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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

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EUROPEAN STANDARD

**EN 62271-200**

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2004

ICS 29.130.19

Supersedes EN 60298:1996 + A11:1999

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 62271-200:2003)**

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 62271-200:2003)

Hochspannungs-Schaltgeräte und  
-Schaltanlagen  
Teil 200: Metallgekapselte  
Wechselstrom-Schaltanlagen für  
Bemessungsspannungen über 1 kV bis  
einschließlich 52 kV  
(IEC 62271-200:2003)

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This European Standard was approved by CENELEC on 2004-02-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

**CENELEC**

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

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

The text of document 17C/311/FDIS, future edition 1 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 was approved by CENELEC as EN 62271-200 on 2004-02-01.

This European Standard supersedes EN 60298:1996 + A11:1999.

Significant technical changes with respect to EN 60298:1996 are as follows:

This revised document has been basically changed to be updated to today's use of high-voltage switchgear and controlgear up to 52 kV. The main changes are: new definitions and classification of equipment, introduction of internal arc classes (IAC) and its testing.

This standard is to be read in conjunction with EN 60694:1996. Clause numbering follows the clause numbering of that standard. Additional subclauses, as they relate to a particular clause or subclause from EN 60694, are numbered 101, 102, etc.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2004-11-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2007-02-01

Annexes ZA and ZB have been added by CENELEC.  
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## Endorsement notice

The text of the International Standard IEC 62271-200:2003 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 60137	NOTE	Harmonized as EN 60137:1996 (not modified).
IEC 60517	NOTE	Harmonized as HD 358 S3:1992 (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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-151	2001	International Electrotechnical Vocabulary (IEV) Part 151: Electrical and magnetic devices	-	-
IEC 60050-441	1984	Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 60060-1 + corr. March	1989 1990	High-voltage test techniques Part 1: General definitions and test requirements	HD 588.1 S1	1991
IEC 60243-1	1998	Electrical strength of insulating materials - Test methods Part 1: Tests at power frequencies	EN 60243-1	1998
IEC 60265-1	1998	High-voltage switches Part 1: Switches for rated voltages above 1 kV and less than 52 Kv	EN 60265-1	1998
IEC 60270	2000	High-voltage test techniques - Partial discharge measurements	EN 60270	2001
IEC 60466	1987	AC insulation-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 38 kV	-	-
IEC 60470	2000	High-voltage alternating current contactors and contactor-based motor-starters	-	-
IEC 60480	1974	Guide to the checking of sulphur hexafluoride (SF <sub>6</sub> ) taken from electrical equipment	-	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 60694	1996	Common specifications for high-voltage switchgear and controlgear standards	EN 60694 + corr. May	1996 1999

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60909-0	2001	Short-circuit currents in three-phase a.c. systems Part 0: Calculation of currents	EN 60909-0	2001
IEC 60932	1988	Additional requirements for enclosed switchgear and controlgear from 1kV to 72,5 kV to be used in severe climatic conditions	-	-
IEC 61634	1995	High-voltage switchgear and controlgear – Use and handling of sulphur hexafluoride (SF <sub>6</sub> ) in high-voltage switchgear and controlgear	-	-
IEC 62271-100	2001	High-voltage switchgear and controlgear Part 100: High-voltage alternating-current circuit-breakers	EN 62271-100	2001
IEC 62271-102 + corr. April	2001 2002	Part 102: High-voltage alternating current disconnectors and earthing switches	EN 62271-102	2002
IEC 62271-105	2002	Part 105: Alternating current switch-fuse combinations	EN 62271-105	2003
ISO/IEC Guide 51	1999	Safety aspects - Guidelines for their inclusion in standards	-	-

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## **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 of the EC.

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

<u>Clause</u>	<u>Deviation</u>
1	<b>Italy</b> (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<sup>3</sup>. Gas filled compartments having a design pressure exceeding 0,5 bar (gauge) or a volume exceeding 2 m<sup>3</sup> shall be designed according to the Italian pressure vessel code for electrical switchgear.

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# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

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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**

**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**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

PRICE CODE **XC**  
CODE PRIX

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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**

## FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

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 first edition of IEC 62271-200 cancels and replaces the third edition of IEC 60298, published in 1990, and constitutes a technical revision.

Significant technical changes from the third edition of IEC 60298 are as follows:

This revised document has been basically changed to be updated to today's use of high-voltage switchgear and controlgear up to 52 kV. The main changes are: new definitions and classification of equipment, introduction of internal arc classes (IAC) and its testing.

This standard is to be read in conjunction with IEC 60694<sup>1</sup> published in 1996. Clause numbering follows the clause numbering of that standard. Additional subclauses, as they relate to a particular clause or subclause from IEC 60694, are numbered 101, 102, etc.

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

FDIS	Report on voting
17C/311/FDIS	17C/315/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.

The committee has decided that the contents of this publication will remain unchanged until 2009. At this date, the publication will be

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

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<sup>1</sup> IEC 60694 (1996) will be replaced by IEC 62271-1 as soon as available.

**COMMON NUMBERING OF IEC 62271 PUBLICATIONS FALLING UNDER  
THE RESPONSIBILITY OF SUBCOMMITTEES SC 17A AND SC 17C**

In accordance with the decision taken at the joint SC 17A/SC 17C meeting in Frankfurt, June 1998 (item 20.7 of 17A/535/RM), a common numbering system has been established for the publications falling under the responsibility of SC 17A and SC 17C. IEC 62271 – *High-voltage switchgear and controlgear* is the publication number and main title element for the common publications.

The numbering of these publications will apply the following principle.

- a) Common standards prepared by SC 17A and SC 17C will start with IEC 62271-1.
- b) Standards of SC 17A will start with IEC 62271-100.
- c) Standards of SC 17C will start with number IEC 62271-200.
- d) Publications prepared by SC 17A and SC 17C will start with number IEC 62271-300.

The table below relates the new numbers to the old numbers. The parts numbered (xxx) will be given a final number pending the decision to publish the revised publication as standard or technical report.

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