
**Road vehicles — 60 V and 600 V
single-core cables — Dimensions, test
methods and requirements**

*Véhicules routiers — Câbles monoconducteurs de 60 V et 600 V —
Dimensions, méthodes d'essai et exigences*



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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 6722 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

This second edition cancels and replaces the first edition (ISO 6722:2002) which has been technically revised.

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Road vehicles — 60 V and 600 V single-core cables — Dimensions, test methods and requirements

1 Scope

This International Standard specifies the dimensions, test methods, and requirements for single-core 60 V cables intended for use in road vehicle applications where the nominal system voltage is \leq (60 V d.c. or 25 V a.c.). It also specifies additional test methods and/or requirements for 600 V cables intended for use in road vehicle applications where the nominal system voltage is $>$ (60 V d.c. or 25 V a.c.) to \leq (600 V d.c. or 600 V a.c.). It also applies to individual cores in multi-core cables.

Eight temperature classes are defined in Table 1.

Table 1 — Temperature class rating

Class	Temperature
A	– 40 °C to 85 °C
B	– 40 °C to 100 °C
C	– 40 °C to 125 °C
D	– 40 °C to 150 °C
E	– 40 °C to 175 °C
F	– 40 °C to 200 °C
G	– 40 °C to 225 °C
H	– 40 °C to 250 °C

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.

ISO 1817, *Rubber, vulcanized — Determination of the effect of liquids*

ISO 6931-1, *Stainless steels for springs — Part 1: Wire*

IEC 60757, *Code for designation of colours*

IEC 60811-2-1, *Common test methods for insulating and sheathing materials of electrical and optical cables — Part 2-1: Methods specific to elastomeric compounds — Ozone resistance, hot set and mineral oil immersion tests*

ASTM B1, *Standard Specification for Hard-Drawn Copper Wire*

ASTM B3, *Standard Specification for Soft or Annealed Copper Wire*

ASTM B33, *Standard Specification for Tinned Soft or Annealed Copper Wire for Electrical Purposes*

ASTM B298, *Standard Specification for Silver-Coated Soft or Annealed Copper Wire*

ASTM B355, *Standard Specification for Nickel-Coated Soft or Annealed Copper Wire*

3 Terms and definitions

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

3.1

60 Volt (V) cable

cable intended for use in road vehicle applications where the nominal system voltage is equal to or less than 60 V d.c. or 25 V a.c.

3.2

600 Volt (V) cable

cable intended for use in road vehicle applications where the nominal system voltage is greater than (60 V d.c. or 25 V a.c.) and less than (600 V d.c. or 600 V a.c.)

NOTE a.c. tests are performed at 50 Hz or 60 Hz. Applications at higher frequencies may require additional testing.

3.3

cable family

group with multiple conductor sizes having the same conductor strand coating, insulation formulation and wall-thickness type

3.4

nominal (value)

suitable approximate value used to designate or identify a component

4 General

4.1 Caution

Special care shall be taken with cables used with voltages above (60 V d.c. or 25 V a.c.) to protect them from mechanical stress in order to avoid shock hazard. Regardless of wall thickness, 600 V cables shall meet the "resistance to abrasion" requirements for thick wall cable.

4.2 Conductors

The conductors shall consist of plain or coated copper strands as shown in Table 2. Conductor sizes $\geq 0,5 \text{ mm}^2$ shall consist of soft annealed copper or annealed compressed/compacted wires. Conductor sizes $< 0,5 \text{ mm}^2$ shall consist of soft annealed copper, soft annealed compressed/compacted copper, hard unannealed copper or a copper alloy. The specifications for the conductors shall be completed by material specifications. Elongation requirements shall be established by agreement between customer and supplier. The finished cable shall meet the resistance requirements of 6.1 for all conductors except alloys. When an alloy is used, the resistance requirement shall be established by agreement between customer and supplier.

NOTE Examples of strandings are shown in Table A.1. These strandings highlight examples of conceptual configurations and are not intended to reflect any preferred constructions. Other strandings' configurations may be used provided they meet the requirements shown above and are agreed upon between customer and supplier.