

SLOVENSKI STANDARD SIST EN 60034-8:2007

01-november-2007

BUXca Yý U. SIST EN 60034-8:2003

9`Y_Hf] b]'fcHWJ'g_]'gHfc']'!', "XY`.'CnbU_Y'df]_`1 _cj ']b'ga Yf]'j fhYb'UffcHWJ'YŁ f\p3 '* \$\$' (!, .&\$\$+\t

Rotating electrical machines - Part 8: Terminal markings and direction of rotation (IEC 60034-8:2007)

Drehende elektrische Maschinen - Teil 8: Anschlussbezeichnungen und Drehsinn (IEC 60034-8:2007) (standards.iteh.ai)

Machines électriques tournantes - Partie 8: Marques) d'extrémité et sens de rotation (CEI 60034-8:2007) https://standards.iteh.ai/catalog/standards/sist/50cdcd42-d776-4165-970e-4cd45eb72224/sist-en-60034-8-2007

Ta slovenski standard je istoveten z: EN 60034-8:2007

ICS:

29.160.01 Rotacijski stroji na splošno Rotating machinery in

general

SIST EN 60034-8:2007 en,fr,de

SIST EN 60034-8:2007

iTeh STANDARD PREVIEW (standards.iteh.ai)

EUROPEAN STANDARD

EN 60034-8

NORME EUROPÉENNE EUROPÄISCHE NORM

July 2007

ICS 29.160

Supersedes EN 60034-8:2002

English version

Rotating electrical machines Part 8: Terminal markings and direction of rotation (IEC 60034-8:2007)

Machines électriques tournantes -Partie 8: Marques d'extrémité et sens de rotation (CEI 60034-8:2007) Drehende elektrische Maschinen -Teil 8: Anschlussbezeichnungen und Drehsinn (IEC 60034-8:2007)

This European Standard was approved by CENELEC on 2007-07-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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.

https://standards.iteh.ai/catalog/standards/sist/50cdcd42-d776-4165-970e-

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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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

The text of document 2/1434/FDIS, future edition 3 of IEC 60034-8, prepared by IEC TC 2, Rotating machinery, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60034-8 on 2007-07-01.

This European Standard supersedes EN 60034-8:2002.

The main change with respect to EN 60034-8:2002 is listed below:

changed terminal markings for d.c. machines in Clause A.4.

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) 2008-04-01

 latest date by which the national standards conflicting with the EN have to be withdrawn

(dow) 2010-07-01

Annex ZA has been added by CENELEC.

iTeh STANDARD PREVIEW

The text of the International Standard IEC 60034-8:2007 was approved by CENELEC as a European Standard without any modification. Standard Standard

SIST EN 60034-8:2007

https://standards.iteh.ai/catalog/standards/sist/50cdcd42-d776-4165-970e-4cd45eb72224/sist-en-60034-8-2007

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.

Publication IEC 60034-1	<u>Year</u> - 1)	<u>Title</u> Rotating electrical machines - Part 1: Rating and performance	<u>EN/HD</u> EN 60034-1	<u>Year</u> 2004 ²⁾
IEC 60417	Data base	Graphical symbols for use on equipment	-	-
IEC 60445 (mod)	_ 1)	Basic and safety principles for man-machine interface, marking and identification - Identification of equipment terminals and conductor terminations	EN 60445	2007 2)

iTeh STANDARD PREVIEW (standards.iteh.ai)

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

SIST EN 60034-8:2007

iTeh STANDARD PREVIEW (standards.iteh.ai)

INTERNATIONAL **STANDARD NORME INTERNATIONALE**

IEC CEI 60034-8

> Third edition Troisième édition 2007-06

Rotating electrical machines -

Part 8:

Terminal markings and direction of rotation

Machines electriques tournantes – (standards.iteh.ai)
Partie 8:

Marques d'extrémité et sens de rotation

https://standards.iteh.ai/catalog/standards/sist/50cdcd42-d776-4165-970e-4cd45eb72224/sist-en-60034-8-2007



CONTENTS

		JCTION	
1	•	e	
2		ative references	
3		s and definitions	
4	•	ools	
	4.1	General	
	4.2	DC and single-phase commutator machines	
	4.3 4.4	AC machines without commutators	
5		tion of rotation	
6		s for terminal markings	
O	6.1	General	
	6.2	Suffixes	
	6.3	Prefixes	
	6.4	Winding identification for categories of machines	
	6.5	Synchronous machines	14
	6.6	DC machines Teh STANDARD PREVIEW	. 14
	6.7	Relation between terminal markings and direction of rotation	. 14
	6.8	Terminal marking figures	
7	Auxil	ary terminal marking rules <u>SIST EN 60034-82007</u>	. 20
	7.1	General https://standards.iteh.ai/catalog/standards/sist/50cdcd42-d776-4165-970e	. 20
	7.2	Marking 4cd45eb72224/sist-en-60034-8-2007	.20
Δ		(account to a Comment of the comment	00
Anr	iex A	(normative) Connection diagrams for common applications	. 23
Fig	ure 1 -	- Single three-phase winding, three elements, open connection, six terminals	. 15
Fig	ure 2 -	- Single three-phase winding, delta connection, three terminals	. 16
Fig	ure 3 -	 Single three-phase winding, internal star connection with neutral conductor, 	
fou	r term	inals	. 16
		- Single three-phase winding, two elements per phase, open connection,	4.0
		rminals	. 16
		– Single three-phase winding, four elements per phase, open connection, ur terminals	. 16
		 Single three-phase winding, two elements per phase with four tapping r element, open connection, thirty-six terminals 	. 17
		- Two separate three-phase windings with two independent functions, two per phase, open connection, twenty-four terminals	. 17
		- Two elements, internal connection, three terminals	
		- Single three-phase winding, star connection, duplicate terminals for	-
		connection, six terminals	. 17
		– Single three-phase winding, star connection, parallel terminals for shared ix terminals	. 18

Figure 11 – Three-phase wound-rotor, star connections with neutral conductors, eight terminals	18
Figure 12 – Main and auxiliary winding, two elements	18
Figure 13 – Single-phase auxiliary winding, integrally connected capacitor, one element	18
Figure 14 – Single-phase main winding, integrally connected thermal protector, one element	18
Figure 15 – Six-phase winding, open connection, six elements	18
Figure 16 – Armature winding, one element	19
Figure 17 – Commutating winding, one and two elements	19
Figure 18 – Compensating winding, one and two elements	19
Figure 19 – Series winding, one element, two tappings	19
Figure 20 – Shunt excitation winding, one element	19
Figure 21 – Separately excited excitation winding, one and two elements	19
Figure 22 – Direct-axis auxiliary winding, one element	19
Figure 23 – Quadrature-axis auxiliary winding, one element	19
Figure 24 – Armature winding with commutating and compensating windings, one element	19
Figure 25 – Single-phase, single voltage	
Figure 26 – Single-phase, dual voltage NDARD PREVIEW	20
Figure 27 – Three-phase, single voltage dards.iteh.ai)	21
Figure 28 – Three-phase, dual voltage	
Figure 29 – Two-lead devices (except Type R)60034-82007	21
https://standards.iteh.ai/catalog/standards/sist/50cdcd42-d776-4165-970e- Figure 30 – Two-lead devices of type R 4cd45eb72224/sist-en-60034-8-2007	21
Figure 31 – Three-lead devices of type R	22
Figure 32 – Four-lead devices of type R	22
Figure 33 – Switch connections	22
Figure A.1 – Delta connection	23
Figure A.2 – Star connection – with or without neutral	23
Figure A.3 – Dual voltage, six terminals (1: $\sqrt{3}$)	23
Figure A.4 – Star-connected, dual voltage, nine terminals (1:2)	24
Figure A.5 – Delta-connected, dual voltage, nine terminals (1:2)	24
Figure A.6 – Star-delta, single voltage, six terminals	24
Figure A.7 – Star-delta, dual voltage, twelve terminals (1:2)	25
Figure A.8 – Part-winding, single voltage, six terminals	25
Figure A.9 – Part-winding, dual voltage, nine terminals (1:2)	26
Figure A.10 – Variable-torque, six terminals	26
Figure A.11 – Variable-torque, dual-voltage (1:√3), nine terminals	27
Figure A.12 – Constant-torque, six terminals	28
Figure A.13 – Constant power, six terminals	28
Figure A.14 – Variable-torque, six terminals	29
Figure A.15 – Constant-torque, seven terminals	29
Figure A.16 – Constant-power, seven terminals	29

Figure A.17 – Example of three-speed, constant torque motor using two separate windings, ten terminals	30
Figure A.18 – Example of three-speed motor using three separate windings, ten terminals	30
Figure A.19 – Example of four-speed, variable-torque motor using two separate windings, twelve terminals	31
Figure A.20 – Split-phase or capacitor-start reversible motor	31
Figure A.21 – Reversible capacitor-start motor with four terminals with externally connected capacitor	32
Figure A.22 – Shunt motor or generator, four terminals	32
Figure A.23 – Compound-motor or generator with compensating and commutating windings, six terminals	32
Figure A.24 – Series-wound motor, two terminals	33

iTeh STANDARD PREVIEW (standards.iteh.ai)

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ROTATING ELECTRICAL MACHINES –

Part 8: Terminal markings and direction of rotation

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.
- The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international
 consensus of opinion on the relevant subjects since each technical committee has representation from all
 interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any enquiser.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEO Publication cdc42-d776-4165-970e-
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60034-8 has been prepared by IEC technical committee 2: Rotating machinery.

This third edition of IEC 60034-8 cancels and replaces the second edition published in 2002 and constitutes a technical revision.

The main change with respect to the previous edition is listed below:

changed terminal markings for d.c. machines in Clause A.4.

-6-

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

FDIS	Report on voting
2/1434/FDIS	2/1451/RVD

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

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

A list of all the parts of the IEC 60034 series, under the general title *Rotating electrical machines*, can be found on the IEC website.

The committee has decided that the contents of this publication 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.

iTeh STANDARD PREVIEW (standards.iteh.ai)