

BS EN 60034-30:2009



BSI Standards Publication

Rotating electrical machines —

Part 30: Efficiency classes of single-speed, three-phase, cage-induction motors (IE-code)

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National foreword

This British Standard is the UK implementation of EN 60034-30:2009. It is identical to IEC 60034-30:2008.

The UK participation in its preparation was entrusted to Technical Committee PEL/2, Rotating electrical machinery.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Amendments issued since publication

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EUROPEAN STANDARD
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EN 60034-30

March 2009

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English version

**Rotating electrical machines -
Part 30: Efficiency classes of single-speed, three-phase,
cage-induction motors (IE-code)
(IEC 60034-30:2008)**

Machines électriques tournantes -
Partie 30: Classes de rendement
pour les moteurs à induction triphasés
à cage, mono vitesse (Code IE)
(CEI 60034-30:2008)

Drehende elektrische Maschinen -
Teil 30: Wirkungsgrad-Klassifizierung
von Drehstrommotoren mit Käfigläufern,
ausgenommen polumschaltbare Motoren
(IE-Code)
(IEC 60034-30:2008)

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CENELEC

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

Central Secretariat: avenue Marnix 17, B - 1000 Brussels

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Foreword

The text of document 2/1518/FDIS, future edition 1 of IEC 60034-30, prepared by IEC TC 2, Rotating machinery, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60034-30 on 2009-03-01.

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) 2009-12-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2012-03-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60034-30:2008 was approved by CENELEC as a European Standard 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 60034-5:2001 (not modified).
IEC 60034-12	NOTE	Harmonized as EN 60034-12:2002 (not modified).
IEC/TS 60034-17	NOTE	Harmonized as CLC/TS 60034-17:2004 (not modified).
IEC/TS 60034-25	NOTE	Harmonized as CLC/TS 60034-25:2008 (not modified).
IEC 60079-0	NOTE	Harmonized as EN 60079-0:2006 (modified).

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	- ¹⁾	Rotating electrical machines - Part 1: Rating and performance	EN 60034-1	2004 ²⁾
IEC 60034-2-1	- ¹⁾	Rotating electrical machines - Part 2-1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles)	EN 60034-2-1	2007 ²⁾
IEC 60034-6	- ¹⁾	Rotating electrical machines - Part 6: Methods of cooling (IC Code)	EN 60034-6	1993 ²⁾
IEC 60072-1	- ¹⁾	Dimensions and output series for rotating electrical machines - Part 1: Frame numbers 56 to 400 and flange numbers 55 to 1 080	-	-

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

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INTRODUCTION

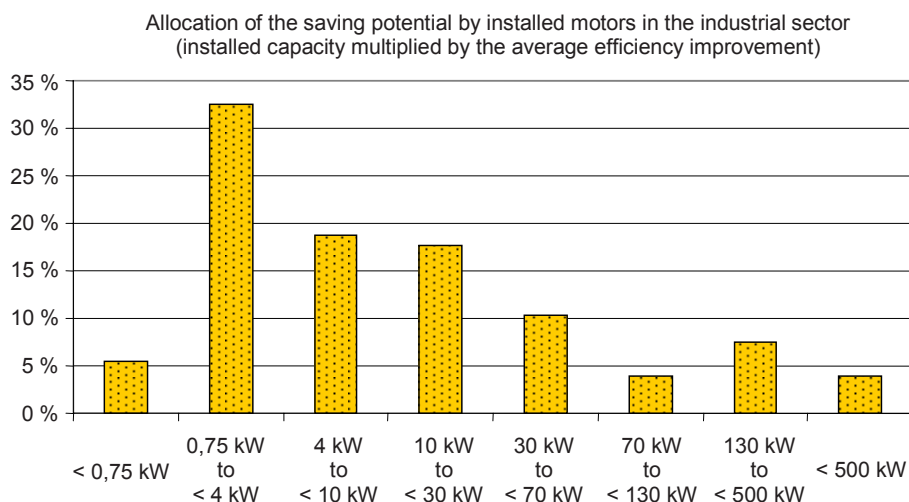
This International Standard provides for the global harmonization of energy-efficiency classes for electric motors.

Electric motor applications in industry consume between 30 % and 40 % of the generated electrical energy worldwide. Improving efficiency of the complete drive system (i.e. motor and adjustable-speed drives) including the application (or process) is therefore a major concern in energy-efficiency efforts. The total energy saving potential of an optimized system is assumed to be around 30 % to 60 %.

According to the findings of the IEA 7 July 2006 Motor Workshop, electric motors with improved efficiency in combination with frequency converters can save about 7 % of the total worldwide electrical energy. Roughly one quarter to one third of these savings come from the improved efficiency of the motor. The remaining part results from system improvements.

Many different energy efficiency standards for cage induction motors are already in use (NEMA, EPACT, CSA, CEMEP, COPANT, AS/NZS, JIS, GB and others) with new classes currently being developed. It becomes increasingly difficult for manufacturers to design motors for a global market and for customers to understand differences and similarities of standards in different countries.

Motors from 0,75 kW up to 375 kW make up the vast majority of installed motor population and are covered by this standard as shown in Figure 1.



Sources: 1. SAVE-Report "Improving the Penetration of Energy Efficient Motors and Drives" (1996)
2. CEMEP calculations

IEC 1823/08

Figure 1 ± Allocation of the saving potential by installed motors in the industrial sector

In some countries smaller motors are included in energy efficiency regulations. Most of these motors are not three-phase, cage-induction machines. Also they typically do not run continuously so their energy saving potential is rather limited.

In some countries 8-pole motors are included in energy efficiency regulations. However, their market share is already very low (1 % or less). Due to increasing acceptance of variable-speed drives and the low cost associated with 4- and 6-pole standard motors it is expected that 8-pole motors will even further disappear from the general market in the future. Therefore, this standard does not include provisions for 8-pole motors.