ICS 29.130.10 SLOVENSKÁ TECHNICKÁ NORMA Marec 2024

STN	**Vysokonapäťové spínacie a riadiace zariadenia Časť 207: Hodnotenie seizmickej odolnosti plynom izolovaných rozvádzačov, rozvádzačov s kovovým krytom a rozvádzačov s tuhou izoláciou na menovité napätia nad 1 kV**	**STN EN IEC 62271-207** 35 4220

High-voltage switchgear and controlgear - Part 207: Seismic qualification for gas-insulated switchgear assemblies, metal enclosed and solid-insulation enclosed switchgear for rated voltages above 1 kV

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 02/24

Obsahuje: EN IEC 62271-207:2023, IEC 62271-207:2023

Oznámením tejto normy sa od 14.12.2026 ruší
STN EN 62271-207 (35 4220) z júna 2013

obsahuje farebné strany

138196

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 62271-207

December 2023

ICS 29.130.10

Supersedes EN 62271-207:2012

English Version

High-voltage switchgear and controlgear - Part 207: Seismic qualification for gas-insulated switchgear assemblies, metal enclosed and solid-insulation enclosed switchgear for rated voltages above 1 kV (IEC 62271-207:2023)

Appareillage à haute tension - Partie 207: Qualification sismique des ensembles d'appareillages à isolation gazeuse et des appareillages sous enveloppe métallique et sous enveloppe isolante solide pour des tensions assignées supérieures à 1 kV (IEC 62271-207:2023)

Hochspannungs-Schaltgeräte und -Schaltanlagen - Teil 207: Erdbebenqualifikation für gasisolierte Schaltgerätekombinationen, metallgekapselte und isolierstoffgekapselte Schaltanlagen mit Bemessungsspannungen über 1 kV (IEC 62271-207:2023)

This European Standard was approved by CENELEC on 2023-12-14. 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 62271-207:2023 E

EN IEC 62271-207:2023 (E)

European foreword

The text of document 17C/902/FDIS, future edition 3 of IEC 62271-207, prepared by SC 17C "Assemblies" of IEC/TC 17 "High-voltage switchgear and controlgear" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62271-207:2023.

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) 2024-09-14
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-12-14

This document supersedes EN 62271-207:2012 and all of its amendments and corrigenda (if any).

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

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 62271-207:2023 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 standard indicated:

IEC 62271-207:2012	NOTE	Approved as EN 62271-207:2012 (not modified)
IEC 62155	NOTE	Approved as EN 62155
IEC 62231	NOTE	Approved as EN 62231
IEC 61462	NOTE	Approved as EN IEC 61462

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60068-2-47	-	Environmental testing - Part 2-47: Test - Mounting of specimens for vibration, impact and similar dynamic tests	EN 60068-2-47	-
IEC 60068-2-57	2013	Environmental testing - Part 2-57: Tests - Test Ff: Vibration - Time-history and sine-beat method	EN 60068-2-57	2013
IEC 60068-3-3	2019	Environmental testing - Part 3-3: Supporting documentation and guidance - Seismic test methods for equipment	EN IEC 60068-3-3	2019
IEC 60099-4	2014	Surge arresters - Part 4: Metal-oxide surge arresters without gaps for a.c. systems	EN 60099-4	2014
IEC 62271-1	2017	High-voltage switchgear and controlgear - Part 1: Common specifications for alternating current switchgear and controlgear	EN 62271-1	2017
IEC 62271-200	2021	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	EN IEC 62271-200	2021
IEC 62271-201	2014	High-voltage switchgear and controlgear - Part 201: AC solid-insulation enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV	EN 62271-201	2014
IEC 62271-203	2022	High-voltage switchgear and controlgear - Part 203: AC gas-insulated metal-enclosed switchgear for rated voltages above 52 kV	EN IEC 62271-203	2022
ISO 2041	-	Mechanical vibration, shock and condition monitoring - Vocabulary	-	-

IEC 62271-207

Edition 3.0 2023-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

High-voltage switchgear and controlgear – Part 207: Seismic qualification for gas-insulated switchgear assemblies, metal enclosed and solid-insulation enclosed switchgear for rated voltages above 1 kV

Appareillage à haute tension – Partie 207: Qualification sismique des ensembles d'appareillages à isolation gazeuse et des appareillages sous enveloppe métallique et sous enveloppe isolante solide pour des tensions assignées supérieures à 1 kV

IEC 62271-207:2023-11(en-fr)

IEC 62271-207

Edition 3.0 2023-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

High-voltage switchgear and controlgear – Part 207: Seismic qualification for gas-insulated switchgear assemblies, metal enclosed and solid-insulation enclosed switchgear for rated voltages above 1 kV

Appareillage à haute tension – Partie 207: Qualification sismique des ensembles d'appareillages à isolation gazeuse et des appareillages sous enveloppe métallique et sous enveloppe isolante solide pour des tensions assignées supérieures à 1 kV

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 29.130.10 ISBN 978-2-8322-7776-8

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 207: Seismic qualification for gas-insulated switchgear assemblies, metal-enclosed and solid-insulation enclosed switchgear for rated voltages above 1 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.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
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.
9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 62271-207 has been prepared by subcommittee 17C: Assemblies, of IEC technical committee 17: High-voltage switchgear and controlgear. It is an International Standard.

This third edition cancels and replaces the second edition published in 2012. This edition constitutes a technical revision. It also cancels and replaces, through merging, the first edition of IEC TS 62271-210 published in 2013.

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

a) modification of the minimum voltage rating from 52 kV to above 1 kV in order to include medium voltage equipment previously being within IEC TS 62271-210 scope;

b) further harmonisation of qualification procedures with the revised IEEE Std 693-2018 [1][1], Annex A and Annex P, including
   1) matching this document's required response spectra with IEEE Std 693-2018 performance level spectra and IEC TS 62271-210 spectra,
   2) addition of a step-by-step procedure assisting the user of this document to select an appropriate seismic qualification level combining seismic integrity with cost-effective design,
   3) addition of analytical earthquake component combination techniques, and
   4) reference to publicly available accelerograms specially developed to match the IEEE Std 693-2018 spectra for testing and analysis purposes, since this document and IEC TS 62271-210 spectra are identical in shape with IEEE Std 693 spectra.
c) various enhancements of test procedures;
d) addition of minimum contents for seismic qualification reports;
e) scope extended to cover DC GIS including and above 100 kV.

The text of this International Standard is based on the following documents:

Draft	Report on voting
17C/902/FDIS	17C/916/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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 document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

[1] Numbers in square brackets refer to the Bibliography.

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 207: Seismic qualification for gas-insulated switchgear assemblies, metal-enclosed and solid-insulation enclosed switchgear for rated voltages above 1 kV

1 Scope

This part of IEC 62271 applies to

– gas-insulated switchgear (GIS) assemblies
  - for alternating current of rated voltages above 52 kV complying with IEC 62271-203, and
  - for direct current of rated voltages including and above 100 kV,
  - for indoor and outdoor installations, including their supporting structures,
– AC metal-enclosed switchgear and controlgear assemblies for rated voltages above 1 kV and up to and including 52 kV complying with IEC 62271-200, ground or floor mounted, intended to be used under seismic conditions, and
– AC solid-insulation enclosed switchgear and controlgear assemblies for rated voltages above 1 kV and up to and including 52 kV complying with IEC 62271-201, ground or floor mounted, intended to be used under seismic conditions.

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

Seismic qualification philosophy includes selection of seismic qualification level (Clause 4), methodologies for qualification by testing (Clause 5) and by combined testing and analysis (Clause 6), acceptance criteria (Clause 7) and seismic qualification documentation (Clause 8).

Recommendations on increasing the seismic adequacy of switchgear and controlgear assemblies are provided in Annex B. A flowchart of the seismic qualification process is included in Annex C.

The seismic qualification of switchgear and controlgear assemblies by the manufacturer is performed usually if needed.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60068-2-47, *Environmental testing – Part 2-47: Tests – Mounting of specimens for vibration, impact and similar dynamic tests*

IEC 60068-2-57:2013, *Environmental testing – Part 2-57: Tests – Test Ff: Vibration – Time-history and sine-beat method*

IEC 60068-3-3:2019, *Environmental testing – Part 3-3: Supporting documentation and guidance – Seismic test methods for equipment*

IEC 60099-4:2014, *Surge arresters – Part 4: Metal-oxide surge arresters without gaps for a.c. systems*

IEC 62271-1:2017, *High-voltage switchgear and controlgear – Part 1: Common specifications for alternating current switchgear and controlgear*

IEC 62271-200:2021, *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 62271-201:2014, *High-voltage switchgear and controlgear – Part 201: AC solid-insulation enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV*

IEC 62271-203:2022, *High-voltage switchgear and controlgear – Part 203: AC gas-insulated metal-enclosed switchgear for rated voltages above 52 kV*

ISO 2041, *Mechanical vibration, shock and condition monitoring – Vocabulary*