BS EN IEC 62146-2:2023

BSI Standards Publication

Capacitors for high-voltage alternating current circuit-breakers

Part 2: TRV capacitors

bsi.

National foreword

This British Standard is the UK implementation of EN IEC 62146-2:2023. It is identical to IEC 62146-2:2023.

The UK participation in its preparation was entrusted to Technical Committee PEL/33, Power capacitors.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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EUROPEAN STANDARD

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English Version

Capacitors for high-voltage alternating current circuit-breakers - Part 2: TRV capacitors (IEC 62146-2:2023)

Condensateurs pour disjoncteurs à courant alternatif haute tension - Partie 2: Condensateurs TTR (IEC 62146-2:2023)

Spannungsausgleichskondensatoren für Hochspannungs-Wechselstrom-Leistungsschalter - Teil 2: TRV-Kondensatoren (IEC 62146-2:2023)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 33/685/FDIS, future edition 1 of IEC 62146-2, prepared by IEC/TC 33 "Power capacitors and their applications" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62146-2:2023.

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) 2023-11-14
•	latest date by which the national standards conflicting with the document have to be withdrawn	(dow) 2026-02-14

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This document is read in conjunction with EN 62146-1:2014 and EN 62146-1:2014/A1:2016.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 62146-2:2023 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where 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 60060-1	2010	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	2010
IEC 60358-1	2012	Coupling capacitors and capacitor dividers - Part 1: General rules	EN 60358-1	2012
IEC 60815	series	Selection and dimensioning of high-voltage insulators intended for use in polluted conditions	-	-
IEC 60871-1	2014	Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V - Part 1: General	EN 60871-1	2014
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
IEC 62146-1	2013	Grading capacitors for high-voltage alternating current circuit-breakers - Part 1: General	EN 62146-1	2014
+ A1	2016		A1	2016
IEC 62155	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	2017	High-voltage switchgear and controlgear - Part 1: Common specifications for alternating current switchgear and controlgear	EN 62271-1	2017
+ A1	2021		A1	2021
IEC 62271-100	2021	High-voltage switchgear and controlgear - Part 100: Alternating-current circuit-breakers	EN IEC 62271-100	2021

IEC 62271-203	-	High-voltage switchgear and controlgear - Part 203: AC gas-insulated metal-enclosed switchgear for rated voltages above 52 kV	EN IEC 62271-203	-
IEC Guide 109	-	Environmental aspects - Inclusion in electrotechnical product standards	-	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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CAPACITORS FOR HIGH-VOLTAGE ALTERNATING CURRENT CIRCUIT-BREAKERS –

Part 2: TRV capacitors

FOREWORD

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IEC 62146-2 has been prepared by IEC technical committee 33: Power capacitors and their applications. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
33/685/FDIS	33/686/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

This International Standard is to be used in conjunction with IEC 62146-1:2013 and IEC 62146-1:2013/AMD1:2016.

A list of all parts in the IEC 62146 series, published under the general title *Capacitors for high-voltage alternating current circuit-breakers*, can be found on the IEC website. The title of the series was changed in 2022 by decision of TC 33, and the title of IEC 62146-1 will be modified accordingly in its next edition.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

CAPACITORS FOR HIGH-VOLTAGE ALTERNATING CURRENT CIRCUIT-BREAKERS –

Part 2: TRV capacitors

1 Scope

This part of IEC 62146 is applicable to TRV capacitors used on high-voltage alternating current circuit-breakers with rated voltages above 100 kV with 50 Hz or 60 Hz.

TRV capacitors are installed phase to earth, either in parallel to the bushing on dead tank circuit-breakers, or immersed inside the circuit-breaker, or freestanding close to the circuit-breaker. Their function is to limit the transient recovery voltage (TRV) and the rate of rise of recovery voltage (RRRV) on the circuit-breaker. Capacitors in compliance with this document can be used as TRV capacitor.

This document applies to TRV capacitors falling into one or both of the following categories for:

– mounting on or close to air insulated switchgear (AIS) dead tank and live tank circuit-breakers, or
– mounting on gas insulated switchgear (GIS) circuit-breakers.

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

This document does not apply to grading capacitors installed in parallel to the chambers of the circuit-breaker, which are specified in IEC 62146-1.

This document does not apply to capacitors not directly associated with high-voltage alternating current circuit-breakers.

The object of this document is:

– to define uniform rules regarding performances, testing and rating
– to define specific safety rules
– to provide a guidance for installation and operation

The TRV capacitor is a sub-component for the circuit-breaker and is specified in accordance with the circuit-breaker specifications according to IEC 62271-1, IEC 62271-100, and if applicable to IEC 62271-203.

TRV capacitors are commonly built with composite or ceramic housings (insulators). Those insulators follow IEC 61462 or IEC 62155. Other housings can be used if they can sustain applicable type tests according to IEC 61462 and IEC 62155.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60060-1:2010, *High-voltage test techniques – Part 1: General definitions and test requirements*