

AC motor capacitors - Part 1: General - Performance, testing and rating - Safety requirements - Guide for installation and operation

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EUROPEAN STANDARD

**EN 60252-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2001

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Supersedes EN 60252:1994

English version

**AC motor capacitors**  
**Part 1: General - Performance, testing and rating -**  
**Safety requirements - Guide for installation and operation**  
(IEC 60252-1:2001)

Condensateurs des moteurs à courant  
alternatif  
Partie 1: Généralités -  
Caractéristiques fonctionnelles,  
essais et valeurs assignées -  
Règles de sécurité -  
Guide d'installation et d'utilisation  
(CEI 60252-1:2001)

Motorkondensatoren  
Teil 1: Allgemeines -  
Leistung, Prüfung und Bemessung -  
Sicherheitsanforderungen -  
Leitfaden für die Installation und  
den Betrieb  
(IEC 60252-1:2001)

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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, Malta, 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 33/333/FDIS, future edition 1 of IEC 60252-1, prepared by IEC TC 33, Power capacitors, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60252-1 on 2001-09-25.

This European Standard supersedes EN 60252:1994 + corrigendum May 1994.

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) 2002-07-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2004-10-01

Annexes designated "normative" are part of the body of the standard.  
In this standard, annexes A and ZA are normative.  
Annex ZA has been added by CENELEC.

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### Endorsement notice (standards.iteh.ai)

The text of the International Standard IEC 60252-1:2001 was approved by CENELEC as a European Standard without any modification.

[SIST EN 60252-1:2002](#)

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

IEC 60110-1	NOTE	Harmonized as EN 60110-1:1998 (not modified).
IEC 60143	NOTE	Harmonized in the series EN 60143 (modified).
IEC 60358	NOTE	Harmonized as HD 597 S1:1992 (not modified).
IEC 60831-1	NOTE	Harmonized as EN 60831-1:1996 (not modified).
IEC 60871-1	NOTE	Harmonized as EN 60871-1:1997 (not modified).
IEC 60931-1	NOTE	Harmonized as EN 60931-1:1996 (not modified).
IEC 61048	NOTE	Harmonized as EN 61048:1993 (not modified).
IEC 61071-1	NOTE	Harmonized as EN 61071-1:1996 (modified).

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## 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 60068-2-3	1969	Basic environmental testing procedures Part 2: Tests - Test Ca: Damp heat, steady state	HD 323.2.3 S2 <sup>1)</sup>	1987
IEC 60068-2-6 + corr. March	1995 1995	Part 2: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	1995
IEC 60068-2-20	1979	Part 2: Tests - Test T: Soldering	HD 323.2.20 S3 <sup>2)</sup>	1988
IEC 60068-2-21	1999	Part 2-21: Tests - Test U: Robustness of terminations and integral mounting devices	EN 60068-2-21	1999
IEC 60112	1979	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions	HD 214 S2	1980
IEC 60309-1	1999	Plugs, socket-outlets and couplers for industrial purposes Part 1: General requirements	EN 60309-1	1999
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 60695-2-1/0	1994	Fire hazard testing Part 2: Test methods -- Section 1/sheet 0: Glow-wire test methods - General	EN 60695-2-1/0 <sup>3)</sup>	1996
IEC 60695-2-1/1	1994	Part 2: Test methods -- Section 1/sheet 1: Glow-wire end- product test and guidance	EN 60695-2-1/1 <sup>4)</sup>	1996

1) HD 323 2.3 S2 includes A1:1984 to IEC 60068-2-3.

2) HD 323 2.20 S3 includes A2:1987 to IEC 60068-2-20.

3) EN 60695-2-1/0 is superseded by EN 60695-2-10:2001 (IEC 60695-2-10:2000).

4) EN 60695-2-1/1 is superseded by EN 60695-2-11:2001 (IEC 60695-2-11:2000).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 4046	1978	Paper, board, pulp and related terms - Vocabulary	-	-

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**Condensateurs des moteurs à courant alternatif –**

**Partie 1:**

**Généralités – Caractéristiques fonctionnelles,  
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**Guide d'installation et d'utilisation**

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**AC motor capacitors –**

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**Part 1:**

**General – Performance, testing and rating –  
Safety requirements – Guide for installation  
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International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

## 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 specifications, technical reports or guides and they are accepted by the National Committees in that sense.
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- 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 60252-1 has been prepared by IEC technical committee 33: Power capacitors.

This first edition cancels and replaces the third edition of IEC 60252 published in 1993 and constitutes a technical revision.

The text of this standard is based on the third edition of IEC 60252 and on the following documents:

FDIS	Report on voting
33/333/FDIS	33/335/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 3.

Annex A forms an integral part of this standard.

Requirements for motor start capacitors will be considered in IEC 60252-2 that is under preparation. The problem regarding requirements for motor start capacitors was discussed during the TC 33 meeting held in Kista/Stockholm from 15 to 17 June 1999. It was unanimously stated that the requirements for motor start capacitors, indicated in IEC 60252: 1993 Ed. 3.0, will be valid until IEC 60252-2 is issued.

The committee has decided that the contents of this publication will remain unchanged until 2008. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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## AC MOTOR CAPACITORS –

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

## 1 General

### 1.1 Scope and object

This International Standard applies to motor capacitors intended for connection to windings of asynchronous motors supplied from a single-phase system having a frequency up to and including 100 Hz, and to capacitors to be connected to three-phase asynchronous motors so that these motors may be supplied from a single-phase system.

This standard covers impregnated or unimpregnated capacitors having a dielectric of paper, plastic film, or a combination of both, either metallized or with metal-foil electrodes, with rated voltages up to and including 660 V.

Motor start capacitors will be covered by IEC 60252-2\*

NOTE The following are excluded from this standard:

- shunt capacitors of the self-healing type for a.c. power systems of up to and including 1 000 V nominal voltage (see IEC 60831-1);
- shunt capacitors of non-self-healing type for a.c. power systems of up to and including 1 000 V nominal voltage (see IEC 60931-1);
- shunt capacitors for a.c. power systems having a nominal voltage above 1 000 V (see IEC 60871-1);
- capacitors for induction heat-generating plants, operating at frequencies between 40 Hz and 24 000 Hz (see IEC 60110-1);
- series capacitors (see IEC 60143);
- coupling capacitors and capacitor dividers (see IEC 60358);
- capacitors to be used in power electronic circuits (see IEC 61071-1);
- small a.c. capacitors to be used for fluorescent and discharge lamps (see IEC 61048);
- capacitors for suppression of radio interference (IEC publication under consideration);
- capacitors intended to be used in various types of electrical equipment and thus considered as components;
- capacitors intended for use with d.c. voltage superimposed on a.c. voltage.

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.

\* *AC motor capacitors – Part 2: Motor start capacitors.* In preparation. This will become the standard for both self-healing and electrolytic motor start capacitors.