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Standards

Irish Standard  
I.S. EN 60034-9:2005

## Rotating electrical machines -- Part 9: Noise limits (IEC 60034-9:2003 (MOD))

## I.S. EN 60034-9:2005

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**NSAI**  
Standards

Amendment  
I.S. EN 60034-9:2005/A1:2007

# Rotating electrical machines -- Part 9: Noise limits (IEC 60034-9:2003/A1:2007 (EQV))

## I.S. EN 60034-9:2005/A1:2007

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**EUROPEAN STANDARD**

**EN 60034-9/A1**

**NORME EUROPÉENNE**

**EUROPÄISCHE NORM**

**April 2007**

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ICS 29.160

English version

**Rotating electrical machines -  
Part 9: Noise limits  
(IEC 60034-9:2003/A1:2007)**

**Machines électriques tournantes -  
Partie 9: Limites de bruit  
(CEI 60034-9:2003/A1:2007)**

**Drehende elektrische Maschinen -  
Teil 9: Geräuschgrenzwerte  
(IEC 60034-9:2003/A1:2007)**

This amendment A1 modifies the European Standard EN 60034-9:2005; it was approved by CENELEC on 2007-04-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

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**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**

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**I.S. EN 60034-9:2005/A1:2007**

EN 60034-9:2005/A1:2007

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**Foreword**

The text of document 2/1383/CDV, future amendment 1 to IEC 60034-9:2003, prepared by IEC TC 2, Rotating machinery, was submitted to the IEC-CENELEC parallel Unique Acceptance Procedure and was approved by CENELEC as amendment A1 to EN 60034-9:2005 on 2007-04-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 2008-01-01
- latest date by which the national standards conflicting  
with the amendment have to be withdrawn (dow) 2010-04-01

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**Endorsement notice**

The text of amendment 1:2007 to the International Standard IEC 60034-9:2003 was approved by CENELEC as an amendment to the European Standard without any modification.

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EUROPEAN STANDARD

**EN 60034-9**

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2005

ICS 29.160

Supersedes EN 60034-9:1997

English version

**Rotating electrical machines**  
**Part 9: Noise limits**  
(IEC 60034-9:2003, modified)

Machines électriques tournantes  
Partie 9: Limites de bruit  
(CEI 60034-9:2003, modifiée)

Drehende elektrische Maschinen  
Teil 9: Geräuschgrenzwerte  
(IEC 60034-9:2003, modifiziert)

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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.

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Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

The text of the International Standard IEC 60034-9:2003, prepared by IEC TC 2, Rotating machinery, together with the common modifications prepared by the Technical Committee CENELEC TC 2, Rotating machinery, was submitted to the formal vote and was approved by CENELEC as EN 60034-9 on 2005-03-01.

This European Standard supersedes EN 60034-9:1997.

It includes the following significant technical changes:

- it reduces the no-load noise limits for single-speed, cage-induction motors according to Table 2;
- it provides informative guidance on
  - the measurement surface to be used during some tests,
  - a method for the determination of an average sound pressure level,
  - an indication of "uncertainty" based upon the category of test procedure.

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) | 2006-03-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn   | (dow) | 2008-03-01 |

Annex ZA has been added by CENELEC.

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### ROTATING ELECTRICAL MACHINES –

#### Part 9: Noise limits

#### FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60034-9 has been prepared by IEC technical committee 2: Rotating machinery.

This edition includes the following significant technical changes:

- this edition reduces the no-load noise limits for single-speed, cage-induction motors according to Table 2;
- it also provides informative guidance on
  - the measurement surface to be used during some tests,
  - a method for the determination of an average sound pressure level,
  - an indication of "uncertainty" based upon the category of test procedure.

This consolidated version of IEC 60034-9 consists of the fourth edition (2003) [documents 2/1256/FDIS and 2/1272/RVD] and its amendment 1 (2007) [documents 2/1383/CDV and 2/1413/RVC].

The technical content is therefore identical to the base edition and its amendment(s) and has been prepared for user convenience.

It bears the edition number 4.1.

A vertical line in the margin shows where the base publication has been modified by amendment 1.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

## INTRODUCTION

Acoustic quantities can be expressed in sound pressure terms or sound power terms. The use of a sound power level, which can be specified independently of the measurement surface and environmental conditions, avoids the complications associated with sound pressure levels, which require additional data to be specified. Sound power levels provide a measure of radiated energy and have advantages in acoustic analysis and design.

## ROTATING ELECTRICAL MACHINES –

### Part 9: Noise limits

#### 1 Scope

This part of IEC 60034:

- specifies test methods for the determination of sound power level of rotating electrical machines;
- specifies maximum A-weighted sound power levels for factory acceptance testing of network-supplied, rotating electrical machines in accordance with IEC 60034-1, having methods of cooling according to IEC 60034-6 and degrees of protection according to IEC 60034-5, and having the following characteristics:
  - standard design, either a.c. or d.c., without additional special electrical, mechanical, or acoustical modifications intended to reduce the sound power level;
  - rated output from 1 kW (or kVA) up to and including 5 500 kW (or kVA);
  - rated speed not greater than 3 750 min<sup>-1</sup>.
- provides guidance for the determination of noise levels for a.c. cage induction motors supplied by converters.

Excluded are a.c. motors supplied by converters. For these conditions see IEC 60034-17 for guidance.

The object of this standard is to determine maximum A-weighted sound power levels,  $L_{WA}$  in decibels, dB, for airborne noise emitted by rotating electrical machines of standard design, as a function of power, speed and load, and to specify the method of measurement and the test conditions appropriate for the determination of the sound power level of the machines to provide a standardized evaluation of machine noise up to the maximum specified sound power levels. This standard does not provide correction for the existence of tonal characteristics.

Sound pressure levels at a distance from the machine may be required in some applications, such as hearing protection programs. Information is provided on such a procedure in Clause 8 based on a standardized test environment.

NOTE 1 This standard recognizes the economic reason for the availability of standard noise-level machines for use in non-critical areas or for use with supplementary means of noise attenuation.

NOTE 2 Where sound power levels lower than those specified in Tables 1 or 2 are required, these should be agreed between the manufacturer and the purchaser, as special electrical, mechanical, or acoustical design may involve additional measures.

#### 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*

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