



NSAI
Standards

Irish Standard
I.S. EN 60317-2:2012

Specifications for particular types of winding wires -- Part 2: Solderable polyurethane enamelled round copper wire, class 130, with a bonding layer (IEC 60317-2:2012 (EQV))

I.S. EN 60317-2:2012

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 60317-2:1994/A1:1998 EN 60317-2:1994/A2:2000	<i>This document is based on:</i> EN 60317-2:2012 EN 60317-2:1994/A2:2000	<i>Published:</i> 12 October, 2012 11 February, 2000
This document was published under the authority of the NSAI and comes into effect on: 15 October, 2012		ICS number: 29.060.10
NSAI 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie	Sales: T +353 1 857 6730 F +353 1 857 6729 W standards.ie
Údarás um Chaighdeáin Náisiúnta na hÉireann		

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60317-2

October 2012

ICS 29.060.10

Supersedes EN 60317-2:1994 + A1:1998 + A2:2000

English version

**Specifications for particular types of winding wires -
Part 2: Solderable polyurethane enamelled round copper wire,
class 130, with a bonding layer
(IEC 60317-2:2012)**

Spécifications pour types particuliers
de fils de bobinage -
Partie 2: Fil de section circulaire en cuivre
émaillé avec polyuréthane brasable,
classe 130, avec une couche adhérente
(CEI 60317-2:2012)

Technische Lieferbedingungen für
bestimmte Typen von Wickeldrähten -
Teil 2: Runddrähte aus Kupfer, verzinnbar,
lackisoliert mit Polyurethan und darüber
mit Backlack, Klasse 130
(IEC 60317-2:2012)

This European Standard was approved by CENELEC on 2012-08-16. 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 55/1325/FDIS, future edition 4 of IEC 60317-2, prepared by IEC/TC 55 "Winding wires" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60317-2:2012.

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) 2013-05-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-08-16

This document supersedes EN 60317-2:1994 + A1:1998 + A2:2000.

EN 60317-2:2012 includes the following significant technical changes with respect to EN 60317-2:1994 + A1:1998 + A2:2000:

- addition of requirements for appearance, new Subclause 3.3;
- addition of pin hole test requirements, Clause 23: Pin hole test.

This standard is to be read in conjunction with EN 60317-0-1:2008.

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 60317-2:2012 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 60264 Series	NOTE	Harmonised as EN 60264 Series (not modified).
IEC 60317 Series	NOTE	Harmonised as EN 60317 Series (not modified).
IEC 60851 Series	NOTE	Harmonised as EN 60851 Series (not modified).

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 60317-0-1	2008	Specifications for particular types of winding wires - Part 0-1: General requirements - Enamelled round copper wire	EN 60317-0-1	2008

This page is intentionally left BLANK.

CONTENTS

FOREWORD	3
INTRODUCTION	5
1 Scope	6
2 Normative references	6
3 Terms, definitions, general notes and appearance	6
3.1 Terms and definitions	6
3.2 General notes	6
3.2.1 Methods of test	6
3.2.2 Winding wire	6
3.3 Appearance	7
4 Dimensions	7
5 Electrical resistance	7
6 Elongation	7
7 Springiness	7
8 Flexibility and adherence	7
9 Heat shock	7
10 Cut-through	7
11 Resistance to abrasion (nominal conductor diameters from 0,250 mm up to and including 2,000 mm)	7
12 Resistance to solvents	8
13 Breakdown voltage	8
14 Continuity of insulation	8
15 Temperature index	8
16 Resistance to refrigerant	8
17 Solderability	8
17.1 Nominal conductor diameters up to and including 0,050 mm	8
17.2 Nominal conductor diameters over 0,050 mm up to and including 0,100 mm	9
17.3 Nominal conductor diameter over 0,100 mm	9
18 Heat or solvent bonding	9
18.1 Heat bonding	9
18.1.1 Heat bonding strength of a helical coil	9
18.1.2 Bond strength of a twisted coil	10
18.2 Solvent bonding	10
19 Dielectric dissipation factor	10
20 Resistance to transformer oil	11
21 Loss of mass	11
23 Pin hole test	11
30 Packaging	11
Bibliography	12
Table 1 – Resistance to abrasion	8
Table 2 – Loads	10

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –

Part 2: Solderable polyurethane enamelled round copper wire, class 130, with a bonding layer

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 60317-2 has been prepared by IEC technical committee 55: Winding wires.

This fourth edition cancels and replaces the third edition, published in 1990, amendment 1:1997 and amendment 2:1999. This edition constitutes a technical revision.

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

- addition of requirements for appearance, new subclause 3.3;
- addition of pin hole test requirements, Clause 23: Pin hole test.

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

FDIS	Report on voting
55/1325/FDIS	55/1338/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.

This International Standard is to be read in conjunction with the IEC 60317-0-1:2008.

The numbering of clauses in this standard is not continuous from Clauses 23 and 30 in order to reserve space for possible future wire requirements prior to those for wire packaging.

A list of all the parts in the IEC 60317 series, published under the general title *Specifications for particular types of winding wires* 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 60317 is one of a series 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).

SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –

Part 2: Solderable polyurethane enamelled round copper wire, class 130, with a bonding layer

1 Scope

This part of IEC 60317 specifies the requirements of solderable enamelled round copper winding wire of class 130 with a dual coating. The underlying coating is based on polyurethane resin, which may be modified providing it retains the chemical identity of the original resin and meets all specified wire requirements. The superimposed coating is a bonding layer based on a thermoplastic resin.

NOTE A modified resin is a resin that has undergone a chemical change, or contains one or more additives to enhance certain performance or application characteristics.

The range of nominal conductor diameters covered by this standard is:

- Grade 1B: 0,020 mm up to and including 2,000 mm;
- Grade 2B: 0,020 mm up to and including 2,000 mm.

The nominal conductor diameters are specified in Clause 4 of IEC 60317-0-1:2008.

2 Normative references

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.

IEC 60317-0-1:2008, *Specifications for particular types of winding wires – Part 0-1: General requirements – Enamelled round copper wire*

3 Terms, definitions, general notes and appearance

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in 3.1 of IEC 60317-0-1:2008 apply.

3.2 General notes

3.2.1 Methods of test

Subclause 3.2 of IEC 60317-0-1:2008 applies.

In case of inconsistencies between IEC 60317-0-1 and this standard, IEC 60317-2 shall prevail.

3.2.2 Winding wire

Class 130 is a thermal class that requires a minimum temperature index of 130 and a heat shock temperature of at least 155 °C.

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
-