

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



**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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# CONTENTS

FOREWORD.....	5
1 General .....	7
1.1 Scope.....	7
1.2 Normative references .....	8
2 Normal and special service conditions .....	8
3 Terms and definitions .....	9
4 Ratings.....	15
4.1 Rated voltage ( $U_r$ ) .....	15
4.2 Rated insulation level .....	16
4.3 Rated frequency ( $f_r$ ).....	16
4.4 Rated normal current and temperature rise .....	16
4.5 Rated short-time withstand currents ( $I_k$ ).....	16
4.6 Rated peak withstand current ( $I_p$ ) .....	16
4.7 Rated durations of short circuit ( $t_k$ ) .....	17
4.8 Rated supply voltage of closing and opening devices and of auxiliary and control circuits ( $U_a$ ).....	17
4.9 Rated supply frequency of closing and opening devices and of auxiliary circuits.....	17
4.10 Rated pressure of compressed gas supply for controlled pressure systems .....	17
4.11 Rated filling levels for insulation and/or operation .....	17
4.101 Ratings of the internal arc classification (IAC).....	17
4.102 Rated cable test voltages .....	19
5 Design and construction .....	19
5.1 Requirements for liquids in switchgear and controlgear .....	19
5.2 Requirements for gases in switchgear and controlgear .....	19
5.3 Earthing of switchgear and controlgear .....	20
5.4 Auxiliary and control equipment .....	21
5.5 Dependent power operation .....	21
5.6 Stored energy operation .....	21
5.7 Independent manual or power operation (independent unlatched operation) .....	21
5.8 Operation of releases .....	21
5.9 Low- and high-pressure interlocking and monitoring devices.....	21
5.10 Nameplates .....	21
5.11 Interlocking devices .....	23
5.12 Position indication .....	23
5.13 Degrees of protection by enclosures .....	24
5.14 Creepage distances for outdoor insulators .....	24
5.15 Gas and vacuum tightness.....	24
5.16 Liquid tightness .....	24
5.17 Fire hazard (flammability) .....	24
5.18 Electromagnetic compatibility (EMC) .....	24
5.19 X-ray emission.....	24
5.20 Corrosion.....	24
5.101 Internal arc fault .....	25
5.102 Enclosure .....	25
5.103 High-voltage compartments .....	27

5.104	Removable parts .....	30
5.105	Provisions for dielectric tests on cables .....	30
6	Type tests .....	31
6.1	General .....	31
6.2	Dielectric tests .....	32
6.3	Radio interference voltage (r.i.v.) test .....	35
6.4	Measurement of the resistance of circuits .....	35
6.5	Temperature-rise tests .....	36
6.6	Short-time withstand current and peak withstand current tests .....	37
6.7	Verification of the protection .....	38
6.8	Tightness tests .....	39
6.9	Electromagnetic compatibility tests (EMC) .....	39
6.10	Additional tests on auxiliary and control circuits .....	39
6.11	X-radiation test procedures for vacuum interrupters .....	40
6.101	Verification of making and breaking capacities .....	40
6.102	Mechanical operation tests .....	41
6.103	Pressure withstand test for gas-filled compartments .....	42
6.104	Tests to verify the protection of persons against dangerous electrical effects .....	43
6.105	Weatherproofing test .....	44
6.106	Internal arc test .....	44
7	Routine tests .....	47
7.1	Dielectric test on the main circuit .....	48
7.2	Tests on auxiliary and control circuits .....	48
7.3	Measurement of the resistance of the main circuit .....	48
7.4	Tightness test .....	48
7.5	Design and visual checks .....	48
7.101	Partial discharge measurement .....	48
7.102	Mechanical operation tests .....	49
7.103	Pressure tests of gas-filled compartments .....	49
7.104	Tests of auxiliary electrical, pneumatic and hydraulic devices .....	49
7.105	Tests after erection on site .....	49
7.106	Measurement of fluid condition after filling on site .....	50
8	Guide to the selection of switchgear and controlgear .....	50
8.101	General .....	50
8.102	Selection of rated values .....	50
8.103	Selection of design and construction .....	50
8.104	Internal arc fault .....	55
8.105	Summary of technical requirements, ratings and optional tests .....	59
8.106	Ratings of earthing circuits .....	61
8.107	Ratings for cable testing .....	61
9	Information to be given with enquiries, tenders and orders .....	61
9.1	Information with enquiries and orders .....	61
9.2	Information with tenders .....	62
10	Transport, storage, installation, operation and maintenance .....	63
10.1	Conditions during transport, storage and installation .....	63
10.2	Installation .....	63
10.3	Operation .....	63

10.4 Maintenance.....	63
11 Safety.....	63
11.101 Procedures.....	64
11.102 Internal arc aspects.....	64
12 Influence of the product on the environment.....	64
Annex AA (normative) Internal arc fault – Method to verify the internal arc classification (IAC).....	65
Annex BB (normative) Partial discharge measurement.....	80
Annex CC (informative) Regional deviations.....	86
Bibliography.....	87
Figure 101 – LSC1.....	54
Figure 102 – LSC2.....	54
Figure 103 – LSC2.....	54
Figure 104 – LSC2A.....	54
Figure 105 – LSC2B.....	54
Figure 106 – LSC2B.....	54
Figure AA.1 – Mounting frame for vertical indicators.....	73
Figure AA.2 – Horizontal indicator.....	73
Figure AA.3 – Position of the indicators.....	74
Figure AA.4 – Room simulation and indicator positioning for accessibility A, classified rear side, functional unit of any height.....	75
Figure AA.5 – Room simulation and indicator positioning for accessibility B, classified rear side, functional unit greater than or equal to 1 900 mm high.....	76
Figure AA.6 – Room simulation and indicator positioning for accessibility B, classified rear side, functional unit less than 1 900 mm high.....	77
Figure AA.7 – Test arrangement for overhead connected pole-mounted switchgear and controlgear.....	78
Figure AA.8 – Ceiling height stated from the floor or false floor level where the switchgear is actually placed.....	79
Figure BB.1 – Partial discharge test circuit (three-phase arrangement).....	84
Figure BB.2 – Partial-discharge test circuit (system without earthed neutral).....	85
Table 101 – Nameplate information.....	21
Table 102 – Locations, causes and examples of measures to decrease the probability of internal arc faults.....	56
Table 103 – Single phase-to-earth arc fault current depending on the network neutral earthing.....	58
Table 104 – Summary of technical requirements, ratings and optional tests for metal-enclosed switchgear.....	59
Table AA.1 – Parameters for internal fault test according to compartment construction.....	72
Table BB.1 – Test circuits and procedures.....	83

## 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

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- withdrawn,
- replaced by a revised edition, or
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## 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

#### 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 insulation-enclosed 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.