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I.S. EN 62271-207:2012

# High-voltage switchgear and controlgear -- Part 207: Seismic qualification for gas-insulated switchgear assemblies for rated voltages above 52 kV (IEC 62271 -207:2012 (EQV))

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| *This document replaces:* | *This document is based on:* | *Published:* |
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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 62271-207

July 2012

ICS 29.130.10

Supersedes EN 62271-207:2007

English version

# High-voltage switchgear and controlgear - Part 207: Seismic qualification for gas-insulated switchgear assemblies for rated voltages above 52 kV

(IEC 62271-207:2012)

Appareillage à haute tension -
Partie 207: Qualification sismique pour ensembles d'appareillages à isolation gazeuse pour des niveaux de tension assignée supérieurs à 52 kV
(CEI 62271-207:2012)

Hochspannungs-Schaltgeräte und -Schaltanlagen -
Teil 207: Erdbebenqualifikation für gasisolierte Schaltgerätekombinationen mit Bemessungsspannungen über 52 kV
(IEC 62271-207:2012)

This European Standard was approved by CENELEC on 2012-06-01. 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.

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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.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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## Foreword

The text of document 17C/542/FDIS, future edition 2 of IEC 62271-207, 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 62271-207:2012.

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) | 2013-03-01 |
| • latest date by which the national standards conflicting with the document have to be withdrawn | (dow) | 2015-06-01 |

This document supersedes EN 62271-207:2007.

EN 62271-207:2012 includes the following significant technical changes with respect to EN 62271-207:2007:

- modification of the minimum voltage rating from 72,5 kV to above 52 kV;
- harmonisation of qualification procedures for GIS with IEEE 693:2005 Annex A and P by modifying the response spectra;
- modification of the test procedures;
- addition of criteria of allowed stresses;
- addition of dynamic analysis CQC.

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 62271-207:2012 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 61462 | NOTE | Harmonized as EN 61462. |
| IEC 62155 | NOTE | Harmonized as EN 62155. |
| IEC 62231 | NOTE | Harmonized as EN 62231. |

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# Annex ZA
(normative)

## Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 60068-2-47 | - | Environmental testing - Part 2-47: Tests - Mounting of specimens for vibration, impact and similar dynamic tests | EN 60068-2-47 | - |
| IEC 60068-2-57 | - | Environmental testing - Part 2-57: Tests - Test Ff: Vibration - Time-history method | EN 60068-2-57 | - |
| IEC 60068-3-3 | 1991 | Environmental testing - Part 3: Guidance - Seismic test methods for equipments | EN 60068-3-3 | 1993 |
| IEC 62271-1 | - | High-voltage switchgear and controlgear - Part 1: Common specifications | EN 62271-1 | - |
| IEC 62271-203 | - | High-voltage switchgear and controlgear - Part 203: Gas-insulated metal-enclosed switchgear for rated voltages above 52 kV | EN 62271-203 | - |

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

# HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

## Part 207: Seismic qualification for gas-insulated switchgear assemblies for rated voltages above 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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8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
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International Standard IEC 62271-207 has been prepared by subcommittee 17C: High-voltage switchgear and controlgear assemblies, of IEC technical committee 17: Switchgear and controlgear.

This second edition of IEC 62271-207 cancels and replaces the first edition published in 2007. It constitutes a technical revision.

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

– modification of the minimum voltage rating from 72,5 kV to above 52 kV;
– harmonisation of qualification procedures for GIS with IEEE 693:2005 Annex A and P by modifying the response spectra;
– modification of the test procedures;
– addition of criteria of allowed stresses;

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– addition of dynamic analysis CQC.

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

| FDIS | Report on voting |
|---|---|
| 17C/542/FDIS | 17C/549/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.

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

# Part 207: Seismic qualification for gas-insulated switchgear assemblies for rated voltages above 52 kV

## 1 Scope

This part of IEC 62271 applies to gas-insulated switchgear assemblies for alternating current of rated voltages above 52 kV for indoor and outdoor installations, including their supporting structure.

For switchgear devices, e.g. live tank circuit breakers, IEC/TR 62271-300 is applicable.

Guidance on interactions between the supporting structure and the soil / foundations is provided in Annex B.

The seismic qualification of the switchgear assemblies takes into account testing of typical switchgear assemblies combined with methods of analysis. Mutual interaction between directly mounted auxiliary and control equipment and switchgear assemblies are covered.

The seismic qualification of switchgear assemblies is only performed upon request.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-2-47, *Environmental testing – Part 2-47: Tests – Mounting of specimens for vibration, impact and similar dynamic tests*

IEC 60068-2-57, *Environmental testing – Part 2-57: Tests – Test Ff: Vibration – Time-history method*

IEC 60068-3-3:1991, *Environmental testing – Part 3: Guidance – Seismic test methods for equipments*

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

IEC 62271-203, *High-voltage switchgear and controlgear – Part 203: Gas-insulated metal-enclosed switchgear for rated voltages above 52 kV*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60068-3-3, IEC 62271-203 and IEC 62271-1 apply.

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