SLOVENSKI STANDARD
SIST EN 62146-1:2014

01-maj-2014

Kondenzatorji za izravnavo potenciala pri visokonapetostnih odklopnikih za izmenični tok - 1. del: Splošno (IEC 62146-1:2013)

Grading capacitors for high-voltage alternating current circuit-breakers - Part 1: General

/

Condensateurs de répartition pour disjoncteurs à courant alternatif haute tension - Partie 1: Généralités

Ta slovenski standard je istoveten z: **EN 62146-1:2014**

ICS:

31.060.70 Močnostni kondenzatorji Power capacitors

SIST EN 62146-1:2014 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62146-1

March 2014

ICS 31.060.01; 31.060.70

English version

Grading capacitors for high-voltage alternating current circuit-breakers - Part 1: General

(IEC 62146-1:2013)

Condensateurs de répartition pour disjoncteurs à courant alternatif haute tension -
Partie 1: Généralités
(CEI 62146-1:2013)

Spannungsausgleichskondensatoren für Hochspannungs-Wechselstrom-Leistungsschalter -
Teiln 1: Allgemeines
(IEC 62146-1:2013)

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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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CENELEC

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 33/535/FDIS, future edition 1 of IEC 62146-1, prepared by IEC/TC 33, "Power capacitors and their applications" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62146-1:2014.

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)	2014-09-14
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-10-30

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Endorsement notice

The text of the International Standard IEC 62146-1:2013 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 60068-2-11	NOTE	Harmonized as EN 60068-2-11
IEC 60068-2-42	NOTE	Harmonized in EN 60068-2-42

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

Publication	Year	Title	EN/HD	Year
CISPR 18-2	1986	Radio interference characteristics of overhead power lines and high-voltage equipment - Part 2: Methods of measurement and procedure for determining limits	-	-
IEC Guide 109		Environmental aspects - Inclusion in electrotechnical product standards	-	-
IEC 60050 (Series)		International Electrotechnical Vocabulary (IEV)	-	-
IEC 60060-1	2010	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	2010
IEC 60068-2-17	1994	Environmental testing - Part 2: Tests - Test Q: Sealing	EN 60068-2-17	1994
IEC 60071-1	2006	Insulation co-ordination - Part 1: Definitions, principles and rules	EN 60071-1	2006
IEC 60270 + corr. October	2000 2001	High-voltage test techniques - Partial discharge measurements	EN 60270	2001
IEC 60376	2005	Specification of technical grade sulfur hexafluoride (SF6) for use in electrical equipment	EN 60376	2005
IEC 60507	1991	Artificial pollution tests on high-voltage insulators to be used on a.c. systems	EN 60507	1993
IEC 60567	2011	Oil-filled electrical equipment - Sampling of gases and analysis of free and dissolved gases - Guidance	EN 60567	2011
IEC 60721-1 + A1 + A2	1990 1992 1995	Classification of environmental conditions - Part 1: Environmental parameters and their severities	EN 60721-1 - + A2 [1)]	1995 - 1995
IEC/TS 60815 (series)		Selection and dimensioning of high-voltage insulators intended for use in polluted conditions	-	-
IEC 61462	2007	Composite hollow insulators - Pressurized and unpressurized insulators for use in electrical equipment with rated voltage greater than 1 000 V - Definitions, test methods, acceptance criteria and design recommendations	EN 61462	2007

[1)] EN 60721-1 includes A1 to IEC 60721-1.

IEC 62155 (mod)	2003	Hollow pressurized and unpressurized ceramic and glass insulators for use in electrical equipment with rated voltages greater than 1 000 V	EN 62155	2003
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 62271-203	2003	High-voltage switchgear and controlgear - Part 203: Gas-insulated metal-enclosed switchgear for rated voltages above 52 kV	EN 62271-203[2)]	2004
IEC/TR 62271-300	2006	High-voltage switchgear and controlgear - Part 300: Seismic qualification of alternating current circuit-breakers	-	-

[2)] EN 62271-203 is superseded by EN 62271-203:2012, which is based on IEC 62271-203:2011.

IEC 62146-1

Edition 1.0 2013-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Grading capacitors for high-voltage alternating current circuit-breakers – Part 1: General

Condensateurs de répartition pour disjoncteurs à courant alternatif haute tension – Partie 1: Généralités

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

PRICE CODE
CODE PRIX W

ICS 31.060.01; 31.060.70

ISBN 978-2-8322-1109-0

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

GRADING CAPACITORS FOR HIGH-VOLTAGE ALTERNATING CURRENT CIRCUIT-BREAKERS –

Part 1: General

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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9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62146-1 has been prepared by IEC technical committee 33: Power capacitors and their applications.

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

FDIS	Report on voting
33/535/FDIS	33/541/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.

A list of all parts in the IEC 62146 series, published under the general title *Grading capacitators for high-voltage alternating current circuit-breakers*, 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.

GRADING CAPACITORS FOR HIGH-VOLTAGE ALTERNATING CURRENT CIRCUIT-BREAKERS –

Part 1: General

1 Scope

This part of the IEC 62146 series is applicable to grading capacitors used on circuit-breakers. Their function is to control the voltage distribution across the individual interrupter units of a multi-break circuit-breaker.

Grading capacitors can also be used in parallel to the interrupter unit on single break circuit-breakers to modify the Transient Recovery Voltage (TRV).

The grading capacitor is a sub-component for the circuit-breaker and shall be specified in accordance with the circuit-breaker specifications.

This standard applies to grading capacitors falling into one or both of the following categories for:

– mounting on air-insulated circuit-breakers;

– mounting on enclosed circuit-breakers (for example immersed in SF_6, in oil, etc.).

The testing for each of the above applications is in some cases different.

The object of this standard is:

– to define uniform rules regarding performances, testing and rating;

– to define specific safety rules;

– to provide a guidance for installation and operation.

2 Normative references

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.

IEC 60050 (all parts), *International electrotechnical vocabulary* (available at http://www.electropedia.org)

IEC 60060-1:2010, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60068-2-17:1994, *Official version in Russian – Basic environmental testing procedures – Part 2-17: Tests – Test Q: Sealing*

IEC 60071-1:2006, *Insulation co-ordination – Part 1: Definitions, principles and* rules

IEC 60270:2000, *High-voltage test techniques – Partial discharge measurements*

IEC 60376:2005, *Specification of technical grade sulfur hexafluoride (SF_6) for use in electrical equipment*

IEC 60507-1:1991, *Artificial pollution tests on high-voltage insulators to be used on a.c. systems*

IEC 60567:2011, *Oil-filled electrical equipment – Sampling of gases and analysis of free and dissolved gases – Guidance*

IEC 60721-1:2002, *Classification of environmental conditions – Part 1: Environmental parameters and their severities*

IEC 60815 (all parts), *Selection and dimensioning of high-voltage insulators intended for use in polluted conditions*

IEC 61462:2007, *Composite hollow insulators – Pressurized and unpressurized insulators for use in electrical equipment with rated voltage greater than 1 000 V – Definitions, test methods, acceptance criteria and design recommendations*

IEC 62155:2003, *Hollow pressurized and unpressurized ceramic and glass insulators for use in electrical equipment with rated voltages greater than 1 000 V*

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

IEC 62271-100:2008, *High-voltage switchgear and controlgear – Part 100: Alternating current circuit-breakers*

IEC 62271-203:2003, *High-voltage switchgear and controlgear – Part 203: Gas-insulated metal-enclosed switchgear for rated voltages above 52 kV*

IEC 62271-300:2006, *High-voltage switchgear and controlgear – Part 300: Seismic qualification of alternating current circuit-breakers*

IEC Guide 109, *Environmental aspects – Inclusion in electrotechnical product standards*

CISPR 18-2:1986, *Radio interference characteristics of overhead power lines and high-voltage equipment – Part 2: Methods of measurement and procedure for determining limits*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
arcing distance
shortest distance in the air external to the insulator between the metallic parts which normally have the operating voltage between them

[SOURCE: IEC 60050-471:2007, 471-01-01]

3.2
capacitor element
device consisting essentially of two electrodes separated by a dielectric

[SOURCE: IEC 60050-436:1990, 436-01-03]