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Standards

Irish Standard  
I.S. EN 60317-20:2014

# Specifications for particular types of winding wires -- Part 20: Solderable polyurethane enamelled round copper wire, class 155

**I.S. EN 60317-20:2014**

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**EN 60317-20**

February 2014

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Supersedes EN 60317-20:1995 + A1:1998 + A2:2000

English version

**Specifications for particular types of winding wires -  
Part 20: Solderable polyurethane enamelled round copper wire, class 155  
(IEC 60317-20:2013)**

Spécifications pour types particuliers de  
fils de bobinage -  
Partie 20: Fil brasable de section circulaire  
en cuivre émaillé avec polyuréthane,  
classe 155  
(CEI 60317-20:2013)

Technische Lieferbedingungen für  
bestimmte Typen von Wickeldrähten -  
Teil 20: Runddrähte aus Kupfer,  
verzinnbar, lackisoliert mit Polyurethan,  
Klasse 155  
(IEC 60317-20:2013)

This European Standard was approved by CENELEC on 2013-11-14. 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.

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Europäisches Komitee für Elektrotechnische Normung

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

## Foreword

The text of document 55/1411/FDIS, future edition 3 of IEC 60317-20, prepared by IEC/TC 55 "Winding wires" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60317-20:2014.

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) 2014-08-14
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-11-14

This document supersedes EN 60317-20:1995.

EN 60317-20:2014 includes the following significant technical changes with respect to EN 60317-20:1995:

- new 3.2.2 containing general notes on winding wire, formerly a part of the scope;
- revision to references to EN 60317-0-1:2014 to clarify that their application is normative;
- modification to Clause 15 to remove specific wire specimen sizes;
- consolidation of 17.1 and 17.2 of the solderability requirements;
- modification to Clause 19, Dielectric dissipation factor;
- new Clause 23, Pin hole test.

The numbering of clauses in this standard is not continuous from Clauses 20 and 30 in order to reserve space for possible future wire requirements prior to those for wire packaging.

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.

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

IEC 60264 Series	NOTE	Harmonized as EN 60264 Series (not modified).
IEC 60317 Series	NOTE	Harmonized as EN 60317 Series (not modified).
IEC 60851 Series	NOTE	Harmonized 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	2013	Specifications for particular types of winding wires - Part 0-1: General requirements - Enamelled round copper wire	EN 60317-0-1	2014

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**IEC 60317-20**

Edition 3.0 2013-10

# **INTERNATIONAL STANDARD**

# **NORME INTERNATIONALE**

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**Specifications for particular types of winding wires –  
Part 20: Solderable polyurethane enamelled round copper wire, class 155**

**Spécifications pour types particuliers de fils de bobinage –  
Partie 20: Fil brasable de section circulaire en cuivre émaillé avec polyuréthane,  
classe 155**





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**IEC 60317-20**

Edition 3.0 2013-10

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**Specifications for particular types of winding wires –  
Part 20: Solderable polyurethane enamelled round copper wire, class 155**

**Spécifications pour types particuliers de fils de bobinage –  
Partie 20: Fil brasable de section circulaire en cuivre émaillé avec polyuréthane,  
classe 155**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –****Part 20: Solderable polyurethane enamelled round copper wire, class 155**

## 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.
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International Standard IEC 60317-20 has been prepared by IEC technical committee 55: Winding wires.

This third edition cancels and replaces the second 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:

- new 3.2.2 containing general notes on winding wire, formerly a part of the scope;
- revision to references to IEC 60317-0-1:2013 to clarify that their application is normative;
- modification to Clause 15 to remove specific wire specimen sizes;
- consolidation of 17.1 and 17.2 of the solderability requirements;
- modification to Clause 19, Dielectric dissipation factor;
- new Clause 23, Pin hole test.

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

FDIS	Report on voting
55/1411/FDIS	55/1432/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 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 numbering of clauses in this standard is not continuous from Clauses 20 and 30 in order to reserve space for possible future wire requirements prior to those for wire packaging.

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 20: Solderable polyurethane enamelled round copper wire, class 155

#### 1 Scope

This part of IEC 60317 specifies the requirements of solderable enamelled round copper winding wire of class 155 with a sole coating based on polyurethane resin, which may be modified providing it retains the chemical identity of the original resin and meets all specified wire requirements.

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 1: 0,018 mm up to and including 0,800 mm;
- Grade 2: 0,020 mm up to and including 0,800 mm.

The nominal conductor diameters are specified in Clause 4 of IEC 60317-0-1:2013.

#### 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 60317-0-1:2013, *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

Subclause 3.1 of IEC 60317-0-1:2013 applies.

##### 3.2 General notes

###### 3.2.1 Methods of test

Subclause 3.2.1 of IEC 60317-0-1:2013 applies. In case of inconsistencies between IEC 60317-0-1:2013 and this part of IEC 60317, the latter shall prevail.

###### 3.2.2 Winding wire

Class 155 is a thermal class that requires a minimum temperature index of 155 and a heat shock temperature of at least 175 °C.

The temperature in degrees Celsius corresponding to the temperature index is not necessarily that at which it is recommended that the wire be operated and this will depend on many factors, including the type of equipment involved.

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