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Kopplingsapparater för spänning över 1 kV – Del 202: Fabrikstillverkad nätstation för högspänning och lågspänning

High-voltage switchgear and controlgear –

Part 202: High voltage/low voltage prefabricated substation

Som svensk standard gäller europastandarden EN 62271-202:2007. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62271-202:2007.

Nationellt förord

Europastandarden EN 62271-202:2007

består av:

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- **IEC 62271-202, First edition, 2006 - High-voltage switchgear and controlgear -
Part 202: High voltage/low voltage prefabricated substation**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 61330, utgåva 1, 1996, gäller ej fr o m 2009-09-01.

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English version

**High-voltage switchgear and controlgear -
Part 202: High voltage/low voltage prefabricated substation
(IEC 62271-202:2006)**

Appareillage à haute tension -
Partie 202: Postes préfabriqués
haute tension/basse tension
(CEI 62271-202:2006)

Hochspannungs-Schaltgeräte
und -Schaltanlagen -
Teil 202: Fabrikfertige Stationen
für Hochspannung/Niederspannung
(IEC 62271-202:2006)

This European Standard was approved by CENELEC on 2006-09-01. 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 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, 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

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

Foreword

The text of document 17C/371/FDIS, future edition 1 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 was approved by CENELEC as EN 62271-202 on 2006-09-01.

This European Standard supersedes EN 61330:1996.

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) 2007-09-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2009-09-01

Annexes ZA and ZB have been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62271-202:2006 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 60076-5	NOTE Harmonized as EN 60076-5:2006 (not modified).
IEC 60243-1	NOTE Harmonized as EN 60243-1:1998 (not modified).
IEC 60947-1	NOTE Harmonized as EN 60947-1:2004 (not modified).
ISO 3231	NOTE Harmonized as EN ISO 3231:1997 (not modified).

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 60076	Series	Power transformers	EN 60076	Series
IEC 60076-1	- ¹⁾	Power transformers - Part 1: General	EN 60076-1 + A11 + A12	1997 ²⁾ 1997 2002
IEC 60076-2	- ¹⁾	Power transformers - Part 2: Temperature rise	EN 60076-2	1997 ²⁾
IEC 60076-5	- ¹⁾	Power transformers - Part 5: Ability to withstand short circuit	EN 60076-5	2006 ²⁾
IEC 60076-10	- ¹⁾	Power transformers - Part 10: Determination of sound levels	EN 60076-10	2001 ²⁾
IEC 60076-11	- ¹⁾	Power transformers - Part 11: Dry-type transformers	EN 60076-11	2004 ²⁾
IEC 60364-4-41	- ¹⁾	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41	2007 ²⁾
IEC 60439-1	- ¹⁾	Low-voltage switchgear and controlgear assemblies - Part 1: Type-tested and partially type-tested assemblies	EN 60439-1	1999 ²⁾
IEC 60466 ³⁾	- ¹⁾	AC insulation-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 38 kV	-	-
IEC 60529	- ¹⁾	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 ²⁾ 1993
IEC 60664-1	- ¹⁾	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2003 ²⁾
IEC 60694	- ¹⁾	Common specifications for high-voltage switchgear and controlgear standards	EN 60694 + corr. May	1996 ²⁾ 1999

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

³⁾ IEC 60466 is superseded by IEC 62271-201:2006; which is harmonized as EN 62271-201:2006.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60721-1	- ¹⁾	Classification of environmental conditions - Part 1: Environmental parameters and their severities	EN 60721-1	1995 ²⁾
IEC 60721-2-2	- ¹⁾	Classification of environmental conditions - Part 2: Environmental conditions appearing in nature - Precipitation and wind	HD 478.2.2 S1	1990 ²⁾
IEC 60721-2-4	- ¹⁾	Classification of environmental conditions -- Part 2: Environmental conditions appearing in nature -- Solar radiation and temperature	HD 478.2.4 S1	1989 ²⁾
IEC 60815	- ¹⁾	Guide for the selection of insulators in respect - of polluted conditions	-	-
IEC 60905	- ¹⁾	Loading guide for dry-type power transformers	-	-
IEC 61166	- ¹⁾	High-voltage alternating current circuit-breakers - Guide for seismic qualification of high-voltage alternating current circuit-breakers	EN 61166	1993 ²⁾
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 61936-1	- ¹⁾	Power installations exceeding 1kV a.c. - Part 1: Common rules	-	-
IEC 62262	- ¹⁾	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)	EN 62262	2002 ²⁾
IEC 62271-200	- ¹⁾	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	2004 ²⁾
ISO/IEC Guide 51	- ¹⁾	Safety aspects - Guidelines for their inclusion - in standards	-	-
ISO 1052	- ¹⁾	Steels for general engineering purposes	-	-
ISO 1182	- ¹⁾	Reaction to fire tests for building products - Non-combustibility test	EN ISO 1182	2002 ²⁾
ISO 1716	- ¹⁾	Reaction to fire tests for building products - Determination of the heat of combustion	EN ISO 1716	2002 ²⁾
ISO 6508-1	- 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 ²⁾

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HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 202: High-voltage/low-voltage prefabricated substation

1 General

1.1 Scope

This part of IEC 62271 specifies the service conditions, rated characteristics, general structural requirements and test methods of HV/LV or LV/HV prefabricated substations, which are cable-connected, to be operated from inside (walk-in type) or outside (non-walk-in type) for alternating current of rated voltages above 1 kV and up to and including 52 kV on the HV side, and for one or more transformers for service frequencies up to and including 60 Hz for outdoor installation in locations with public accessibility.

Prefabricated substations can be situated at ground level or partially or completely below ground level.

In general, a prefabricated substation comprises the following main components (functions):

- enclosure;
- power transformers;
- HV and LV switchgear and controlgear;
- HV and LV interconnections;
- auxiliary equipment and circuits.

However, relevant provisions of this standard are applicable to designs where not all these components exist (for example, an installation consisting of power transformer and LV switchgear).

NOTE Non-prefabricated substations should comply with the applicable requirements of IEC 61936-1.

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 60076 (all parts), *Power transformers*

IEC 60076-1, *Power transformers – Part 1: General*

IEC 60076-2, *Power transformers – Part 2: Temperature rise*

IEC 60076-5, *Power transformers – Part 5: Ability to withstand short circuit*

IEC 60076-10, *Power transformers – Part 10: Determination of sound levels*

IEC 60076-11, *Power transformers – Part 11: Dry-type power transformers*

IEC 60364-4-41, *Electrical installations of buildings – Part 4-41: Protection for safety – Protection against electric shock*

IEC 60439-1, *Low-voltage switchgear and controlgear assemblies – Part 1: Type-tested and partially type-tested assemblies*

IEC 60466, *AC insulation-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 38 kV*

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

IEC 60664-1, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60694, *Common specifications for high-voltage switchgear and controlgear standards*

IEC 60721-1, *Classification of environmental conditions – Part 1: Environmental parameters and their severities*

IEC 60721-2-2, *Classification of environmental conditions – Part 2-2: Environmental conditions appearing in nature – Precipitation and wind*

IEC 60721-2-4, *Classification of environmental conditions – Part 2-4: Environmental conditions appearing in nature – Solar radiation and temperature*

IEC 60815, *Guide for the selection of insulators in respect of polluted conditions*

IEC 60905, *Loading guide for dry-type power transformers*

IEC 61166, *High-voltage alternating current circuit-breakers – Guide for seismic qualification of high-voltage alternating current circuit-breakers*

IEC 61180-1, *High-voltage test techniques for low-voltage equipment – Part 1: Definitions, test and procedure requirements*

IEC 61936-1, *Power installations exceeding 1 kV – Part 1: Common rules*

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

IEC 62271-200, *High-voltage switchgear and controlgear – AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV*

ISO/IEC Guide 51, *Safety aspects – Guidelines for their inclusion in standards*

ISO 1052, *Steels for general engineering purposes*

ISO 1182, *Reaction to fire tests for building products – Non-combustibility tests*

ISO 1716, *Reaction to fire tests for building products – Determination of the heat of combustion*

ISO 6508-1, *Metallic materials – Rockwell hardness test – Part 1: Test methods (scales A, B, C, D, E, F, G, H, K, N, T)*