

Svenska Elektriska Kommissionen, SEK

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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 60034-14:2004. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60034-14:2004.

Nationellt förord

Europastandarden EN 60034-14:2004

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60034-14, Third edition, 2003 - 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 utgiven svensk standard SS-EN 60034-14, utgåva 1, 1997, gäller ej fr o m 2006-12-01.

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

Svenska Elektriska Kommissionen, SEK, svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK

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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 60034-14:2003)

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
(CEI 60034-14:2003)

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 60034-14:2003)

This European Standard was approved by CENELEC on 2003-12-01. 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, 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 2/1257/FDIS, future edition 3 of IEC 60034-14, prepared by IEC TC 2, Rotating machinery, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60034-14 on 2003-12-01.

This European Standard supersedes EN 60034-14:1996.

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

- a) reduced vibration levels of new machines during factory acceptance tests; the new levels are based on a combination of displacement, velocity and acceleration rather than only velocity;
- b) the speed range is extended;
- c) the number of shaft-height ranges is reduced;
- d) a procedure for testing vertical motors has been introduced.

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) 2004-09-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2006-12-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60034-14:2003 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 referenced documents are indispensable for the application 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 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 60034-1 (mod)	- ¹⁾	Rotating electrical machines Part 1: Rating and performance	EN 60034-1	1998 ²⁾
IEC 60034-7	- ¹⁾	Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM Code)	EN 60034-7	1993 ²⁾
ISO 2954	- ¹⁾	Mechanical vibration of rotating and reciprocating machinery - Requirements for instruments for measuring vibration severity	-	-
ISO 7919-1	- ¹⁾	Mechanical vibration of non- reciprocating machines - Measurements on rotating shafts and evaluation criteria Part 1: General guidelines	-	-
ISO 8821	- ¹⁾	Mechanical vibration - Balancing - Shaft and fitment key convention	-	-
ISO 10817-1	- ¹⁾	Rotating shaft vibration measuring systems Part 1: Relative and absolute sensing of radial vibration	-	-

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

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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 d.c. and three-phase a.c. 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 standard is not applicable to machines mounted *in situ*, 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 10816 and ISO 7919.

2 Normative references

The following referenced documents are indispensable for the application 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 construction, mounting arrangements and terminal box position (IM Code)*

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

ISO 7919-1, *Mechanical vibration of non-reciprocating machines – Measurements on rotating shafts and evaluation criteria – Part 1: General guidelines*

ISO 8821, *Mechanical vibration – Balancing – Shaft and fitment key convention*

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