

KÕRGEPINGEJAOTLA JA JUHTIMISAPARATUUR. OSA
103: VAHELDUVVOOLU KOORMUSLÜLITID
NIMIPINGETELE ÜLE 1 KV KUNI 52 KV
KAASAARVATULT

High-voltage switchgear and controlgear - Part 103:
Alternating current switches for rated voltages above
1 kV up to and including 52 kV

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 62271-103:2024 sisaldab Euroopa standardi EN IEC 62271-103:2023 ingliskeelset teksti. Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 10.11.2023. Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	This Estonian standard EVS-EN IEC 62271-103:2024 consists of the English text of the European standard EN IEC 62271-103:2023. This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 10.11.2023. The standard is available from the Estonian Centre for Standardisation and Accreditation.
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High-voltage switchgear and controlgear - Part 103: Alternating
current switches for rated voltages above 1 kV up to and
including 52 kV
(IEC 62271-103:2021)

Appareillage à haute tension - Partie 103: Interrupteurs à
courant alternatif pour tensions assignées supérieures à
1 kV et inférieures ou égales à 52 kV
(IEC 62271-103:2021)

Hochspannungs-Schaltgeräte und -Schaltanlagen -
Teil 103: Lastschalter für Bemessungsspannungen über 1
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European foreword

The text of document 17A/1297/FDIS, future edition 2 of IEC 62271-103, 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 62271-103:2023.

The following dates are fixed:

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IEC 60059	NOTE	Harmonized as EN 60059
IEC 62271-105	NOTE	Harmonized as EN 62271-105
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IEC 60507	NOTE	Harmonized as EN 60507
IEC 62271-100	NOTE	Harmonized as EN 62271-100
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INTERNATIONAL STANDARD

NORME INTERNATIONALE



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including 52 kV**

**Appareillage à haute tension –
Partie 103: Interrupteurs à courant alternatif pour tensions assignées
supérieures à 1 kV et inférieures ou égales à 52 kV**



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INTERNATIONAL STANDARD

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HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –**Part 103: Alternating current switches for rated voltages
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IEC 62271-103 has been prepared by subcommittee 17A: Switching devices, of IEC technical committee 17: High-voltage switchgear and controlgear. It is an International Standard.

This second edition cancels and replaces the first edition published in 2011. This edition constitutes a technical revision.

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

- a) this document has been aligned with IEC 62271-1:2017 and IEC 62271-102:2018;
- b) clarifications regarding the behaviour of the switch during breaking tests regarding current interruption and restrikes have been added;
- c) conditions of the switch after making and breaking tests have been clarified;
- d) a new informative Annex B intended to provide guidance for the calculation of I_{ef1} and I_{ef2} has been added;

- e) new rules for the combination of 50 Hz and 60 Hz switching tests have been defined and a new table (Table 7) has been added;
- f) tests with specified TRV have been modified to be in accordance with the practice described in IEC 62271-100;
- g) the behaviour of the switch during breaking tests has been clarified and boundaries for restriking allowance have been defined;
- h) explanations for short-circuit making tests have been added;
- i) vacuum integrity check after mechanical operations has been defined;
- j) all test voltages for single-phase capacitive testing have been grouped under 7.101.7.3.2 and have been confirmed by simulation and calculation.

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

Draft	Report on voting
17A/1297/FDIS	17A/1303/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 103: Alternating current switches for rated voltages above 1 kV up to and including 52 kV

1 Scope

This part of IEC 62271 is applicable to three-phase, alternating current switches and switch-disconnectors for their switching function, having making and breaking current ratings, for indoor and outdoor installations, for rated voltages above 1 kV up to and including 52 kV and for rated frequencies from 16 2/3 Hz up to and including 60 Hz. This document is also applicable to single-pole switches used on three-phase systems.

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

For switch-disconnectors, refer also to IEC 62271-102 for their disconnecting function.

Devices not covered by this document are:

- devices that require a dependent manual operation;
- earthing switches. Earthing switches forming an integral part of a switch are covered by IEC 62271-102;
- switching devices attached as an element of a high-voltage fuse assembly or its mounting and operated by opening and closing the fuse assembly.

General principles and provisions of this document can also be applicable to single pole switches intended for application in single-phase systems, the requirements for dielectric tests and making and breaking tests being in accordance with the requirements of the specific application.

This document establishes requirements for general, limited and special purpose switches used in distribution systems.

NOTE Except where special clarification is required, the term "switch" is used to refer to all kinds of switches and switch-disconnectors within the scope of this document.

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 60050-441, *International Electrotechnical Vocabulary (IEV) – Part 441: Switchgear, controlgear and fuses* (available at <http://www.electropedia.org>)

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

IEC 60529:1989/AMD1:1999

IEC 60529:1989/AMD1:2013

IEC 62262:2002, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*

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

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

IEC 62271-110:2017, *High-voltage switchgear and controlgear – Part 110: Inductive load switching*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-441 and IEC 62271-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

NOTE Terms and definitions are classified in accordance with IEC 62271-1:2017.

3.1 General terms and definitions

Subclause 3.1 of IEC 62271-1:2017 is applicable with the following additions:

3.1.101

effectively earthed neutral system

system earthed through a sufficiently low impedance such that for all system conditions the ratio of the zero-sequence reactance to the positive-sequence reactance (X_0/X_1) is positive and less than 3, and the ratio of the zero-sequence resistance to the positive-sequence reactance (R_0/X_1) is positive and less than 1

Note 1 to entry: Normally such systems are solidly earthed (neutral) systems or low impedance earthed (neutral) systems.

Note 2 to entry: The earthing conditions depend not only on the physical earthing conditions around the relevant location but also on the total system.

3.1.102

non-effectively earthed neutral system

system other than effectively earthed neutral system, not meeting the conditions given in 3.1.101

Note 1 to entry: Normally such systems are isolated neutral systems, high impedance earthed (neutral) systems or resonant earthed (neutral) systems

Note 2 to entry: The earthing conditions depend not only on the physical earthing conditions around the relevant location but also on the total system.

3.2 Assemblies of switchgear and controlgear

Subclause 3.2 of IEC 62271-1:2017 applies.

3.3 Parts of assemblies

Subclause 3.3 of IEC 62271-1:2017 applies.