

# CONSOLIDATED VERSION

# VERSION CONSOLIDÉE



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**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**



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**Condensateurs de répartition pour disjoncteurs à courant alternatif haute  
tension –  
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INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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

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## CONTENTS

FOREWORD.....	5
1 Scope .....	7
2 Normative references .....	7
3 Terms and definitions .....	8
4 Abbreviations .....	13
5 Normal and special service conditions.....	14
5.1 General.....	14
5.2 Normal service conditions .....	14
5.2.1 Ambient temperature.....	14
5.2.2 Mechanical stress and vibrations.....	14
5.2.3 Additional service conditions for indoor and completely immersed grading capacitor .....	14
5.3 Special service conditions.....	15
5.3.1 General .....	15
5.3.2 Earthquakes .....	15
6 Ratings .....	15
6.1 Rated voltage ( $U_{CR}$ ).....	15
6.2 Rated insulation level .....	15
6.3 Rated frequency ( $f_r$ ).....	16
7 Design and construction .....	16
7.1 Capacitance tolerances .....	16
7.2 Capacitor loss requirements.....	16
7.3 Angle of mounting.....	17
7.4 Minimum withstand value of mechanical bending load .....	17
7.4.1 Capacitors mounted on air insulated circuit -breaker .....	17
7.4.2 Immersed capacitors .....	17
7.5 Requirements for impregnation medium in capacitor.....	17
7.6 Protection against corrosion.....	17
7.7 Nameplates .....	18
7.8 Creepage distances for outdoor insulators.....	18
7.9 Tightness .....	18
7.9.1 Liquid tightness.....	18
7.9.2 Gas tightness for grading capacitors immersed in gas.....	18
8 Type tests .....	18
8.1 Information for identification of specimens.....	18
8.2 Information to be included in type-test reports .....	19
8.3 Test conditions .....	19
8.4 Dielectric tests.....	20
8.4.1 General .....	20
8.4.2 Capacitance measurement at power frequency .....	20
8.4.3 Measurement of the tangent of the loss angle ( $\tan\delta$ ).....	21
8.4.4 Partial discharge test .....	21
8.4.5 Switching impulse voltage test.....	22
8.4.6 Lightning and chopped impulse voltage test.....	22
8.4.7 Power frequency voltage test. ....	23

8.5	Voltage test at low and high temperature.....	23
8.6	Radio interference voltage (RIV) test.....	24
8.7	Resonance frequency measurements.....	24
8.8	Mechanical bending test.....	24
8.9	Tightness test at different temperatures.....	24
8.10	Tightness test to check gas ingress from a pressurised environment.....	25
8.11	Vibration test.....	25
9	Routine tests.....	26
9.1	General.....	26
9.2	Test conditions.....	27
9.3	Capacitance and loss angle measurement at power frequency.....	27
9.4	Power frequency voltage test.....	27
9.5	Partial discharge test.....	27
9.6	Tightness test.....	27
9.6.1	General.....	27
9.6.2	Oil impregnated capacitor.....	27
9.6.3	Tightness test for gas filled grading capacitors.....	28
9.7	Visual inspection and dimensional check.....	28
10	Recommendations for transport, storage, erection, operation and maintenance.....	28
10.1	General.....	28
10.2	Conditions during transport, storage and installation.....	29
10.3	Installation.....	29
10.4	Unpacking and lifting.....	29
10.5	Assembly.....	29
10.5.1	Mounting.....	29
10.5.2	Connections to metal parts.....	29
10.5.3	Final installation inspection.....	30
10.6	Operation.....	30
10.7	Maintenance.....	30
10.7.1	General.....	30
10.7.2	Recommendation for the installation and maintenance.....	30
<del>10.7.3</del>	<del>Recommendations for the user.....</del>	<del>30</del>
<del>10.7.4</del>	<del>Failure report.....</del>	<del>30</del>
11	Safety.....	32
11.1	General.....	32
11.2	Precautions by manufacturers.....	32
11.3	Precautions by users.....	32
11.4	National regulations.....	33
12	Environmental aspects.....	33
Annex A (informative) Corrosion: Information regarding service conditions and recommended test requirements.....		34
Annex B (informative) Resonance frequency measurements.....		35
Bibliography.....		36

Figure 1 – Dielectric type tests .....20

Figure 2 – Dielectric routine test.....26

Figure B.1 – Example of resonance frequency measurement recording (see 8.7) .....35

  

Table 1 – Partial discharge test voltages and permissible levels .....22

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

**Part 1: General**

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**This Consolidated version of IEC 62146-1 bears the edition number 1.1. It consists of the first edition (2013-09) [documents 33/535/FDIS and 33/541/RVD] and its amendment 1 (2016-06) [documents 33/583/FDIS and 33/586/RVD]. The technical content is identical to the base edition and its amendment.**

**In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.**

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

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 capacitors for high-voltage alternating current circuit-breakers*, can be found on the IEC website.

The committee has decided that the contents of the base publication and its amendment 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

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# 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<sub>6</sub>, 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.

**NOTE** CIGRE Technical Brochure 368 [2] presents a study about the operating environment of voltage grading capacitors applied to high-voltage circuit-breakers.

**This standard does not apply to phase-to-earth capacitors installed on the circuit-breaker to modify the Transient Recovery Voltage.**

### 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*