SLOVENSKI STANDARD
oSIST prEN IEC 60931-1:2024

01-september-2024

Nesamoregulacijski vzporedni energetski kondenzatorji za izmenične tokovne sisteme z naznačeno napetostjo do vključno 1000 V - 1. del: Splošno

Shunt power capacitors of the non-self-healing type for AC systems having a rated voltage up to and including 1000 v - Part 1: General

Condensateurs shunt de puissance non autorégénérateurs pour réseaux à courant alternatif de tension assignée inférieure ou égale à 1000 v - Partie 1: Généralités

Ta slovenski standard je istoveten z: **prEN IEC 60931-1:2024**

ICS:

29.120.99	Druga električna dodatna oprema	Other electrical accessories
31.060.70	Močnostni kondenzatorji	Power capacitors

oSIST prEN IEC 60931-1:2024 **en**

33/708/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 60931-1 ED3**	
DATE OF CIRCULATION: **2024-06-28**	CLOSING DATE FOR VOTING: **2024-09-20**
SUPERSEDES DOCUMENTS: **33/700/CD, 33/706A/CC**	

IEC TC 33 : POWER CAPACITORS AND THEIR APPLICATIONS

SECRETARIAT: Italy	SECRETARY: Mr Stefano Zunino
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY

☒ SUBMITTED FOR CENELEC PARALLEL VOTING	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Recipients of this document are invited to submit, with their comments, notification of any relevant “In Some Countries” clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE AC/22/2007 OR NEW GUIDANCE DOC).

TITLE:

Shunt power capacitors of the non-self-healing type for AC systems having a rated voltage up to and including 1000 V - Part 1: General

PROPOSED STABILITY DATE: 2027

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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SHUNT POWER CAPACITORS OF THE NON-SELF-HEALING TYPE FOR AC SYSTEMS HAVING A RATED VOLTAGE UP TO AND INCLUDING 1000 V –

Part 1: General – Performance, testing and rating – Safety requirements – Guide for installation and operation

FOREWORD

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IEC 60931-1 has been prepared by IEC technical committee 33: Power capacitors and their applications. It is an International Standard.

This third edition cancels and replaces second edition published in 1996 and the Amendment 1:2002. This edition constitutes a technical revision.

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

a) Integration of IEC 60931-3 within IEC 60931-1;

b) Deletion of self-healing test.

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

Draft	Report on voting
XX/XX/FDIS	XX/XX/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.

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.

SHUNT POWER CAPACITORS OF THE NON-SELF-HEALING TYPE FOR AC SYSTEMS HAVING A RATED VOLTAGE UP TO AND INCLUDING 1000 V –

Part 1: General – Performance, testing and rating – Safety requirements – Guide for installation and operation

1 Scope

This part of IEC 60931 is applicable to both capacitor units and capacitor banks intended to be used, particularly, for power-factor correction of AC power systems having a rated voltage up to and including 1000 V and frequencies 15 Hz to 60 Hz.

This part of IEC 60931 also applies to capacitors intended for use in power filter circuits. Additional definitions, requirements, and tests for filter capacitors are given in annex A.

The following capacitors are excluded from this part of IEC 60931:

– Shunt power capacitors of the self-healing type for AC systems having a rated voltage up to and including 1000 V (IEC 60831 series).
– Shunt capacitors for AC power systems having a rated voltage above 1000 V (IEC 60871).
– Power Capacitors for induction heating installations (IEC 60110 series).
– Series capacitors for power systems (IEC 60143 series).
– Capacitors for motor applications (IEC 60252 series).
– Coupling capacitors and capacitor dividers (IEC 60358).
– Capacitors for power electronics (IEC 61071).
– Small AC capacitors to be used for fluorescent and discharge lamps (IEC 61048 and IEC 61049).
– Capacitors for suppression of radio interference (under consideration).
– Capacitors intended to be used in various types of electrical equipment and thus considered as components.
– Capacitors intended for use with DC voltage superimposed on the AC voltage.
– Shunt power capacitors of the self-healing type for AC systems having a rated voltage above 1000V (IEC 63210).

Accessories such as insulators, switches, instrument transformers, fuses, etc., are to be in accordance with the relevant IEC standards.

The purpose of this part of the IEC 60931 standard is:

a) to formulate uniform rules regarding performances, testing and rating;
b) to formulate specific safety rules;
c) to provide a guide for installation and operation.

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 60050-436: International Electrotechnical Vocabulary (IEV) - Chapter 436: Power capacitors

IEC 60060-1: High voltage test techniques - Part 1: General definitions and test requirements

IEC 60269-1: Low-voltage fuses - Part 1: General requirements

IEC 60931-2: Shunt power capacitors of the non-self-healing type for AC systems having a rated voltage up to and including 1000 V - Part 2: Ageing test and destruction test

IEC 61000-2-2: Electromagnetic compatibility (EMC) - Part 2: Environment - Section 2: Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems

IEC TR 61000-4-1: Electromagnetic compatibility (EMC) - Part 4-1: Testing and measurement techniques - Overview of IEC 61000-4 series

3 Terms and Definitions

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

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

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

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

[SOURCE: IEV 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: IEV 436-01-04]

3.3
non-self-healing capacitor
capacitor in which the dielectric, after local break-down, is not restored.

3.4
capacitor bank (or bank)
number of capacitor units connected so as to act together.

[SOURCE: IEV 436-01-06]

3.5
capacitor
generic term, encompassing the notions of capacitor unit and capacitor bank

[SOURCE: IEC 60831-1]

Note 1 to entry: In this part of IEC 60931, the word capacitor is used when it is not necessary to lay particular stress upon the different meanings of the words capacitor unit or capacitor bank.

3.6
capacitor installation:
one or more capacitor banks and their accessories.

[SOURCE: IEV 436-01-07]

3.7
discharge device of a capacitor
device which may be incorporated in a capacitor, capable of reducing the voltage between the terminals practically to zero, within a given time, after the capacitor has been disconnected from a network.

[SOURCE: IEV 436-03-15, modified]

3.8
internal fuse of a capacitor
fuse connected inside a capacitor unit, in series with an element or a group of elements.

[SOURCE: IEV 436-03-16]

3.9
overpressure disconnector for a capacitor
disconnecting device designed to switch off the capacitor in the case of abnormal increase of the internal pressure.

[SOURCE: IEV 436-03-17, modified]

3.10
overtemperature disconnector for a capacitor
disconnecting device designed to switch off the capacitor in the case of abnormal increase of the internal temperature.

3.11
line terminal
terminal intended for connection to a line conductor of a network.

[SOURCE: IEV 436-03-01]

Note 1 to entry: In polyphase capacitors, a terminal intended to be connected to the neutral conductor is not considered to be a line terminal.

3.12
rated capacitance of a capacitor (C_N)
capacitance value for which the capacitor has been designed.

[SOURCE: IEV 436-01-12, modified]

3.13
rated output of a capacitor (Q_N)
reactive power derived from the rated values of capacitance, frequency and voltage.

[SOURCE: IEV 436-01-16, modified]

3.14
rated voltage of a capacitor (U_N)
RMS value of the alternating voltage for which the capacitor has been designed.

[SOURCE: IEV 436-01-15]

Note 1 to entry: In the case of capacitors consisting of one or more separate circuits (such as single-phase units intended for use in polyphase connection, or polyphase units with separate circuits), U_N refers to the rated voltage of each circuit.

Note 2 to entry: For polyphase capacitors with internal electrical connections between the phases, and for polyphase capacitor banks, U_N refers to the phase-to-phase voltage.

3.15
rated frequency of a capacitor (f_N)
frequency for which the capacitor has been designed.

[SOURCE: IEV 436-01-14]