

SLOVENSKI STANDARD
SIST-TP CLC/TR 60034-18-33:2005
01-junij-2005

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Rotating electrical machines - 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 (IEC/TR 60034-18-33:1995)

Drehende elektrische Maschinen - Teil 18-33: Funktionelle Bewertung von
Isoliersystemen - Prüfverfahren für Wicklungen mit vorgeformten Elementen -
Funktionelle Bewertung bei mehreren Einflussgrößen - Lebensdauer von Isoliersystemen
für Maschinen bis 50 MVA und 15 kV bei kombinierter thermischer und elektrischer
Beanspruchung (IEC/TR 60034-18-33:1995)

Machines électriques tournantes - Partie 18-33: Evaluation fonctionnelle des systèmes
d'isolation - Procédures d'essai pour enroulements préformés - Evaluation fonctionnelle
à plusieurs facteurs - Endurance sous contrainte thermique et électrique combinée des
systèmes d'isolation utilisés dans les machines jusqu'à et y compris 50 MVA et 15 kV
(CEI/TR 60034-18-33:1995)

Ta slovenski standard je istoveten z: CLC/TR 60034-18-33:2004

ICS:

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

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TECHNICAL REPORT

CLC/TR 60034-18-33

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

September 2004

ICS 29.080; 29.160

English version

Rotating electrical machines
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
(IEC/TR 60034-18-33:1995)

Machines électriques tournantes
 Partie 18-33: Evaluation fonctionnelle
 des systèmes d'isolation
 Procédures d'essai
 pour enroulements préformés
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 Endurance sous contrainte thermique
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 jusqu'à et y compris 50 MVA et 15 kV
 (CEI/TR 60034-18-33:1995)

Drehende elektrische Maschinen
 Teil 18-33: Funktionelle Bewertung
 von Isoliersystemen -
 Prüfverfahren für Wicklungen
 mit vorgeformten Elementen -
 Funktionelle Bewertung
 bei mehreren Einflussgrößen -
 Lebensdauer von Isoliersystemen
 für Maschinen bis 50 MVA und 15 kV
 bei kombinierter thermischer
 und elektrischer Beanspruchung
 (IEC 60034-18-33:1995)

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 60034-18-33:1995, prepared by IEC TC 2, Rotating machinery, was submitted to the formal vote and was approved by CENELEC as CLC/TR 60034-18-33 on 2004-07-03 without any modification.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the Technical Report IEC/TR 60034-18-33:1995 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 ¹⁾ 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 60034-18-32	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 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	-	-

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

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**RAPPORT
TECHNIQUE – TYPE 2
TECHNICAL
REPORT – TYPE 2**

**CEI
IEC
34-18-33**

Première édition
First edition
1995-03

Machines électriques tournantes –

Partie 18:

Evaluation fonctionnelle des systèmes d'isolation –
Section 33: Procédures d'essai pour enroulements
préformés – Evaluation fonctionnelle à plusieurs
facteurs – Endurance sous contrainte thermique
et électrique combinée 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 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

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
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For price, see current catalogue

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ROTATING ELECTRICAL MACHINES –

**Part 18: Functional evaluation of insulation systems –
Section 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**

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.

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 34-18-33, 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)29	2J(SEC)38

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 the evaluation of insulating 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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Annex A forms an integral part of this technical report.

INTRODUCTION

Section 1 of IEC 34-18 presents general guidelines for the evaluation and classification of insulation systems used in rotating machines.

Section 33 deals exclusively with insulation systems for form-wound windings, and concentrates on multifactor functional evaluation limited to thermal and electrical ageing. It is intended to be a basic technical report, from which the test standard will be developed.

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