

Edition 2.0 2011-10

# INTERNATIONAL PANDARD

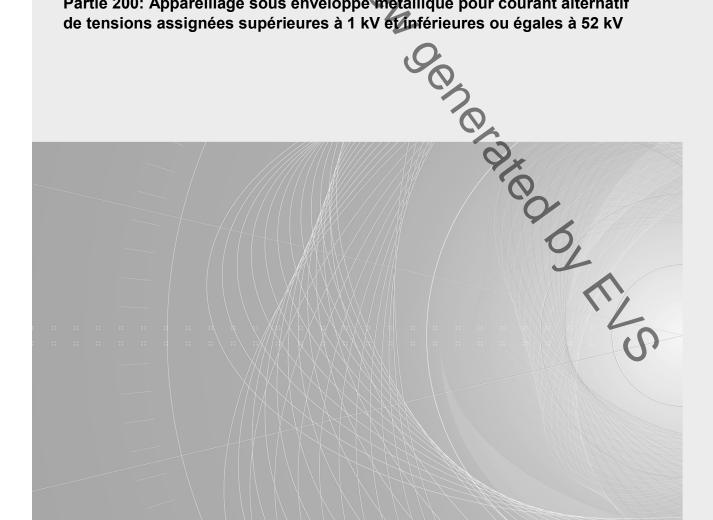


High-voltage switchgear and controlgear -

Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV

Appareillage à haute tension -

Partie 200: Appareillage sous enveloppe métallique pour courant alternatif de tensions assignées supérieures à 1 kV et inférieures ou égales à 52 kV





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# INTERNATIONAL STANDARD





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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

PRICE CODE CODE PRIX

ICS 29.130.10 ISBN 978-2-88912-743-6

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# INTERNATIONAL ELECTROTECHNICAL COMMISSION

# HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR -

Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV

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International Standard IEC 62271-200 has been prepared by subcommittee 17C: High-voltage switchgear and controlgear assemblies, of IEC technical committee 17. Switchgear and controlgear.

This second edition cancels and replaces the first edition, published in 2003. It is a technical revision.

This second edition of IEC 62271-200 has been further updated and improved to the experience gained with the first edition of IEC 62271-200. As maintenance result, this second edition of IEC 62271-200 introduces the following significant changes:

- definitions, classifications and testing procedures are specified more precisely;
- categories LSC2A and LSC2B have been clarified and LSC2 has been assigned a separate definition;
- specific ratings related to fault level to earth (4.5 to 4.7) are introduced;

- solid insulated high-voltage parts are no longer considered as compartments on their own;
- an optional rating "cable test voltage" and the associated requirements and type tests are introduced;
- for testing the internal arc classification, when assigned by the manufacturer, more specific guidance is provided regarding the test arrangement, room simulation and arc initiation:
- a single phase to earth ignition is also recognised for internal arc testing;
- the Annexes A and B are renumbered Annexes AA and BB.

The level of severity of internal arc testing is maintained without changes.

The text of this standard is based on the following documents:

FDIS	Report on voting
17C/523/FDIS	17C/534/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This International Standard should be read in conjunction with IEC 62271-1:2007, to which it refers and which is applicable unless otherwise specified. In order to simplify the indication of corresponding requirements, the same numbering of clauses and subclauses is used as in IEC 62271-1. Amendments to these clauses and subclauses are given under the same numbering, whilst additional subclauses, are numbered from 101.

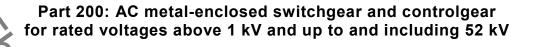
A list of all parts of the IEC 62271 series can be found, under the general title *High-voltage* switchgear and controlgear, on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- · replaced by a revised edition, or
- amended.

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# HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR -



# 1 General

# 1.1 Scope

This part of IEC 62271 specifies requirements for prefabricated metal-enclosed switchgear and controlgear for alternating current of rated voltages above 1 kV and up to and including 52 kV for indoor and outdoor installation, and for service frequencies up to and including 60 Hz. Enclosures may include fixed and removable components and may be filled with fluid (liquid or gas) to provide insulation.

NOTE 1 For the use of this document high-voltage (IEC 60050-601:1985, 601-01-27) is the rated voltage above 1 000 V. However, medium voltage (IEC 60050-601:1985, 601-01-28) is commonly used for distribution systems with voltages above 1 kV and generally applied up to and including 52 kV; refer to [1] of Bibliography

NOTE 2 Although primarily dedicated to three-phase systems, this standard can also be applied to single-phase or two-phase systems.

This standard defines several categories of metal enclosed switchgear and controlgear which differ due to

- the consequences on network service continuity in case of maintenance on the switchgear and controlgear;
- the need and convenience of maintenance of the equipment.

NOTE 3 Safety of an installation results from the design implementation and coordination of products, installations and operations.

For metal-enclosed switchgear and controlgear containing gas-filled compartments, the design pressure is limited to a maximum of 300 kPa (relative pressure).

NOTE 4 Gas-filled compartments having a design pressure exceeding 300 kPa (relative pressure) should be designed and tested in accordance with IEC 62271-203; refer to [6] of Bibliography.

Metal-enclosed switchgear and controlgear for special use, for example, in flammable atmospheres, in mines or on board ships, may be subject to additional requirements.

Components contained in metal-enclosed switchgear and controlgear are to be designed and tested in accordance with their various relevant standards. This standard supplements the standards for the individual components regarding their installation in switchgear and controlgear assemblies.

This standard does not preclude that other equipment may be included in the same enclosure. In such a case, any possible influence of that equipment on the switchgear and controlgear is to be taken into account.

NOTE 5 Switchgear and controlgear assemblies having an insulation enclosure are covered by IEC 62271-201

NOTE 6 Metal-enclosed switchgear and controlgear for rated voltages above 52 kV insulated by ambient air may be covered by this standard taking into account the insulation levels of IEC 62271-1.

# 1.2 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.

IEC 60050-151, International Electrotechnical Vocabulary – Part 151: Electrical and magnetic devices

IEC 60050-441:1984, International Electrotechnical Vocabulary – Chapter 441: Switchgear, controlgear and fuses

IEC 60060-1, High-voltage test techniques – Part 1: General definitions and test requirements

IEC 60270, High-voltage test techniques – Partial discharge measurements

IEC 60470:1999, High-voltage alternating current contactors and contactor-based motor-starters

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

IEC 62262, Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)

IEC 62271-1:2007, High-voltage switchgear and controlgear – Part 1: Common specifications

IEC 62271-100, High-voltage switchgear and controlgear – Part 100: Alternating-current circuit-breakers

IEC 62271-102:2001, High-voltage switchgear and controlgear – Part 102: Alternating current disconnectors and earthing switches

IEC 62271-103, High-voltage switchgear and controlgear – Part 103: Switches for rated voltages above 1 kV up to and including 52 kV

IEC 62271-105, High-voltage switchgear and controlgear – Part 105: Alternating current switch-fuse combinations

IEC 62271-201:2006, High-voltage switchgear and controlgear – Part 201: AC insulationenclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV

IEC/TS 62271-304, High-voltage switchgear and controlgear – Part 304: Design classes for indoor enclosed switchgear and controlgear for rated voltages above 1 kV up to and including 52 kV to be used in severe climatic conditions

ISO/IEC Guide 51:1999, Safety aspects – Guidelines for their inclusion in standards

# 2 Normal and special service conditions

Clause 2 of IEC 62271-1 is applicable with the following addition:

Unless otherwise specified in this standard, the metal-enclosed switchgear and controlgear is designed to be used under normal service conditions.

Metal-enclosed switchgear and controlgear, under the scope of IEC/TS 62271-304 and intended to be used in service conditions more severe with respect to condensation and pollution than the normal service conditions specified in this standard, may be classified with a "design class" 1 or 2 according to IEC/TS 62271-304 to demonstrate its ability to withstand such severe conditions.