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Električni rotacijski stroji - 30-2. del: Razredi izkoristka izmeničnih motorjev s spremenljivo hitrostjo (koda IE) (IEC/TS 60034-30-2:2016)

Rotating electrical machines - Part 30-2: Efficiency classes of variable speed AC motors (IE-code) (IEC/TS 60034-30-2:2016)

Drehende elektrische Maschinen - Teil 30-2: Wirkungsgrad□Klassifizierung von Wechselstrommotoren mit variabler Drehzahl (IE-Code) (IEC/TS 60034-30-2:2016)

Machines électriques tournantes - Partie 30-2: Classes de rendement des moteurs à courant alternatif à vitesse variable (code IE) (IEC/TS 60034-30-2:2016)

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Rotating electrical machines - Part 30-2: Efficiency classes of variable speed AC motors (IE-code) (IEC/TS 60034-30-2:2016)

Machines électriques tournantes - Partie 30-2: Classes de rendement des moteurs à courant alternatif à vitesse variable (code IE) (IEC/TS 60034-30-2:2016)

Drehende elektrische Maschinen - Teil 30-2: Wirkungsgrad-Klassifizierung von Wechselstrommotoren mit variabler Drehzahl (IE-Code) (IEC/TS 60034-30-2:2016)

This Technical Specification was approved by CENELEC on 2021-08-16.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

This document (CLC IEC/TS 60034-30-2:2021) consists of the text of IEC/TS 60034-30-2:2016 prepared by IEC/TC 2 "Rotating machinery".

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Endorsement notice

The text of the International Technical Specification IEC/TS 60034-30-2:2016 was approved by CENELEC as a European Technical Specification without any modification.

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

IEC 60034-5	NOTE	Harmonized as EN IEC 60034-5
IEC 60034-12	NOTE	Harmonized as EN 60034-12
IEC/TS 60034-25	NOTE	Harmonized as CLC/TS 60034-25
IEC/TS 60034-31	NOTE	Harmonized as CLC/TS 60034-31
ISO 25745-2	NOTE	Harmonized as EN ISO 25745-2

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 When 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.

Publication	Year	Title	EN/HD	Year
IEC 60034-1	-	Rotating electrical machines - Part 1: Rating and performance	EN 60034-1[1]	-
IEC/TS 60034-2-3[2]	-	Rotating electrical machines - Part 2-3: Specific test methods for determining losses and efficiency of converter-fed AC induction motors	EN IEC 60034-2-3	-
IEC 60034-30-1	-	Rotating electrical machines - Part 30-1: Efficiency classes of line operated AC motors (IE code)	EN 60034-30-1	-
IEC 61800-9-2	-	Adjustable speed electrical power drive systems - Part 9-2: Ecodesign for power drive systems, motor starters, power electronics and their driven applications - Energy efficiency indicators for power drive systems and motor starters	EN 61800-9-2	-

[1] A new edition and common modifications are currently under preparation. Stage of these documents at the time of publication: FprEN 60034-1 and FprEN 60034-1/prAA.
[2] This standard has been withdrawn and replaced with IEC 60034-2-3:2020.

IEC TS 60034-30-2

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TECHNICAL SPECIFICATION

Rotating electrical machines –
Part 30-2: Efficiency classes of variable speed AC motors (IE-code)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ROTATING ELECTRICAL MACHINES –

Part 30-2: Efficiency classes of variable speed AC motors (IE-code)

FOREWORD

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- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 60034-30-2, which is a technical specification, has been prepared by IEC technical committee 2: Rotating machinery.

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

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
2/1833/DTS	2/1850A/RVC

Full information on the voting for the approval of this technical specification 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 A table of cross-references of all IEC TC 2 publications can be found on 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.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

This technical specification provides for the global harmonization of energy-efficiency classes of variable speed electric motors. It deals with all types of AC low-voltage electric motors that are rated for variable speed operation in their constant magnetic-flux speed-range (base speed-range). An electronic frequency converter provides variable voltage and variable frequency.

NOTE For the time being, IEC TS 60034-2-3, which is the testing basis of this document, is limited to induction motors. However, the relevant input-output procedure 3-C is already applicable to all kinds of variable speed AC motors. Future editions of IEC TS 60034-2-3 will have an expanded scope and include testing procedures for synchronous machines.

This technical specification regards energy efficiency classification of AC motors rated for variable voltage and frequency, namely induction motors and synchronous motors not covered in IEC 60034-30-1. It is harmonized with the future standard IEC 61800-9-2 where IE-classifications of frequency converters (complete drive modules = CDM) and IES-classifications of power drive systems (PDS) are defined.

An efficient motor alone does not necessarily result in an efficient PDS. Users should select the efficiency class in accordance with a given application depending on the actual load / speed operating points and related operating time.

It may not be energy efficient to select very high efficiency S1 motors for intermittent or short time duty or part load applications. The use of the Extended Product Approach (EPA) as described in the future standard series IEC 61800-9 will help applicative sectors for specification of energy efficiency performance of power driven equipment and parts.

It is not expected that all manufacturers will produce motors for all efficiency classes nor all ratings of a given class.

IE-codes are not limited to motors, but may in future be used to classify other components such as frequency converters and gearboxes. However, it is anticipated that other components are rated with a comparable system: IE1 meaning low efficiency up to IE5 meaning the highest efficiency.