

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**High-voltage switchgear and controlgear –
Part 107: Alternating current fused circuit-switchers for rated voltages above
1 kV up to and including 52 kV**

**Appareillage à haute tension –
Partie 107: Circuits-switchers fusibles pour courant alternatif de tension
assignée supérieure à 1 kV et jusqu'à 52 kV inclus**



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IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

**Part 107: Alternating current fused circuit-switchers
for rated voltages above 1 kV up to and including 52 kV**

FOREWORD

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International Standard IEC 62271-107 has been prepared by subcommittee 17A: High voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

This second edition cancels and replaces the first edition, published in 2005. It constitutes a technical revision.

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

- the reference to IEC 60694 has been changed to IEC 62271-1;
- the new clauses and subclauses from IEC 62271-1 have been added and where necessary new wording has been provided;
 - 4.11 Rated filling levels for insulation and/or operation
 - 5.19 X-ray emission
 - 5.20 Corrosion

- 6.10 Additional tests on auxiliary and control circuits
 - 6.11 X-radiation test procedure for vacuum interrupters
 - 12 Influence of the product on the environment
- the normative references have been updated: IEC 60265-1 to IEC 62271-103, IEC 60787 to IEC/TR 60787, IEC 60466 to IEC 62271-201, and IEC/TR 60787 was moved to the bibliography;
 - the figures and tables have been placed in the document where they are first cited;
 - the numbering of figures and tables has been changed to obtain the correct order;
 - the definition of NSDD was deleted. This definition is included in IEC 62271-1;
 - the acceptance criteria have been aligned with 6.101.4 of IEC 62271-103:2011;
 - the various provisions expressed about "extension of the validity of type tests" have been grouped under 6.103: some of the rules were duplicated in Clauses 6 and 8, and it seems better fitted to deal within each type test sub-clause only with the type test to be performed. Conditions have not been changed, but the wording is clearer;
 - new numbering of subclauses in Clauses 8 and 9 to avoid conflict with clauses from IEC 62271-1.

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

FDIS	Report on voting
17A/997/FDIS	17A/1004/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.

This International Standard is to be read in conjunction with IEC 62271-1:2007, to which it refers and which is applicable unless otherwise specified. In order to simplify the indication of corresponding requirements, the same numbering of clauses and subclauses is used as in IEC 62271-1. Amendments to these clauses and subclauses are given under the same numbering, whilst additional subclauses, are numbered from 101.

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 maintenance result 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.

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 107: Alternating current fused circuit-switchers for rated voltages above 1 kV up to and including 52 kV

1 General

1.1 Scope

Subclause 1.1 of IEC 62271-1:2007 is not applicable, and is replaced as follows.

This part of IEC 62271 applies to three-pole operated units for distribution systems that are functional assemblies of a circuit-switcher and current-limiting fuses designed so as to be capable of:

- breaking, at the rated recovery voltage, any load or fault current up to and including the rated short-circuit breaking current;
- making, at the rated voltage, circuits to which the rated short-circuit breaking current applies.

They are intended to be used for circuits or applications requiring only a normal mechanical and electrical endurance capability. Such applications cover protection of HV/LV transformers for instance, but exclude distribution lines or cables, as well as motor circuits and capacitor bank circuits.

Short-circuit conditions with low currents, up to the fused circuit-switcher rated take-over current, are dealt with by supplementary devices (strickers, relays, etc.), properly arranged, tripping the circuit-switcher. Fuses are incorporated in order to ensure that the short-circuit breaking capacity of the device is above that of the circuit-switcher.

NOTE 1 In this standard the term "fuse" is used to designate either the fuse or the fuse-link where the general meaning of the text does not result in ambiguity.

This standard applies to fused circuit-switchers designed with rated voltages above 1 kV up to and including 52 kV for use on three-phase alternating current systems of either 50 Hz or 60 Hz. Comparison with other existing switching devices is provided in Clause 8.

NOTE 2 Other circuit-switchers exist; see reference [1]¹.

Devices that require a dependent manual operation are not covered by this standard.

Fuses are covered by IEC 60282-1.

Earthing switches forming an integral part of a circuit-switcher are covered by IEC 62271-102.

Installation in enclosure, if any, is covered either by IEC 62271-200 or by IEC 62271-201.

1.2 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

¹ Numbers between brackets refer to the Bibliography.

undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60282-1:2009, *High-voltage fuses – Part 1: Current-limiting fuses*

IEC 62271-1:2007, *High-voltage switchgear and controlgear – Part 1: Common specifications*

IEC 62271-100:2008, *High-voltage switchgear and controlgear – Part 100: Alternating-current circuit-breakers*

IEC 62271-102:2001, *High-voltage switchgear and controlgear – Part 102: Alternating current disconnectors and earthing switches*

IEC 62271-103:2011, *High-voltage switchgear and controlgear – Part 103: Switches for rated voltages above 1 kV up to and including 52 kV*

IEC 62271-105:—, *High-voltage switchgear and controlgear – Part 105: Alternating current switch-fuse combinations for rated voltages above 1 kV up to and including 52 kV*²

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

2 Normal and special service conditions

Clause 2 of IEC 62271-1:2007 is applicable.

3 Terms and definitions

Clause 3 of IEC 62271-1:2007 is applicable with the following additions:

3.1 General terms

Subclause 3.1 of IEC 62271-1:2007 is applicable.

3.2 Assemblies of switchgear and controlgear

Subclause 3.2 of IEC 62271-1:2007 is applicable.

3.3 Parts of assemblies

Subclause 3.3 of IEC 62271-1:2007 is applicable.

3.4 Switching devices

Subclause 3.4 of IEC 62271-1:2007 is applicable, with the following additions.

² To be published.