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Rotating electrical machines - Part 27-4: Measurement of insulation resistance and polarization index on winding insulation of rotating electrical machines

EESTI STANDARDIKESKUS
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NATIONAL FOREWORD

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See Eesti standard EVS-EN IEC 60034-27-4:2018 sisaldab Euroopa standardi EN IEC 60034-27-4:2018 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 60034-27-4:2018 consists of the English text of the European standard EN IEC 60034-27-4:2018.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 29.06.2018.	Date of Availability of the European standard is 29.06.2018.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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ICS 29.160.01

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EUROPEAN STANDARD

NORME EUROPÉENNE

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EN IEC 60034-27-4

June 2018

ICS 29.160.01

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English Version

Rotating electrical machines - Part 27-4: Measurement of insulation resistance and polarization index on winding insulation of rotating electrical machines (IEC 60034-27-4:2018)

Machines électriques tournantes - Partie 27-4: Mesure de la résistance d'isolement et de l'index de polarisation sur le système d'isolation des enroulements des machines électriques tournantes (IEC 60034-27-4:2018)

Drehende elektrische Maschinen - Teil 27-4: Messung des Isolationswiderstands und des Polarisationsindexes der Wicklungsisolierung drehender elektrischer Maschinen (IEC 60034-27-4:2018)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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Ref. No. EN IEC 60034-27-4:2018 E

European foreword

The text of document 2/1880/FDIS, future edition 1 of IEC 60034-27-4:2018, prepared by IEC/TC 2 "Rotating machinery" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60034-27-4:2018.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2018-12-29
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2021-06-29

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

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The text of the International Standard IEC 60034-27-4:2018 was approved by CENELEC as a European Standard without any modification.

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60050-411	-	International Electrotechnical Vocabulary (IEV) - Chapter 411: Rotating machinery	-	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ROTATING ELECTRICAL MACHINES –

Part 27-4: Measurement of insulation resistance and polarization index of winding insulation of rotating electrical machines

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FOREWORD

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International Standard IEC 60034-27-4 has been prepared by IEC technical committee 2: Rotating machinery.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
2/1880/FDIS	2/1890/RVD

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.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in 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 document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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INTRODUCTION

This document provides guidelines for measurement of the insulation resistance and the polarization index on stator and rotor winding insulation of rotating electrical machines. The document also describes typical insulation resistance characteristics, the effect of influential factors which impact or change these characteristics, and how these characteristics indicate winding condition. It recommends minimum acceptable values of insulation resistance for AC and DC rotating machine windings. Interpretation will depend on the nature of the insulation materials – specifically if the insulation is of the thermoset or thermoplastic type.

Insulation resistance measurement has been recommended and used for over 50 years to evaluate the condition of electrical insulation. It is recommended to track periodic measurements, accumulated over months and years of service or in connection with servicing and overhaul of rotating machines.

Empirical limits verified in practice can be used as a basis for evaluating the quality of stator winding insulation systems in manufacturing. Furthermore, trend evaluation, e.g. diagnostic tests as part of the functional evaluation of insulation systems or in connection with servicing and overhaul of rotating machines, can also provide information on ageing processes, possible repair options and the recommended time interval between tests. These measurements give no indication of local weak points in the insulation system and the trend evaluations cannot be used to predict the time to failure of the winding insulation.

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