

**01-junij-2005**

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Rotating electrical machines - 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 (IEC/TR 60034-18-32:1995)

**iTeh STANDARD PREVIEW**

Drehende elektrische Maschinen - Teil 18-32: Funktionelle Bewertung von  
Isoliersystemen - Prüfverfahren für Wicklungen mit vorgeformten Elementen - Elektrische  
Bewertung von Isoliersystemen für Maschinen bis 50 MVA und 15 kV (IEC/TR 60034-18-  
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Machines électriques tournantes - Partie 18-32: Evaluation fonctionnelle des systèmes  
d'isolation - Procédures d'essai pour enroulements préformés - Evaluation électrique des  
systèmes d'isolation utilisés dans les machines jusqu'à et y compris 50 MVA et 15 kV  
(CEI/TR 60034-18-32:1995)

**Ta slovenski standard je istoveten z: CLC/TR 60034-18-32:2004**

**ICS:**

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

**SIST-TP CLC/TR 60034-18-32:2005 en**

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TECHNICAL REPORT

CLC/TR 60034-18-32

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

September 2004

ICS 29.080; 29.160

English version

**Rotating electrical machines**  
**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**  
 (IEC/TR 60034-18-32:1995)

Machines électriques tournantes  
 Partie 18-32: Evaluation fonctionnelle  
 des systèmes d'isolation -  
 Procédures d'essai  
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 Evaluation électrique des systèmes  
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Drehende elektrische Maschinen  
 Teil 18-32: Funktionelle Bewertung  
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 Prüfverfahren für Wicklungen  
 mit vorgeformten Elementen -  
 Elektrische Bewertung von Isoliersystemen  
 für Maschinen bis 50 MVA und 15 kV  
 (IEC 60034-18-32:1995)

This Technical Report was approved by CENELEC on 2004-07-03.

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 Report IEC/TR 60034-18-32:1995, prepared by IEC TC 2, Rotating machinery, was submitted to the formal vote and was approved by CENELEC as CLC/TR 60034-18-32 on 2004-07-03 without any modification.

Annex ZA has been added by CENELEC.

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### **Endorsement notice**

The text of the Technical Report IEC/TR 60034-18-32:1995 was approved by CENELEC as a Technical Report 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 When 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) + corr. December	1994 1994	Rotating electrical machines Part 1: Rating and performance	EN 60034-1 + corr. April	1995 <sup>1)</sup> 1995
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 60034-18-33	1995	Part 18-33: Functional evaluation of insulation systems - 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	CLC/TR 60034-18-33	2004
IEC 60060-1 + corr. March	1989 1990	High-voltage test techniques Part 1: General definitions and test requirements	HD 588.1 S1	1991
IEC 60727-1	1982	Evaluation of electrical endurance of electrical insulation systems Part 1: General considerations and evaluation procedures based on normal distributions	-	-
IEC 60727-2	1993	Part 2: Evaluation procedures based on extreme-value distributions	-	-

<sup>1)</sup> EN 60034-1:1995 is replaced by EN 60034-1:2004, which is based on IEC 60034-1:2004.

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**Machines électriques tournantes –**

**Partie 18:**

Evaluation fonctionnelle des systèmes d'isolation –  
Section 32: Procédures d'essai pour enroulements  
préformés – Evaluation électrique des systèmes  
d'isolation utilisés dans les machines jusqu'à  
et y compris 50 MVA et 15 kV

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**Rotating electrical machines –**

**Part 18:**

Functional evaluation of insulation systems –  
Section 32: Test procedures for form-wound windings –  
Electrical evaluation of insulation systems used  
in machines up to and including 50 MVA and 15 kV

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International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## ROTATING ELECTRICAL MACHINES –

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

## 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.

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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 report of one of the following types:

- type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;
- type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;
- type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

Technical reports of types 1 and 2 are subject to review within three years of publication to decide whether they can be transformed into International Standards. Technical reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

IEC 34-18-32, which is a technical report of type 2, has been prepared by sub-committee 2J: Classification of insulation systems for rotating machinery, of IEC technical committee 2: Rotating machinery.

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

Committee draft	Report on voting
2J(SEC)25	2J(SEC)30

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

This document is issued in the type 2 technical report series of publications (according to G.4.2.2 of part 1 of the IEC/ISO Directives) as a "prospective standard for provisional application" in the field of insulation systems for rotating electrical machines because there is an urgent requirement for guidance on how standards in this field should be used to meet an identified need.

This document is not to be regarded as an "International Standard". It is proposed for provisional application so that information and experience of its use in practice may be gathered. Comments on the content of this document should be sent to the IEC Central Office.

A review of this type 2 technical report will be carried out not later than three years after its publication, with the options of either extension for a further three years or conversion to an International Standard or withdrawal.

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This technical report constitutes section 32 of IEC 34-18 dealing with functional evaluation of insulation systems for rotating electrical machines, other sections being:

Section 1: General guidelines (IEC 34-18-1)

Section 21: Test procedures for wire-wound windings – Thermal evaluation and classification (IEC 34-18-21)

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 (34-18-31)

## INTRODUCTION

Section 1 of IEC 34-18 presents general principles for the evaluation of insulation systems used in rotating electrical machines.

Section 32 deals exclusively with insulation systems for form-wound windings and concentrates on electrical endurance evaluation.

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