# IEC 60773

Edition 2.0 2021-04

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

## Rotating electrical machines – Test methods and apparatus for the measurement of the operational characteristics of brushes

**Machines électriques tournantes – Méthodes d'essai et appareils pour le mesurage des caractéristiques opérationnelles des balais**

IEC 60773:2021-04(en-fr)

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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.160.10

ISBN 978-2-8322-9656-1

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# ROTATING ELECTRICAL MACHINES – TEST METHODS AND APPARATUS FOR THE MEASUREMENT OF THE OPERATIONAL CHARACTERISTICS OF BRUSHES

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International standard IEC 60773 has been prepared by IEC technical committee 2: Rotating machinery.

This second edition cancels and replaces the first edition published in 1983. It constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

– The clause structure has been modified on the view point of a laboratory testing procedure. The new sequence is as follows: test rig specification (Clause 4), general testing procedure (Clause 5), and specific procedure for each operational characteristic (Clauses 6 to 8).
– A new Clause 9 has been added to introduce the black-band test for the characterisation of the brush grades for DC machines.

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

| FDIS | Report on voting |
|---|---|
| 2/2045/FDIS | 2/2050/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.

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- withdrawn,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.

# ROTATING ELECTRICAL MACHINES – TEST METHODS AND APPARATUS FOR THE MEASUREMENT OF THE OPERATIONAL CHARACTERISTICS OF BRUSHES

## 1 Scope

This document applies to test methods for the measurement of the operational characteristics of brushes designed to operate on commutating and slip ring machines under specified test conditions.

By extension some tests may be relevant for other kinds of sliding electrical contacts for electrical appliances.

## 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 60034-19:2014, *Rotating electrical machines – Part 19: Specific test methods for d.c. machines on conventional and rectifier-fed supplies*

IEC 60136, *Dimensions of brushes and brush-holders for electrical machinery*

IEC 60276:2018, *Carbon brushes, brush holders, commutators and slip-rings – Definitions and nomenclature*

IEC 60356, *Dimensions for commutators and slip-rings*

IEC 60584-1:2013, *Thermocouples – Part 1: EMF specifications and tolerances*

IEC 60751:2008, *Industrial platinum resistance thermometers and platinum temperature sensors*

IEC TR 61015, *Brush-holders for electrical machines. Guide to the measurement of the static thrust applied to brushes*

ISO 1190-1:1982, *Copper and copper alloys – code of designation – Part 1: Designation of materials*

ISO 3274:1996, *Geometrical Product Specifications (GPS) – Surface texture: Profile method – Nominal characteristics of contact (stylus) instruments*

ISO 15510:2014, *Stainless steels – Chemical composition*

## 3 Terms, definitions, symbols and abbreviated terms

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