

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



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

**Appareillage à haute tension –  
Partie 109: Interrupteurs de contournement pour condensateurs série à courant  
alternatif**



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INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –****Part 109: Alternating-current series capacitor  
by-pass switches**

## FOREWORD

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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<sub>6</sub>) 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<sub>6</sub>) taken from electrical equipment and specification for its re-use*