

**SLOVENSKI STANDARD**  
**SIST EN 60034-1:2003/A11:2003**  
**01-december-2003**

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**Rotating electrical machines - Part 1: Rating and performance - Amendment A11**

Rotating electrical machines -- Part 1: Rating and performance

Drehende elektrische Maschinen -- Teil 1: Bemessung und Betriebsverhalten

Machines électriques tournantes -- Partie 1: Caractéristiques assignées et caractéristiques de fonctionnement

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**Ta slovenski standard je istoveten z: EN 60034-1:1998/A11:2002**

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**ICS:**

29.160.01	Rotacijski stroji na splošno	Rotating machinery in general
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**SIST EN 60034-1:2003/A11:2003**                      **en**

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EUROPEAN STANDARD

**EN 60034-1/A11**

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2002

ICS 29.160.01

English version

**Rotating electrical machines  
Part 1: Rating and performance**

Machines électriques tournantes  
Partie 1: Caractéristiques assignées  
et caractéristiques de fonctionnement

Drehende elektrische Maschinen  
Teil 1: Bemessung und Betriebsverhalten

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This amendment A11 modifies the European Standard EN 60034-1:1998; it was approved by CENELEC on 2002-07-01. 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.

[SIST EN 60034-1:2003/A11:2003](#)

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This amendment 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

**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**

## Foreword

This amendment was prepared by the Technical Committee CENELEC TC 2, Rotating machinery.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A11 to EN 60034-1:1998 on 2002-07-01.

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) 2003-07-01
  - latest date by which the national standards conflicting  
with the amendment have to be withdrawn (dow) 2005-07-01
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Replace section 12 by:

## Section 12: Electromagnetic compatibility (EMC)

### 12.1 General

The following requirements apply to rotating electrical machines with rated voltages not exceeding 1 000 V a.c. or 1 500 V d.c. and which are intended for operation in industrial environments.

Electronic components mounted inside a rotating electrical machine and which are essential for its operation (for example rotating excitation devices) are part of the machine.

Requirements which apply to the final drive system and its components, for example power and control electronic equipment, coupled machines, monitoring devices, etc., whether mounted inside or outside the machine, are outside the scope of this standard.

The requirements of this section apply to machines that are supplied directly to the end-user.

NOTE Machines that are intended for incorporation as components in an apparatus, where the enclosure and assembly will affect the EMC emissions, are covered by the EMC standard that relates to the final product.

Transients (such as starting) are not covered by this clause.

### 12.2 Immunity

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#### 12.2.1 Machines not incorporating electronic circuits

Machines without electronic circuits are not sensitive to electromagnetic emissions under normal service conditions and, therefore, no immunity tests are required.

#### 12.2.2 Machines incorporating electronic circuits

As electronic circuits which are incorporated in machines generally utilise components that are passive (for example diodes, resistors, varistors, capacitors, surge suppressors, inductors), immunity tests are not required.

### 12.3 Emission

#### 12.3.1 Machines without brushes

Radiated and conducted emissions shall comply with the requirements of EN 55011, Class B, Group 1 (see Table ZB.1).

#### 12.3.2 Machines with brushes

Radiated and conducted (if applicable) emissions shall comply with the requirements of EN 55011, Class A, Group 1 (see Table ZB.2).

### 12.4 Immunity tests

Immunity tests are not required.

## 12.5 Emission tests

Tests shall be carried out in accordance with EN 55011, EN 55014 and CISPR 16 as applicable.

### 12.5.1 Machines without brushes

Machines without brushes shall comply with the emission limits of 12.3.1.

NOTE The emission from squirrel cage induction motors are always so low that testing is not needed.

### 12.5.2 Machines with brushes

Machines with brushes, when tested at no-load, shall comply with the emission limits of 12.3.2

NOTE 1 The no-load measurement is justified by the negligible influence of load on the emission.

NOTE 2 There are no conducted emission from d.c. machines as they are not directly connected to the a.c. supply.

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Add the following new annex:

**Annex ZB**  
(informative)

**Electromagnetic compatibility (EMC) limits**

**Table ZB.1 – Electromagnetic emission limits for machines without brushes**

	Frequency range	Limits
Radiated emission	30 MHz to 230 MHz	30 dB( $\mu$ V/m) quasi peak, measured at 10 m distance (NOTE 1)
	230 MHz to 1 000 MHz	37 dB( $\mu$ V/m) quasi peak, measured at 10 m distance (NOTE 1)
Conducted emission on a.c. supply terminals	0,15 MHz to 0,50 MHz Limits decrease linearly with logarithm frequency	66 dB( $\mu$ V) to 56 dB( $\mu$ V) quasi peak 56 dB( $\mu$ V) to 46 dB( $\mu$ V) average
	0,50 MHz to 5 MHz	56 dB( $\mu$ V) quasi peak 46 dB( $\mu$ V) average
	5 MHz to 30 MHz	60 dB( $\mu$ V) quasi peak 50 dB( $\mu$ V) average
NOTE 1 May be measured at 3 m distance using the limits increased by 10 dB.		
NOTE 2 Emission limits are from EN 55011, Class B, Group 1.		

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**Table ZB.2 – Electromagnetic emission limits for machines with brushes**

	Frequency range	Limits
Radiated emission	30 MHz to 230 MHz	30 dB( $\mu$ V/m) quasi peak, measured 30 m distance (NOTE 1)
	230 MHz to 1 000 MHz	37 dB( $\mu$ V/m) quasi peak, measured 30 m distance (NOTE 1)
Conducted emission on a.c. supply terminals	0,15 MHz to 0,50 MHz	79 dB( $\mu$ V) quasi peak 66 dB( $\mu$ V) average
	0,50 MHz to 30 MHz	73 dB( $\mu$ V) quasi peak 60 dB( $\mu$ V) average
NOTE 1 May be measured at 10 m distance using the limits increased by 10 dB or measured at 3 m distance using the limits increased by 20 dB.		
NOTE 2 Emission limits are from EN 55011, Class A, Group 1.		