



SLOVENSKI STANDARD

SIST EN 60110-1:1999

01-julij-1999

Power capacitors for inductive heating installation (IEC 60110-1:1998)

Power capacitors for induction heating installations -- Part 1: General

Leistungskondensatoren für induktive Erwärmungsanlagen -- Teil 1: Allgemeines

Condensateurs de puissance pour les installations de génération de chaleur par induction -- Partie 1: Généralités

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Ta slovenski standard je istoveten z: **EN 60110-1:1998**

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EUROPEAN STANDARD
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Supersedes HD 207 S1:1977

Descriptors: Induction heating, capacitors, power capacitors, capacitor banks, definitions, generalities, quality, capacity measurements, dielectric strength tests, leak test, thermal stability, safety, installation, marking

English version

Power capacitors for induction heating installations
Part 1: General
(IEC 60110-1:1998)

Condensateurs de puissance pour les
installations de génération de chaleur
par induction
Partie 1: Généralités
(CEI 60110-1:1998)

Leistungskondensatoren für induktive
Erwärmungsanlagen
Teil 1: Allgemeines
(IEC 60110-1:1998)

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This European Standard was approved by CENELEC on 1998-08-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 33/289/FDIS, future edition 1 of IEC 60110-1, prepared by IEC TC 33, Power capacitors, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60110-1 on 1998-08-01.

This European Standard supersedes HD 207 S1:1977.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1999-05-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2001-05-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annexes A and ZA are normative and annexes B and C are informative.

Annex ZA has been added by CENELEC.

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The text of the International Standard IEC 60110-1:1998 was approved by CENELEC as a European Standard without any modification.

SIST EN 60110-1:1999

In the official version, for annex C, Bibliography, the following notes have to be added for the standards indicated:

IEC 60252	NOTE: Harmonized as EN 60252:1994 (modified).
IEC 60358	NOTE: Harmonized as HD 597 S1:1992 (not modified).
IEC 61048	NOTE: Harmonized as EN 61048:1993 (modified).
IEC 61049	NOTE: Harmonized as EN 61049:1993 (modified).
IEC 61071-1	NOTE: Harmonized as EN 61071-1:1996 (modified).
IEC 61270-1	NOTE: Harmonized as EN 61270-1:1996 (not modified).

Annex ZA (normative)**Normative references to international publications
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050(436)	1990	International Electrotechnical Vocabulary (IEV) - Chapter 436: Power capacitors	-	-
IEC 60110-2	- ¹⁾	Power capacitors for induction heating installations Part 2: Ageing test, destruction test and requirements for disconnecting internal fuses	-	-
IEC 60143	series	Series capacitors for power systems	EN 60143	series
IEC 60831	series	Shunt power capacitors of the self-healing type for a.c. systems having a rated voltage up to and including 1 kV	EN 60831	series
IEC 60871	series	Shunt capacitors for a.c. power systems having a rated voltage above 1 kV	EN 60871	series
IEC 60931	series	Shunt power capacitors of the non-self-healing type for a.c. systems having a rated voltage up to and including 1 kV	EN 60931	series
IEC 60996	1989	Method for verifying accuracy of tan delta measurements applicable to capacitors	-	-

1) To be published.

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**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC**

60110-1

Première édition
First edition
1998-06

**Condensateurs de puissance
pour les installations de génération de chaleur
par induction –**

**Partie 1:
Généralités**

ITC STANDARD PREVIEW
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**Power capacitors for induction
heating installations –**

<https://standards.iteh.ai/catalog/standards/sist/6084915e-786c-4263-934a-fbd20c23bf5b/sist-en-60110-1-1999>

**Part 1:
General**

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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For price, see current catalogue*

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**POWER CAPACITORS FOR INDUCTION
HEATING INSTALLATIONS –**
Part 1: General**FOREWORD**

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60110-1 has been prepared by IEC technical committee 33: Power capacitors.

This first edition cancels and replaces IEC 60110, published in 1973, of which it constitutes a technical revision.

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

FDIS	Report on voting
33/289/FDIS	33/291/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.

Annex A forms an integral part of this standard.

Annexes B and C are for information only.

POWER CAPACITORS FOR INDUCTION HEATING INSTALLATIONS –

Part 1: General

1 General

1.1 Scope and object

This part of IEC 60110 is applicable both to indoor capacitor units and indoor capacitor banks intended to be used, particularly, for power factor correction in induction heating, melting, stirring or casting installations, and similar applications with controlled or adjustable a.c. voltage systems in a frequency range up to 50 kHz, and with a rated voltage not exceeding 3,6 kV.

Additional requirements for capacitors protected by internal element fuses are given in IEC 60110-2.

The following capacitors are excluded from this standard:

- series capacitors for power systems (see IEC 60143);
- capacitors for motor applications and the like (see IEC 60252);
- coupling capacitors and capacitor dividers (see IEC 60358);
- shunt power capacitors of the self-healing type for a.c. systems having a rated voltage up to and including 1 000 V (see IEC 60831);
- shunt capacitors for a.c. power systems having a rated voltage above 1 000 V (see IEC 60871);
- shunt capacitors of the non-self-healing type for a.c. systems having a rated voltage up to and including 1 000 V (see IEC 60931);
- small a.c. capacitors to be used for fluorescent and discharge lamps (see IEC 61048 and IEC 61049);
- capacitors to be used in power electronic circuits (see IEC 61071);
- capacitors for microwave ovens (see IEC 61270);
- capacitors for suppression of radio interference (under consideration);
- capacitors intended for use with d.c. voltage superimposed on the a.c. voltage.

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

The object of this standard is:

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

1.2 Normative references

The following normative documents contain provisions which, through reference in the text, constitute provisions of this part of IEC 60110. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 60110 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60050(436):1990, *International Electrotechnical Vocabulary (IEV) – Chapter 436: Power capacitors*

IEC 60110-2, — *Power capacitors for induction heating installations – Part 2: Ageing test, destruction test and requirements for disconnecting internal fuses* ¹⁾

IEC 60143, *Series capacitors for power systems*

IEC 60831, — *Shunt power capacitors of the self-healing type for a.c. systems having a rated voltage up to and including 1 000 V*

IEC 60871, — *Shunt capacitors for a.c. power systems having a rated voltage above 1 000 V*

IEC 60931, — *Shunt power capacitors of the non-self-healing type for a.c. systems having a rated voltage up to and including 1 000 V*

IEC 60996:1989, *Method for verifying accuracy of tan delta measurements applicable to capacitors*

[SIST EN 60110-1:1999](https://standards.iteh.ai/catalog/standards/sist/6b84915e-786c-4263-934a-fbd20c23bf5b/sist-en-60110-1-1999)

1.3 Definitions <https://standards.iteh.ai/catalog/standards/sist/6b84915e-786c-4263-934a-fbd20c23bf5b/sist-en-60110-1-1999>

For the purpose of this part of IEC 60110, the following definitions apply:

1.3.1

(capacitor) element

device consisting essentially of two electrodes separated by a dielectric. [IEV 436-01-03]

1.3.2

(capacitor) unit

assembly of one or more capacitor elements in the same container with terminals brought out. [IEV 436-01-04]

1.3.3

self-healing capacitor

capacitor the electric properties of which, after local breakdown of the dielectric, are rapidly and essentially restored. [IEV 436-03-12]

¹⁾ To be published