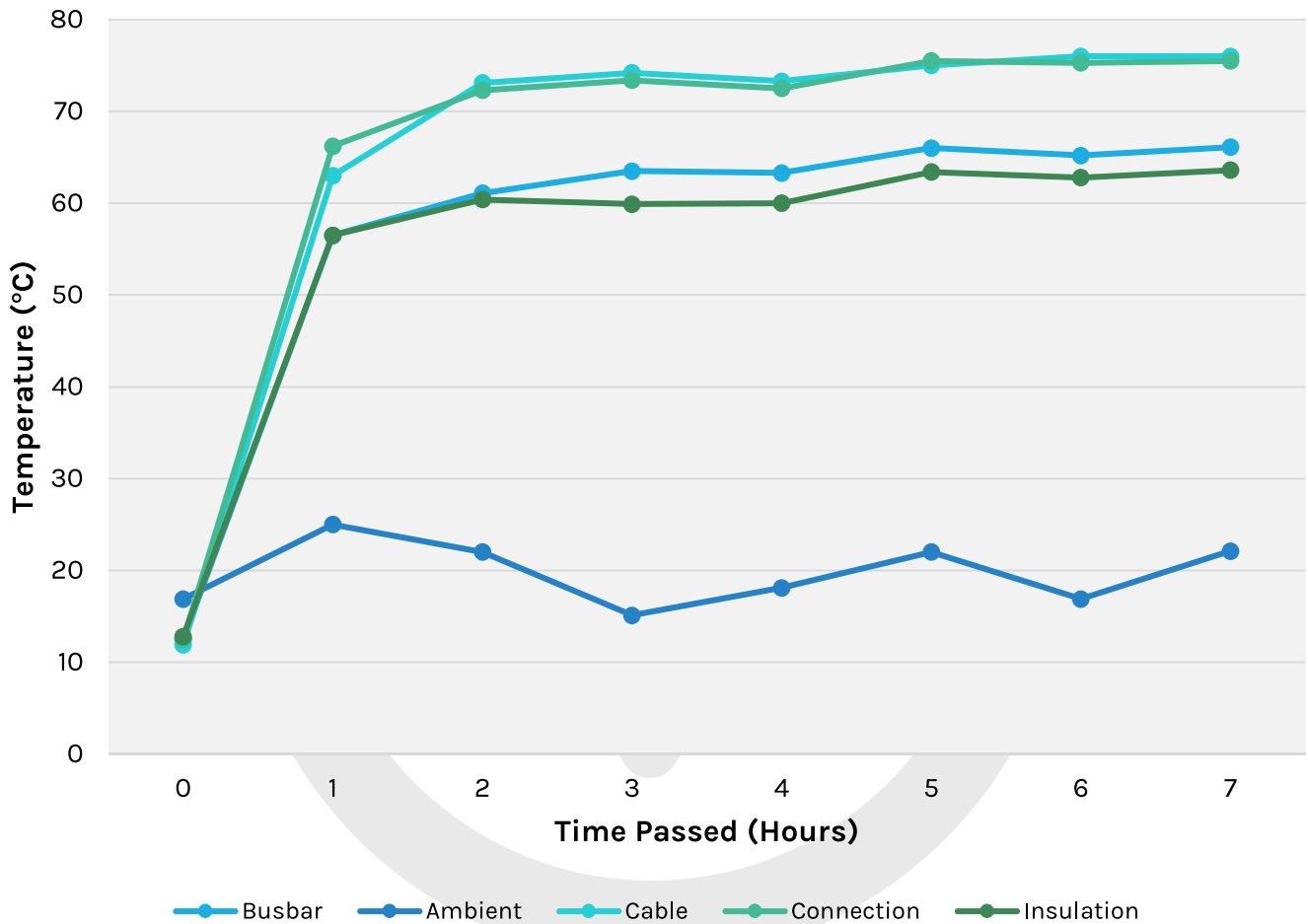
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TIME	BUSBAR	AMBIENT	CABLE	CONNECTION	INSULATION	AMPS
0	12.5	16.9	11.9	12.5	12.8	0.0
1	56.5	25.0	63.0	66.2	56.5	806.0
2	61.1	22.0	73.1	72.3	60.4	802.0
3	63.5	15.1	74.2	73.4	59.9	809.0
4	63.3	18.1	73.3	72.5	60.0	802.0
5	66.0	22.0	75.0	75.5	63.4	804.0
6	65.2	16.9	76.0	75.3	62.8	806.0
7	66.1	22.1	76.0	75.5	63.6	809.0

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## FINAL RESULTS

PROBE POSITION	TEMPERATURE (C)	T (MEASURED-AMBIENT)	AMPS
Ambient	22.1	N/A	N/A
Cable Core (P1)	76.0	53.9	808A
Connection Between Clamp & Busbar (P2)	75.5	53.4	808A
Busbar (P3)	66.1	44.0	808A
Clamp Insulated Body (P4)	63.6	41.5	808A

## CONCLUSION

MEASUREMENT	RESULT
Maximum Allowable Temperature	125°C
Maximum Recorded Temperature Rise @ Insulated Body (above ambient)	41.5°C
Maximum Allowable Temperature Between Clamp & Busbar	125°C
Maximum Recorded Temperature Rise (above ambient)	53.4°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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