



NSAI
Standards

Irish Standard
I.S. EN 62271-103:2011

High-voltage switchgear and controlgear -- Part 103: Switches for rated voltages above 1 kV up to and including 52 kV (IEC 62271-103:2011 (EQV))

I.S. EN 62271-103:2011

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EN 62271-103

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Supersedes EN 60265-1:1998

English version

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

Appareillage à haute tension -
Partie 103: Interrupteurs pour tensions
assignées supérieures à 1 kV et
inférieures ou égales à 52 kV
(CEI 62271-103:2011)

Hochspannungs-Schaltgeräte und -
Schaltanlagen -
Teil 103: Lastschalter für
Bemessungsspannungen über 1 kV bis
einschließlich 52 kV
(IEC 62271-103:2011)

This European Standard was approved by CENELEC on 2011-07-21. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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I.S. EN 62271-103:2011

EN 62271-103:2011

- 2 -

Foreword

The text of document 17A/961/FDIS, future edition 1 of IEC 62271-103, prepared by SC 17A, High-voltage switchgear and controlgear, of IEC TC 17, Switchgear and controlgear, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62271-103 on 2011-07-21.

This European Standard supersedes EN 60265-1:1998.

EN 62271-103:2011 includes the following significant technical changes with respect to EN 60265-1:1998:

- the rated voltage of 52 kV is now included;
- the document is aligned with EN 62271-1 and EN 62271-100;
- addition of a test procedure for short-circuit making tests;
- introduction of notion of NSDD (non-sustained disruptive discharge) as defined in EN 62271-1 and restrikes;
- new classes C1 and C2 for capacitive switching;
- new Annex A defining tolerances.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates were fixed:

- | | | |
|--|-------|------------|
| – latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2012-04-21 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2014-07-21 |

Annexes ZA and ZB have been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62271-103:2011 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60059	NOTE Harmonized as EN 60059.
IEC 60071-1:2006	NOTE Harmonized as EN 60071-1:2006 (not modified).
IEC 62271-105	NOTE Harmonized as EN 62271-105.
IEC 60507	NOTE Harmonized as EN 60507.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-441	1984	International Electrotechnical Vocabulary (IEV) - Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 62271-1	2007	High-voltage switchgear and controlgear - Part 1: Common specifications	EN 62271-1	2008
IEC 62271-100	2008	High-voltage switchgear and controlgear - Part 100: Alternating current circuit-breakers	EN 62271-100	2009
IEC 62271-102	2001	High-voltage switchgear and controlgear - Part 102: Alternating current disconnectors and earthing switches	EN 62271-102 + corr. July + corr. March	2002 2008 2005
IEC 62271-110	2009	High-voltage switchgear and controlgear - Part 110: Inductive load switching	EN 62271-110	2009

Annex ZB (informative)

A-deviations

A-deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CENELEC member.

This European Standard does not fall under any Directive of the EC.

In the relevant CENELEC countries these A-deviations are valid instead of the provisions of the European Standard until they have been removed.

<u>Clause</u>	<u>Deviation</u>
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1.1	Italy
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(I.S.P.E.S.L. (*) Rules, 95 revision: VSR.8.B.1; VSR.8.B.2; M.15.D.2 to .4.)

For high-voltage alternating current circuit-breakers containing gas-filled compartments, the design pressure is limited to a maximum of 0,5 bar (gauge) and the volume is limited to a maximum of 2 m³. Gas filled compartments having a design pressure exceeding 0,5 bar (gauge) or a volume exceeding 2 m³ shall be designed according to Italian pressure vessel code for electrical switchgear (DM 1 December 1980 and DM 10 September 1981 published on Gazzetta Ufficiale n° 285 dated 16.10.1981). This requirement is not applicable for gas filled compartments having a design pressure exceeding 0,5 bar (gauge) but a volume not exceeding 25 dm³.

Italian laws apply to gas pressurized enclosures made of both insulating and metallic materials with a capacity of 25 liters or above, a design pressure higher than 0,05 kg/cm² and a temperature range: -25 °C/+100 °C (only for insulating materials).

Moreover, the manufacturer of any electrical equipment, which comprehends gas-pressurized enclosures, must submit the design of the pressurized enclosures itself to a proper legal Authority indicating the stresses and the loads which have any influence on the design itself. For each of the stresses the manufacturer must indicate the design values and the relevant computations.

Only the use of porcelain type A or S (Aluminous or Siliceous) is permitted.

(*) I.S.P.E.S.L.: Istituto Superiore per la Prevenzione e la Sicurezza del Lavoro.

CONTENTS

FOREWORD.....	6
1 General	8
1.1 Scope.....	8
1.2 Normative references	8
2 Normal and special service conditions	9
3 Terms and definitions	9
3.1 General terms	9
3.2 Assemblies of switchgear and controlgear	9
3.3 Parts of assemblies	9
3.4 Switching devices.....	9
3.5 Parts of switchgear and controlgear	11
3.6 Operation	11
3.7 Characteristic quantities	11
3.8 Index of definitions	13
4 Ratings.....	14
4.1 Rated voltage (U_r)	14
4.2 Rated insulation level	15
4.3 Rated frequency (f_r).....	15
4.4 Rated normal current and temperature rise	15
4.5 Rated short-time withstand current (I_k)	15
4.6 Rated peak withstand current (I_p)	15
4.7 Rated duration of short-circuit (t_k).....	15
4.8 Rated supply voltage of closing and opening devices and of auxiliary and control circuits (U_a).....	15
4.9 Rated supply frequency of closing and opening devices and of auxiliary circuits.....	15
4.10 Rated pressure of compressed gas supply for controlled pressure systems	15
4.11 Rated filling levels for insulation and/or operation	15
4.101 Rated mainly active load-breaking current (I_{load})	15
4.102 Rated closed-loop breaking current (I_{loop} and I_{pptr}).....	16
4.103 Rated cable-charging breaking current (I_{cc}).....	16
4.104 Rated line-charging breaking current (I_{lc})	16
4.105 Rated single capacitor bank breaking current for special purpose switches (I_{sb})	16
4.106 Rated back-to-back capacitor bank breaking current for special purpose switches (I_{bb}).....	16
4.107 Rated back-to-back capacitor bank inrush making current for special purpose switches (I_{in})	16
4.108 Rated earth fault breaking current (I_{ef1})	16
4.109 Rated cable- and line-charging breaking current under earth fault conditions (I_{ef2})	17
4.110 Rated motor breaking current for special purpose switches (I_{mot})	17
4.111 Rated short-circuit making current (I_{ma}).....	17
4.112 Rated breaking and making currents for a general purpose switch.....	17
4.113 Ratings for limited purpose switches.....	18
4.114 Ratings for special purpose switches	18
4.115 Ratings for switches backed by fuses	18

4.116	Type and classes for general purpose, limited purpose and special purpose switches	18
5	Design and construction	19
5.1	Requirements for liquids in switchgear and controlgear	19
5.2	Requirements for gases in switchgear and controlgear	19
5.3	Earthing of switchgear and controlgear	19
5.4	Auxiliary and control equipment	19
5.5	Dependent power operation	19
5.6	Stored energy operation	19
5.7	Independent manual or power operation (independent unlatched operation)	19
5.8	Operation of releases	19
5.9	Low- and high-pressure interlocking and monitoring devices	19
5.10	Nameplates	19
5.11	Interlocking devices	21
5.12	Position indication	21
5.13	Degrees of protection provided by enclosures	21
5.14	Creepage distances for outdoor insulators	21
5.15	Gas and vacuum tightness	21
5.16	Liquid tightness	21
5.17	Fire hazard (flammability)	22
5.18	Electromagnetic compatibility (EMC)	22
5.19	X-ray emission	22
5.20	Corrosion	22
5.101	Making and breaking operations	22
5.102	Requirements for switch-disconnectors	22
5.103	Mechanical strength	22
5.104	Securing the position	22
5.105	Auxiliary contacts for signalling	22
5.106	No-load transformer breaking	23
6	Type tests	23
6.1	General	23
6.1.1	Grouping of tests	23
6.1.2	Information for identification of specimens	24
6.1.3	Information to be included in the type-test reports	24
6.1.101	Reference no-load test	24
6.2	Dielectric tests	24
6.3	Radio interference voltage (r.i.v.) test	24
6.4	Measurement of the resistance of circuits	24
6.5	Temperature-rise tests	24
6.6	Short-time withstand current and peak withstand current tests	24
6.7	Verification of the protection	25
6.8	Tightness tests	25
6.9	Electromagnetic compatibility (EMC) tests	25
6.10	Additional tests on auxiliary and control circuits	25
6.10.1	General	25
6.10.2	Functional tests	25
6.10.3	Electrical continuity of earthed metallic parts test	25
6.10.4	Verification of the operational characteristics of auxiliary contacts	25
6.10.5	Environmental tests	25

6.10.6	Dielectric test	25
6.11	X-radiation test procedure for vacuum interrupters	25
6.101	Making and breaking tests	26
6.101.1	Test duties for general purpose switches	26
6.101.2	Test duties for limited purpose switches	28
6.101.3	Test duties for special purpose switches	28
6.101.4	Arrangement of the switch for tests	30
6.101.5	Earthing of test circuit and switch	30
6.101.6	Test parameters	31
6.101.7	Test circuits	33
6.101.8	Behaviour of switch during breaking tests	46
6.101.9	Condition of switch after breaking tests and short-circuit making tests	47
6.101.10	Type-test reports	48
6.102	Mechanical and environmental tests	49
6.102.1	Miscellaneous provisions for mechanical and environmental tests	49
6.102.2	Mechanical operation test at ambient air temperature	51
6.102.3	Low and high temperature tests	52
6.102.4	Humidity test on auxiliary and control circuits	52
6.102.5	Operation under severe ice conditions	58
6.102.6	Tests to verify the proper functioning of the position indicating device	58
7	Routine tests	59
7.101	Mechanical operating tests	59
8	Guide to the selection of switchgear and controlgear	60
8.101	General	60
8.102	Conditions affecting application	60
8.103	Insulation coordination	60
8.104	Selection of class of switch	60
8.104.1	General purpose switch	60
8.104.2	Limited purpose switch	61
8.104.3	Special purpose switch	61
8.105	Tests for special applications	61
9	Information to be given with inquiries, tenders and orders	61
9.1	Information to be given with inquiries and orders	61
9.2	Information to be given with tenders	62
10	Transport, storage, installation, operation and maintenance	63
11	Safety	63
12	Influence of the product on the environment	63
Annex A (normative)	Tolerances on test quantities for type tests	64
Bibliography	66
Figure 1	Three-phase test circuit for mainly active load current switching for test duty TD_{load}	34
Figure 2	Single-phase test circuit for mainly active load current switching for test duty TD_{load}	35
Figure 3	Three-phase test circuit for distribution line closed-loop and parallel transformer current switching test for test duties TD_{loop} and TD_{pptr}	37

Figure 4 – Single-phase test circuit for distribution line closed-loop and parallel transformer current switching test, for test duties TD_{loop} and TD_{pptr}	37
Figure 5 – General test circuit for three- and single-phase capacitive switching tests.....	42
Figure 6 – Prospective TRV parameter limits for capacitor bank current breaking tests.....	44
Figure 7 – Three-phase test circuit for earth fault breaking current tests, for test duty TD_{ef1}	45
Figure 8 – Three-phase test circuit for cable-charging breaking current tests under earth fault conditions, for test duty TD_{ef2}	45
Figure 9 – Three-phase test circuit for short-circuit making current test for test duty TD_{ma}	46
Figure 10 – Single-phase test circuit for short-circuit making current test for test duty TD_{ma}	46
Figure 11 – Test sequences for low and high temperature tests	53
Figure 12 – Humidity test.....	57
Table 1 – Preferred values of rated line- and cable-charging breaking currents for general purpose switch	17
Table 2 – Product information	20
Table 3 – Test duties for general purpose switches – Test duties for three-phase tests on three-pole operated, switches	26
Table 4 – Test duties for general purpose switches – Single phase tests on three-pole switches operated pole-after-pole and single-pole switches applied on three-phase systems	27
Table 5 – Test duties for special purpose switches – Three-phase tests on three-pole operated, switches	29
Table 6 – Test duties for special purpose switches – Single phase tests on three-pole switches operated pole-after-pole and single-pole switches applied on three-phase systems	29
Table 7 – Supply circuit TRV parameters for mainly active load current breaking tests ^a	36
Table 8 – TRV parameters for distribution line closed loop breaking tests.....	38
Table 9 – TRV parameters for parallel power transformer current breaking tests.....	39
Table 10 – Prospective recovery voltage parameter limits for capacitor bank current breaking tests	43
Table A.1 – Tolerances on test quantities for type tests	64

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 103: Switches for rated voltages above 1 kV up to and including 52 kV

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 62271-103 has been prepared by subcommittee 17A: High-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

This standard cancels and replaces the third edition of IEC 60265-1, published in 1998. It constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 60265-1:1998:

- the rated voltage of 52 kV is now included;
- the document is aligned with IEC 62271-1 and IEC 62271-100;
- addition of a test procedure for short-circuit making tests;
- introduction of notion of NSDD (non-sustained disruptive discharge) as defined in IEC 62271-1 and restrikes;
- new classes C1 and C2 for capacitive switching;

- new Annex A defining tolerances.

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

FDIS	Report on voting
17A/961/FDIS	17A/966/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 standard is to be read in conjunction with IEC 62271-1:2007, 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. Amendments to these clauses and subclauses are given under the same references whilst additional subclauses are numbered from 101.

The list of all parts of 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 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.

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 103: Switches for rated voltages above 1 kV up to and including 52 kV

1 General

1.1 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 $16\frac{2}{3}$ Hz up to and including 60 Hz. This standard is also applicable to single-pole switches used on three phase systems.

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

Switch-disconnectors are also covered by IEC 62271-102 for their disconnecting function.

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

General principles and provisions of this standard may also be applicable to single pole switches intended for application in single-phase systems. The requirements for dielectric tests and making and breaking tests should be in accordance with the requirements of the specific application.

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

It is assumed that opening and closing operations are performed according to the manufacturer's instructions. A making operation may immediately follow a breaking operation but a breaking operation should not immediately follow a making operation since the current to be broken may then exceed the rated breaking current of the switch.

NOTE 1 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 standard.

NOTE 2 Earthing switches are not covered by this standard. Earthing switches forming an integral part of a switch are covered by IEC 62271-102.

NOTE 3 This standard is not applicable to switching devices attached as an accessory to a high-voltage fuse assembly or its mounting and operated by opening and closing the fuse assembly.

1.2 Normative references

The following referenced documents are indispensable for the application 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 60050-441:1984, *International Electrotechnical Vocabulary (IEV) – Chapter 441: Switchgear, controlgear and fuses*

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

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

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