

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Specifications for particular types of winding wires –  
Part 60: Polyester glass fibre wound minimum class 155 resin or varnish  
impregnated or not impregnated, bare or enamelled, rectangular copper wire,  
temperature index 155**

[IEC 60317-60:2012](#)

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**Spécifications pour types particuliers de fils de bobinage –  
Partie 60: Fil de section rectangulaire en cuivre nu ou émaillé, guipé de fibres de  
verre avec polyester de classe d'au moins 155, imprégnées ou non de vernis ou  
de résine, d'indice de température 155**



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IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
Fax: +41 22 919 03 00  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

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Part 60: Polyester glass fibre wound minimum class 155 resin or varnish  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**SPECIFICATIONS FOR PARTICULAR  
TYPES OF WINDING WIRES –**
**Part 60: Polyester glass fibre wound minimum class 155 resin  
or varnish impregnated or not impregnated, bare or enamelled,  
rectangular copper wire, temperature index 155**

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International Standard IEC 60317-60 has been prepared by IEC technical committee 55: Winding wires.

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

FDIS	Report on voting
55/1320/FDIS	55/1334/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 60317-0-8:2012.

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 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.

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## 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).

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## SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –

### Part 60: Polyester glass fibre wound, minimum class 155 resin or varnish impregnated or not impregnated, bare or enamelled, rectangular copper wire, temperature index 155

#### 1 Scope

This part of IEC 60317 specifies the requirements of polyester glass fibre wound, impregnated or not impregnated, bare or enamelled rectangular copper winding wire, temperature index 155.

NOTE For this type of wire, the heat shock test is inappropriate and therefore a heat shock temperature cannot be established. Consequently, a class based on the requirements for temperature index and heat shock temperature cannot be specified.

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

- width: min. 2,0 mm; max. 16,0 mm;
- thickness: min. 0,80 mm; max. 5,60 mm.

The specified combinations of width and thickness as well as the specified width/thickness ratio are according to IEC 60317-0-8.

[IEC 60317-60:2012](#)

#### 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 60317-0-8:2012, *Specifications for particular types of winding wires – Part 0-8: General requirements – Polyester glass fibre wound, resin or varnish impregnated or not impregnated, bare or enamelled rectangular 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 60317-0-8:2012 apply.

##### 3.2 General notes

###### 3.2.1 Methods of test

Subclause 3.2 of IEC 60317-0-8:2012 applies.

In case of inconsistency between IEC 60317-0-8 and this standard, IEC 60317-60 shall prevail.



### 3.2.2 Winding wire

The enamelled wire shall have a temperature index of at least 155 and shall be agreed between purchaser and supplier.

When impregnating agent is used, the temperature index of the wire is dependent upon the type of impregnating agent used. The impregnating agent applied to the polyester glass fibres shall have a minimum temperature index of 155.

The covering shall have one of the following grades of thickness:

- PG1: one polyester glass fibre covering over a bare conductor;
- PG2: two polyester glass fibre coverings over a bare conductor;
- grade 1 PG1: one polyester glass fibre covering (GL1) over grade 1 enamelled conductor (Grade 1);
- grade 1 PG2: two polyester glass fibre coverings (GL2) over grade 1 enamelled conductor (Grade 1);
- grade 2 PG1: one polyester glass fibre covering (GL1) over grade 2 enamelled conductor (Grade 2);
- grade 2 PG2: two polyester glass fibre coverings (GL2) over grade 2 enamelled conductor (Grade 2).

### 3.3 Appearance

Subclause 3.3 of IEC 60317-0-8:2012 applies.

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### 4 Dimensions

[IEC 60317-60:2012](#)

Clause 4 of IEC 60317-0-8:2012 applies.

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### 5 Electrical resistance

Clause 5 of IEC 60317-0-8:2012 applies.

### 6 Elongation

Clause 6 of IEC 60317-0-8:2012 applies.

### 7 Springiness

Clause 7 of IEC 60317-0-8:2012 applies.

### 8 Flexibility and adherence

Clause 8 of IEC 60317-0-8:2012 applies.

### 9 Heat shock

Test inappropriate.

**10 Cut-through**

Test inappropriate.

**11 Resistance to abrasion**

Test inappropriate.

**12 Resistance to solvents**

Test inappropriate.

**13 Breakdown voltage**

Clause 13 of IEC 60317-0-8:2012 applies.

**14 Continuity of insulation**

Test inappropriate.

**15 Temperature index**

Clause 15 of IEC 60317-0-8:2012 applies.

**16 Resistance to refrigerants**

Test inappropriate.

**17 Solderability**

Test inappropriate.

**18 Heat or solvent bonding**

Test inappropriate.

**19 Dielectric dissipation factor**

Test inappropriate.

**20 Resistance to transformer oil**

Test inappropriate.

**23 Pin hole test**

Test inappropriate

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### **30 Packaging**

Clause 30 of IEC 60317-0-8:2012 applies.

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