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

EESTI STANDARDIKESKUS
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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 62271-200:2012 sisaldab Euroopa standardi EN 62271-200:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 62271-200:2012 consists of the English text of the European standard EN 62271-200:2012.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 13.01.2012.	Date of Availability of the European standard is 13.01.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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EUROPEAN STANDARD

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English version

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

(IEC 62271-200:2011)

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
(CEI 62271-200:2011)

Hochspannungs-Schaltgeräte und -Schaltanlagen -
Teil 200: Metallgekapselte Wechselstrom-Schaltanlagen für Bemessungsspannungen über 1 kV bis einschließlich 52 kV
(IEC 62271-200:2011)

This European Standard was approved by CENELEC on 2011-11-28. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 62271-200:2012 E

Foreword

The text of document 17C/523/FDIS, future edition 2 of IEC 62271-200, prepared by SC 17C, "High-voltage switchgear and controlgear assemblies", of IEC/TC 17, "Switchgear and controlgear" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62271-200:2012.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2012-08-28
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2014-11-28

This document supersedes EN 62271-200:2004.

EN 62271-200:2012 has been further updated and improved to the experience gained with EN 62271-200:2004. As maintenance result, EN 62271-200:2012 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.

This European Standard should be read in conjunction with EN 62271-1:2008, 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 EN 62271-1. Amendments to these clauses and subclauses are given under the same numbering, whilst additional subclauses, are numbered from 101.

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

Endorsement notice

The text of the International Standard IEC 62271-200:2011 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60059:1999	NOTE	Harmonized as EN 60059:1999 (not modified).
IEC 60243-1:1998	NOTE	Harmonized as EN 60243-1:1998 (not modified).
IEC 60909-0:2001	NOTE	Harmonized as EN 60909-0:2001 (not modified).
IEC 62271-203:2003	NOTE	Harmonized as EN 62271-203:2004 (not modified).
IEC/TR 62271-303:2008	NOTE	Harmonized as CLC/TR 62271-303:2009 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60050-151	-	International Electrotechnical Vocabulary (IEV) - Part 151: Electrical and magnetic devices	-	-
IEC 60050-441	1984	International Electrotechnical Vocabulary (IEV) - Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 60060-1	-	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	-
IEC 60270	-	High-voltage test techniques - Partial discharge measurements	EN 60270	-
IEC 60470	1999	High-voltage alternating current contactors and contactor-based motor starters	EN 60470[1)] + corr. June	2000 2000
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 62262	-	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)	EN 62262	-
IEC 62271-1	2007	High-voltage switchgear and controlgear - Part 1: Common specifications	EN 62271-1	2008
IEC 62271-100	-	High-voltage switchgear and controlgear - Part 100: Alternating current circuit-breakers	EN 62271-100	-
IEC 62271-102 + corr. April + corr. February + corr. May	2001 2002 2005 2003	High-voltage switchgear and controlgear - Part 102: Alternating current disconnectors and earthing switches	EN 62271-102 + corr. July + corr. March	2002 2008 2005
IEC 62271-103	-	High-voltage switchgear and controlgear - Part 103: Switches for rated voltages above 1 kV up to and including 52 kV	EN 62271-103	-
IEC 62271-105	-	High-voltage switchgear and controlgear - Part 105: Alternating current switch-fuse combinations	EN 62271-105	-
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	EN 62271-201 + corr. November	2006 2006

[1)] EN 60470:2000 is superseded by EN 62271-106:2011, which is based on IEC 62271-106:2011.

Publication	Year	Title	EN/HD	Year
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	CLC/TS 62271-304	-
ISO/IEC Guide 51	1999	Safety aspects - Guidelines for their inclusion in standards	-	-

Annex ZB
(informative)

A-deviations

A-deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CENELEC member.

This European Standard does not fall under any Directive.

In the relevant CEN/CENELEC countries these A-deviations are valid instead of the provisions of the European Standard until they have been removed.

Clause	Deviation
1	**Italy** (Italian pressure vessel code for electrical switchgear DM 1 December 1980 and DM 10 September 1981 published in Gazzetta Ufficiale n° 285 dated 16.10.1981) For metal-enclosed switchgear and controlgear containing gas-filled compartments, the design pressure is limited to a maximum of 0,5 bar (gauge) and the volume is limited to a maximum of 2 m^3. Gas filled compartments having a design pressure exceeding 0,5 bar (gauge) or a volume exceeding 2 m^3 shall be designed according to the Italian pressure vessel code for electrical switchgear.

CONTENTS

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.