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Roterande elektriska maskiner – Del 14: Mekaniska vibrationer hos vissa maskiner med axelhöjd minst 56 mm – Mätmetoder, bedömning och gränsvärden

Rotating electrical machines –

*Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher –
Measurement, evaluation and limits of vibration severity*

Som svensk standard gäller europastandarden EN IEC 60034-14:2018. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60034-14:2018.

Nationellt förord

Europastandarden EN IEC 60034-14:2018

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60034-14, Fourth edition, 2018 - Rotating electrical machines - Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher - Measurement, evaluation and limits of vibration severity**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60034-14, utgåva 2, 2004 och SS-EN 60034-14/A1, utgåva 1, 2007, gäller ej fr o m 2021-09-21.

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English Version

**Rotating electrical machines - Part 14: Mechanical vibration of
certain machines with shaft heights 56 mm and higher -
Measurement, evaluation and limits of vibration severity
(IEC 60034-14:2018)**

Machines électriques tournantes - Partie 14: Vibrations
mécaniques de certaines machines de hauteur d'axe
supérieure ou égale à 56 mm - Mesurage, évaluation et
limites de l'intensité vibratoire
(IEC 60034-14:2018)

Drehende elektrische Maschinen - Teil 14: Mechanische
Schwingungen von bestimmten Maschinen mit einer
Achshöhe von 56 mm und höher - Messung, Bewertung
und Grenzwerte der Schwingstärke
(IEC 60034-14:2018)

This European Standard was approved by CENELEC on 2018-09-21. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

European foreword

The text of document 2/1906/FDIS, future edition 4 of IEC 60034-14, prepared by IEC/TC 2 "Rotating machinery" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60034-14:2018.

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) 2019-06-21
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-09-21

This document supersedes EN 60034-14:2004.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 60034-14:2018 was approved by CENELEC as a European Standard without any modification.

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where 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 60034-1	-	Rotating electrical machines - Part 1: Rating and performance	EN 60034-1 ¹	-
IEC 60034-7	-	Rotating electrical machines - Part 7: Classification of types of constructions and mounting arrangements (IM Code)	EN 60034-7	-
ISO 2954	-	Mechanical vibration of rotating and reciprocating machinery; Requirements for instruments for measuring vibration severity	-	-
ISO 10817-1	-	Rotating shaft vibration measuring systems - Part 1: Relative and absolute sensing of radial vibration	-	-
ISO 20816-1	-	Mechanical vibration - Measurement and evaluation of machine vibration - Part 1: General guidelines	-	-
ISO 21940-32	-	Mechanical vibration - Rotor balancing - Part 32: Shaft and fitment key convention	-	-

¹Under preparation. Stage at the time of publication: FprEN 60034-1:2017.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ROTATING ELECTRICAL MACHINES –

**Part 14: Mechanical vibration of certain machines
with shaft heights 56 mm and higher – Measurement,
evaluation and limits of vibration severity**

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 60034-14 has been prepared by IEC technical committee 2: Rotating machinery.

This fourth edition cancels and replaces the third edition, published in 2003, and its amendment 1, published in 2007. It constitutes a technical revision.

The significant technical changes with respect to the previous edition are:

- a) 6.2 is significantly changed to better explain the definition "free suspension".
- b) 6.3: a second method of rigid mount is added since the first method is not always possible on the test floor.
- c) 7.1: an improved option for shaft key is defined.

- d) Clause 8: considerable effort to harmonize with NEMA MG 1 and IEEE 841 and API 541, and also establish levels which are achievable and more in line with best practices. Table 1 is reduced to two shaft-height range sections.
- e) 8.2: definition of twice line frequency simplified along with Figure 7 added.

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

FDIS	Report on voting
2/1906/FDIS	2/1914/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.

A list of all parts in the IEC 60034 series, published under the general title *Rotating electrical machines*, can be found on the IEC website.

NOTE For A table of cross-references of all IEC TC 2 publications can be found in the IEC TC 2 dashboard on the IEC website.

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.

ROTATING ELECTRICAL MACHINES –

Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher – Measurement, evaluation and limits of vibration severity

1 Scope

This part of IEC 60034 specifies the factory acceptance vibration test procedures and vibration limits for certain electrical machines under specified conditions, when uncoupled from any load or prime mover.

It is applicable to DC and three-phase AC machines, with shaft heights 56 mm and higher and a rated output up to 50 MW, at operational speeds from 120 min⁻¹ up to and including 15 000 min⁻¹.

This document is not applicable to machines mounted *in situ* (on site), three-phase commutator motors, single-phase machines, three-phase machines operated on single-phase systems, vertical waterpower generators, turbine generators greater than 20 MW and machines with magnetic bearings or series-wound machines.

NOTE For machines measured *in situ*, refer to applicable parts of ISO 20816, ISO 10816 and ISO 7919.

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 60034-1, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60034-7, *Rotating electrical machines – Part 7: Classification of types of constructions and mounting arrangements (IM Code)*

ISO 2954, *Mechanical vibration of rotating and reciprocating machinery – Requirements for instruments for measuring vibration severity*

ISO 10817-1, *Rotating shaft vibration measuring systems – Part 1: Relative and absolute sensing of radial vibration from rotating shafts*

ISO 20816-1, *Mechanical vibration – Measurement and evaluation of machine vibration – Part 1: General guidelines*

ISO 21940-32, *Mechanical vibration – Rotor balancing – Part 32: Shaft and fitment key convention*