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IEC 60851-3

Edition 4.0 2023-08  
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# INTERNATIONAL STANDARD



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**Winding wires – Test methods –  
Part 3: Mechanical properties**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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ICS 29.060.10

ISBN 978-2-8322-7448-4

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### WINDING WIRES – TEST METHODS –

#### Part 3: Mechanical properties

#### FOREWORD

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

This fourth edition cancels and replaces the third edition published in 2009, Amendment 1:2013 and Amendment 2:2019. This edition constitutes a technical revision.

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

- a) Clarification of the distance measurement for determining loss of adhesion in 6.6.3, 6.6.4 for fibre-covered wires and 6.6.5 for tape-wrapped wires.

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

Draft	Report on voting
55/1938/CDV	55/1974/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

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## 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 test methods 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 test methods and the complete series of test methods for winding wires, IEC 60851-1 applies. This document also provides recommended friction test methods in Annex B.

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

IEC 60851-2:2009, *Winding wires – Test methods – Part 2: Determination of dimensions*

IEC 60851-2:2009/AMD1:2015

IEC 60851-2:2009/AMD2:2019

ISO 178:2019, *Plastics – Determination of flexural properties*

~~Amendment 1:2004~~



# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Winding wires – Test methods –  
Part 3: Mechanical properties**

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



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#### Part 3: Mechanical properties

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IEC 60851-2:2009/AMD2:2019

ISO 178:2019, *Plastics – Determination of flexural properties*



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## COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

### FILS DE BOBINAGE – MÉTHODES D'ESSAI –

#### Partie 3: Propriétés mécaniques

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L'IEC 60851-3 a été établie par le comité d'études 55 de l'IEC: Fils de bobinage. Il s'agit d'une Norme internationale.

Cette quatrième édition annule et remplace la troisième édition parue en 2009, l'Amendement 1 paru en 2013 et l'Amendement 2 paru en 2019. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) clarification de la mesure de distance visant à déterminer la perte d'adhérence en 6.6.3, en 6.6.4 pour les fils recouverts d'une enveloppe fibreuse et en 6.6.5 pour les fils rubanés.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
55/1938/CDV	55/1974/RVC

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous [https://www.iec.ch/members\\_experts/refdocs](https://www.iec.ch/members_experts/refdocs). Les principaux types de documents développés par l'IEC sont décrits plus en détail sous <https://www.iec.ch/publications>.

Une liste de toutes les parties de la série IEC 60851, publiées sous le titre général *Fils de bobinage – Méthodes d'essai*, peut être consultée sur le site web de l'IEC.

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## INTRODUCTION

La présente partie de l'IEC 60851 appartient à une série de normes qui traite des fils isolés utilisés dans les enroulements des appareils électriques. Cette série comporte trois groupes qui définissent respectivement:

- a) les méthodes d'essai des fils de bobinage (IEC 60851);
- b) les spécifications concernant les types particuliers de fils de bobinage (IEC 60317);
- c) le conditionnement des fils de bobinage (IEC 60264).

## FILS DE BOBINAGE – MÉTHODES D'ESSAI –

### Partie 3: Propriétés mécaniques

#### 1 Domaine d'application

La présente partie de l'IEC 60851 spécifie les méthodes d'essai suivantes pour les fils de bobinage:

- Essai 6: Allongement;
- Essai 7: Effet de ressort;
- Essai 8: Souplesse et adhérence;
- Essai 11: Résistance à l'abrasion;
- Essai 18: Thermodhérence.

Pour les définitions, les généralités concernant les méthodes d'essai et les séries complètes des méthodes d'essai des fils de bobinage, c'est l'IEC 60851-1 qui s'applique. Le présent document donne aussi les méthodes d'essai de frottement recommandées dans l'Annexe B.

#### 2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60851-2:2009, *Fils de bobinage – Méthodes d'essai – Partie 2: Détermination des dimensions*

IEC 60851-2:2009/AMD1:2015

IEC 60851-2:2009/AMD2:2019

ISO 178:2019, *Plastiques – Détermination des propriétés en flexion*