

TECHNICAL SPECIFICATION

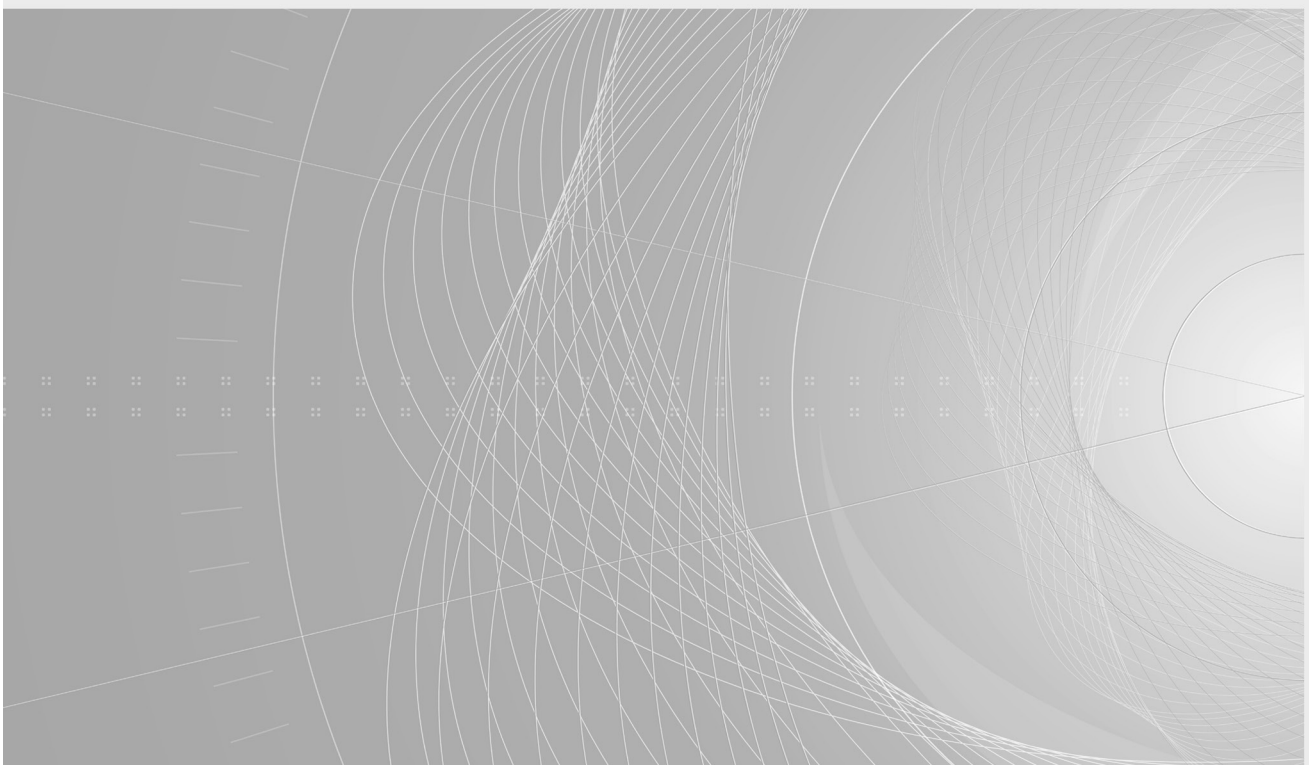


Rotating electrical machines –
Part 25: AC electrical machines used in power drive systems – Application guide

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ROTATING ELECTRICAL MACHINES –

Part 25: AC electrical machines used in power drive systems – Application guide

FOREWORD

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This commented version (CMV) of the official standard IEC TS 60034-25:2022 edition 4.0 allows the user to identify the changes made to the previous IEC TS 60034-25:2014 edition 3.0. Furthermore, comments from IEC TC 2 experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content.

A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text. Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note with the comment.

This publication contains the CMV and the official standard. The full list of comments is available at the end of the CMV.

IEC TS 60034-25 has been prepared by IEC technical committee 2: Rotating machinery. It is a Technical Specification.

This fourth edition of IEC TS 60034-25 cancels and replaces the third edition, published in 2014.

This edition includes the following significant technical changes with respect to the previous edition: **1**

- a) The definitions of a converter capable motor and a converter duty motor are added.
- b) Clause 18 modified to include the performance expectations of a converter capable motor.
- c) Clause 8 modified to update shaft currents section.
- d) Annex D added to define the derating requirements.

The text of this Technical Specification is based on the following documents:

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Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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. www.iec.ch/standardsdev/publications

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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INTRODUCTION

The performance characteristics and operating data for converter-fed electrical machines are influenced by the complete drive system, comprising supply system, converter, cabling, electrical machine, mechanical shafting and control equipment. Each of these components exists in numerous technical variants. Any values quoted in this document are thus indicative only.

In view of the complex technical interrelations within the system and the variety of operating conditions, it is beyond the scope and object of this document to specify numerical or limiting values for all the quantities which are of importance for the design of the power drive system.

To an increasing extent, it is the practice that power drive systems consist of components produced by different manufacturers. The object of this document is to explain, as far as possible, the influence of these components on the design of the electrical machine and its performance characteristics.

This document deals with both AC electrical machines which are specifically designed for converter supply and converter-fed electrical machines within the scope of IEC 60034-12, which are designed originally for mains supply.

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ROTATING ELECTRICAL MACHINES –

Part 25: AC electrical machines used in power drive systems – Application guide

1 Scope

This part of IEC 60034 describes the performance characteristics of AC electrical machines for use on converter supplies. For electrical machines specifically designed for converter duty application design features are defined. It also specifies the interface parameters and interactions between the electrical machine and the converter including installation guidance as part of a power drive system, but except for the voltage at the power interface which is described in IEC TS 61800-8.

The general requirements of relevant parts of the IEC 60034 series of standards also apply to electrical machines within the scope of this document.

For electrical machines operating in potentially explosive atmospheres, additional requirements as described in the IEC 60079 series ~~or IEC 61241 series~~ for dust ignition proof apply.

This document is not primarily concerned with safety. However, some of its recommendations may have implications for safety, which ~~should be~~ are considered as necessary.

Where a converter manufacturer provides specific installation recommendations, they ~~should~~ take precedence over the recommendations of this document.

2 Normative references

[IEC TS 60034-25:2022](https://standards.iteh.ai/catalog/standards/iec/3db1a02c-81b7-4b24-b53fa4475fe05b87/iec-ts-60034-25-2022)

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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:~~2010~~2022, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60034-2-1, *Rotating electrical machines – Part 2-1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles)*

IEC 60034-2-2, *Rotating electrical machines – Part 2-2: Specific methods for determining separate losses of large machines from tests – Supplement to IEC 60034-2-1*

IEC 60034-2-3, *Rotating electrical machines – Part 2-3: Specific test methods for determining losses and efficiency of converter-fed AC induction motors*

IEC 60034-6, *Rotating electrical machines – Part 6: Methods of cooling (IC Code)*

IEC 60034-9:~~2003~~2021, *Rotating electrical machines – Part 9: Noise limits*
~~Amendment 1:2007~~

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