Irish Standard
I.S. EN 60851-3:2009

Winding wires - Test methods -- Part 3: Mechanical properties (IEC 60851 -3:2009 (EQV))

I.S. EN 60851-3:2009

Incorporating amendments/corrigenda issued since publication:
EN 60851-3:2009/A1:2013

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This document replaces:	*This document is based on:*	*Published:*
EN 60851-3:1996 +A1:1997 + A2:2003	EN 60851-3:2009	10 April, 2009

This document was published
under the authority of the NSAI and comes into effect on:

11 July, 2009

ICS number:
29.060.10

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I.S. EN 60851-3:2009

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60851-3/A1

September 2013

ICS 29.060.10

English version

Winding wires - Test methods - Part 3: Mechanical properties

(IEC 60851-3:2009/A1:2013)

Fils de bobinage - Méthodes d'essai - Partie 3: Propriétés mécaniques (CEI 60851-3:2009/A1:2013)

Wickeldrähte - Prüfverfahren - Teil 3: Mechanische Eigenschaften (IEC 60851-3:2009/A1:2013)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 60851-3:2009/A1:2013 E

Foreword

The text of document 55/1392/FDIS, future IEC 60851-3:2009/A1, prepared by IEC/TC 55 "Winding wires" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60851-3:2009/A1:2013.

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)	2014-06-04
– latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-09-04

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The text of the International Standard IEC 60851-3:2009/A1:2013 was approved by CENELEC as a European Standard without any modification.

I.S. EN 60851-3:2009

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60851-3

April 2009

ICS 29.060.10

Supersedes EN 60851-3:1996 + A1:1997 + A2:2003

English version

Winding wires - Test methods - Part 3: Mechanical properties

(IEC 60851-3:2009)

Fils de bobinage - Méthodes d'essai - Partie 3: Propriétés mécaniques (CEI 60851-3:2009)

Wickeldrähte - Prüfverfahren - Teil 3: Mechanische Eigenschaften (IEC 60851-3:2009)

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European Committee for Electrotechnical Standardization
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Ref. No. EN 60851-3:2009 E

Foreword

The text of document 55/1043/CDV, future edition 3 of IEC 60851-3, prepared by IEC TC 55, Winding wires, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60851-3 on 2009-04-01.

This European Standard supersedes EN 60851-3:1996 + A1:1997 + A2:2003.

With respect to EN 60851-3:1996, significant technical changes appear in Subclause 5.3, Jerk test.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2010-01-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2012-04-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60851-3:2009 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60851-5	NOTE	Harmonized as EN 60851-5:2008 (not modified).
IEC 61033 + A1	NOTE	Harmonized as EN 61033:2006 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60851-1	- [1)]	Winding wires - Test methods - Part 1: General	EN 60851-1	1996 [2)]
IEC 60851-2	1996	Winding wires - Test methods - Part 2: Determination of dimensions	EN 60851-2	1996
ISO 178 A1	2001 2004	Plastics - Determination of flexural properties	EN ISO 178 A1	2003 2005

[1)] Undated reference.

[2)] Valid edition at date of issue.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

WINDING WIRES – TEST METHODS –

Part 3: Mechanical properties

FOREWORD

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This Consolidated version of IEC 60851-3 bears the edition number 3.1. It consists of the third edition (2009) [documents 55/1043/CDV and 55/1059/RVC] and its amendment 1 (2013) [documents 55/1392/FDIS and 55/1407/RVD]. The technical content is identical to the base edition and its amendment.

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions and deletions are displayed in red, with deletions being struck through. A separate Final version with all changes accepted is available in this publication.

This publication has been prepared for user convenience.

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 amendment 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 publication 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.