

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Low-voltage fuses –  
Part 1: General requirements**

**Fusibles basse tension –  
Partie 1: Exigences générales**

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IEC 60269-1

Edition 5.0 2024-08  
REDLINE VERSION

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INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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ELECTROTECHNIQUE  
INTERNATIONALE

ICS 29.120.50

ISBN 978-2-8322-9550-2

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## LOW-VOLTAGE FUSES –

## Part 1: General requirements

## FOREWORD

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IEC 60269-1 has been prepared by subcommittee 32B: Low-voltage fuses, of IEC technical committee 32: Fuses. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2006, Amendment 1:2009 and Amendment 2:2014. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) New numbering, editorial corrections and normative references updated;
- b) Term "discrimination" replaced by "selectivity" and "utilization category" by "utilization class";
- c) Term "fuses for authorized and unskilled persons" updated;
- d) Replacement of fuse-link added;
- e) Standard values for AC and DC voltages updated;
- f) Rated currents 425A, 355A, and 1 600A added;
- g) Marking: requirements and tests separated to the relevant subclauses;
- h) Requirements for temperature rise limited to terminal temperature rise only;
- i) Graphic symbol for fuse-base updated,

The text of this International Standard is based on the following documents:

Draft	Report on voting
32B/748/FDIS	32B/756/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

IEC 60269 consists of the following parts, under the general title *Low-voltage fuses*:

- Part 1: General requirements
- Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) – Examples of standardized systems of fuses A to I
- Part 3: Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household or similar application) – Examples of standardized systems of fuses A to F
- Part 4: Supplementary requirements for fuse-links for the protection of semiconductor devices
- Part 5: Guidance for the application of low-voltage fuses
- Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems
- Part 7: Battery Fuses

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## ~~INTRODUCTION~~

~~A reorganization of the different parts of the IEC 60269 series has been carried out, in order to simplify its use, especially by the laboratories which test the fuses.~~

~~IEC 60269-1, IEC 60269-2, IEC 60269-3 and IEC 60269-3-1 have been integrated into either the new part 1 or the new parts 2 or 3, according to the subjects considered, so that the clauses which deal exclusively with “fuses for authorized persons” are separated from the clauses dealing with “fuses for unauthorized persons”.~~

~~As far as IEC 60269-4 and IEC 60269-4-1 are concerned, they have been integrated into the new part 4 which deals with the fuse-links used for semiconductor protection.~~

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# LOW-VOLTAGE FUSES –

## Part 1: General requirements

### ~~1 General~~

#### ~~1 Scope and object~~

This part of IEC 60269 is applicable to fuses incorporating enclosed current-limiting fuse-links with rated breaking capacities of not less than 6 kA, intended for protecting power-frequency AC circuits of nominal voltages not exceeding 1 000 V or DC circuits of nominal voltages not exceeding 1 500 V.

Subsequent parts of this standard, referred to herein, cover supplementary requirements for such fuses intended for specific conditions of use or applications.

Fuse-links intended to be included in fuse-switch combinations according to IEC 60947-3 should also comply with the following requirements.

As far as not stated in subsequent parts for fuse-links, details of performance (see 3.2.4) on DC circuits should be stated in the manufacturer's literature.

~~NOTE 1 – For "a" fuse-links, details of performance (see 2.2.4) on d.c. circuits should be subject to agreement between user and manufacturer.~~

NOTE 21 Modifications of, and supplements to, this document required for certain types of fuses for particular applications – for example, certain fuses for rolling stock, or fuses for high-frequency circuits – will be covered, if necessary, by separate standards.

~~NOTE 32~~ This document does not apply to miniature fuses, these being covered by IEC 60127. <https://standards.iteh.ai/iec-60269-1-2024>

The object of this standard series is to establish the characteristics of fuses or parts of fuses (fuse-base, fuse-carrier, fuse-link) in such a way that they can be replaced by other fuses or parts of fuses having the same characteristics provided that they are interchangeable as far as their dimensions are concerned. For this purpose, this standard series refers in particular to

- the following characteristics of fuses:
  - rated values;
  - insulation;
  - temperature rise in normal service;
  - power dissipation and acceptable power dissipation;
  - time/current characteristics;
  - breaking capacity;
  - cut-off current characteristics and their  $I^2t$  characteristics.
- type test for verification of the characteristics of fuses;
- the marking of fuses.

#### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

~~IEC 60038:1983, IEC standard voltages~~

~~IEC 60050(441):1984, International Electrotechnical Vocabulary (IEV) — Chapter 441: Switchgear, controlgear and fuses  
Amendment 1 (2000)~~

~~IEC 60228:2004, Conductors of insulated cables~~

IEC 60269-2, Low-voltage fuses – Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) – Examples of standardized systems of fuses A to ~~H~~ K

~~IEC 60269-3, Low-voltage fuses — Part 3: Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household or similar application) — Examples of standardized systems of fuses A to F~~

~~IEC 60269-4, Low-voltage fuses — Part 4: Supplementary requirements for fuse-links for the protection of semiconductor devices~~

~~IEC 60269-5, Low-voltage fuses — Part 5: Guidance for the application of low-voltage fuses~~

~~IEC 60269-6, Low-voltage fuses — Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems~~

~~IEC 60364-3:1993, Electrical installations of buildings — Part 3: Assessment of general characteristics~~

~~IEC 60364-5-52:2001, Electrical installations of buildings — Part 5-52: Selection and erection of electrical equipment — Wiring system~~

IEC 60529:~~1989~~, Degrees of protection provided by enclosures (IP Code)

IEC 60584-1:~~1995~~2013, Thermocouples – Part 1: ~~Reference tables~~ EMF specifications and tolerances

IEC 60617, Graphical symbols for diagrams

IEC 60664-1:2002, Insulation coordination for equipment within low-voltage supply systems – Part 1: Principles, requirements and tests

~~IEC 60695-2-10, Fire hazard testing — Part 2-10: Glowing/hot-wire based test methods — Glow-wire apparatus and common test procedure~~

~~IEC 60695-2-11:2000, Fire hazard testing — Part 2-11: Glowing/hot-wire based test methods — Glow-wire flammability test method for end-products~~

~~IEC 60695-2-12:2000, Fire hazard testing — Part 2-12: Glowing/hot-wire based test methods — Glow-wire flammability index (GWFI) test method for materials~~

~~IEC 60695-2-13:2000, Fire hazard testing — Part 2-13: Glowing/hot-wire based test methods — Glow-wire ignition temperature (GWIT) test method for materials~~

ISO 3:1973, Preferred numbers — Series of preferred numbers