DNV·GL

KEMA TYPE TEST CERTIFICATE OF COMPLETE TYPE TESTS

Object Separable connector **1134-16**

Type WEB24-630 Tee Connector

Rated voltage, U_0/U (U_m)	12,7/22 (24) kV	Conductor material	Cu
Conductor cross-section	1x185 mm^2	Insulation material	XLPE

Manufacturer Shenzhen Woer Heat-Shrinkable Material Co. Ltd., Shenzhen, China

Client Shenzhen Woer Heat-Shrinkable Material Co. Ltd., Shenzhen, China

Tested by KEMA Nederland B.V., Arnhem, The Netherlands

Date of tests 8 July 2015 to 16 March 2016

The test object, constructed in accordance with the description, drawings and photographs incorporated in this certificate has been subjected to the series of proving tests in accordance with

HD 629.1 S2 (2006)

This Type Test Certificate has been issued by DNV GL following exclusively the STL Guides.

The results are shown in the record of Proving Tests and the oscillograms attached hereto. The values obtained and the general performance are considered to comply with the above Standard(s) and to justify the ratings assigned by the manufacturer as listed on page 5.

This Certificate applies only to the object tested. The responsibility for conformity of any object having the same type references as that tested rests with the Manufacturer.
*) as declared by the manufacturer

This Certificate consists of 102 pages in total.

KEMA Nederland B.V.

J.P. Fonteijne
Executive Vice President
KEMA Laboratories

KEMA Laboratories

Arnhem, 22 April 2016

Version: 1

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1 IDENTIFICATION OF THE OBJECT TESTED

1.1 Ratings/characteristics of the object tested

Rated voltage, U_0/U (U_m)	12,7/22 (24) kV
Rated maximum conductor temperature in normal operation	90 °C
Rated conductor cross-section	1x185 mm^2

The test voltages were based on U_0 test = 12,7 kV.

1.2 Description of the object tested

Manufacturer	Shenzhen Woer Heat-Shrinkable Material Co. Ltd., Shenzhen, China
Type	WEB24-630 Tee Connector
Year of manufacture	2015
Rated voltage, U_0/U (U_m)	12,7/22 (24) kV
No. of cores	1
Dynamic short-circuit current	100 kA
Type connector	Compressed cable lug, bolted to mating plug (no sliding contact)
Type of stress control	stress control cone
Capacitive test point	not applicable
Construction	see List of drawings

The object is not equipped with a capacitive test point.

1.3 Characteristics of the cable used for testing (not part of the test object)

Standard	IEC 60502-2, Clause 5-12
Manufacturer (as stated by the client)	Far East Cable Co. Ltd., Jiangsu, China
Type	U_0 = 12 kV 1x185 mm^2 XLPE CABLE (YJSV)
Manufacturing year	2014
Rated voltage, U_0/U (U_m)	12/20 (24) kV
Overall diameter (D)	37,5 mm
Construction	see List of drawings

Conductor

• material	copper
• cross-section	185 mm^2
• nominal diameter (d)	16,1 mm
• type	compacted stranded
• maximum conductor temperature in normal operation	90 °C
• presence and nature of measures to achieve longitudinal watertightness along insulation screen	no

Conductor screen

• material	semi-conducting PE
• nominal thickness	0,6 mm

Insulation

• material	XLPE
• nominal thickness	5,5 mm
• nominal inner diameter of the insulation	17,3 mm
• nominal outer diameter of the insulation	28,3 mm

Insulation (core) screen

• material	semi-conducting PE
• nominal thickness	0,6 mm

Longitudinally watertightness

• presence and nature of measures to achieve longitudinal watertightness along insulation screen	no

Metal screen

• material	copper wires
• number of wires	64
• nominal diameter of wires	1,0 mm
• number of tapes	1
• nominal thickness and width of tape	15 x 0,1 mm (open helix)

Oversheath

• material	PVC type ST_2
• nominal thickness	2,1 mm
• nominal overall diameter of the cable (D)	37,5 mm
• colour	black
• graphite coating applied	no

2 GENERAL INFORMATION

2.1 The tests were witnessed by

Name	Company
Mr Lei Yin	Shenzhen Woer Heat-Shrinkable Material Co. Ltd.,
Ms Lan Guo	Shenzhen, China

(24 August to 3 September 2015 and 20 January to 3 February 2016)

2.2 The tests were carried out by

Name	Company
Mr Thomas Ariaans	KEMA Nederland B.V.,
Mr Chris Beverwijk	Arnhem, The Netherlands
Mr Marten Dekker	
Mr Francesco Ursino	

2.3 Subcontracting

The following test was subcontracted KEMA Laboratory ZKUŠEBNICTVÍ, a.s., Praque, Czech Republic:

- Screen fault current initiation test in accordance with table 7 test 19.

2.4 Measurement uncertainty

A table with measurement uncertainties is enclosed in this Certificate. Unless otherwise stated, the measurement uncertainties of the results presented in this Certificate are as indicated in that table.

3 TEST ARRANGEMENT

3.1 Determination of the cable conductor temperature

Standard

Standard IEC 61442, Subclause 8

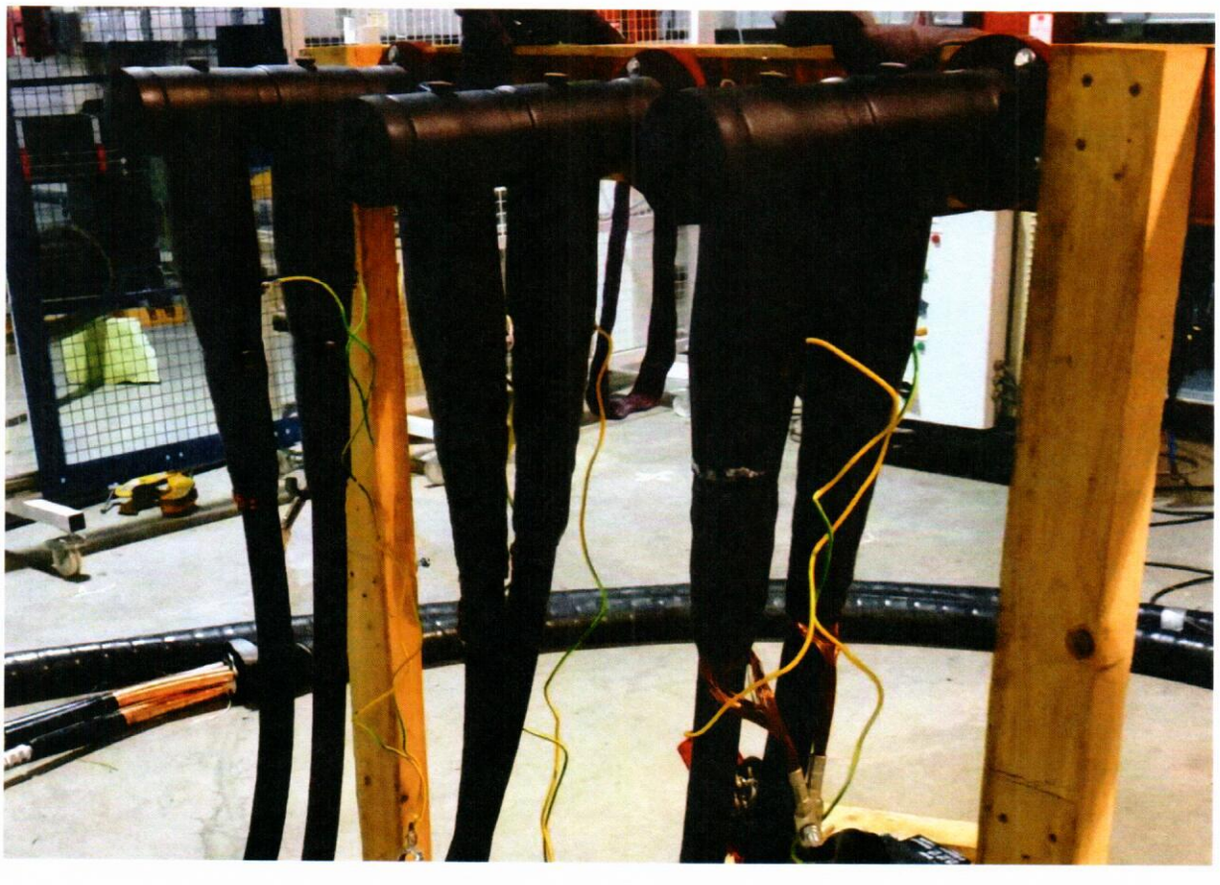
For the tests at elevated temperature, a reference loop for temperature control of the conductor was installed and conductor current was used for heating. The reference cable was cut from the total cable length intended for the type test. This reference loop was installed close to the test loop in order to create the same environmental conditions as for the test loop.

The heating currents in the reference loop and the test loop were kept equal at all times, thus the conductor temperature of the reference loop is representative for the conductor temperature of the test loop. Annex A was used as a guide and Annex A, Subclause A.3.3, method 3 was applied.

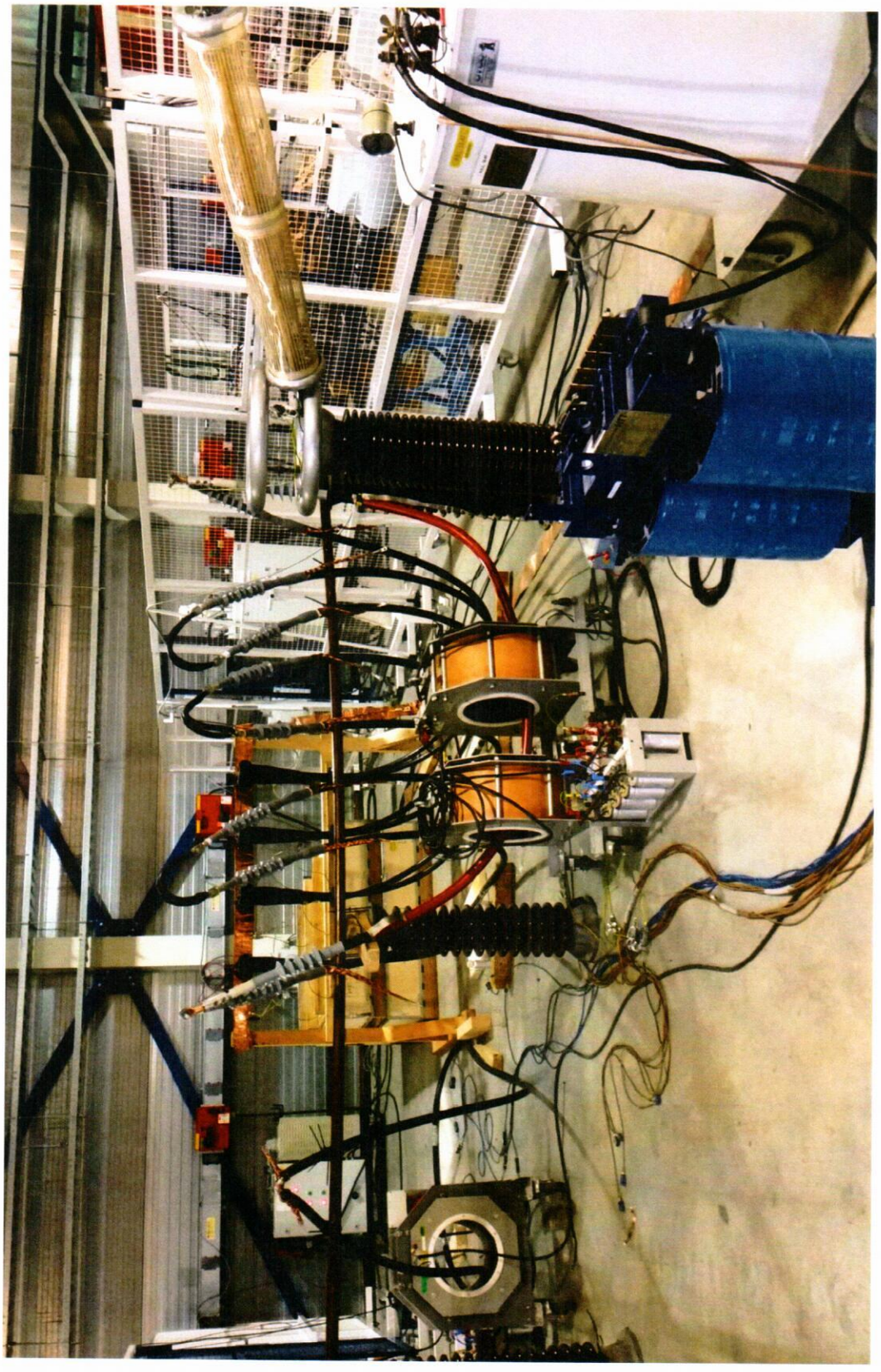
The tests at elevated temperature were carried out after the conductor temperature was within the stated limit for at least 2 hours.

3.2 Installation of separable screened connectors

The installation of the separable connectors was in accordance with the client's specification as presented below.



3.3 Photographs of test set-up



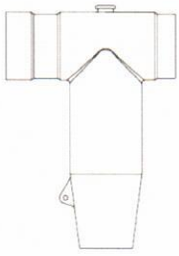
沃尔核材 WOER HEAT-SHRINKABLE MATERIAL

Ver.: A0

WEB24-630 Tee Connector and WEBK24-630 Rear Connector

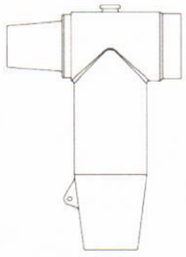
Installation Instruction

Each Connector Kit includes parts for one single-phase installation.



Tee Connector

- 1 – Tee Connector
- 1 – End Cap
- 1 – Cable Adapter
- 1 – Insulated Plug
- 1 – Two-headed Screw
- 1 – Lug
- 1 – Binding Wire
- 1 – Semi-conductive Tape
- 1 – Insulated Self-adhesive Tape
- 5 – Sealing Mastic
- 1 – Waterproof Tape
- 1 – PVC Tape
- 5 – Cleaning Paper
- 1 – Silicone Grease
- 1 – Abrasive Tape
- 1 – Nylon Belt
- 1 – Box Ruler
- 1 – Installation Tool
- 4 – PE Gloves
- 1 – Installation Instruction



Rear Connector

- 1 – Rear Connector
- 1 – Cable Adapter
- 1 – Connecting Pipe
- 1 – Two-headed Screw
- 1 – Lug
- 1 – Binding Wire
- 1 – Semi-conductive Tape
- 1 – Insulated Self-adhesive Tape
- 5 – Sealing Mastic
- 1 – Waterproof Tape
- 1 – PVC Tape
- 5 – Cleaning Paper
- 1 – Silicone Grease
- 1 – Abrasive Tape
- 1 – Nylon Belt
- 1 – Box Ruler
- 4 – PE Gloves
- 1 – Installation Instruction

Warning!

1. Before installation, please ensure all systems are de-energized and fully grounded!

2. The 630A bolted Tee connector system is designed to be operated in accordance with normal safe operating procedures. These instructions are not intended to supersede or replace existing safety and operating procedures. The Tee connector should be installed and serviced only by personnel familiar with the good safety practices and the handling of high-voltage electrical equipment.