



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

Test Sequence D1

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Report Number:	Test Start Date:	Test Complete Date:
RN-R1101-D1	2015 / 09 / 26	2015 / 10 / 24

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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    185mm<sup>2</sup> 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
A1	PASS
A2	PASS
A3	PASS
A4	PASS

## 2. Partial Discharge at Ambient Temperature

### Object

To verify the connectors that the parts meet IEC 60502.4/HD629.1S2 Partial Discharge testing requirement of  $30\text{kV} \leq 10\text{pC}$ .

### Testing Samples

T-Body Connector                                      CHARDON 36-FDT630                                      4 pcs

### Mating Parts

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

### Procedure and Testing Spec

The test voltage shall be raised to 20% above the corona voltage level of 30kV. If corona exceeds 10pC, the test voltage shall be lowered to the corona voltage level of 30kV and maintained at this level for at least 3 seconds but not more than 60 seconds. Corona readings taken during this period shall not exceed 10 pC.

### Results

Sample number	Partial Discharge Readings
A1	36.3kV/0.8pC
A2	36.3kV/0.8pC
A3	36.1kV/1.0pC
A4	36.1kV/1.0pC

### 3. Impulse Voltage at Elevated Temperature

#### Object

To verify the connectors that the parts meet IEC 60502.4/HD629.1S2 Impulse Voltage testing requirements: To apply 10 positive and 10 negative full-wave impulses when the cable conductor temperature is 95°C~100°C for at least 2 hrs.

#### Testing Samples

T-Body Connector                                      CHARDON 36-FDT630                                      4 pcs

#### Mating Parts

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

#### Procedure and Testing Spec

The test shall be conducted according to the procedure given in IEC 60230(Clause 3 and following), in the impulse testing, the cable conductor temperature shall be 95°C~100°C for at least 2hrs. The test voltage shall be 1.2/50μs 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	1.2×50μs±170kV Impulse Voltage
A1	PASS
A2	PASS
A3	PASS
A4	PASS

## 4. Heating Cycle Voltage in Air

### Object

To verify the connectors that parts can meet the requirements of Heating Cycle Voltage in Air in IEC 60502.4/HD629.1S2, the cable conductor temperature shall be 95°C~100°C, and energized at 2.5U<sub>0</sub>(45 kV) for 30 cycles.

### Testing Samples

T-Body Connector                      CHARDON 36-FDT630                      4 pcs

### Mating Parts

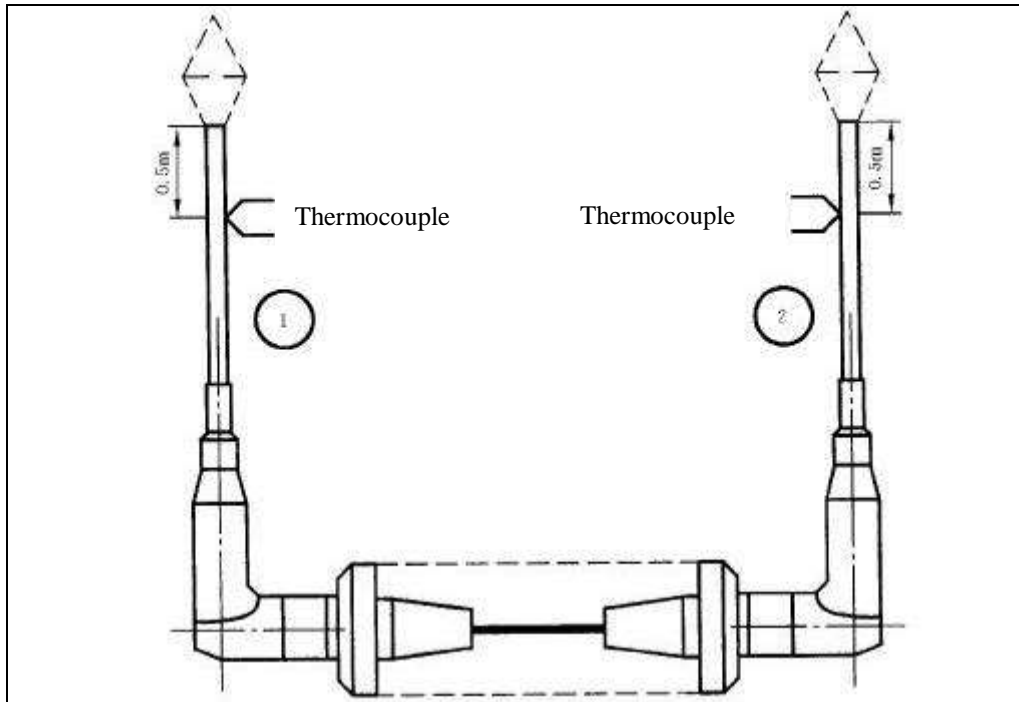
Insulated Plug                              CHARDON 36kV 630A  
Testing Fixture                              Customized  
Cable    185mm<sup>2</sup> Copper  
Compression Lug                            CHARDON 36kV 630A  
Wall Bushing                                CHARDON 36-TPC630

### Procedure and Testing Spec

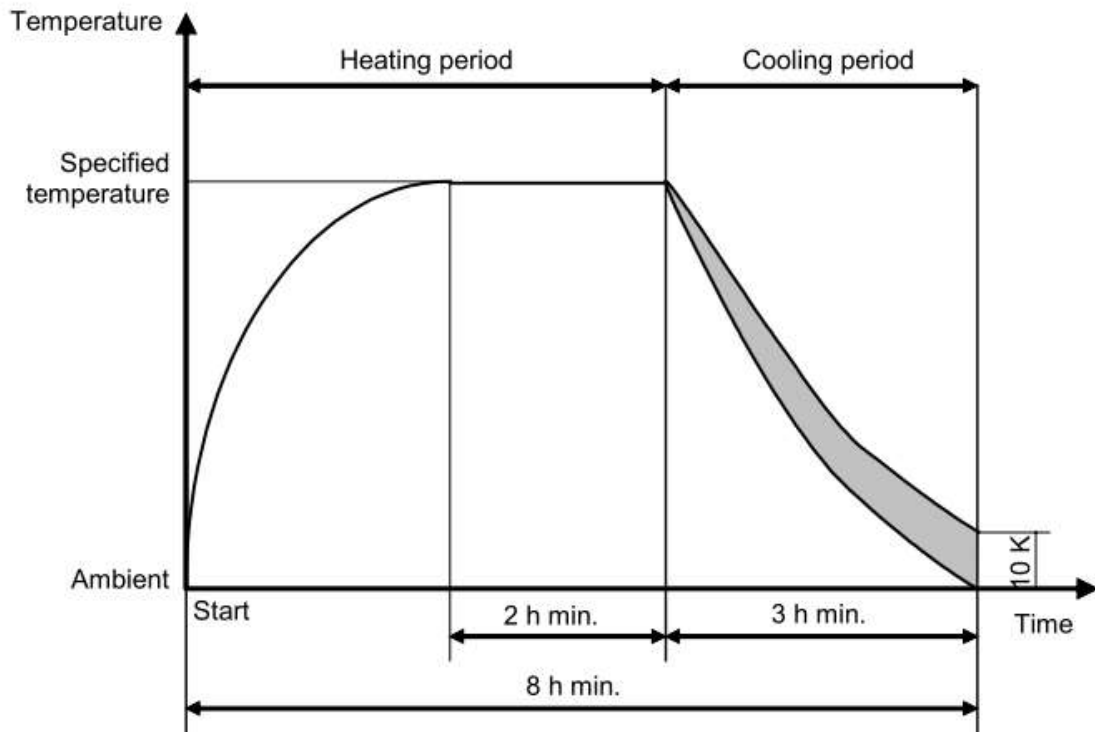
The test assembly shall be subjected to 30 cycles, energized at 2.5U<sub>0</sub>(45 kV). The arrangement and measurement in this test shall follow Clause 8 of EN 61442.

### Results

Sample number	Heating Cycle Voltage in Air
A1	PASS
A2	PASS
A3	PASS
A4	PASS



Test Setup



IEC 436/05

Heating Cycle

## 5. Heating Cycle Voltage in Water

### **Object**

To verify the connectors that parts can meet the requirements of Heating Cycle Voltage in Water in IEC 60502.4/HD629.1S2, the cable conductor temperature shall be 95°C~100 °C above the nominal operating temperature, and energized at 2.5U<sub>0</sub>(45 kV) for 30 cycles.

### **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 <sup>2</sup> Copper
Compression Lug	CHARDON 36kV 630A
Wall Bushing	CHARDON 36-TPC630

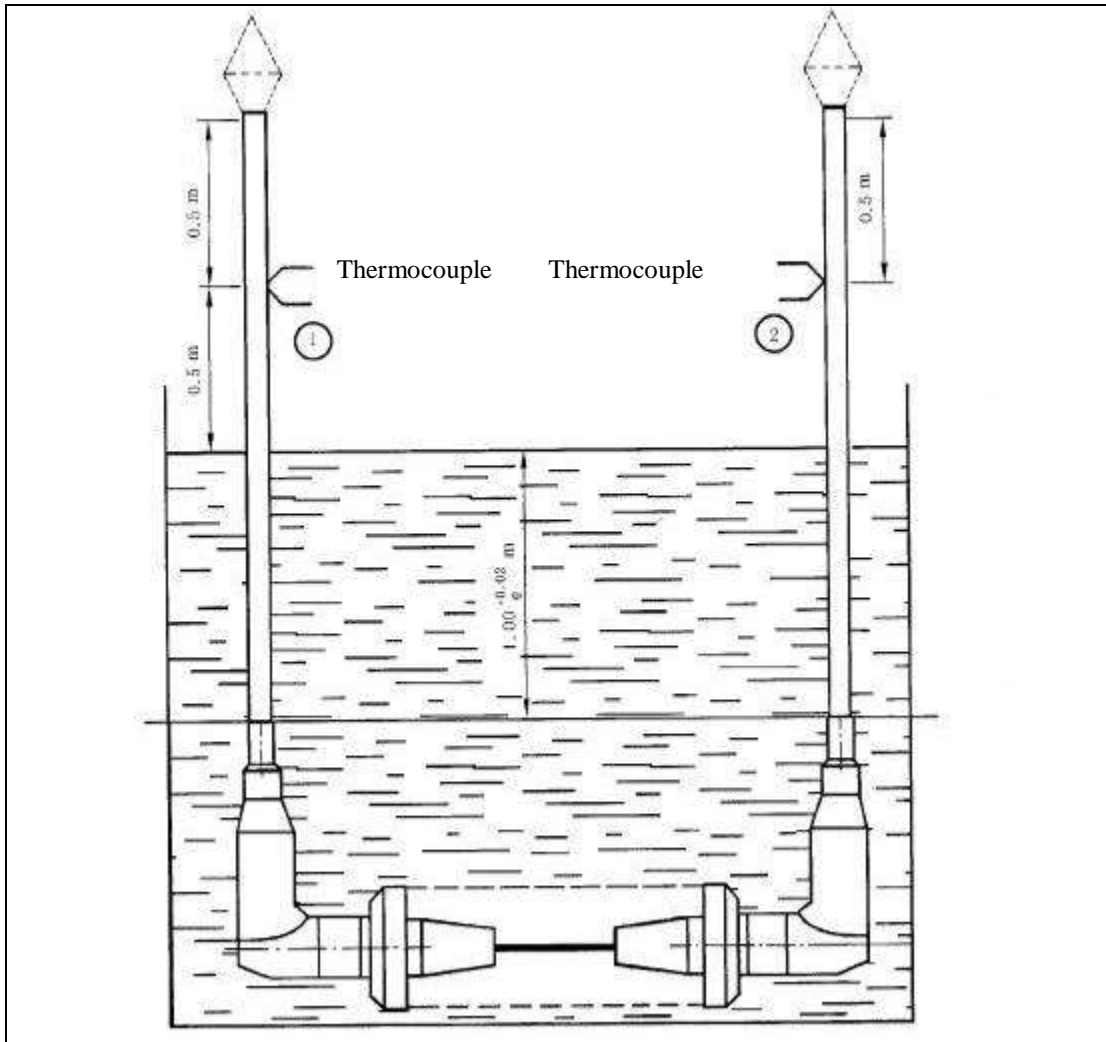
### **Procedure and Test Spec**

The test assembly shall be subjected to 30 cycles, energized at 2.5U<sub>0</sub>(45 kV). The arrangement and measurement in this test shall follow Clause 9 of EN 61442.

### **Results**

Sample number	Heating Cycle Voltage in Water
A1	PASS
A2	PASS
A3	PASS
A4	PASS





Test Setup

## 6. Partial Discharge at Elevated and Ambient Temperature

### Object

To verify the parts meet the requirements of Partial Discharge at Elevated Ambient in IEC 60502.4/HD629.1S2,  $30\text{kV} \leq 10\text{pC}$ .

### Testing Samples

T-Body Connector    CHARDON 36-FDT630    4 pcs

### Mating Parts

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

### Procedure and Test Spec

The samples shall be tested when heating process is completed. The cable conductor temperature shall be 95°C to 100 °C, before and during the partial discharge test. The test voltage shall be raised to 20% above the corona voltage level of 30 kV. If corona exceeds 10 pC, the test voltage shall be lowered to the corona voltage level of 30 kV and maintained at this level for at least 3 seconds but not more than 60 seconds. Corona readings taken during this period shall not exceed 10 pC.

### Results

Sample number	At Elevated Temperature	At Ambient Temperature
A1	30.6kV/1.0pC	36.5kV/1.4pC
A2	30.6kV/1.0pC	36.5kV/1.4pC
A3	30.2kV/1.2pC	36.9kV/1.5pC
A4	30.2kV/1.2pC	36.9kV/1.5pC

## 7. 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    185mm<sup>2</sup> Copper  
Compression lug    CHARDON 36kV 630A

### Procedure and Test Spec

The test voltage shall be  $1.2/50\mu\text{s}$  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	$1.2 \times 50\mu\text{s} \pm 170\text{kV}$ Impulse Voltage
A1	PASS
A2	PASS
A3	PASS
A4	PASS

## 8. AC Voltage Dry

### Object

To verify the connectors that parts can meet the AC Voltage Dry test requirements of 45kV - 15min in IEC 60502.4/HD629.1S2.

### 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 <sup>2</sup> Copper
Compression lug	CHARDON 36kV 630A

### Procedure and Test Spec

The test voltage shall reach 45 kV within 30 sec. . The testing samples shall withstand the specified test voltage for 15 minutes without flashover or puncture.

### Results

Sample number	AC Voltage Dry - 45 kV - 15min
A1	PASS
A2	PASS
A3	PASS
A4	PASS

