



SLOVENSKI STANDARD

SIST EN 60871-1:2014

01-oktober-2014

Nadomešča:

SIST EN 60871-1:2007

Paralelni kondenzatorji za sisteme z izmenično napetostjo v nazivnem območju nad 1000 V - 1. del: Splošno (IEC 60871-1:2014)

Shunt capacitors for A.C. power systems having a rated voltage above 1000 V - Part 1: General

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Ta slovenski standard je istoveten z: EN 60871-1:2014

ICS:

31.060.70 Močnostni kondenzatorji Power capacitors

SIST EN 60871-1:2014

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EUROPEAN STANDARD

EN 60871-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2014

ICS 31.060.70; 29.240.99

Supersedes EN 60871-1:2005

English Version

Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V - Part 1: General (IEC 60871-1:2014)

Condensateurs shunt pour réseaux à courant alternatif de
tension assignée supérieure à 1 000 V -
Partie 1: Généralités
(CEI 60871-1:2014)

Parallelkondensatoren für Wechselspannungs-
Starkstromanlagen mit einer Nennspannung über 1 kV -
Teil 1: Allgemeines
(IEC 60871-1:2014)

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SIST EN 60871-1:2014

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

Foreword

The text of document 33/559/FDIS, future edition 4 of IEC 60871-1, prepared by IEC/TC 33 "Power capacitors and their applications" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60871-1:2014.

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) 2015-03-26
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-06-26

This document supersedes EN 60871-1:2005.

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Endorsement notice

The text of the International Standard IEC 60871-1:2014 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:

		<u>SIST EN 60871-1:2014</u>
IEC 60038:2009	NOTE	Harmonized as EN 60038:2011 (modified).
IEC 60071-2:1996	NOTE	Harmonized as EN 60071-2:1997 (not modified).
IEC 60099 Series	NOTE	Harmonized as EN 60099 Series (partly modified).
IEC 60110-1	NOTE	Harmonized as EN 60110-1.
IEC 60143 Series	NOTE	Harmonized as EN 60143 Series (not modified).
IEC 60252 Series	NOTE	Harmonized as EN 60252 Series (not modified).
IEC 60358 Series	NOTE	Harmonized as EN 60358 Series (not modified).
IEC 60831 Series	NOTE	Harmonized as EN 60831 Series (not modified).
IEC 60931 Series	NOTE	Harmonized as EN 60931 Series (not modified).
IEC 61048	NOTE	Harmonized as EN 61048.
IEC 61049	NOTE	Harmonized as EN 61049.
IEC 61071	NOTE	Harmonized as EN 61071.
IEC 61270-1	NOTE	Harmonized as EN 61270-1.
IEC 61642	NOTE	Harmonized as EN 61642.

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 1 When 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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60060-1	-	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	-
IEC 60071-1	2006	Insulation co-ordination - Part 1: Definitions, principles and rules	EN 60071-1	2006
IEC 60549	-	High-voltage fuses for the external protection of shunt capacitors	EN 60549	-
IEC/TS 60815	series	Selection and dimensioning of high-voltage insulators intended for use in polluted conditions	-	-
IEC 60871-4	1996	Shunt capacitors for a.c. power systems having a rated voltage above 1000 V - Part 4: Internal fuses	EN 60871-4	1996 ¹⁾

1) EN 60871-4:1996 is superseded by EN 60871-4:2014, which is based on IEC 60871-4:2014.

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IEC 60871-1

Edition 4.0 2014-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V –
Part 1: General

(standards.iteh.ai)

Condensateurs shunt pour réseaux à courant alternatif de tension assignée
supérieure à 1 000 V –
Partie 1: Généralités

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

XA

ICS 29.240.99; 31.060.70

ISBN 978-2-8322-1580-7

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SHUNT CAPACITORS FOR AC POWER SYSTEMS
HAVING A RATED VOLTAGE ABOVE 1 000 V –****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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International Standard IEC 60871-1 has been prepared by IEC technical committee 33: Power capacitors and their applications.

This fourth edition cancels and replaces the third edition published in 2005. This edition constitutes a technical revision.

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

- a) the overvoltage cycling test has been moved to this standard from the IEC 60871-2;
- b) the ranges of the standardized values of the highest voltage for equipment have been modified;
- c) for installations installed on altitudes above 1 000 m a correction factor to all insulation requirements has been introduced;
- d) new standard insulation tables have been defined;

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

FDIS	Report on voting
33/559/FDIS	33/564/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 60871 series, published under the general title *Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V*, 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.

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SHUNT CAPACITORS FOR AC POWER SYSTEMS HAVING A RATED VOLTAGE ABOVE 1 000 V –

Part 1: General

1 Scope

This part of IEC 60871 is applicable to both capacitor units and capacitor banks intended to be used, particularly, for power-factor correction of a.c. power systems having a rated voltage above 1 000 V and frequencies of 15 Hz to 60 Hz.

This part of IEC 60871 also applies to capacitors intended for use in power filter circuits. Additional definitions, requirements and tests for filter capacitors are given in Annex B.

Additional requirements for capacitors protected by internal fuses as well as requirements for the internal fuses are given in IEC 60871-4.

Requirements for capacitors to be protected by external fuses, as well as requirements for the same, are given in Annex C.

This standard does not apply to capacitors of the self-healing metallized dielectric type.

The following capacitors are excluded from this part of IEC 60871:

- capacitors for inductive heat-generating plants operating at frequencies between 40 Hz and 24 000 Hz (IEC 60110-1);
- series capacitors for power systems (see the IEC 60143 series);
- capacitors for motor applications and the like (see the IEC 60252 series);
- coupling capacitors and capacitor dividers (IEC 60358);
- shunt capacitors for a.c. power systems having rated voltage up to and including 1 000 V (see the IEC 60831 and IEC 60931 series);
- small a.c. capacitors to be used for fluorescent and discharge lamps (IEC 61048 and IEC 61049);
- capacitors to be used in power electronic circuits (IEC 61071);
- capacitors for microwave ovens (IEC 61270-1);
- capacitors for suppression of radio interference;
- capacitors intended for use with a.c. voltage superimposed on d.c. voltage.

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

The object of this part of IEC 60871 is as follows:

- a) to formulate uniform rules regarding the performance and rating of units and banks, and the testing of units;
- b) to formulate specific safety rules;
- c) to provide a guide 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 60060-1, *High-voltage test techniques – Part 1: General definitions and test requirements*

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

IEC 60549, *High-voltage fuses for the external protection of shunt capacitors*

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

IEC 60871-4:1996, *Shunt capacitors for AC power systems having a rated voltage above 1 000 V – Part 4: Internal fuses*

3 Terms and definitions

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

3.1

capacitor element

element

device consisting essentially of two electrodes separated by a dielectric

[SOURCE: IEC 60050-436:1990, 436-01-03] <https://standards.iteh.ai/catalog/standards/sist/9ae7ec5d-8445-406c-81b3-a436-01-03>

3.2

capacitor 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

bank

number of capacitor units connected so as to act together

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

3.4

capacitor

two-terminal device characterized essentially by its capacitance

Note 1 to entry: The term "capacitor" is used when it is not necessary to specify whether a capacitor unit or capacitor bank is meant.

[SOURCE: IEC 60050-151:2001, 151-13-28]

3.5

capacitor installation

one or more capacitor banks and their accessories