KÕRGEPINGEJAOTLA JA JUHTIMISAPARATUUR. OSA 202: TEHASETOOTELINE KÕRGEPINGE-/MADALPINGEALAJAAM

High-voltage switchgear and controlgear - Part 202: High-voltage/low-voltage prefabricated substation

EESTI STANDARDIKESKUS
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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 62271-202:2014 sisaldab Euroopa standardi EN 62271-202:2014 ja selle paranduste AC:2014 ja AC:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 62271-202:2014 consists of the English text of the European standard EN 62271-202:2014 and its corrigendums AC:2014 and AC:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 06.06.2014.	Date of Availability of the European standard is 06.06.2014.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 29.130.10

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62271-202

June 2014

ICS 29.130.10

Supersedes EN 62271-202:2007

English Version

High-voltage switchgear and controlgear - Part 202: High-voltage/low-voltage prefabricated substation (IEC 62271-202:2014)

Appareillages à haute tension - Partie 202: Postes préfabriqués haute tension/basse tension (CEI 62271-202:2014)

Hochspannungs-Schaltgeräte und -Schaltanlagen - Teil 202: Fabrikfertige Stationen für Hochspannung/Niederspannung (IEC 62271-202:2014)

This European Standard was approved by CENELEC on 2014-05-01. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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Ref. No. EN 62271-202:2014 E

Foreword

The text of document 17C/595/FDIS, future edition 2 of IEC 62271-202, prepared by SC 17C "High-voltage switchgear and controlgear assemblies" of IEC TC 17 "Switchgear and controlgear" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62271-202:2014.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2014-11-01
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-05-01

This document supersedes EN 62271-202:2007.

EN 62271-202:2014 includes the following significant technical changes with respect to EN 62271-202:2007:

a) regarding temperature-rise test an alternative method for liquid filled transformers is (re)introduced and the temperature-rise test method for dry-type transformers is specified more precisely;

b) testing procedure for short time and peak withstand current tests are specified more precisely;

c) assessment of electromagnetic fields is considered including a type test (optional) according CLC/TR 62271-208:2010;

d) influence of the product on the environment is considered (Clause 12);

e) internal arc test requirements have been adapted to EN 62271-200:2012 and requirements for the assessment of pressure relief volumes below the floor / ground has been assigned;

f) the method for defining the load factor in an enclosure for liquid filled transformers is extended with different temperature rises for the transformer outside the enclosure (Annex DD);

g) for the calculation of the load factor of dry-type transformers in an enclosure the insulation systems according to EN 60076-1:2011, Tables B.1 and B.2 are worked out in detail.

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

Endorsement notice

The text of the International Standard IEC 62271-202:2014 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 60059:1999	NOTE	Harmonized as EN 60059:1999.
IEC 60068 (Series)	NOTE	Harmonized as EN 60068 (Series).
IEC 60076 (Series)	NOTE	Harmonized as EN 60076 (Series).
IEC 60243-1:2013	NOTE	Harmonized as EN 60243-1:2013.
IEC 61936-1:2010	NOTE	Harmonized as EN 61936-1:2010.
IEC 62271-4:2013	NOTE	Harmonized as EN 62271-4:2013.
IEC/TS 62271-304:2008	NOTE	Harmonized as CLC/TS 62271-304:2008.
ISO 1460	NOTE	Harmonized as EN ISO 1460.

ISO 1461	NOTE	Harmonized as EN ISO 1461.
ISO 2081	NOTE	Harmonized as EN ISO 2081.
ISO 2409	NOTE	Harmonized as EN ISO 2409.
ISO 3231:1993	NOTE	Harmonized as EN ISO 3231:1997.
ISO 7784 (Series)	NOTE	Harmonized as EN ISO 7784 (Series).
ISO 9227	NOTE	Harmonized as EN ISO 9227.
ISO 10546	NOTE	Harmonized as EN ISO 1460.
ISO 11997 (Series)	NOTE	Harmonized as EN ISO 11997 (Series).
ISO 12944 (Series)	NOTE	Harmonized as EN ISO 12944 (Series).
ISO 13732-1:2006	NOTE	Harmonized as EN ISO 13732-1:2008.

Annex ZA
(normative)
Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

Publication	Year	Title	EN/HD	Year
IEC 60050	series	International Electrotechnical Vocabulary - Part 461: Electric cables	-	series
IEC 60068-2-75	-	Environmental testing -- Part 2-75: Tests - Test Eh: Hammer tests	EN 60068-2-75	-
IEC 60076-1	2011	Power transformers -- Part 1: General	EN 60076-1	2011
IEC 60076-2	2011	Power transformers -- Part 2: Temperature rise for liquid-immersed transformers	EN 60076-2	2011
IEC 60076-3	2013	Power transformers -- Part 3: Insulation levels, dielectric tests and external clearances in air	EN 60076-3	2013
IEC 60076-5	2006	Power transformers -- Part 5: Ability to withstand short circuit	EN 60076-5	2006
IEC 60076-7	2005	Power transformers -- Part 7: Loading guide for oil-immersed power transformers	-	-
IEC 60076-10	2001	Power transformers -- Part 10: Determination of sound levels	EN 60076-10	2001
IEC 60076-11	2004	Power transformers -- Part 11: Dry-type transformers	EN 60076-11	2004
IEC 60076-12	2008	Power transformers -- Part 12: Loading guide for dry-type power transformers	-	-
IEC 60076-13	2006	Power transformers -- Part 13: Self-protected liquid-filled transformers	EN 60076-13	2006
IEC 60364-4-41 (mod)	2005	Low-voltage electrical installations -- Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41	2007
			+HD 60364-4-41:2007/corrigendum Jul. 2007	2007
			+AA	
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
			+EN 60529:1991/corrigendum May 1993	1993
IEC 60529:1989/A1	1999		EN 60529:1991/A1	2000
IEC 60529:1989/A2	2013		EN 60529:1991/A2	2013
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems -- Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60721-1	1990	Classification of environmental conditions - - Part 1: Environmental parameters and their severities	EN 60721-1	1995
+A1	1992		-	-
+A2	1995		+A2	1995

IEC 60721-2-2	2012	Classification of environmental conditions - - Part 2-2: Environmental conditions appearing in nature -- Precipitation and wind	EN 60721-2-2	2013
IEC 60721-2-4	1987	Classification of environmental conditions - - Part 2: Environmental conditions appearing in nature - Solar radiation and temperature	HD 478.2.4 S1	1989
+A1	1988		-	-
IEC 60947-1	2007	Low-voltage switchgear and controlgear -- Part 1: General rules	EN 60947-1	2007
IEC 61180-1	1992	High-voltage test techniques for low-voltage equipment -- Part 1: Definitions, test and procedure requirements	EN 61180-1	1994
IEC 61439-1	2011	Low-voltage switchgear and controlgear assemblies -- Part 1: General rules	EN 61439-1	2011
IEC 61439-2	2011	Low-voltage switchgear and controlgear assemblies -- Part 2: Power switchgear and controlgear assemblies	EN 61439-2	2011
IEC 62262	2002	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)	EN 62262	2002
IEC 62271-1	2007	High-voltage switchgear and controlgear -- Part 1: Common specifications	EN 62271-1	2008
IEC 62271-200	2011	High-voltage switchgear and controlgear -- Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV	EN 62271-200	2012
IEC 62271-201	2006	High-voltage switchgear and controlgear -- Part 201: AC insulation-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV	EN 62271-201	2006
			+EN 62271-201:2006/corrigendum Nov. 2006	2006
IEC 62271-202	2014	High-voltage switchgear and controlgear -- Part 202: High-voltage/low-voltage prefabricated substation	EN 62271-202	2014
ISO 1052	1982	Steels for general engineering purposes	-	-
ISO 1182		Reaction to fire tests for products – Non-combustibility test	EN ISO 1182	2010
ISO 1716		Reaction to fire tests for products – Determination of the gross heat of combustion (calorific value)	EN ISO 1716	2010
ISO 6508-1		Metallic materials -- Rockwell hardness test -- Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T)	EN ISO 6508-1	2005
IEC/TR 62271-208	2009	High-voltage switchgear and controlgear -- Part 208: Methods to quantify the steady state, power-frequency electromagnetic fields generated by HV switchgear assemblies and HV/LV prefabricated substations	CLC/TR 62271-208	2010
IEC/TR 62271-300	2006	High-voltage switchgear and controlgear - Part 300: Seismic qualification of alternating current circuit-breakers	-	-

IEC/TS 60815-1	2008	Selection and dimensioning of high-voltage insulators intended for use in polluted conditions - Part 1: Definitions, information and general principles	-	-
ISO/IEC Guide 51	1999	Safety aspects - Guidelines for their inclusion in standards	-	-

CONTENTS

INTRODUCTION

Prefabricated substations are defined as a type-tested assembly comprising an enclosure containing in general transformers, low-voltage and high-voltage switchgear, connections and auxiliary equipment to supply low-voltage energy from a high-voltage system or vice versa. These substations are in locations accessible to the public and should ensure protection to persons according to the specified service conditions.

This means that, in addition to the specified characteristics, ratings and relevant test procedures, particular attention has been paid to the specification concerning the protection of persons, both operators and general public. Use of type-tested components and suitable design and construction of the enclosure ensure this protection. The correct design and performance of the prefabricated substation are verified by means of relevant type tests described in this standard, including internal arc tests.