SVENSK STANDARD SS-EN IEC 62271-109

Fastställd	Utgåva	Sida	Ansvarig kommitté
2019-10-23	2	1 (1+137)	SEK TK 17AC

Kopplingsapparater för spänning över 1 kV – Del 109: Förbikopplingsbrytare för seriekondensatoranläggningar

High-voltage switchgear and controlgear – Part 109: Alternating-current series capacitor by-pass switches

Som svensk standard gäller europastandarden EN IEC 62271-109:2019. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 62271-109:2019.

Nationellt förord

Europastandarden EN IEC 62271-109:2019

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 62271-109, Third edition, 2019 - High-voltage switchgear and controlgear - Part 109: Alternating-current series capacitor by-pass switches**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN 62271-100, utgåva 2, 2009, SS-EN 62271-100/A1, utgåva 1, 2013 och SS-EN 62271-1, utgåva 2, 2018.

Tidigare fastställd svensk standard SS-EN 62271-109, utgåva 1, 2010 och SS-EN 62271-109/A1, utgåva 1, 2013, gäller ej fr o m 2022-05-13.

ICS 29.130.10

Denna standard är fastställd av SEK Svensk Elstandard,
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Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

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Stora delar av arbetet sker internationellt

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Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

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Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 62271-109

May 2019

ICS 29.130.10

Supersedes EN 62271-109:2009

English Version

High-voltage switchgear and controlgear - Part 109: Alternating-current series capacitor by-pass switches (IEC 62271-109:2019)

Appareillage à haute tension - Partie 109: Interrupteurs de contournement pour condensateurs série à courant alternatif
(IEC 62271-109:2019)

Hochspannungs-Schaltgeräte und -Schaltanlagen - Teil 109: Wechselstrom-Überbrückungsschalter für Reihenkondensatoren
(IEC 62271-109:2019)

This European Standard was approved by CENELEC on 2019-05-13. 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey 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 62271-109:2019 E

European foreword

The text of document 17A/1208/FDIS, future edition 3 of IEC 62271-109, prepared by SC 17A "Switching devices" of IEC/TC 17 "High-voltage switchgear and controlgear" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62271-109:2019.

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) 2020-02-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-05-13

This document supersedes EN 62271-109:2009.

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.

Endorsement notice

The text of the International Standard IEC 62271-109:2019 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 60060-1:2010	NOTE	Harmonized as EN 60060-1:2010 (not modified)
IEC 60071-1	NOTE	Harmonized as EN 60071-1
IEC 60071-2	NOTE	Harmonized as EN IEC 60071-2
IEC 62271-200	NOTE	Harmonized as EN 62271-200
IEC 62271-203	NOTE	Harmonized as EN 62271-203
IEC 60296	NOTE	Harmonized as EN 60296
IEC 60529	NOTE	Harmonized as EN 60529

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.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60050-151	2001	International Electrotechnical Vocabulary - Part 151: Electrical and magnetic devices	-	-
IEC 60050-436	1990	International Electrotechnical Vocabulary. Chapter 436: Power capacitors	-	-
IEC 60050-441	1984	International Electrotechnical Vocabulary. Switchgear, controlgear and fuses	-	-
IEC 60050-614	2016	International Electrotechnical Vocabulary - Part 614: Generation, transmission and distribution of electricity - Operation	-	-
IEC 60060	series	High-voltage test techniques	EN 60060	series
IEC 60137	2017	Insulated bushings for alternating voltages above 1000 V	EN 60137	2017
IEC 60143-1	2015	Series capacitors for power systems - Part 1: General	EN 60143-1	2015
IEC 60143-2	2012	Series capacitors for power systems - Part 2: Protective equipment for series capacitor banks	EN 60143-2	2013
IEC 60270	-	High-voltage test techniques - Partial discharge measurements	EN 60270	-
IEC 60376	-	Specification of technical grade sulphur hexafluoride (SF_6) and complementary gases to be used in its mixtures for use in electrical equipment	EN IEC 60376	-
IEC 60480	-	Specifications for the re-use of sulphur hexafluoride (SF_6) and its mixtures in electrical equipment	-	-
IEC 62271-1	2017	High-voltage switchgear and controlgear - Part 1: Common specifications for alternating current switchgear and controlgear	EN 62271-1	2017
IEC 62271-4	-	High-voltage switchgear and controlgear - Part 4: Handling procedures for sulphur hexafluoride (SF_6) and its mixtures	EN 62271-4	-
IEC 62271-100	2008	High-voltage switchgear and controlgear - Part 100: Alternating current circuit-breakers	EN 62271-100	2009

+ A1	2012		+ A1	2012
+ A2	2017		+ A2	2017
IEC 62271-101	-	High-voltage switchgear and controlgear - Part 101: Synthetic testing	EN 62271-101	-
IEC 62271-102	2018	High-voltage switchgear and controlgear - Part 102: Alternating current disconnectors and earthing switches	EN IEC 62271-102	2018

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 109: Alternating-current series capacitor by-pass switches

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 62271-109 has been prepared by subcommittee 17A: Switching devices, of IEC technical committee 17: High-voltage switchgear and controlgear.

This third edition cancels and replaces the second edition published in 2008 and Amendment 1:2013. This edition constitutes a technical revision.

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

a) the document has been restructured according to edition 2.0 of IEC 62271-1;
b) the rated voltage assignation across the by-pass switch has been aligned to the rule defined in IEC 60143-1;
c) clarification has been given regarding rated continuous current of compensated and uncompensated line;
d) some clarifications have been given following a loss of "suitable precautions";

e) as per Amendment 2 of IEC 62271-100, the section "Rated time quantities" has been moved to Clause 6 under "Time quantities";

f) as per Amendment 2 of IEC 62271-100, the section "Test for static mechanical loads" have been moved to Clause 6 under "Static mechanical loads";

g) additional rules have been introduced for vacuum interrupters during impulse tests;

h) additional clarifications have been given regarding the number of reduced impulses during impulse tests;

i) a wider tolerance on the current damping during by-pass making current test-duty has been introduced.

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

FDIS	Report on voting
17A/1208/FDIS	17A/1215/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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.

This standard is to be read in conjunction with IEC 62271-100:2008 with its Amendment 1:2012 and Amendment 2:2017, and IEC 62271-1:2017, to which it refers and which is applicable, unless otherwise specified in this standard. In order to simplify the indication of corresponding requirements, the same numbering of clauses and subclauses is used as in IEC 62271-1:2017. Amendments to these clauses and subclauses are given under the same references whilst additional subclauses are numbered from 101.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://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 publication 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.

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 109: Alternating-current series capacitor by-pass switches

1 Scope

This part of IEC 62271 is applicable to AC series capacitor by-pass switches designed for outdoor installation and for operation at frequencies of 50 Hz and 60 Hz on systems having voltages above 52 kV.

It is only applicable to by-pass switches for use in three-phase systems.

This document is also applicable to the operating devices of by-pass switches and to their auxiliary equipment.

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 60050-151:2001, *International Electrotechnical Vocabulary – Part 151: Electrical and magnetic devices*

IEC 60050-436:1990, *International Electrotechnical Vocabulary – Chapter 436: Power capacitors*

IEC 60050-441:1984, *International Electrotechnical Vocabulary – Chapter 441: Switchgear, controlgear and fuses*

IEC 60050-614:2016, *International Electrotechnical Vocabulary – Part 614: Generation, transmission and distribution of electricity – Operation*

IEC 60060 (all parts), *High-voltage test techniques*

IEC 60137:2017, *Insulated bushings for alternating voltages above 1000 V*

IEC 60143-1:2015, *Series capacitors for power systems – Part 1: General*

IEC 60143-2:2012, *Series capacitors for power systems – Part 2: Protective equipment for series capacitor banks*

IEC 60270, *High-voltage test techniques – Partial discharge measurements*

IEC 60376, *Specification of technical grade sulphur hexafluoride (SF_6) and complementary gases to be used in its mixtures for use in electrical equipment*

IEC 60480, *Guidelines for the checking and treatment of sulphur hexafluoride (SF_6) taken from electrical equipment and specification for its re-use*

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

IEC 62271-4, *High-voltage switchgear and controlgear – Part 4: Handling procedures for sulphur hexafluoride (SF_6) and its mixtures*

IEC 62271-100:2008, *High-voltage switchgear and controlgear – Part 100: Alternating current circuit-breakers*
IEC 62271-100:2008/AMD1:2012
IEC 62271-100:2008/AMD2:2017

IEC 62271-101, *High-voltage switchgear and controlgear – Part 101: Synthetic testing*

IEC 62271-102:2018, *High-voltage switchgear and controlgear – Part 102: Alternating current disconnectors and earthing switches*