JÕUELEKTROONIKAKONDENSAATORID

Capacitors for power electronics

EVS EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 61071:2025 sisaldab Euroopa standardi EN IEC 61071:2025 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 61071:2025 consists of the English text of the European standard EN IEC 61071:2025.
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 and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.08.2025.	Date of Availability of the European standard is 22.08.2025.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

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

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EUROPEAN STANDARD

NORME EUROPÉENNE

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Capacitors for power electronics (IEC 61071:2017)

Condensateurs pour électronique de puissance (IEC 61071:2017)

Kondensatoren der Leistungselektronik (IEC 61071:2017)

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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

Ref. No. EN IEC 61071:2025 E

European foreword

The text of document 33/610/FDIS, future edition 2 of IEC 61071, prepared by TC 33 "Power capacitors and their applications" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61071:2025.

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) 2026-08-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2028-08-31

This document supersedes EN 61071:2007 and all of its amendments and corrigenda (if any).

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This document has been prepared under a standardization request addressed to CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

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 61071:2017 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 standard indicated:

IEC 60146-1-1:2009	NOTE Approved as EN 60146-1-1:2010 (not modified)
IEC 61287-1:2014	NOTE Approved as EN 61287-1:2014 (not modified)
IEC 60110-1:1998	NOTE Approved as EN 60110-1:1998 (not modified)
IEC 60143 (series)	NOTE Approved as EN IEC 60143 (series)
IEC 60252-1:2010	NOTE Approved as EN 60252-1:2011 (not modified)
IEC 60252-1:2010/A1:2013	NOTE Approved as EN 60252-1:2011/A1:2013 (not modified)
IEC 60358-1:2012	NOTE Approved as EN 60358-1:2012 (not modified)
IEC 60384-14:2013	NOTE Approved as EN 60384-14:2013 (not modified)
IEC 60831-1:2014	NOTE Approved as EN 60831-1:2014 (not modified)
IEC 60831-2:2014	NOTE Approved as EN 60831-2:2014 (not modified)

IEC 60871-1:2014	NOTE	Approved as EN 60871-1:2014 (not modified)
IEC 60931-1:1996	NOTE	Approved as EN 60931-1:1996 (not modified)
IEC 60931-2:1995	NOTE	Approved as EN 60931-2:1996 (not modified)
IEC 61048:2006	NOTE	Approved as EN 61048:2006 (not modified)
IEC 61048:2006/A1:2015	NOTE	Approved as EN 61048:2006/A1:2016 (not modified)
IEC 61270-1:1996	NOTE	Approved as EN 61270-1:1996 (not modified)
IEC 61881-1:2010	NOTE	Approved as EN 61881-1:2011 (not modified)
IEC 61881-2:2012	NOTE	Approved as EN 61881-2:2012 (not modified)
IEC 61881-3:2012	NOTE	Approved as EN 61881-3:2012 (not modified)
IEC 61881-3:2012/A1:2013	NOTE	Approved as EN 61881-3:2012/A1:2013 (not modified)

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NORME INTERNATIONALE

Capacitors for power electronics

Condensateurs pour électronique de puissance

IEC 61071:2017-08(en-fr)

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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CAPACITORS FOR POWER ELECTRONICS

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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International Standard IEC 61071 has been prepared by IEC technical committee 33: Power capacitors and their applications.

This second edition cancels and replaces the first edition published in 2007. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- Introduction of new terms and definitions
- clarifications for surge discharge test
- indications for measuring procedure during thermal stability test
- clarifications for self-healing test
- clarifications for endurance test
- clarifications for destruction test
- update of normative references
- general editorial review

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

FDIS	Report on voting
33/610/FDIS	33/612/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://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 POWER ELECTRONICS

1 Scope

This International Standard applies to capacitors for power electronics applications.

The operating frequency of the systems in which these capacitors are used is usually up to 15 kHz, while the pulse frequencies may be up to 5 to 10 times the operating frequency.

The document distinguishes between AC and DC capacitors which are considered as components when mounted in enclosures.

This document covers an extremely wide range of capacitor technologies for numerous applications, e.g. overvoltage protection, DC and filtering, switching circuits, energy storage, auxiliary inverters, etc.

The following are excluded from this document:

- capacitors for induction heat-generating plants operating at frequencies range up to 50 kHz (see IEC 60110-1 and IEC 60110-2);
- capacitors for motor applications and the like (see IEC 60252-1 and IEC 60252 -2);
- capacitors to be used in circuits for blocking one or more harmonics in power supply networks;
- small AC capacitors as used for fluorescent and discharge lamps (see IEC 61048 and IEC 61049);
- capacitors for suppression of radio interference (see IEC 60384-14);
- shunt capacitors for AC power systems having a rated voltage above 1 000 V (see the IEC 60871 standards);
- shunt power capacitors of the self-healing type for AC systems having a rated voltage up to and including 1 000 V (see IEC 60831-1 and IEC 60831-2);
- shunt power capacitor of the non-self-healing type for AC systems having a rated voltage up to and including 1 000 V (see the IEC 60931 standards);
- electronic capacitors not used in power circuits;
- series capacitors for power systems (see IEC 60143);
- coupling capacitors and capacitors dividers (see IEC 60358);
- capacitors for microwave ovens (see IEC 61270-1);
- capacitors for railway applications (see IEC 61881).

Examples of applications are given in 9.1.

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 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-20, *Environmental testing – Part 2-20: Tests – Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

IEC 60068-2-21, *Environmental testing – Part 2-21: Tests – Test U: Robustness of terminations and integral mounting devices*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 60269-1, *Low-voltage fuses – Part 1: General requirements*

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

IEC 60695-2-11, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)*

IEC 60695-2-12, *Fire hazard testing – Part 2-12: Glowing/hot-wire based test methods – Glow-wire flammability index (GWFI) test method for materials*

IEC 60947-1:2007, *Low-voltage switchgear and controlgear – Part 1: General rules*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
capacitor element (or element)
device consisting essentially of two electrodes separated by a dielectric

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

3.2
capacitor unit (or unit)
assembly of one or more capacitor elements in the same container with terminals brought out

[SOURCE: IEC 60050-436:1990, 436-01-04]

3.3
capacitor bank
number of capacitor units connected so as to act together

[SOURCE: IEC 60050-436:1990, 436-01-06]