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INTRODUCTION ELECTROTECHNICAL COMMISSION

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 100: High-voltage alternating-current circuit-breakers

FOREWORD

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International Standard IEC 62271-100 has been prepared by subcommittee 17A: High-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.


The technical content is therefore identical to the base edition and its amendments and has been prepared for user convenience.

It bears the edition number 1.2.

A vertical line in the margin shows where the base publication has been modified by amendments 1 and 2.
This standard shall be read in conjunction with IEC 60694, second edition, published in 1996, 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 60694. Amendments to these clauses and subclauses are given under the same references whilst additional subclauses are numbered from 101.

Annexes A, B, C, D, E, F, G and M form an integral part of this standard.

Annexes H, I, J, K and L are for information only.

The committee has decided that the contents of the base publication and its amendments 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- withdrawn,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.
COMMON NUMBERING OF STANDARDS FALLING UNDER THE RESPONSIBILITY OF SC 17A AND SC 17C

In accordance with the decision taken at the joint SC 17A/SC 17C meeting in Frankfurt (item 20.7 of 17A/535/RM) a common numbering system will be established of the standards falling under the responsibility of SC 17A and SC 17C. IEC 62271 (with title High-voltage switchgear and controlgear) is the basis of the common standard.

Numbering of the standards will follow the following principle:

a) Common standards prepared by SC 17A and SC 17C will start with IEC 62271-001;
b) Standards of SC 17A will start with IEC 62271-100;
c) Standards of SC 17C will start with number IEC 62271-200;
d) Guides prepared by SC 17A and SC 17C will start with number IEC 62271-300.

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1 General

1.1 Scope

This International Standard is applicable to a.c. circuit-breakers designed for indoor or outdoor installation and for operation at frequencies of 50 Hz and 60 Hz on systems having voltages above 1 000 V.

It is only applicable to three-pole circuit-breakers for use in three-phase systems and single-pole circuit-breakers for use in single-phase systems. Two-pole circuit-breakers for use in single-phase systems and application at frequencies lower than 50 Hz are subject to agreement between manufacturer and user.

This standard is also applicable to the operating devices of circuit-breakers and to their auxiliary equipment. However, a circuit-breaker with a closing mechanism for dependent manual operation is not covered by this standard, as a rated short-circuit making-current cannot be specified, and such dependent manual operation may be objectionable because of safety considerations.

This standard does not cover circuit-breakers intended for use on motive power units of electrical traction equipment; these are covered by IEC 60077 [4].

Generator circuit-breakers installed between generator and step-up transformer are not within the scope of this standard.

Switching of inductive loads is covered by IEC 61233.

Circuit-breakers with an intentional non-simultaneity between the poles, with the exception of circuit-breakers providing single-pole auto-reclosing, are not within the scope of this standard.

This standard does not cover self-tripping circuit-breakers with mechanical tripping devices or devices which cannot be made inoperative.

By-pass circuit-breakers installed in parallel with line series capacitors and their protective equipment are not within the scope of this standard, these are covered by IEC 60143-2 [6].

NOTE Tests to prove the performance under abnormal conditions should be subject to agreement between manufacturer and user. Such abnormal conditions are, for instance, cases where the voltage is higher than the rated voltage of the circuit-breaker, conditions which may occur due to sudden loss of load on long lines or cables.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

1) Figures in square brackets refer to the bibliography.

IEC 60050(441):1984, International Electrotechnical Vocabulary – Chapter 441: Switchgear, controlgear and fuses


IEC 60059: 1999, IEC standard current ratings

IEC 60060: all parts, High-voltage test techniques


IEC 60129:1984, Alternating current disconnectors and earthing switches

IEC 60137:1995, Bushings for alternating voltages above 1 000 V

IEC 60255-3:1989, Electrical relays – Part 3: Single output energizing quantity measuring relays with dependent or independent time

IEC 60296:1982, Specification for unused mineral insulating oils for transformers and switchgear

IEC 60376:1971, Specification and acceptance of new sulphur hexafluoride

IEC 60427:1989, Synthetic testing of high-voltage alternating current circuit-breakers

IEC 60480:1974, Guide to the checking of sulphur hexafluoride (SF₆) taken from electrical equipment

IEC 60529:1989, Degrees of protection provided by enclosures (IP code)

IEC 60694:1996, Common specifications for high-voltage switchgear and controlgear standards


IEC 61634:1995, High-voltage switchgear and controlgear – Use and handling of sulphur hexafluoride (SF₆) in high-voltage switchgear and controlgear

IEC 62215, High-voltage alternating current circuit-breakers – Guide for asymmetrical short-circuit breaking test duty T100a ²

² To be published