SLOVENSKI STANDARD

SIST EN 60034-3:2006

januar 2006

Rotacijski električni stroji – 3. del: Posebne zahteve za sinhronske stroje s cilindričnim rotorjem (IEC 60034-3:2005)

(istoveten EN 60034-3:2005)

Rotating electrical machines – Part 3: Specific requirements for cylindrical rotor synchronous machines (IEC 60034-3:2005)

ICS 29.160.20

Referenčna številka
SIST EN 60034-3:2006(en)

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60034-3

June 2005

ICS 29.160

Supersedes EN 60034-3:1995

English version

Rotating electrical machines Part 3: Specific requirements for cylindrical rotor synchronous machines (IEC 60034-3:2005)

Machines électriques tournantes
Partie 3: Règles spécifiques
pour les machines synchrones
à rotor cylindrique
(CEI 60034-3:2005)

Drehende elektrische Maschinen
Teil 3: Besondere Anforderungen
an Vollpol-Synchronmaschinen
(IEC 60034-3:2005)

This European Standard was approved by CENELEC on 2005-05-01. 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.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, 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

Ref. No. EN 60034-3:2005 E

Foreword

The text of document 2/1315/FDIS, future edition 5 of IEC 60034-3, prepared by IEC TC 2, Rotating machinery, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60034-3 on 2005-05-01.

This European Standard supersedes EN 60034-3:1995.

The significant technical changes with respect to EN 60034-3:1995 are as follows:

– the document has been consolidated and completely restructured. It was rewritten to a considerable extent;

– the section on air cooled generators has been combined with that on hydrogen-cooled and liquid cooled generators. Different requirements so far valid for air cooled generators alone were modified in such a way that the requirements are now strictly bound to the generator ratings but not longer to the machine type. As an example for the harmonisation which took place the short circuit ratio of the air cooled generators were adjusted to those for the other generators. The separate cooler sections for air cooled generators were eliminated;

– the standard was generally adjusted to the progress in generator control. The state of the art control systems do not require the previous large power factors. They were reduced to one minimum value instead of several value classes providing the prospects of reduced generator costs. It was considered that standards should not work as an unnecessary cost driving factor;

– a normative Annex A has been added dealing with precautions to be taken when using hydrogen as a coolant on turbine–type synchronous generators. Formerly only a guide was provided. It was considered that aspects dealing with the safe operation of hydrogen cooled generators must be taken seriously and must become normative.

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)	2006-02-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2008-05-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60034-3:2005 approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60034-8 NOTE Harmonized as EN 60034-8:2002 (not modified).

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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 Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60034-1	- [1)]	Rotating electrical machines Part 1: Rating and performance	EN 60034-1	2004 [2)]
IEC 60034-4 (mod)	- [1)]	Part 4: Methods for determining synchronous machine quantities from tests	EN 60034-4	1995 [2)]
IEC 60045-1	- [1)]	Steam turbines Part 1: Specifications	EN 60045-1	1993 [2)]
IEC 60079 (mod)	Series	Electrical apparatus for explosive gas atmospheres	EN 60079	Series

1) Undated reference.

2) Valid edition at date of issue.

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI
IEC
60034-3

Cinquième édition
Fifth edition
2005-02

Machines électriques tournantes –

Partie 3: Règles spécifiques pour les machines synchrones à rotor cylindrique

Rotating electrical machines –

Part 3: Specific requirements for cylindrical rotor synchronous machines

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International Electrotechnical Commission
Международная Электротехническая Комиссия

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Pour prix, voir catalogue en vigueur
For price, see current catalogue

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ROTATING ELECTRICAL MACHINES –

Part 3: Specific requirements for cylindrical rotor synchronous machines

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 60034-3 has been prepared by IEC Technical Committee 2: Rotating machinery.

This fifth edition cancels and replaces the fourth edition published in 1988. This edition constitutes a technical revision. The significant technical changes with respect to the previous edition are as follows:

- the document has been consolidated and completely restructured. It was rewritten to a considerable extent;
- the section on air cooled generators has been combined with that on hydrogen-cooled and liquid cooled generators. Different requirements so far valid for air cooled generators alone were modified in such a way that the requirements are now strictly bound to the generator ratings but not longer to the machine type. As an example for the harmonisation which took place the short circuit ratio of the air cooled generators were adjusted to those for the other generators. The separate cooler sections for air cooled generators were eliminated;

- the standard was generally adjusted to the progress in generator control. The state of the art control systems do not require the previous large power factors. They were reduced to one minimum value instead of several value classes providing the prospects of reduced generator costs. It was considered that the standards should not work as an unnecessary cost driving factor;
- a normative Annex A has been added dealing with precautions to be taken when using hydrogen as a coolant on turbine – type synchronous generators. Formerly only a guide was provided. It was considered that aspects dealing with the safe operation of hydrogen cooled generators must be taken seriously and must become normative.

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

FDIS	Report on voting
2/1315/FDIS	2/1326/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.

IEC 60034 consists of the following parts, under the general title *Rotating electrical machines:*

Part 1: Rating and performance

Part 2: Methods for determining losses and efficiency of rotating electrical machinery from tests (excluding machines for traction vehicles)

Part 3: Specific requirements for cylindrical rotor synchronous machines (this publication)

Part 4: Methods for determining synchronous machine quantities from tests

Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) – Classification

Part 6: Methods of cooling (IC Code)

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

Part 8: Terminal markings and direction of rotation

Part 9: Noise limits

Part 11: Thermal protection

Part 12: Starting performance of single-speed three-phase cage induction motors

Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher – Measurement, evaluation and limits of vibration severity

Part 15: Impulse voltage withstand levels of rotating a.c. machines with form-wound stator coils

Part 16: Excitation systems for synchronous machines

Part 17: Cage induction motors when fed from converters – Application guide

Part 18: Functional evaluation of insulation systems

Part 19: Specific test methods for d.c. machines on conventional and rectifier-fed supplies

Part 20-1: Control motors – Stepping motors

Part 22: AC generators for reciprocating internal combustion (RIC) engine driven generating sets

Part 23: Specification for the refurbishing of rotating electrical machines

Part 25: Guide for the design and performance of cage induction motors specifically designed for converter supply

Part 26: Effects of unbalanced voltages on the performance of three-phase induction motors

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.