



**SLOVENSKI STANDARD**  
**SIST-TS CLC/TS 60034-18-34:2005**  
**01-junij-2005**

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Rotating electrical machines - Part 18-34: Functional evaluation of insulation systems -  
Test procedures for form-wound windings - Evaluation of thermomechanical endurance  
of insulation systems (IEC/TS 60034-18-34:2000)

**STANDARD PREVIEW**  
*(standards.iteh.ai)*

Drehende elektrische Maschinen - Funktionelle Bewertung von Isoliersystemen - Teil 18-  
34: Prüfverfahren für Wicklungen mit vorgeformten Elementen - Bewertung der  
thermomechanischen Belastbarkeit (IEC/TS 60034-18-34:2000)

[SIST-TS CLC/TS 60034-18-34:2005](https://standards.iteh.ai/catalog/standards/sist/736a871b-f080-43b0-8be1-60034-18-34-2005)

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Machines électriques tournantes - Partie 18-34: Evaluation fonctionnelle des systèmes  
d'isolation - Procédures d'essai pour enroulements préformés - Evaluation de  
l'endurance thermomécanique des systèmes d'isolation (CEI/TS 60034-18-34:2000)

**Ta slovenski standard je istoveten z: CLC/TS 60034-18-34:2004**

**ICS:**

29.080.30	Izolacijski sistemi	Insulation systems
29.160.01	Rotacijski stroji na splošno	Rotating machinery in general

**SIST-TS CLC/TS 60034-18-34:2005 en**

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TECHNICAL SPECIFICATION

**CLC/TS 60034-18-34**

SPECIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

September 2004

ICS 29.080.01; 29.160.01

English version

**Rotating electrical machines**  
**Part 18-34: Functional evaluation of insulation systems -**  
**Test procedures for form-wound windings -**  
**Evaluation of thermomechanical endurance of insulation systems**  
 (IEC/TS 60034-18-34:2000)

Machines électriques tournantes  
 Partie 18-34: Evaluation fonctionnelle  
 des systèmes d'isolation -  
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 Evaluation de l'endurance  
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Drehende elektrische Maschinen -  
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This Technical Specification was approved by CENELEC on 2004-07-03.

CENELEC members are required to announce the existence of this TS in the same way as for an EN and to make the TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force.

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**

## Foreword

The text of the Technical Specification IEC/TS 60034-18-34:2000, prepared by IEC TC 2, Rotating machinery, was submitted to the formal vote and was approved by CENELEC as CLC/TS 60034-18-34 on 2004-07-03 without any modification.

The following date was fixed:

- latest date by which the existence of the CLC/TS  
has to be announced at national level (doa) 2005-01-03

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the Technical Specification IEC/TS 60034-18-34:2000 was approved by CENELEC as a Technical Specification without any modification.

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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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60034-1 (mod)	1996	Rotating electrical machines	EN 60034-1	1998 <sup>1)</sup>
A1	1997	Part 1: Rating and performance	A1	1998
A2	1999		A2	1999
			+ A 11	2002
IEC 60034-15	1995	Part 15: Impulse voltage withstand levels of rotating a.c. machines with form-wound stator coils	EN 60034-15	1996
IEC 60034-18-1 + corr. August	1992 1992	Part 18: Functional evaluation of insulation systems Section 1: General guidelines	EN 60034-18-1	1994
IEC/TR 60034-18-32	1995	Part 18-32: Functional evaluation of insulation systems - Test procedures for form-wound windings - Electrical evaluation of insulation systems used in machines up to and including 50 MVA and 15 kV	CLC/TR 60034-18-32	2004
IEC 60243-1	1998	Electrical strength of insulating materials - Test methods Part 1: Tests at power frequencies	EN 60243-1	1998
IEC 60270	1981	Partial discharge measurements	-	-
IEC/TR 60894	1987	Guide for test procedure for the measurement of loss tangent of coils and bars for machine windings	-	-

<sup>1)</sup> EN 60034-1:1998 is superseded by EN 60034-1:2004, which is based on IEC 60034-1:2004.

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SPÉCIFICATION  
TECHNIQUE  
TECHNICAL  
SPECIFICATION

CEI  
IEC

TS 60034-18-34

Première édition  
First edition  
2000-01

**Machines électriques tournantes –**

**Partie 18-34:**

**Evaluation fonctionnelle des systèmes  
d'isolation –**

**Procédures d'essai pour enroulements  
préformés –**

**Evaluation de l'endurance thermomécanique  
des systèmes d'isolation**

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**Rotating electrical machines –**

**Part 18-34:**

**Functional evaluation of insulation systems –  
Test procedures for form-wound windings –  
Evaluation of thermomechanical endurance  
of insulation systems**

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX  
PRICE CODE

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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 18-34: Functional evaluation of insulation systems –  
Test procedures for form-wound windings –  
Evaluation of thermomechanical endurance of insulation systems**

## 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 co-operation 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 express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, 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.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this technical specification may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

The main task of IEC technical committees is to prepare International Standards. In exceptional circumstances, a technical committee may propose the publication of a technical specification when

- the required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC 60034-18-34, which is a technical specification, has been prepared by subcommittee 2J: Classification of insulation systems for rotating machinery, of IEC technical committee 2: Rotating machinery.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
2J/66/CDV	2J/68/RVC

Full information on the voting for the approval of this technical specification 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 3.

This technical specification constitutes part 18-34 of a series of publications dealing with the functional evaluation of insulation systems of rotating electrical machines, the other parts being:

IEC 60034-18-1: *General guidelines*

IEC 60034-18-21: *Test procedures for wire-wound windings – Thermal evaluation and classification*

IEC 60034-18-22: *Test procedures for wire-wound windings – Classification of changes and insulation components substitutions*

IEC 60034-18-31: *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*

IEC 60034-18-32: *Test procedures for form-wound windings – Electrical evaluation and classification of insulation systems used in machines up to and including 50 MVA and 15 kV*

IEC 60034-18-33: *Test procedures for form-wound windings – Multifactor functional evaluation – Endurance under combined thermal and electrical stresses of insulation systems used in machines up to and including 50 MVA and 15 kV*

Some parts are published as sections, some as International Standards or as technical specifications or technical reports.

The committee has decided that the contents of this publication will remain unchanged until 2005. At this date, the publication will be

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

## INTRODUCTION

IEC 60034-18-1 presents general guidelines for the evaluation and classification of insulation systems used in rotating electrical machines.

This part deals with thermal cycling evaluation of insulation systems for form-wound windings. This kind of endurance is of special importance for long rotating machines (especially indirectly cooled) and machines that are exposed to a very large number of considerable load changes during normal operation.

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