

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

Specifications for particular types of winding wires –  
Part 33: Glass fibre wound, resin or varnish impregnated, bare or enamelled  
rectangular copper wire, temperature index 200

Spécifications pour types particuliers de fils de bobinage –  
Partie 33: Fil de section rectangulaire en cuivre nu ou émaillé guipé de fibres de  
verre imprégnées de vernis ou de résine, d'indice de température 200



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –****Part 33: Glass fibre wound, resin or varnish impregnated,  
bare or enamelled rectangular copper wire, temperature index 200**

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International Standard IEC 60317-33 has been prepared by IEC technical committee 55: Winding wires.

This bilingual version (2017-12) corresponds to the monolingual English version, published in 2015-10.

This second edition cancels and replaces the first edition published in 1990, Amendment 1:1997 and Amendment 2:2005. 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 part of the scope;
- introduction of glass fibre coverings over grade 1 enamelled conductor in 3.2.2;
- revision to references to IEC 60317-0-4 to make clear that their application is normative.

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

CDV	Report on voting
55/1493/CDV	55/1516/RVC

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

The French version of this standard has not been voted upon.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This International Standard is to be used in conjunction with the IEC 60317-0-4:2015.

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.

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 website 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 33: Glass fibre wound, resin or varnish impregnated, bare or enamelled rectangular copper wire, temperature index 200

### 1 Scope

This part of IEC 60317 specifies the requirements of polyester glass fibre wound, impregnated, bare or enamelled rectangular copper winding wire, temperature index 200.

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 60317-0-4.

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### 2 Normative references (standards.iteh.ai)

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 60317-0-4:2015, *Specifications for particular types of winding wires – Part 0: General requirements – Section 4: Glass fibre wound, resin or varnish 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 60317-0-4:2015 apply.

#### 3.2 General notes

##### 3.2.1 Methods of test

Subclause 3.2 of IEC 60317-0-4:2015 applies.

In case of inconsistency between IEC 60317-0-4 and this standard, IEC 60317-33 shall prevail.

##### 3.2.2 Winding wire

The enamelled wire shall have a temperature index of at least 200 and shall be agreed between purchaser and supplier.



The temperature index of the wire is dependent upon the type of impregnating agent used. The impregnating agent applied to the glass fibre shall contain silicone and have a minimum temperature index of 200.

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

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

### 3.3 Appearance

Subclause 3.3 of IEC 60317-0-4:2015 applies.

## 4 Dimensions

Clause 4 of IEC 60317-0-4:2015 applies.

## 5 Electrical resistance

Clause 5 of IEC 60317-0-4:2015 applies.

## 6 Elongation

Clause 6 of IEC 60317-0-4:2015 applies.

## 7 Springiness

Clause 7 of IEC 60317-0-4:2015 applies.

## 8 Flexibility and adherence

Clause 8 of IEC 60317-0-4:2015 applies.

## 9 Heat shock

Test inappropriate.

## 10 Cut-through

Test inappropriate.

## 11 Resistance to abrasion

Test inappropriate.

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## **12 Resistance to solvents**

Test inappropriate.

## **13 Breakdown voltage**

Clause 13 of IEC 60317-0-4:2015 applies.

## **14 Continuity of insulation**

Test inappropriate.

## **15 Temperature index**

Clause 15 of IEC 60317-0-4:2015 applies.

## **16 Resistance to refrigerants**

Test inappropriate.

## **17 Solderability**

Test inappropriate.

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## **18 Heat or solvent bonding**

Test inappropriate.

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## **19 Dielectric dissipation factor**

Test inappropriate.

## **20 Resistance to transformer oil**

Test inappropriate.

## **23 Pin hole test**

Test inappropriate.

## **30 Packaging**

Clause 30 of IEC 60317-0-4:2015 applies.

## Bibliography

IEC 60264 (all parts), *Packaging of winding wires*

IEC 60317 (all parts), *Specifications for particular types of winding wires*

IEC 60851 (all parts), *Winding wires – Test methods*

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