

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

**Machines électriques tournantes –
Partie 18-32: Evaluation fonctionnelle des systèmes d'isolation – Procédures
d'essai pour enroulements préformés – Evaluation par endurance électrique**



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IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ROTATING ELECTRICAL MACHINES –

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

FOREWORD

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International Standard IEC 60034-18-32 has been prepared by IEC technical committee 2: Rotating machinery.

This first edition cancels and replaces IEC/TS 60034-18-32, published in 1995 and constitutes a technical revision.

The main technical changes with regard to the previous technical specification 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.

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

CDV	Report on voting
2/1580/CDV	2/1602/RVC

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

A list of all parts of the IEC 60034 series, published under the general title *Rotating electrical machines*, can be found on the IEC website.

NOTE A table of cross-references of all IEC TC 2 publications can be found in the IEC TC 2 dashboard on the IEC website.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability 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- withdrawn,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.

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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.

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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

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