

Kõrgepingeline lülitus- ja juhtimisaparatuur. Osa 1: Üldliigitus

High-voltage switchgear and controlgear - Part 1: Common specifications (IEC 62271-1:2007 + IEC 62271-1:2007/A1:2011)

EVS

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>See Eesti standard EVS-EN 62271-1:2009+A1:2011 sisaldab Euroopa standardi EN 62271-1:2008+EN 62271-1:2008/A1:2011 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 01.02.2009, muudatuse A1 19.08.2011.</p> <p>Standard on kättesaadav Eesti Standardikeskusest.</p>	<p>This Estonian standard EVS-EN 62271-1:2009+A1:2011 consists of the English text of the European standard EN 62271-1:2008+EN 62271-1:2008/A1:2011.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.</p> <p>Date of Availability of the European standard is 01.02.2009, for amendment A1 19.08.2011.</p> <p>The standard is available from the Estonian Centre for Standardisation.</p>
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English version

**High-voltage switchgear and controlgear -
Part 1: Common specifications
(IEC 62271-1:2007)**

Appareillage à haute tension -
Partie 1: Spécifications communes
(CEI 62271-1:2007)

Hochspannungs-Schaltgeräte
und -Schaltanlagen -
Teil 1: Gemeinsame Bestimmungen
(IEC 62271-1:2007)

This European Standard was approved by CENELEC on 2008-11-01. 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.

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 17A/799/FDIS, future edition 1 of IEC 62271-1, 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 62271-1 on 2008-11-01.

This European Standard supersedes EN 60694:1996 + corrigendum May 1999 + A1:2000 + A2:2001.

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) 2009-08-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2011-11-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62271-1:2007 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 60068-1	NOTE Harmonized as EN 60068-1:1994 (not modified).
IEC 60099-4	NOTE Harmonized as EN 60099-4:2004 (modified).
IEC 60664-1	NOTE Harmonized as EN 60664-1:2007 (not modified).
IEC 62271-100	NOTE Harmonized as EN 62271-100:2001 (not modified).
ISO 9001	NOTE Harmonized as EN ISO 9001:2000 (not modified).

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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 60034-1	- ¹⁾	Rotating electrical machines - Part 1: Rating and performance	EN 60034-1	2004 ²⁾
IEC 60038 (mod)	1983	IEC standard voltages ³⁾	HD 472 S1 + corr. February + A1	1989 2002 1995
IEC 60050-131	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Part 131: Circuit theory	-	-
IEC 60050-151	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Part 151: Electrical and magnetic devices	-	-
IEC 60050-191	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Chapter 191: Dependability and quality of service	-	-
IEC 60050-351	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Part 351: Control technology	-	-
IEC 60050-441	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 60050-446	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Chapter 446: Electrical relays	-	-
IEC 60050-551	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Part 551: Power electronics	-	-
IEC 60050-581	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Part 581: Electromechanical components for electronic equipment	-	-
IEC 60050-601	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Chapter 601: Generation, transmission and distribution of electricity - General	-	-

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

³⁾ The title of HD 472 S1 is: Nominal voltages for low voltage public electricity supply systems.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-604	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Chapter 604: Generation, transmission and distribution of electricity - Operation	-	-
IEC 60050-605	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Chapter 605: Generation, transmission and distribution of electricity - Substations	-	-
IEC 60050-811	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Chapter 811: Electric traction	-	-
IEC 60050-826	- ¹⁾	International Electrotechnical Vocabulary (IEV) - Part 826: Electrical installations	-	-
IEC 60051-1	- ¹⁾	Direct acting indicating analogue electrical measuring instruments and their accessories - Part 1: Definitions and general requirements common to all parts	EN 60051-1	1998 ²⁾
IEC 60051-2	- ¹⁾	Direct acting indicating analogue electrical measuring instruments and their accessories - Part 2: Special requirements for ammeters and voltmeters	EN 60051-2	1989 ²⁾
IEC 60051-4	- ¹⁾	Direct acting indicating analogue electrical measuring instruments and their accessories - Part 4: Special requirements for frequency meters	EN 60051-4	1989 ²⁾
IEC 60051-5	- ¹⁾	Direct acting indicating analogue electrical measuring instruments and their accessories - Part 5: Special requirements for phase meters, power factor meters and synchroscopes	EN 60051-5	1989 ²⁾
IEC 60059	- ¹⁾	IEC standard current ratings	EN 60059	1999 ²⁾
IEC 60060-1 + corr. March	1989 1990	High-voltage test techniques - Part 1: General definitions and test requirements	HD 588.1 S1	1991
IEC 60064 (mod)	- ¹⁾	Tungsten filament lamps for domestic and similar general lighting purposes - Performance requirements	EN 60064 + A11	1995 ²⁾ 2007
IEC 60068-2	Series	Environmental testing - Part 2: Tests	EN 60068-2	Series
IEC 60071-1	2006	Insulation co-ordination - Part 1: Definitions, principles and rules	EN 60071-1	2006
IEC 60071-2	1996	Insulation co-ordination - Part 2: Application guide	EN 60071-2	1997
IEC 60073	- ¹⁾	Basic and safety principles for man-machine interface, marking and identification - Coding principles for indicators and actuators	EN 60073	2002 ²⁾
IEC 60081	- ¹⁾	Double-capped fluorescent lamps - Performance specifications	EN 60081	1998 ²⁾
IEC/TR 60083	- ¹⁾	Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC	-	-

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60085	- ¹⁾	Electrical insulation - Thermal evaluation and designation	EN 60085	2008 ²⁾
IEC 60115-4	Series	Fixed resistors for use in electronic equipment - Part 4: Sectional specification: Fixed power resistors	-	-
IEC 60130	Series	Connectors for frequencies below 3 MHz	EN 60130	Series
IEC 60227	Series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V	- ⁴⁾	-
IEC 60228	- ¹⁾	Conductors of insulated cables	EN 60228 + corr. May	2005 ²⁾ 2005
IEC 60245	Series	Rubber insulated cables - Rated voltages up to and including 450/750 V	- ⁵⁾	-
IEC 60255-8 (mod)	- ¹⁾	Electrical relays - Part 8: Thermal electrical relays	EN 60255-8	1998 ²⁾
IEC 60255-21-1	- ¹⁾	Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section 1: Vibration tests (sinusoidal)	EN 60255-21-1	1995 ²⁾
IEC 60255-21-3	- ¹⁾	Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section 3: Seismic tests	EN 60255-21-3	1995 ²⁾
IEC 60269-2 (mod)	- ¹⁾	Low-voltage fuses - Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) - Examples of standardized systems of fuses A to I	HD 60269-2	2007 ²⁾
IEC 60270	- ¹⁾	High-voltage test techniques - Partial discharge measurements	EN 60270	2001 ²⁾
IEC 60296	- ¹⁾	Fluids for electrotechnical applications - Unused mineral insulating oils for transformers and switchgear	EN 60296 + corr. September	2004 ²⁾ 2004
IEC 60309-1	- ¹⁾	Plugs, socket-outlets and couplers for industrial purposes - Part 1: General requirements	EN 60309-1 + A11	1999 ²⁾ 2004
IEC 60309-2	- ¹⁾	Plugs, socket-outlets and couplers for industrial purposes - Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories	EN 60309-2 + A11	1999 ²⁾ 2004
IEC 60376	- ¹⁾	Specification of technical grade sulfur hexafluoride (SF_6) for use in electrical equipment	EN 60376	2005 ²⁾

⁴⁾ The HD 21 series, which is related to, but not directly equivalent with the IEC 60227 series, applies instead.

⁵⁾ The HD 22 series, *Cables of rated voltages up to and including 450/750 V and having cross-linked insulation*, which is related to, but not directly equivalent with the IEC 60245 series, applies instead.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60393-1	- ¹⁾	Potentiometers for use in electronic equipment - Part 1: Generic specification	-	-
IEC 60417	Data-base	Graphical symbols for use on equipment	-	-
IEC 60445 (mod)	- ¹⁾	Basic and safety principles for man-machine interface, marking and identification - Identification of equipment terminals and conductor terminations	EN 60445	2007 ²⁾
IEC 60480	- ¹⁾	Guidelines for the checking and treatment of sulphur hexafluoride (SF_6) taken from electrical equipment and specification for its re-use	EN 60480	2004 ²⁾
IEC 60502-1	- ¹⁾	Power cables with extruded insulation and their accessories for rated voltages from 1 kV ($U_m = 1,2$ kV) up to 30 kV ($U_m = 36$ kV) - Part 1: Cables for rated voltages of 1 kV ($U_m = 1,2$ kV) and 3 kV ($U_m = 3,6$ kV)	-	-
IEC 60507	- ¹⁾	Artificial pollution tests on high-voltage insulators to be used on a.c. systems	EN 60507	1993 ²⁾
IEC 60512-2	Series	Connectors for electronic equipment - Tests and measurements - Part 2: Electrical continuity and contact resistance tests	EN 60512-2	Series
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 60617	Data-base	Graphical symbols for diagrams	-	-
IEC 60669-1 (mod)	- ¹⁾	Switches for household and similar fixed-electrical installations - Part 1: General requirements	EN 60669-1	1999 ²⁾
IEC 60695-1	Series	Fire hazard testing - Part 1: Guidance for assessing the fire hazard of electrotechnical products	EN 60695-1	Series
IEC 60695-7	Series	Fire hazard testing - Part 7: Toxicity of fire effluent	EN 60695-7	Series
IEC 60721-1	- ¹⁾	Classification of environmental conditions - Part 1: Environmental parameters and their severities	EN 60721-1	1995 ²⁾
IEC 60721-2	Series	Classification of environmental conditions - Part 2: Environmental conditions appearing in nature	HD 478.2	Series
IEC 60721-3	Series	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities	EN 60721-3	Series
IEC 60730-2-9 (mod)	- ¹⁾	Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls	EN 60730-2-9 + A11	2002 ²⁾ 2003
IEC 60730-2-13 (mod)	- ¹⁾	Automatic controls for household and similar use - Part 2-13: Particular requirements for humidity sensing controls	EN 60730-2-13	2008 ²⁾

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC/TR 60815	1986	Guide for the selection of insulators in respect of polluted conditions	-	-
IEC 60909-0	- ¹⁾	Short-circuit currents in three-phase a.c. systems - Part 0: Calculation of currents	EN 60909-0	2001 ²⁾
IEC/TR 60909-1	- ¹⁾	Short-circuit currents in three-phase a.c. systems - Part 1: Factors for the calculation of short-circuit currents according to IEC 60909-0	-	-
IEC 60932 ⁶⁾	- ¹⁾	Additional requirements for enclosed switchgear and controlgear from 1 kV to 72,5 kV to be used in severe climatic conditions	-	-
IEC 60947-2	- ¹⁾	Low-voltage switchgear and controlgear - Part 2: Circuit-breakers	EN 60947-2	2006 ²⁾
IEC 60947-3	- ¹⁾	Low-voltage switchgear and controlgear - Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units	EN 60947-3	200X ⁷⁾
IEC 60947-4-1	- ¹⁾	Low-voltage switchgear and controlgear - Part 4-1: Contactors and motor-starters - Electromechanical contactors and motor-starters	EN 60947-4-1	2001 ²⁾
IEC 60947-4-2	- ¹⁾	Low-voltage switchgear and controlgear - Part 4-2: Contactors and motor-starters - AC semiconductor motor controllers and starters	EN 60947-4-2	2000 ²⁾
IEC 60947-5-1	- ¹⁾	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices	EN 60947-5-1 + corr. July	2004 ²⁾ 2005
IEC 60947-7-1	- ¹⁾	Low-voltage switchgear and controlgear - Part 7-1: Ancillary equipment - Terminal blocks for copper conductors	EN 60947-7-1	2002 ²⁾
IEC 60947-7-2	- ¹⁾	Low-voltage switchgear and controlgear - Part 7-2: Ancillary equipment - Protective conductor terminal blocks for copper conductors	EN 60947-7-2	2002 ²⁾
IEC 61000-4-1	- ¹⁾	Electromagnetic compatibility (EMC) - Part 4-1: Testing and measurement techniques - Overview of IEC 61000-4 series	EN 61000-4-1	2007 ²⁾
IEC 61000-4-4	- ¹⁾	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2004 ²⁾
IEC 61000-4-11	- ¹⁾	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests	EN 61000-4-11	2004 ²⁾

⁶⁾ IEC 60932 is superseded by IEC/TS 62271-304, which is harmonized as CLC/TS 62271-304.

⁷⁾ To be ratified.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-4-17	- ¹⁾	Electromagnetic compatibility (EMC) - Part 4-17: Testing and measurement techniques - Ripple on d.c. input power port immunity test	EN 61000-4-17	1999 ²⁾
IEC 61000-4-18	- ¹⁾	Electromagnetic compatibility (EMC) - Part 4-18: Testing and measurement techniques - Damped oscillatory wave immunity test	EN 61000-4-18 + corr. September	2007 ²⁾ 2007
IEC 61000-4-29	- ¹⁾	Electromagnetic compatibility (EMC) - Part 4-29: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests	EN 61000-4-29	2000 ²⁾
IEC 61000-5	Series	Electromagnetic compatibility (EMC) - Part 5: Installation and mitigation guidelines	EN 61000-5	Series
IEC 61000-6-2	- ¹⁾	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments	EN 61000-6-2 + corr. September	2005 ²⁾ 2005
IEC/TS 61000-6-5	- ¹⁾	Electromagnetic compatibility (EMC) - Part 6-5: Generic standards - Immunity for power station and substation environments	-	-
IEC 61020-4	- ¹⁾	Electromechanical switches for use in electronic equipment - Part 4: Sectional specification for lever (toggle) switches	-	-
IEC 61180-1	- ¹⁾	High-voltage test techniques for low-voltage equipment - Part 1: Definitions, test and procedure requirements	EN 61180-1	1994 ²⁾
IEC/TS 61634 ⁸⁾	- ¹⁾	High-voltage switchgear and controlgear - Use and handling of sulphur hexafluoride (SF ₆)	-	-
IEC 61810	Series	Electromechanical elementary relays	EN 61810	Series
IEC 62063	- ¹⁾	High-voltage switchgear and controlgear - The use of electronic and associated technologies in auxiliary equipment of switchgear and controlgear	-	-
IEC 62262	- ¹⁾	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)	EN 62262	2002 ²⁾
IEC 62271-2 ⁹⁾	- ¹⁾	High-voltage switchgear and controlgear - Part 2: Seismic qualification for rated voltages of 72,5 kV and above	EN 62271-2	2003 ²⁾
IEC/TR 62271-300	- ¹⁾	High-voltage switchgear and controlgear - Part 300: Seismic qualification of alternating current circuit-breakers	-	-
IEC 62326-1	- ¹⁾	Printed boards - Part 1: Generic specification	EN 62326-1	2002 ²⁾

⁸⁾ IEC/TS 61634 is superseded by IEC/TR 62271-303.

⁹⁾ IEC 62271-2 is superseded by IEC 62271-207, which is harmonized as EN 62271-207.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
CISPR 11 (mod)	- ¹⁾	Industrial scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement	EN 55011	2007 ²⁾
CISPR 16-1	Series	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1: Radio disturbance and immunity measuring apparatus	EN 55016-1	Series
CISPR 18-2	- ¹⁾	Radio interference characteristics of overhead power lines and high-voltage equipment - Part 2: Methods of measurement and procedure for determining limits	-	-

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High-voltage switchgear and controlgear - Part 1: Common specifications (IEC 62271-1:2007/A1:2011)

Appareillage à haute tension -
Partie 1: Spécifications communes
(CEI 62271-1:2007/A1:2011)

Hochspannungs-Schaltgeräte und -
Schaltanlagen -
Teil 1: Gemeinsame Bestimmungen
(IEC 62271-1:2007/A1:2011)

This amendment A1 modifies the European Standard EN 62271-1:2008; it 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 amendment 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 amendment 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.

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CENELEC

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

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Foreword

The text of document 17A/962/FDIS, future amendment 1 to IEC 62271-1:2007, 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 amendment A1 to EN 62271-1:2008 on 2011-07-21.

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 amendment 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 amendment have to be withdrawn (dow) 2014-07-21

Endorsement notice

The text of amendment 1:2011 to the International Standard IEC 62271-1:2007 was approved by CENELEC as an amendment to the European Standard without any modification.

EVS

CONTENTS

FOREWORD.....	6
1 General	8
1.1 Scope.....	8
1.2 Normative references	8
2 Normal and special service conditions	12
2.1 Normal service conditions	13
2.2 Special service conditions	14
3 Terms and definitions	16
3.1 General terms	16
3.2 Assemblies of switchgear and controlgear	19
3.3 Parts of assemblies	19
3.4 Switching devices.....	20
3.5 Parts of switchgear and controlgear	20
3.6 Operation	26
3.7 Characteristic quantities	29
3.8 Index of definitions	30
4 Ratings.....	32
4.1 Rated voltage (U_r).....	33
4.2 Rated insulation level.....	33
4.3 Rated frequency (f_r)	37
4.4 Rated normal current and temperature rise.....	37
4.5 Rated short-time withstand current (I_k).....	40
4.6 Rated peak withstand current (I_p).....	40
4.7 Rated duration of short circuit (t_k)	41
4.8 Rated supply voltage of closing and opening devices and of auxiliary and control circuits (U_a)	41
4.9 Rated supply frequency of closing and opening devices and of auxiliary circuits	43
4.10 Rated pressure of compressed gas supply for controlled pressure systems.....	43
4.11 Rated filling levels for insulation and/or operation.....	43
5 Design and construction	43
5.1 Requirements for liquids in switchgear and controlgear	43
5.2 Requirements for gases in switchgear and controlgear	43
5.3 Earthing of switchgear and controlgear.....	44
5.4 Auxiliary and control equipment.....	44
5.5 Dependent power operation.....	50
5.6 Stored energy operation	50
5.7 Independent manual or power operation (independent unlatched operation).....	51
5.8 Operation of releases	51
5.9 Low- and high-pressure interlocking and monitoring devices	52
5.10 Nameplates	52
5.11 Interlocking devices.....	53
5.12 Position indication	53
5.13 Degrees of protection provided by enclosures	54
5.14 Creepage distances for outdoor insulators.....	55
5.15 Gas and vacuum tightness	56

5.16	Liquid tightness	56
5.17	Fire hazard (flammability)	57
5.18	Electromagnetic compatibility (EMC)	57
5.19	X-ray emission	57
5.20	Corrosion	58
6	Type tests	58
6.1	General	58
6.2	Dielectric tests	60
6.3	Radio interference voltage (r.i.v.) test	67
6.4	Measurement of the resistance of circuits	67
6.5	Temperature-rise tests	68
6.6	Short-time withstand current and peak withstand current tests	71
6.7	Verification of the protection	73
6.8	Tightness tests	74
6.9	Electromagnetic compatibility tests (EMC)	76
6.10	Additional tests on auxiliary and control circuits	82
6.11	X-radiation test procedure for vacuum interrupters	86
7	Routine tests	88
7.1	Dielectric test on the main circuit	88
7.2	Tests on auxiliary and control circuits	88
7.3	Measurement of the resistance of the main circuit	89
7.4	Tightness test	89
7.5	Design and visual checks	90
8	Guide to the selection of switchgear and controlgear	90
8.1	Selection of rated values	91
8.2	Continuous or temporary overload due to changed service conditions	91
9	Information to be given with enquiries, tenders and orders	92
9.1	Information with enquiries and orders	93
9.2	Information with tenders	93
10	Transport, storage, installation, operation and maintenance	94
10.1	Conditions during transport, storage and installation	94
10.2	Installation	94
10.3	Operation	96
10.4	Maintenance	96
11	Safety	99
11.1	Precautions by manufacturers	100
11.2	Precautions by users	100
11.3	Electrical aspects	100
11.4	Mechanical aspects	101
11.5	Thermal aspects	101
11.6	Operation aspects	101
12	Influence of the product on the environment	101
	Annex A (normative) Identification of test specimens	102
	Annex B (normative) Determination of the equivalent r.m.s. value of a short-time current during a short circuit of a given duration	104
	Annex C (normative) Method for the weatherproofing test for outdoor switchgear and controlgear	105

Annex D (normative) Requirements for auxiliary and control circuit components	108
Annex E (informative) Tightness (information, example and guidance).....	110
Annex F (normative) Tolerances on test quantities during tests	112
Annex G (informative) Information and technical requirements to be given with enquiries, tenders and orders	115
Annex H (informative) Corrosion: Information regarding service conditions and recommended test requirements	118
Annex I (informative) List of symbols and abbreviations used in IEC 62271-1	119
Annex J (informative) Electromagnetic compatibility on site	121
Annex K (informative) List of notes concerning certain countries.....	122
Bibliography.....	123
Figure 1 – Altitude correction factor	15
Figure 2 – Examples of classes of contacts	49
Figure 3 – Diagram of connections of a three-pole switching device.....	63
Figure 4 – Diagram of a test circuit for the radio interference voltage test	77
Figure 5 – Test location of radiation meter	87
Figure B.1 – Determination of short-time current.....	104
Figure C.1 – Arrangement for weatherproofing test.....	106
Figure C.2 – Nozzle for weatherproofing test	107
Figure E.1 – Example of a tightness coordination chart, TC, for closed pressure systems	110
Figure E.2 – Sensitivity and applicability of different leak-detection methods for tightness tests	111
Table 1a – Rated insulation levels for rated voltages of range I, series I	34
Table 1b – Rated insulation levels for rated voltages of range I, series II (based on current practice in some areas, including North America) ^a	35
Table 2a – Rated insulation levels for rated voltages of range II	36
Table 2b – Additional rated insulation levels, based on current practice in some areas, including North America for range II	37
Table 3 – Limits of temperature and temperature rise for various parts, materials and dielectrics of high-voltage switchgear and controlgear	38
Table 4 – Direct current voltage	41
Table 5 – Alternating current voltage	42
Table 6 – Auxiliary contact classes	48
Table 7 – Degrees of protection	55
Table 8 – Example of grouping	58
Table 9 – Test conditions in general case	62
Table 10 – Power-frequency test conditions.....	63
Table 11 – Impulse test conditions	64
Table 12 – Test conditions for the alternative method	65
Table 13 – Permissible temporary leakage rates for gas systems	75
Table 14 – Application of voltages at the fast transient/burst test.....	80

Table 15 – Application of voltage at the damped oscillatory wave test	81
Table 16 – Assessment criteria for transient disturbance immunity	81
Table D.1 – List of reference documents for auxiliary and control circuit components	108
Table F.1 – Tolerances on test quantities for type test	113

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