



36 kV 400/630 A T-Body Connector Type Test Report

Test Sequence D2

Report Number:

Test Start Date:

Test Complete Date:

RN-R1101-D2

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1. AC Voltage Dry

Object

To verify the connectors that the parts meet IEC 60502.4/HD629.1S2 AC Voltage Dry test requirements of 81kV-5 min.

Testing Samples

T-Body Connector CHARDON 36-FDT630 4 pcs

Mating Parts

Insulated Plug CHARDON 36kV 630A
Testing Fixture Customized
Cable 185mm² Copper
Compression Lug CHARDON 36kV 630A

Procedure and Testing Spec

The procedure for voltage application shall be specified in Section 5 of IEC60060-1. The test voltage shall reach 81 kV within 30 sec. . The testing samples shall withstand the specified test voltage for 5 minutes without flashover or puncture.

Results

Sample number	AC Voltage Dry 81 kV 5min
A5	PASS
A6	PASS
A7	PASS

2. Thermal Short Circuit (conductor)

Object

To verify the connectors that the parts meet the Thermal Short Circuit (conductor) requirements, 2 short circuits of 23.7 kA – 2.00s, no breakdown.

Testing Samples

T-Body Connector	CHARDON 36-FDT630	4 pcs
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Mating Parts

Insulated Plug	CHARDON 36kV 630A
Testing Fixture	Customized
Cable	185mm ² Copper
Compression Lug	CHARDON 36kV 630A
Wall Bushing	CHARDON 36-TPC630

Procedure and Testing Spec

Two short-circuits shall be applied using either a.c. or d.c. to raise the conductor temperature to the maximum permissible short-circuit temperature of the cable (θ_{sc}) within 5 s. Between the two short-circuits, the test loop shall be allowed to cool to a temperature less than 10 K above its temperature prior to the first short-circuit (θ_i)

The following formulae from IEC 60986 shall be used:

$$I^2 t = 5.11 \cdot 10^4 \cdot S^2 \cdot \ln\left(\frac{\theta_{sc} + 234.5}{\theta_i + 234.5}\right)$$

Where

I——is the r.m.s. value of short-circuit current (A);

t——is the duration (s);

S——is the conductor cross-sectional area (mm²);

θ_{sc} ——is the permissible short-circuit conductor temperature (°C);

θ_i ——is the conductor temperature at start of test (°C);

Ln——is the loge

Results

Sample number	23.7kA/2.00s 1 st Short Circuit	23.7kA/2.00s 2 nd Short Circuit
A5	PASS	PASS
A6	PASS	PASS
A7	PASS	PASS

3. Dynamic Short Circuit

Object

To verify the connectors that the parts meet the Dynamic Short Circuit requirements, one 83.8 kA circuit for at least 10 ms, no break down.

Testing Samples

T-Body Connector	CHARDON 36-FDT630	4 pcs
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Mating Parts

Insulated Plug	CHARDON 36kV 630A
Testing Fixture	Customized
Cable	185mm ² Copper
Compression Lug	CHARDON 36kV 630A
Wall Bushing	CHARDON 36-TPC630

Procedure and Testing Spec

The test loop shall consist of either three single-core cables or a three-core cable with accessories. One end of the test cable loop shall be connected to the short-circuit generator and the other to a short-circuiting bar, as described in the relevant standard. For terminations, separable connectors and joints, the cable and accessories clamping method and the spacing between the accessories shall be as recommended by the manufacturer and shall be recorded in the test report. In addition, single-core cable joints shall be tested in a trefoil configuration

The short-circuit current shall be applied for a minimum of 10 ms to ensure that the initial peak current, as specified in the relevant standard, is reached. The waveform shall be recorded.

Results

Sample number	83.8kA 10ms
A5	PASS
A6	PASS
A7	PASS

4. Impulse Voltage at Ambient Temperature

Object

To verify the connectors that the parts can meet the Impulse Voltage at Ambient Temperature test requirements, to apply $1.2 \times 50\mu\text{s}$ 170kV, 10 positive and 10 negative full-wave impulses at ambient temperature.

Testing Samples

T-Body Connector CHARDON 36-FDT630 4 pcs

Mating Parts

Insulated plug CHARDON 36kV 630A

Testing Fixture Customized

Cable 185mm² Copper

Compression lug CHARDON 36kV 630A

Procedure and Test Spec

The test voltage shall be 1.2/50 μs wave having the crest value (BIL) of 170kV. The connector shall withstand 10 positive and 10 negative full-wave impulses without flashover or puncture.

Results

Sample number	1.2×50 μs ±170kV Impulse Voltage
A5	PASS
A6	PASS
A7	PASS



5. AC Voltage Dry

Object

To verify the connectors that the parts meet IEC 60502.4/HD629.1S2 AC Voltage Dry test requirements of 81kV-5 min.

Testing Samples

T-Body Connector	CHARDON 36-FDT630	4 pcs
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Mating Parts

Insulated Plug	CHARDON 36kV 630A
Testing Fixture	Customized
Cable	185mm ² Copper
Compression Lug	CHARDON 36kV 630A

Procedure and Testing Spec

The procedure for voltage application shall be specified in Section 5 of IEC60060-1. The test voltage shall reach 81 kV within 30 sec. The testing samples shall withstand the specified test voltage for 5 minutes without flashover or puncture.

Results

Sample number	AC Voltage Dry - 81 kV - 15min
A5	PASS
A6	PASS
A7	PASS

