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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 12706.3-2020

Replacing GB/T 12706.3-2008

Power cables with extruded insulation and their accessories for rated voltages from 1kV (Um=1.2kV) up to 35kV (Um=40.5kV) - Part 3: Cables for rated voltages of 35kV(Um=40.5kV)

额定电压1kV(Um=1.2 kV)到35kV(Um=40.5 kV)挤包绝缘电力电缆及附件 第3部分：额定电压35kV(Um=40.5kV)电缆

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Standardization Administration of China

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1 Scope

GB/T 12706.3-2020 is the Chinese national standard on power cables with extruded insulation and their accessories for rated voltages from 1kv (um=1.2kv) up to 35kv (um=40.5kv) - part 3: cables for rated voltages of 35kv(um=40.5kv), in the field of electrical engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 31 March

2020 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 October 2020. Classification: ICS 29.060.20, CCS K13. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Part of GB/T 12706 specifies the structure, dimensions and test requirements for power cables with extruded insulation for a rated voltage of 35 kV fixedly mounted in distribution networks or industrial installations. This Part applies to cables of longitudinal water-blocking structure and their testing. This Part does not apply to cables with special installation and operation conditions, such as overhead cables, as well as cables used in the mining industry, in nuclear power plants (in and near containments), and underwater or on ships.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 156, Standard voltages

GB/T 2951.11-2008, Common test methods for insulating and sheathing materials of electric and optical cables - Part

11.Methods for general application - Measurement of thickness and overall dimensions

GB/T 2951.12-2008, Common test methods for insulating and sheathing materials of electric and optical cables - Part

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 Terms related to size values

3.1.1 nominal value A specified quantity value, which is often used in the table.

Note. In this Part, quantity values derived from nominal values are usually verified by measurement taking into account specified tolerances.

3.1.2 approximate value A value that is neither guaranteed nor checked.

Note. The approximate value may be used for calculations of other dimensional values.

3.2.2 sample tests Tests carried out by the manufacturer at specified frequencies on

finished cable samples or on certain components taken from the finished cable to check whether the cable complies with specified requirements.

3.2.3 type tests Tests carried out on normal commercial principles before supply of a type of cable covered by this Part to demonstrate that the cable has satisfactory performance under the intended conditions of use.

4 Voltage designation and materials

4.1 Rated voltage The rated voltage U0/U(Um) of the cables in this Part is marked as 21/35 (40.5) kV and 26/35 (40.5) kV.

4.3 Sheathing compounds See Table 4 for the maximum conductor temperatures of cables of different types of sheathing compounds.

5 Conductors

The conductor shall be the second type of metal-plated or non-metal-plated annealed copper conductor in compliance with GB/T 3956, or the second type of aluminum or aluminum alloy conductor. The second conductor can also be of a longitudinal water-blocking structure.

6 Insulation

6.1 Materials The insulation shall be an extruded dielectric as listed in Table 2. The insulation of halogen-free cables shall comply with the requirements in Table 5.

6.2 Insulation thickness See Table 6 for nominal insulation thickness. The thickness of any isolation layer or semiconductive shielding layer outside the conductor or insulation shall not be included in the insulation thickness.

7 Shield

7.1 General All cables shall have a phase-separated metal shield on the insulated cores. The shield of the insulated core of a single-core or three-core cable shall consist of a conductor shield and an insulation shield.

7.3 Insulation shield The insulation shield shall be composed of a non-metallic semiconducting layer and a metal layer.

8 Core, lining and filling of three-core cable

8.1 General Each insulated core of the three-core cable core shall have a metal shielding layer.

8.3 do not apply to cable cores of sheathed single-core cables.

8.2 Lining and filling

8.2.1 Structure An extruded lining shall be used. It is allowed to tighten with suitable tape before extruding the lining layer.

8.2.3 Extruded lining See Table 7 for the nominal thickness of the extruded lining.

8.3 Cable cores with phase-separated metal layers (see Chapter 10) The metal layers of the individual insulated cores shall be in contact with each other. If the phase-separated metal shielded cable core of a cable has another overall metal layer of the same metal material (see Chapter 9), the cable core shall be covered with a lining on the outside.

9 Metal layer of single-core or three-core cable

This Part includes the following types of metal layers.

10 Metal shield

10.1 Structure Metal shield shall consist of one or more concentric layers of metal strips, metal braids, metal wires, or a combination of metal wires and metal strips. The metal shield may be a metallic sheath or, in the case of overall shield, armor complying with 10.2.

10.2 Requirements

10.2.1 The resistance of copper wire shield in metal shield shall comply with the requirements of GB/T 3956 when applicable. The nominal cross-section of the copper

10.2.3 The metal shield of cables with a nominal cross-sectional area of 500 mm2 and above shall adopt a copper wire shielding structure.

11 Concentric conductor

11.1 Structure The gap between concentric conductors shall comply with the requirements of 10.2.3. When selecting concentric conductor structures and materials, special consideration shall be given to the possibility of corrosion, which is not only for mechanical safety but also for electrical safety.

11.2 Requirements The size, physical properties and resistance requirements of concentric conductors shall comply with the provisions of 10.2.

11.3 Use If a concentric conductor structure is required, the concentric conductor layer can be covered outside the lining of the three-core cable or, for single-core cables, directly on the insulation, on the semi-conductive insulation shielding layer, or on the appropriate lining.