

# **SLOVENSKI STANDARD**

## **SIST EN 60034-7:1999**

**01-april-1999**

**Nadomešča:**  
**SIST HD 537:1992**

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### **Rotating electrical machines - Part 7: Classification of types of construction and mounting arrangements (IM Code) (IEC 60034-7:1992)**

Rotating electrical machines -- Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM Code)

Drehende elektrische Maschinen -- Teil 7: Klassifizierung der Bauarten, der Aufstellungsarten und der Klemmkasten-Lage (IM-Code)

Machines électriques tournantes -- Partie 7: Classification des modes de construction, des dispositions de montage et position de la boîte à bornes (Code IM)

**Ta slovenski standard je istoveten z: EN 60034-7:1993**

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#### **ICS:**

29.160.01	Rotacijski stroji na splošno	Rotating machinery in general
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EUROPEAN STANDARD

EN 60034-7

NORME EUROPEENNE

EUROPÄISCHE NORM

January 1993

UDC 621.313:001.4:003.62

Supersedes HD 53.7 S1:1974

Descriptors: Rotating electrical machine, classification, designation,  
types of construction, mounting arrangements, IM code

## ENGLISH VERSION

Rotating electrical machines  
Part 7: Classification of types of constructions  
and mounting arrangements (IM Code)  
(IEC 34-7:1992)

Machines électriques tournantes  
Partie 7: Classification des  
formes de construction et des  
dispositions de montage  
(Code IM)  
(CEI 34-7:1992)

Umlaufende elektrische Maschinen  
Teil 7: Bezeichnung für  
Bauformen und Aufstellung  
(IM-Code)  
(IEC 34-7:1992)

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SIST EN 60034-7:1999

This European Standard was approved by CENELEC on 1992-03-24.  
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which stipulate the conditions for giving this European Standard the status of  
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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  
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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

Page 2  
EN 60034-7:1993

## FOREWORD

The text of document 2H(CO)29, as prepared by sub-committee 2H: Degrees of protection, methods of cooling and mounting arrangements, of IEC technical committee 2: Rotating machinery, was submitted to the IEC-CENELEC parallel vote in July 1991.

The reference document was approved by CENELEC as EN 60034-7 on 24 March 1992.

The following dates were fixed:

- latest date of publication of  
an identical national standard (dop) 1993-12-01
- latest date of withdrawal of  
conflicting national standards (dow) 1993-12-01

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ENDORSEMENT NOTICE

SIST EN 60034-7:1999

The text of the International Standard IEC 34-7:1992 was approved by CENELEC as a European Standard without any modification.

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# NORME INTERNATIONALE INTERNATIONAL STANDARD

**CEI  
IEC  
34-7**

Deuxième édition  
Second edition  
1992-12

## Machines électriques tournantes

### Partie 7:

Classification des formes de construction et  
des dispositions de montage (Code IM)

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### Rotating electrical machines

### Part 7:

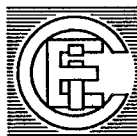
Classification of types of constructions and  
mounting arrangements (IM Code)

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## ROTATING ELECTRICAL MACHINES

Part 7: Classification of types of construction  
and mounting arrangements (IM Code)

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

International Standard IEC 34-7 has been prepared by IEC by sub-committee 2H Degrees of protection, methods of cooling and mounting arrangements, of IEC technical committee 2 Rotating machinery.

This second edition cancels and replaces the first edition published in 1972 and constitutes a technical revision.

The text of this standard is based on the following documents:

DIS	Report on Voting
2H(CO)29	2H(CO)30

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

IEC 34 consists of the following parts, under the general title Rotating electrical machines:

- |         |  |
|---------|--|
| Part 1  | Rating and performance, issued as IEC 34-1   |
| Part 2  | Methods for determining losses and efficiency of rotating electrical machinery from tests (excluding machines for traction vehicles), issued as IEC 34-2 |
| Part 2A | First supplement Measurement of losses by the calorimetric method, issued as IEC 34-2A   |

- Part 3 Specific requirements for turbine-type synchronous machines, issued as IEC 34-3
- Part 4 Methods for determining synchronous machine quantities from tests, issued as IEC 34-4
- Part 5 Classification of degrees of protection provided by enclosures of rotating electrical machines (IP Code), issued as IEC 34-5
- Part 6 Methods of cooling (IC Code), issued as IEC 34-6
- Part 7 Classification of types of constructions and mounting arrangements (IM Code), issued as IEC 34-7
- Part 8 Terminal markings and direction of rotation of rotating machines, issued as IEC 34-8
- Part 9 Noise limits, issued as IEC 34-9
- Part 10 Conventions for description of synchronous machines, issued as IEC 34-10
- Part 11 Built-in thermal protection, Chapter 1 Rules for protection of rotating electrical machines, issued as IEC 34-11
- Part 11-2 Built-in thermal protection Chapter 2 Thermal detectors and control units used in thermal protection systems, issued as IEC 34-11-2
- Part 11-3 Built-in thermal protection Chapter 3 General rules for thermal protectors used in thermal protection systems, issued as IEC 34-11-3
- Part 12 Starting performance of single-speed three-phase cage induction motors for voltages up to and including 660 V, issued as IEC 34-12
- Part 13 Specification for mill auxiliary motors, issued as IEC 34-13
- Part 14 Mechanical vibration of certain machines with shaft heights 56 mm and higher - Measurement, evaluation and limits of the vibration severity, issued as IEC 34-14
- Part 15 Impulse voltage withstand levels of rotating a c machines with form-wound stator coils, issued as IEC 34-15
- Part 16-1 Excitation systems for synchronous machines Chapter 1 Definitions, issued as IEC 34-16-1
- Part 16-2 Excitation systems for synchronous machines Chapter 2 Models for system studies, issued as IEC 34-16-2
- Part 18-1 Functional evaluation of insulation systems – Section 1 General guidelines, issued as IEC 34-18-1
- Part 18-21 Functional evaluation of insulation systems – Section 21 Test procedures for wire-wound windings – Thermal evaluation and classification, issued as IEC 34-18-21
- Part 18-31 Functional evaluation of insulation systems – Section 31 Test procedures for form-wound windings – Thermal evaluation and classification of insulation systems used in machines up to and including 50 MVA and 15 kV, issued as IEC 34-18-31

Annex A is for information only



## ROTATING ELECTRICAL MACHINES

### Part 7 Classification of types of construction and mounting arrangements (IM Code)

#### SECTION 1 SCOPE AND DEFINITIONS

##### 1 1 Scope

This part of IEC 34 specifies the IM code, a classification of types of construction and mounting arrangements of rotating electrical machines

Two systems of classification are provided as follows

- Code I (see section 2)      An alpha-numeric designation applicable to machines with endshield bearing(s) and only one shaft extension
- Code II (see section 3)      An all-numeric designation applicable to a wider range of types of machines including types covered by Code I

The type of machine not covered by Code II should be fully described in words

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The relationship between Code I and Code II is given in annex A

##### 1 2 Definitions [SIST EN 60034-7:1999 https://standards.iteh.ai/catalog/standards/sist/3915f8f7-72f8-488c-aeb6-b6e6c18b16d9/sist-en-60034-7-1999](https://standards.iteh.ai/catalog/standards/sist/3915f8f7-72f8-488c-aeb6-b6e6c18b16d9/sist-en-60034-7-1999)

For the purposes of this part of IEC 34, the following definitions apply

**1 2 1 type of construction:** The arrangement of machine components with regard to fixings, bearing arrangement and shaft extension (IEV 411-13-34)\*

**1 2 2 mounting arrangement:** The orientation on site of the machine as the whole with regard to shaft alignment and position of fixings (IEV 411-13-35)

**1 2 3 shaft extension:** A portion of a shaft extending beyond an extreme bearing (IEV 411-13-07)

**NOTE** - The bearing may be on the machine itself or be part of an assembly comprising a machine and (an) additional bearing(s)

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\* IEC 50 (411) 1973 International Electrotechnical Vocabulary (IEV), Chapter 411 Rotating machines

**1 2 4 drive-end of a machine (D-end):** That end of the machine which accomodates the shaft end (IEV 411-13-36)

NOTE - This is normally the driving end of a motor or the driven end of a generator

Where for some machines the above definition is inadequate, the D-end is defined as follows

- a) Machine with two shaft extensions of different diameter the end with the larger shaft diameter,
- b) Machine with a cylindrical shaft extension and a conical shaft extension of the same diameter the end with cylindrical shaft extention,
- c) Machine with other arrangements according to IEC 34-8 if applicable, otherwise by agreement

NOTE - The outer diameter of a forged on flange is taken to be the diameter of the shaft extension

**1 2 5 non-drive end of the machine (N-end):** That end of the machine opposite to the drive end (IEV 411-13-37)

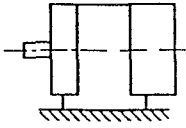
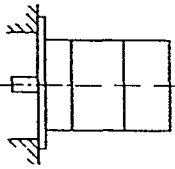
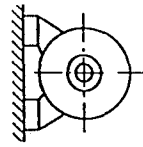
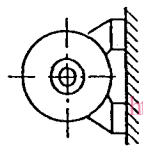
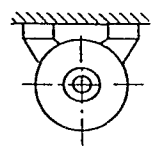
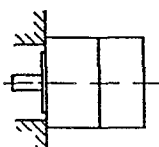
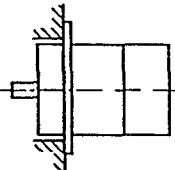
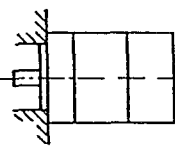
## SECTION 2 CODE I (ALPHA-NUMERIC DESIGNATION)

### 2 1 Designation of machines with horizontal shafts (standards.iteh.ai)

In Code I, a machine with a horizontal shaft is designated by the Code letters IM (International Mounting), followed by a space, the letter B and one or two numerals, as shown in table 1

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**Table 1 - Designations for machines with horizontal shafts (IM B )**

Designation	Sketch	Type of construction				Mounting arrangement (Horizontal shaft)
		Number of end-shield bearings	Feet	Flange	Other details	
IM B3		2	With feet	—	—	Mounted by feet, feet down
IM B5		2	—	With flange	Endshield flange at D end with access to back	Mounted on D end side of flange
IM B6		2	With feet	—	—	Mounted by feet, feet left (viewed from D end)
IM B7		2	With feet	—	—	Mounted by feet, feet right (viewed from D end)
IM B8		2	With feet	—	—	Mounted by feet feet up
IM B9		1	—	—	No endshield or bearing at D end	Mounted on end face of frame at D end
IM B10		2	—	With flange	Special flange at D end	Mounted on D-end side of flange
IM B14		2	—	With flange	Endshield spigot No access to back Flange at D-end	Mounted on D-end side of flange