

# Technical Specification for 0.6/1kV Heat Shrink Cable Accessories

## ➤ Overview

This document specifies the construction, test requirements, package, and storage of cable accessories with rated voltage 0.6/1kV.

## ➤ Terms and definitions

### 1. Termination

Device fitted to the end of a cable to ensure electrical connection with other parts of the system and to maintain the insulation up to the point of connection

### 2. Straight joint

Accessory making a connection between two cables to form continuous circuit

## ➤ Standards

### IEC 60502-1:2005

Power cables with extruded insulation and their accessories for rated voltages from 1kV ( $U_m=1.2kV$ ) up to 30 kV ( $U_m=36kV$ ) –

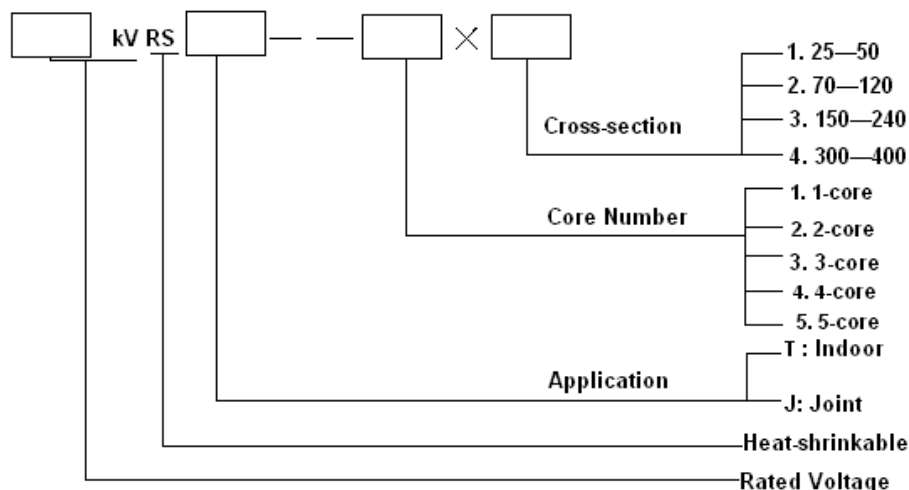
Part 1: Cables for rated voltages of 1kV ( $U_m=1.2kV$ ) and 3 kV ( $U_m=3.6kV$ )

### GB/T 12706.1

Power cables with extruded insulation and their accessories for rated voltages from 1kV ( $U_m=1.2kV$ ) up to 35 kV ( $U_m=40.5kV$ ) –

Part 1: Cables for rated voltages of 1kV ( $U_m=1.2kV$ ) and 3 kV ( $U_m=3.6kV$ )

## ➤ Product Designation



## ➤ Rated Voltages

Rated voltage  $U_0/U$  ( $U_m$ ): 0.6/1(1.2)kV

In the voltage designation of cables  $U_0/U$  ( $U_m$ ):

$U_0$ : Rated power frequency voltage between conductor and earth or metallic screen for which the cable is designed.

$U$ : Rated power frequency voltage between conductors for which the cable is designed.  
 $U_m$ : Maximum value of the “highest system voltage” for which the equipment may be used.

➤ **Applicable to cables with extruded insulation**

➤ **Maximum conductor temperature**

Table 1. Maximum conductor temperatures for different types of insulating compound

Insulating Compound	Maximum conductor temperature/°C	
	Normal Operation	Short Circuit (5s maximum duration)
Cross-linked polyethylene (XLPE)	90	250
Ethylene propylene rubber (EPR and HEPR)	90	250

➤ **Service conditions**

**1. Usual service conditions:**

- a) Environmental temperature within the range of -40°C to +40°C.
- b) Altitudes not exceeding 1000m above sea level.
- c) Long term operation temperature, over-load temperature and short-circuit temperature of cable accessories shall meet the requirements of its mating cable.

**2. Unusual service conditions :**

(performances and values of cable accessories need further consideration.)

- a) Environmental temperature below -40°C, or above +40°C.
- b) Altitudes exceeding 1000m above sea level.
- c) Long term operation under severe environmental conditions, such as strong vibration, strong wind, ice and snow, heavy contamination areas, etc.

➤ **Test**

1. For type test requirements, please refer to Annex.
2. Acceptance test (recommended)
  - a. Insulation resistance of cable core insulation.
  - b. AC voltage withstand test of cable core insulation (alternative to DC voltage withstand test)

After installation of cable accessories, apply 4kV AC voltage between the conductor and metal screen for 5min.

➤ **Marking, packaging, transportation, and storage**

**1. Marking**



The following information shall be printed with legible and durable color on the surface of cable accessories:

- a. Name of manufacturer
- b. Product name and part number
- c. Rated voltage
- d. Conductor cross-section
- e. Date of manufacturing and lot number
- f. The period of validity (applicable to some parts)

**2. Packaging, transportation and storage**

The packaging, transportation and storage of the products shall be conducted according to the instruction and information offered by the manufacturer.

***Woer Power Division***

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Annex: Type Test

No	Items <sup>1)</sup>	Standard Requirements	
		Termination	Joint
1	Insulation resistance	$\geq 10^3 \text{ M}\Omega$	
2	AC voltage	1min at 4kV, no breakdown nor flashover	
3	Impulse voltage	10 impulses of each polarity at 8kV, no breakdown nor flashover	
4	Insulation resistance	$\geq 10^3 \text{ M}\Omega$	
5	Heating cycles	63 cycles <sup>2)</sup> in air at rated conductor temperature	
6	Thermal short-circuit	Two short-circuits at 13kA for 1s, no visible deterioration	
7	Heating cycles	63 cycles <sup>2)</sup> in air at rated conductor temperature	63 cycles <sup>2)</sup> under water at rated conductor temperature
8	Insulation resistance	$\geq 10^3 \text{ M}\Omega$	
9	Impulse voltage	10 impulses of each polarity at 8kV, no breakdown nor flashover	
10	DC negative polarity voltage	5min at 15kV, no breakdown nor flashover	
11	Impact test	/	6 impact test according to KESC standard, no damage to joint.
<p>1) Unless otherwise specified, tests shall be carried out at ambient temperature. 2) 8h total with 5 h heating and 3 h cooling.</p>			