Rotating electrical machines - Part 18-32: Functional evaluation of insulation systems - Test procedures for form-wound windings - Evaluation by electrical endurance

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NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 60034-18-32:2010 sisaldab Euroopa standardi EN 60034-18-32:2010 ingliskeelset teksti.	This Estonian standard EVS-EN 60034-18-32:2010 consists of the English text of the European standard EN 60034-18-32:2010.
Standard on kinnitatud Eesti Standardikeskuse 31.12.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 31.12.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 10.12.2010.	Date of Availability of the European standard text 10.12.2010.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

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EUROPEAN STANDARD

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Rotating electrical machines - Part 18-32: Functional evaluation of insulation systems - Test procedures for form-wound windings - Evaluation by electrical endurance

(IEC 60034-18-32:2010)

Machines électriques tournantes -
Partie 18-32: Evaluation fonctionnelle des systèmes d'isolation -
Procédures d'essai pour enroulements préformés -
Evaluation par endurance électrique
(CEI 60034-18-32:2010)

Drehende elektrische Maschinen -
Teil 18-32: Funktionelle Bewertung von Isoliersystemen -
Prüfverfahren für Wicklungen mit vorgeformten Elementen -
Bewertung der elektrischen Lebensdauer
(IEC 60034-18-32:2010)

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 2/1580/CDV, future edition 1 of IEC 60034-18-32, prepared by IEC TC 2, Rotating machinery, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60034-18-32 on 2010-12-01.

This European Standard supersedes CLC/TR 60034-18-32:2004.

The main technical changes with regard to CLC/TR 60034-18-32:2004 are as follows:

a) simplification of clauses;

b) reduction in the number of test procedures;

c) inclusion of full bars and coils as test objects;

d) a new clause dealing with failures and failure criteria.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

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)	2011-09-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2013-12-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60034-18-32:2010 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC/TS 60034-18-33 NOTE Harmonized as CLC/TS 60034-18-33[1)].

IEC/TS 60034-18-42 NOTE Harmonized as CLC/TS 60034-18-42[1)].

[1)] At draft stage.

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	Year	Title	EN/HD	Year
IEC 60034-1 (mod)	-	Rotating electrical machines - Part 1: Rating and performance	EN 60034-1	-
IEC 60034-15	2009	Rotating electrical machines - Part 15: Impulse voltage withstand levels of form-wound stator coils for rotating a.c. machines	EN 60034-15	2009
IEC 60034-18-1	2010	Rotating electrical machines - Part 18-1: Functional evaluation of insulation systems - General guidelines	EN 60034-18-1	2010

CONTENTS

INTRODUCTION

Part 1 of IEC 60034-18 presents general principles for the evaluation of insulation systems used in rotating electrical machines.

This standard deals exclusively with insulation systems for form-wound windings and concentrates on electrical functional evaluation.

ROTATING ELECTRICAL MACHINES –

Part 18-32: Functional evaluation of insulation systems – Test procedures for form-wound windings – Evaluation by electrical endurance

1 Scope

This part of IEC 60034-18 describes test procedures for the evaluation of electrical endurance of insulation systems for use in a.c. or d.c. rotating electrical machines using form-wound windings. The test procedures are comparative in nature, such that the performance of a candidate insulation system is compared to that of a reference insulation system with proven service experience. The test procedures are principally directed at the insulation systems in air-cooled machines but may also be used for evaluating parts of the insulation systems in hydrogen cooled machines. Note that the qualification procedures of inverter duty insulation systems for form-wound windings can be found in IEC 60034-18-42.

2 Normative references

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.

IEC 60034-1, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60034-15:2009, *Rotating electrical machines – Part 15: Impulse voltage withstand levels of form-wound stator coils for rotating a.c. machines*

IEC 60034-18-1:2010, *Rotating electrical machines – Part 18-1: Functional evaluation of insulation systems – General guidelines*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
mainwall insulation
main electrical insulation that separates the conductors from the earthed stator/rotor core in motor and generator windings

3.2
turn insulation
electrical insulation that covers each conductor in coils/bars

3.3
interturn insulation
electrical insulation that separates the conductor turns from each other in coils/bars

3.4
corona protection material
material which is used to coat a stator coil/bar within the slot portion of the stator core to avoid slot discharges