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BSI Standards Publication

High-voltage switchgear and controlgear

Part 306: Guide to IEC 62271-100, IEC 62271-1 and other IEC standards related to alternating current circuit-breakers

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National foreword

This Published Document is the UK implementation of IEC/TR 62271-306:2012+A1:2018.

The UK participation in its preparation was entrusted to Technical Committee PEL/17, High voltage switchgear, controlgear and assemblies.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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FOREWORD

The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

IEC 62271-306, which is a technical report, has been prepared by subcommittee 17A: High-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

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

A list of all parts in the IEC 62271 series, published under the general title *High-voltage switchgear and controlgear*, can be found on the IEC website.

The document follows the structure of IEC 62271-1 and IEC 62271-100. The topics addressed appear in the order they appear in IEC 62271-1 and IEC 62271-100.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability 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- withdrawn,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.

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.

INTRODUCTION to the Amendment

At the SC 17A meeting held in Delft (NL) in 2013, the decision was made form a new maintenance team (MT 57) with the task to amend/revise IEC 62271-306. The objective was to update the publication to amendment 2 of IEC 62271-100. Together with MT 34 (IEC 62271-1), MT 36 (IEC 62271-100) and MT 28 (IEC 62271-101) the decision was made to move some of the informative annexes to IEC 62271-306.

This amendment includes the following significant technical changes.

– Annex G of IEC 62271-1:2007 has been included;
– Annexes E, G, H, J, L and Q of IEC 62271-1:2007 have been included;
– I.2 of IEC 62271-100:2008 + A1:2012 has been included;
– Informative parts of Annex O of IEC 62271-100:2008 have been included;
– Former Clause 14 has been added to Clause 13;
– Clause 14 now has heading "Synthetic making and breaking tests". This clause contains annexes A, B, C, D and G of IEC 62271-101;
– Clause 9 has been restructured;
– 16.4 (No-load transformer switching) has been rewritten;
– Annex B has been expanded to include information about fully compensated transmission lines and cables;
– Annex D has been rewritten.

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

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1 General

1.1 Scope

This part of IEC 62271 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.

NOTE While this technical report mainly addresses circuit-breakers, some clauses (e.g. Clause 5) apply to switchgear and controlgear.

This technical report addresses utility, consultant and industrial engineers who specify and apply high-voltage circuit-breakers, circuit-breaker development engineers, engineers in testing stations, and engineers who participate in standardization. It is intended to provide background information concerning the facts and figures in the standards and provide a basis for specification for high-voltage circuit-breakers. Thus, its scope will cover the explanation, interpretation and application of IEC 62271-100 and IEC 62271-1 as well as related standards and technical reports with respect to high-voltage circuit-breakers.

Rules for circuit-breakers with intentional non-simultaneity between the poles are covered by IEC 62271-302.

This technical report does not cover circuit-breakers intended for use on motive power units of electrical traction equipment; these are covered by the IEC 60077 series.

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

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

Disconnecting circuit-breakers are covered by IEC 62271-108.

By-pass switches in parallel with line series capacitors and their protective equipment are not within the scope of this technical report. These are covered by IEC 62271-109 and IEC 60143-2.

In addition, special applications (among others parallel switching, delayed current zero crossings) are treated in annexes to this document.

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

IEC 60060-1:2010, *High-voltage test techniques – Part 1: General definitions and test requirements*