



**NSAI**  
Standards

Irish Standard  
I.S. EN 60851-6:2012

# Winding wires - Test methods -- Part 6: Thermal properties (IEC 60851-6:2012 (EQV))

## I.S. EN 60851-6:2012

*Incorporating amendments/corrigenda issued since publication:*

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

<i>This document replaces:</i> EN 60851-6:1996/A1:1997+ A2:2004	<i>This document is based on:</i> EN 60851-6:2012	<i>Published:</i> 3 August, 2012
This document was published under the authority of the NSAI and comes into effect on:  10 August, 2012		ICS number: 29.060.10
<b>NSAI</b> 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie  W NSAI.ie	<b>Sales:</b> T +353 1 857 6730 F +353 1 857 6729 W standards.ie
Údarás um Chaighdeáin Náisiúnta na hÉireann		

**I.S. EN 60851-6:2012**

**EUROPEAN STANDARD**  
**NORME EUROPÉENNE**  
**EUROPÄISCHE NORM**

**EN 60851-6**

August 2012

ICS 29.060.10

Supersedes EN 60851-6:1996 + A1:1997 + A2:2004

English version

**Winding wires -  
Test methods -  
Part 6: Thermal properties  
(IEC 60851-6:2012)**

Fils de bobinage -  
Méthodes d'essai -  
Partie 6: Propriétés thermiques  
(CEI 60851-6:2012)

Wickeldrähte -  
Prüfverfahren -  
Teil 6: Thermische Eigenschaften  
(IEC 60851-6:2012)

This European Standard was approved by CENELEC on 2012-06-27. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

**CENELEC**

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## **Foreword**

The text of document 55/1312/FDIS, future edition 3 of IEC 60851-6, prepared by IEC/TC 55 "Winding wires" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60851-6:2012.

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) 2013-03-27
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-06-27

This document supersedes EN 60851-6:1996 + A1:1997 + A2:2004.

EN 60851-6:2012 includes the following significant technical changes with respect to EN 60851-6:1996 + A1:1997 + A2:2004:

- deletion of Table 2: Heating period in Test 10: Cut-through;
- revision to Test 15, where the temperature index requirements for all winding wire constructions have a common reference.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

## **Endorsement notice**

The text of the International Standard IEC 60851-6:2012 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated :

IEC 60851-1      NOTE      Harmonised as EN 60851-1.

**Annex ZA**  
(normative)**Normative references to international publications  
with their corresponding European publications**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60172	-	Test procedure for the determination of the temperature index of enamelled winding wires	EN 60172	-
IEC 60851-3	2009	Winding wires - Test methods - Part 3: Mechanical properties	EN 60851-3	2009
IEC 60851-5 + A1	2008 2011	Winding wires - Test methods - Part 5: Electrical properties	EN 60851-5 + A1	2008 2011

*This page is intentionally left BLANK.*

**CONTENTS**

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references .....	6
3 Test 9: Heat shock (applicable to enamelled and tape wrapped wire) .....	6
3.1 General.....	6
3.2 Specimen .....	6
3.2.1 Round wire .....	6
3.2.2 Rectangular wire .....	7
3.3 Procedure .....	7
3.4 Result .....	7
4 Test 10: Cut-through (applicable to enamelled round wire with a nominal conductor diameter over 0,100 mm up to and including 1,600 mm and tape wrapped round wire).....	7
4.1 General.....	7
4.2 Equipment.....	7
4.3 Procedure .....	7
5 Test 15: Temperature index.....	8
6 Test 21: Loss of mass (applicable to enamelled round wire) .....	8
6.1 General.....	8
6.2 Specimen .....	8
6.3 Procedure .....	8
Annex A (informative) High temperature failure test (applicable to enamelled round wire) .....	11
Bibliography.....	13
Figure 1 – Compression device for the cut-through test .....	10
Table 1 – Magnification.....	7
Table 2 – Loads applied to the crossing point .....	8
Table A.1 – Test voltage .....	11

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

### **WINDING WIRES – TEST METHODS –**

#### **Part 6: Thermal properties**

#### **FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60851-6 has been prepared by IEC technical committee 55: Winding wires.

This third edition cancels and replaces the second edition, published in 1996 and constitutes a technical revision.

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

- Deletion of Table 2: Heating period in Test 10: Cut-through
- Revision to Test 15, where the temperature index requirements for all winding wire constructions have a common reference.

The text of this standard is based on the following documents:

FDIS	Report on voting
55/1312/FDIS	55/1330/RVD

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

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, published under the general title *Winding wires – Test methods*, can be found on the IEC website.

The committee has decided that the contents of this publication 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.

## 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:

- 1) winding wires – test methods (IEC 60851);
- 2) specifications for particular types of winding wires (IEC 60317);
- 3) packaging of winding wires (IEC 60264).

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- Looking for additional Standards? Visit Intertek Inform Infostore
  - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-