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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 3956-2008

**Conductors of insulated cables
(English Translation)**

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Foreword

This Standard is identical to IEC 60228:2004 Conductors of insulated cables third edition (English version).

For easy of use, this Standard makes the following editorial changes:

- Modified "this International Standard" as "this Standard";
- Replaced the "," that acts as decimal point with ".";
- Deleted FOREWORD and INTRODUCTION in IEC 60228:2004.

This Standard replaces GB/T 3956-1997 Conductors of insulated cables.

Compared with GB/T 3956-1997, the main changes of this Standard are as follows:

- Conductor's cross-sectional range was expanded from 2000 m² to 2500 m² (Clause 1 of previous edition, Clause 1 of this Standard);
- Added terms and definitions (Clause 2 of this Standard);
- Added requirements on single wire tensile strength of solid aluminum conductor and circular and shaped stranded aluminum conductor (4.2 and

4.3 of this Standard);

- Conductor's cross-sectional ranges of the first class of solid aluminum conductor and the second class of stranded aluminum conductor for single and multi-core cables use have respectively been expanded to 2000 m² and 2500 m² (Table 1 and Table 2 of previous edition, Table 1 and Table 2 of this Standard);
- Added resistance requirements for solid aluminum conductor (5.1.1 and

5.1.2 of this Standard);

- Modified requirements on cross-sectional range for stranded circular non-compacted conductors (5.2.1 of previous edition, 5.2.1 of this Standard);
- Added requirements on cross-section for stranded compacted circular conductors and stranded shaped conductors (5.3.1 of this Standard);
- Deleted Clause 6 of previous edition;
- Added measurement of resistance (Annex A of this Standard);
- Added exact formulae for the temperature correction factors (Annex B of this Standard) .

Annex A of this Standard is normative; Annex B and Annex C are informative.

This Standard was proposed by China Electrical Equipment Industry Association.

This Part shall be under the jurisdiction of National Technical Committee on Wire and Cable of Standardization Administration of China (SAC/TC 213).

The drafting organizations of this Standard: Shanghai Electric Cable Research Institute, Tianjin Plastic Power Cable Group Co., Ltd., TBEA Shandong Luneng Taishan Cable Co., Ltd., Qingdao Hanhe Cable Co., Ltd., Far East Holding Group Co., Ltd., Fujian Nanping Nanxian Cable Co., Ltd., and Wuxi Jiangnan Cable Co., Ltd..

Main drafters of this Standard: Xu Xiaofeng, Han Changwu, Gao Yumin, Zhao Xinyuan, Wang Chuanbin, Lin Qiqing and Liu Jun.

This Standard replaces the following previous standards:

- GB/T 3956-1983, GB/T 3956-1997;
- GB/T 3957-1983.

Conductors of insulated cables

1 Scope

This Standard specifies the nominal cross-sectional areas, in the range 0.5 mm² to 2 500 mm², for conductors in electric power cables and cords of a wide range of types. Requirements for numbers and sizes of wires and resistance values are also included. These conductors include solid and stranded copper, aluminium and aluminium alloy conductors in cables for fixed installations and flexible copper conductors.

This Standard does not apply to conductors for telecommunication purposes.

The applicability of this Standard to a particular type of cable is as specified in this Standard for the type of cable.

Unless indicated to the contrary in a particular clause, this Standard relates to the conductors in the finished cable and not to the conductor as made or supplied for inclusion into a cable.

Informative annexes are included giving supplementary information covering temperature correction factors for resistance measurement (Annex B) and dimensional limits of circular conductors (Annex C).

2 Terms and definitions

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

2.1 metal-coated

coated with a thin layer of suitable metal, such as tin or tin alloy.

2.2 nominal cross-sectional area

value that identifies a particular size of conductor but is not subject to direct measurement.

NOTE Each particular size of conductor in this Standard is required to meet a maximum resistance value.

- b) Stranded aluminium or aluminium alloy conductors shall have a cross-sectional area not less than 10 mm².
- c) The wires in each conductor shall all have the same nominal diameter.
- d) The number of wires in each conductor shall be not less than the appropriate minimum number given in Table 2.

5.2.2 Resistance

The resistance of each conductor at 20°C, when determined in accordance with Clause 7, shall not exceed the appropriate maximum value given in Table 2.

5.3 Stranded compacted circular conductors and stranded shaped conductors (class 2)

5.3.1 Construction

- a) Stranded compacted circular conductors and stranded shaped conductors (class 2) shall consist of one of the materials specified in Clause 4.

Stranded compacted circular aluminium or aluminium alloy conductors shall have a nominal cross-sectional area not less than 10 mm². Stranded shaped copper, aluminium or aluminium alloy conductors shall have a nominal cross-sectional area of not less than 25 mm².

- b) The ratio of the diameters of two different wires in the same conductor shall not exceed 2.
- c) The number of wires in each conductor shall be not less than the appropriate minimum number given in Table 2.

NOTE This requirement applies to conductors made with wires of circular cross-section before compaction and not to conductors made with pre-shaped wires.