SVENSK STANDARD

SS-EN IEC 60034-11, utg 2:2025

Fastställd	Sida	Ansvarig kommitté
2025-06-04	1 (15)	SEK TK 2

Roterande elektriska maskiner – Del 11: Termiskt skydd

Rotating electrical machines – Part 11: Thermal protection

Som svensk standard gäller europastandarden EN IEC 60034-11:2024. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60034-11:2024.

Nationellt förord

Europastandarden EN IEC 60034-11:2024

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60034-11, Third edition, 2020 - Rotating electrical machines - Part 11: Thermal protection**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60034-11, utg 1:2005 med eventuella tillägg, ändringar och rättelser gäller ej fr o m 2027-11-30.

ICS 29.160.01

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60034-11

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Supersedes EN 60034-11:2004

English Version

Rotating electrical machines - Part 11: Thermal protection (IEC 60034-11:2020)

Machines électriques tournantes - Partie 11: Protection thermique
(IEC 60034-11:2020)

Drehende elektrische Maschinen - Teil 11: Thermischer Schutz
(IEC 60034-11:2020)

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

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SEK Svensk Elstandard

SS-EN IEC 60034-11, utg 2:2025

European foreword

The text of document 2/2011/FDIS, future edition 3 of IEC 60034-11, prepared by TC 2 "Rotating machinery" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60034-11:2024.

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) 2025-11-30
•	latest date by which the national standards conflicting with the document have to be withdrawn	(dow) 2027-11-30

This document supersedes EN 60034-11:2004 and all of its amendments and corrigenda (if any).

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.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60034-11:2020 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.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60034-1	2017	Rotating electrical machines - Part 1: Rating and performance	-	-
IEC 60034-12	2016	Rotating electrical machines - Part 12: Starting performance of single-speed three-phase cage induction motors	EN 60034-12	2017

IEC 60034-11

Edition 3.0 2020-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Rotating electrical machines – Part 11: Thermal protection

Machines électriques tournantes – Partie 11: Protection thermique

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ROTATING ELECTRICAL MACHINES –

Part 11: Thermal protection

FOREWORD

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International Standard IEC 60034-11 has been prepared by IEC technical committee 2: Rotating machinery.

This third edition cancels and replaces the second edition, published in 2004. This edition constitutes a technical revision.

The main changes with respect to the previous edition are

– the additional specification of winding temperature limits for temperature class 200 (N),
– the increased limits of maximum winding temperatures for overloads with rapid variation,
– the clarification that the motor winding may be permanently damaged after it has been exposed to temperatures according to Table 2,
– a clarification of scope,
– a clarification of the definition of indirect thermal protection,
– a clarifying note in Clause 6,
– the conversion of note 3 in Clause 6 into normal text including changes in wording,

– the incorporation of note 3 in Clause 5 into Clause 2,

– a clarification on the test methods for larger motors in 8.3.

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

FDIS	Report on voting
2/2011/FDIS	2/2019/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.

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.

INTRODUCTION

Thermal protection systems are based on the principle of protecting or monitoring the vulnerable machine parts against excessive temperatures. This requires the selection of the appropriate thermal protection device to suit both the type of protection required and the machine component to be protected. This document does not detail the protection methods available or specify the protection method to be used for particular applications, but instead it specifies the temperature of the protected parts that should not be exceeded if a fault or machine abuse occurs.

The requirements are not intended to guarantee a "normal" machine life for all conditions of use, but rather to avoid both failure and accelerated premature thermal ageing of the winding insulation. The requirements result from a compromise, since the level of protection should neither be set so low that it causes nuisance tripping nor so high that it allows continuous working at temperatures that will seriously affect the life of the winding insulation.

Normal insulation life can only be ensured by correct motor application and maintenance. Frequent operation at above the normal temperature limits, see IEC 60034-1, which cannot be prevented by built-in thermal protection without risking nuisance tripping may lead to a noticeable reduction in machine life. The life of the winding insulation is approximately halved for every 8 K to 10 K increase in the continuous operating temperature.

The requirement to incorporate thermal protection in a machine is a matter for agreement. The application of this document is a matter of agreement between the user and the machine manufacturer.

ROTATING ELECTRICAL MACHINES –

Part 11: Thermal protection

1 Scope

This part of IEC 60034 specifies requirements relating to the use of thermal protectors and thermal detectors incorporated into the stator windings or placed in other suitable positions in induction machines in order to protect them against serious damage due to thermal overloads. It applies to single-speed three-phase 50 Hz or 60 Hz cage induction motors in accordance with IEC 60034-1 and IEC 60034-12 that:

- have a rated voltage up to 1 000 V;
- are intended for direct-on-line or star-delta starting.

Not included are:

- direct protection of the rotor winding; the methods of protection only protect rotor windings indirectly; for large motors (particularly 2 pole motors) and for motors starting large inertia loads, special attention is given to rotor heating both when starting and especially after a "trip" has occurred;
- the protection of bearings and other mechanical parts;
- the protection methods to be used for particular applications.

NOTE 1 Although temperature values given in this document are higher than those specified in IEC 60034-1, they are not in conflict.

NOTE 2 Additional requirements may apply to particular motor types, such as those used in household appliances, or for motors used in explosive atmospheres.

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 60034-1:2017, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60034-12:2016, *Rotating electrical machines – Part 12: Starting performance of single-speed three-phase cage induction motors*