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

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

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**EN IEC 60034-27-4**

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June 2018

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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  
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Europäisches Komitee für Elektrotechnische Normung

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**EN IEC 60034-27-4:2018****European foreword**

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





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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



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

**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**



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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



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**Rotating electrical machines –  
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le système d'isolation des enroulements des machines électriques tournantes**

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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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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.

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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.

## ROTATING ELECTRICAL MACHINES –

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

#### 1 Scope

This part of IEC 60034 provides recommended test procedures for the measurement of insulation resistance and polarization index of stator and rotor winding insulation of rotating electrical machines.

This document recommends minimum acceptable values of insulation resistance and polarization index of winding insulation valid for fully processed low and high voltage AC and DC rotating electrical machines with a rated power of 750 W or higher.

#### 2 Normative references

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.

IEC 60050-411, *International Electrotechnical Vocabulary – Chapter 411: Rotating machinery*

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