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FINAL VERSION

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Winding wires – Test methods – Part 3: Mechanical properties

Fils de bobinage – Méthodes d'essai – Partie 3: Propriétés mécaniques

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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WINDING WIRES – TEST METHODS –

Part 3: Mechanical properties

FOREWORD

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This Consolidated version of IEC 60851-3 bears the edition number 3.2. It consists of the third edition (2009-01) [documents 55/1043/CDV and 55/1059/RVC], its amendment 1 (2013-07) [documents 55/1392/FDIS and 55/1407/RVD] and its amendment 2 (2019-08) [documents 55/1781/FDIS and 55/1798/RVD]. The technical content is identical to the base edition and its amendments.

This Final version does not show where the technical content is modified by amendments 1 and 2. A separate Redline version with all changes highlighted is available in this publication.

International Standard IEC 60851-3 has been prepared by IEC technical committee 55: Winding wires.

With respect to the previous edition, significant technical changes appear in Subclause 5.3, Jerk test.

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

A list of all the parts in the IEC 60851 series, under the general title *Winding wires – Test methods*, can be found on the IEC website.

The committee has decided that the contents of the base publication and its amendments 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- withdrawn,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.

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.

INTRODUCTION

This part of IEC 60851 forms an element of a series of standards, which deals with insulated wires used for windings in electrical equipment. The series has three groups describing

a) winding wires – Test methods (IEC 60851);

b) specifications for particular types of winding wires (IEC 60317);

c) packaging of winding wires (IEC 60264).

WINDING WIRES – TEST METHODS –

Part 3: Mechanical properties

1 Scope

This part of IEC 60851 specifies the following methods of test for winding wires:

– Test 6: Elongation;
– Test 7: Springiness;
– Test 8: Flexibility and adherence;
– Test 11: Resistance to abrasion;
– Test 18: Heat bonding.

For definitions, general notes on methods of test and the complete series of methods of test for winding wires, see IEC 60851-1.

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 60851-1, *Winding wires – Test methods – Part 1: General*

IEC 60851-2:1996, *Winding wires – Test methods – Part 2: Determination of dimensions*

ISO 178:2001, *Plastics – Determination of flexural properties*
Amendment 1:2004

3 Test 6: Elongation

3.1 Elongation at fracture

Elongation is the increase in length expressed as a percentage of the original length.

A straight piece of wire shall be elongated to the point of fracture of the conductor at a rate of (5 ± 1) mm/s with an elongation tester or with tensile testing equipment with a free measuring length of between 200 mm and 250 mm. The linear increase at fracture shall be calculated as a percentage of the free measuring length.

Three specimens shall be tested. The three single values shall be reported. The mean value represents elongation at fracture.

3.2 Tensile strength

Tensile strength is the ratio of the force at fracture to initial cross-section.