TR-05670

Powersafe C240 Bi-Metal Connectors (500A Test)

Test Date: 18/07/16 **Operator:** D.Maclachlan

TYPE AND DESCRIPTION OF TEST

POWERSAFE C240 500A BI-METAL CONNECTORS . DIRECT RESISTANCE WITH 500A CURRENT.

OBJECTIVE

The object of this test is to assess the current carrying capacity of the Powersafe C240 Bi-Metal 500amp Connectors.

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 test will consist of a mated pair of Powersafe C240 Bi-Metal Connectors (Line Source to Line Drain) terminated onto 240mm^2 (500MCM) aluminium cables that are attached to the 3000amp load unit. A current of 500amps will be used for this test.

REQUIREMENTS

The mated connectors 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 Line Source Bi-Metal Connector terminated onto 240mm^2 (500MCM) aluminium cable.
1x Powersafe Line Drain Bi-Metal Connector terminated onto 240mm^2 (500MCM) aluminium cable.

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 + 6 Probes	04/02/2017

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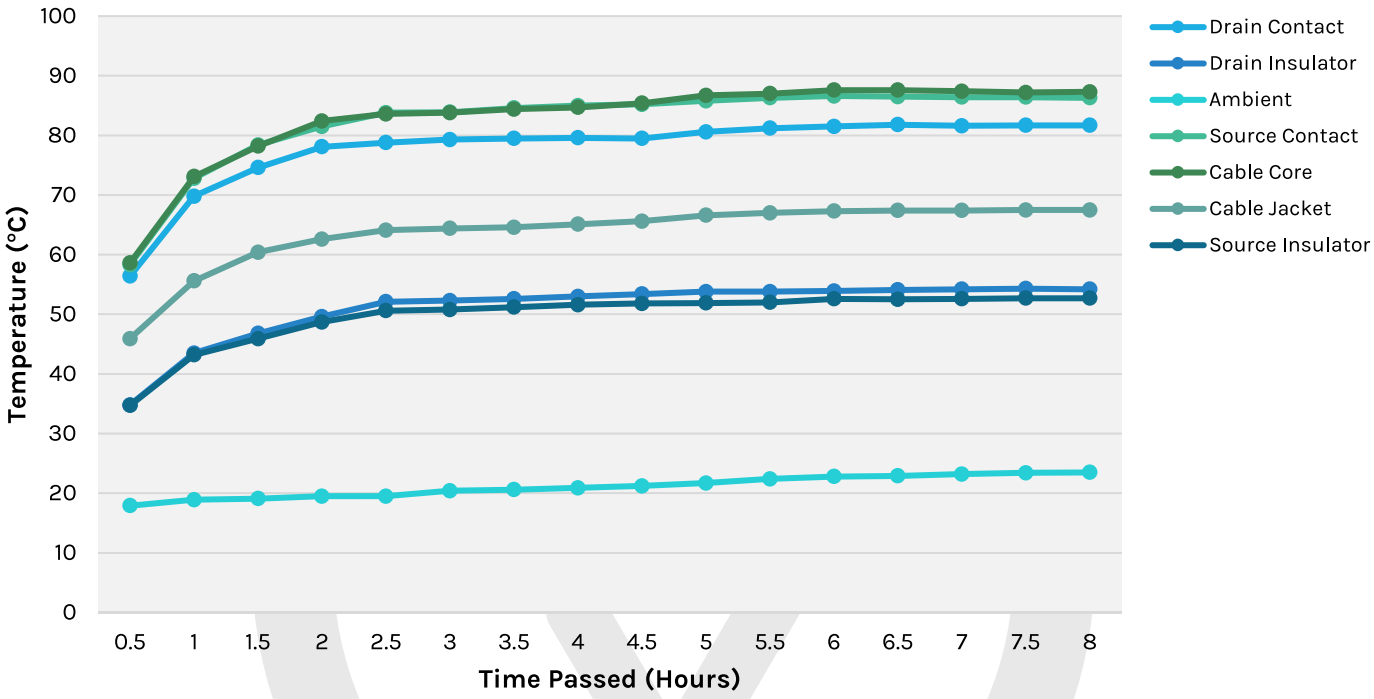

TIME	DRAIN CON.	DRAIN INSULATOR	AMBIENT	SOURCE CON.	CABLE CORE	CABLE JACKET	SOURCE INSULATOR	AMPS
0.5	56.4	34.8	17.9	58.3	58.6	45.9	34.7	505
1	69.8	43.5	18.8	72.8	73.1	55.6	43.2	510
1.5	74.6	46.8	19.1	78.4	78.2	60.4	45.9	509
2	78.1	49.6	19.5	81.5	82.4	62.6	48.7	508
2.5	78.8	52.1	19.5	83.8	83.6	64.1	50.6	507
3	79.3	52.3	20.4	83.9	83.8	64.6	50.8	504
3.5	79.5	52.6	20.6	84.6	84.4	64.6	51.2	506
4	79.6	53.0	20.9	85.0	84.7	65.1	51.6	506
4.5	79.5	53.4	21.2	85.2	85.4	65.6	51.8	505
5	80.6	53.8	21.7	85.8	86.7	66.6	51.9	507
5.5	81.2	53.8	22.4	86.3	87.0	67.0	52.0	505
6	81.5	53.9	22.8	86.6	87.6	67.3	52.6	505
6.5	81.8	54.1	22.9	86.5	87.6	67.4	52.5	505
7	81.6	54.2	23.2	86.4	87.4	67.4	52.6	504
7.5	81.7	54.3	23.4	86.4	87.2	67.5	52.7	505
8	81.7	54.2	23.5	86.3	87.3	67.5	52.7	505

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FINAL RESULTS

PROBE POSITION	TEMPERATURE (C)	T (MEASURED-AMBIENT)	AMPS
Ambient	23.5	N/A	N/A
Cable Jacket (P1)	67.5	44.0	505A
Drain Insulator (P2)	54.2	30.7	505A
Source Insulator (P3)	52.7	29.2	505A
Source Contact (P4)	86.3	62.8	505A
Cable Core (P5)	87.3	63.8	505A
Drain Contact (P6)	81.7	58.2	505A

CONCLUSION

MEASUREMENT	RESULT
Maximum Allowable Temperature	**125°C**
Maximum Recorded Temperature Rise @ Insulator Body (above ambient)	**30.7°C**
Maximum Allowable Temperature of Contacts	**125°C**
Maximum Recorded Temperature Rise (above ambient)	**62.8°C**
TEMPERATURE RISE WITHIN EN, BS AND VDE ALLOWABLE LIMITS.	**PASS**

bsi. ISO 9001 Quality Management FS648709

DVE