IEC 60317-62

Edition 2.0 2020-06
REDLINE VERSION

INTERNATIONAL STANDARD

colour inside

Specifications for particular types of winding wires –
Part 62: Polyester glass-fibre wound, ~~minimum class 200~~ silicone resin or varnish impregnated, bare or enamelled rectangular copper wire, temperature index 200

IEC 60317-62:2020-06 RLV(en)

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

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –

Part 62: Polyester glass-fibre wound, ~~minimum class 200~~ silicone resin or varnish impregnated, bare or enamelled rectangular copper wire, temperature index 200

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 60317-62 has been prepared by IEC technical committee 55: Winding wires.

This second edition cancels and replaces the first edition published in 2012. This edition constitutes a technical revision.

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

– revision to the title of the standard to more precisely describe the construction of the wire;
– revision to Clause 1, the scope of the standard, to provide more detail of the wire construction;
– revision to 3.2.2, general winding wire requirements of the glass fibre covering.

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

FDIS	Report on voting
55/1849/FDIS	55/1868/RVD

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

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

This International standard is to be used in conjunction with the IEC 60317-0-8:2019.

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 document 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 document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

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INTRODUCTION

This part of IEC 60317 forms an element of a series of standards which deals with insulated wires used for windings in electrical equipment. It is composed of the following series:

1) *Winding wires – test methods* (IEC 60851 series);
2) *Specifications for particular types of winding wires* (IEC 60317 series);
3) *Packaging of winding wires* (IEC 60264 series).

SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –

Part 62: Polyester glass-fibre wound, ~~minimum class 200~~ silicone 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, silicone resin or varnish impregnated bare, grade 1 or grade 2 enamelled rectangular copper winding wires, temperature index 200. The impregnating agent is a silicone containing resin or varnish.

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

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

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

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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~~2019, *Specifications for particular types of winding wires – Part 0-8: General requirements – Polyester glass-fibre wound unvarnished and fused, or 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.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp.

3.2 General notes

3.2.1 Methods of test

Subclause 3.2.1 of IEC 60317-0-8:~~2012~~2019 applies. In case of inconsistencies between IEC 60317-0-8 and this document, the latter shall prevail.

3.2.2 Winding wire

The fibre covering shall consist of a combination of polyester and glass fibres. The glass fibres shall be electrical-grade continuous-filament glass yarn. The polyester fibre shall be a high-grade yarn resulting from the linear polymerization of ethylene glycol and terephthalic acid. The maximum content by weight of polyester fibre in the yarn shall not exceed 50 %.

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 silicone-containing impregnating agent applied to the polyester glass fibres shall ~~contain silicone and~~ have a minimum temperature index of 200.

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).~~

– PG1: bare conductor with 1 layer of polyester glass fibre or 2 layers of finer polyester glass fibres that together comply with the dimensional requirements in IEC 60317-0-8;
– PG2: bare conductor with 2 layers of polyester glass fibre;
– Grade 1 PG1: enamelled grade 1 (grade 1) with 1 layer of polyester glass fibre (PG1);
– Grade 1 PG2: enamelled grade 1 (grade 1) with 2 layers of polyester glass fibre (PG2);
– Grade 2 PG1: enamelled grade 2 (grade 2) with 1 layer of polyester glass fibre (PG1);
– Grade 2 PG2: enamelled grade 2 (grade 2) with 2 layers of polyester glass fibre (PG2).

The specified combinations of width and thickness as well as the specified width/thickness ratio are in accordance with IEC 60317-0-8.

3.3 Appearance

Subclause 3.3 of IEC 60317-0-8:~~2012~~2019 applies.

4 Dimensions

Clause 4 of IEC 60317-0-8:~~2012~~2019 applies.

5 Electrical resistance

Clause 5 of IEC 60317-0-8:~~2012~~2019 applies.

6 Elongation

Clause 6 of IEC 60317-0-8:~~2012~~2019 applies.

7 Springiness

Clause 7 of IEC 60317-0-8:~~2012~~2019 applies.

8 Flexibility and adherence

Clause 8 of IEC 60317-0-8:~~2012~~2019 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~~2019 applies.

14 Continuity of insulation

Test inappropriate.

15 Temperature index

Clause 15 of IEC 60317-0-8:~~2012~~2019 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.

30 Packaging

Clause 30 of IEC 60317-0-8:~~2012~~2019 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*

IEC 60317-62

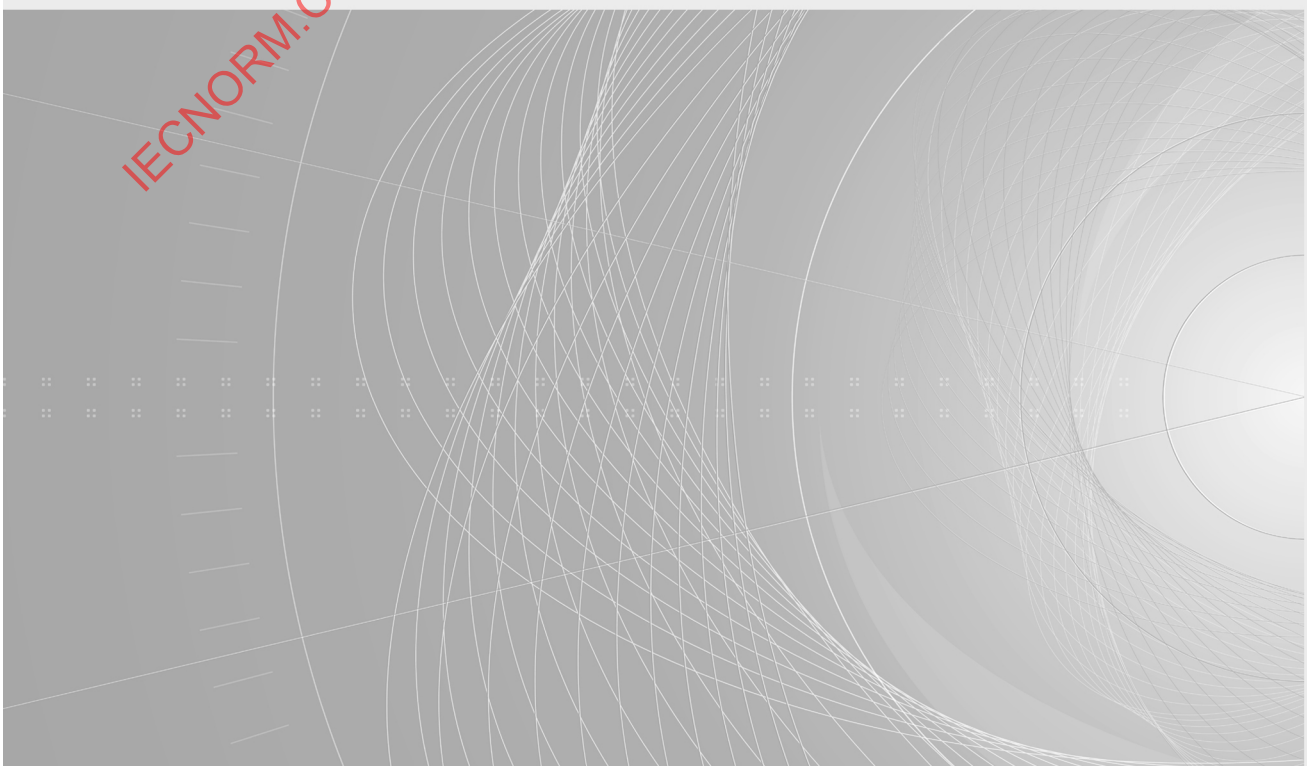
Edition 2.0 2020-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Specifications for particular types of winding wires – Part 62: Polyester glass-fibre wound, silicone resin or varnish impregnated, bare or enamelled rectangular copper wire, temperature index 200

Spécifications pour types particuliers de fils de bobinage – Partie 62: Fil de section rectangulaire en cuivre nu ou émaillé, guipé de fibres de verre polyester imprégnées de résine silicone ou de vernis, d'indice de température 200



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Part 62: Polyester glass-fibre wound, silicone resin or varnish impregnated, bare or enamelled rectangular copper wire, temperature index 200

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The temperature index of the wire is dependent upon the type of impregnating agent used. The silicone-containing impregnating agent applied to the polyester glass fibres shall have a minimum temperature index of 200.

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– PG2: bare conductor with 2 layers of polyester glass fibre;
– Grade 1 PG1: enamelled grade 1 (grade 1) with 1 layer of polyester glass fibre (PG1);
– Grade 1 PG2: enamelled grade 1 (grade 1) with 2 layers of polyester glass fibre (PG2);
– Grade 2 PG1: enamelled grade 2 (grade 2) with 1 layer of polyester glass fibre (PG1);
– Grade 2 PG2: enamelled grade 2 (grade 2) with 2 layers of polyester glass fibre (PG2).

The specified combinations of width and thickness as well as the specified width/thickness ratio are in accordance with IEC 60317-0-8.

3.3 Appearance

Subclause 3.3 of IEC 60317-0-8:2019 applies.

4 Dimensions

Clause 4 of IEC 60317-0-8:2019 applies.

5 Electrical resistance

Clause 5 of IEC 60317-0-8:2019 applies.

6 Elongation

Clause 6 of IEC 60317-0-8:2019 applies.

7 Springiness

Clause 7 of IEC 60317-0-8:2019 applies.

8 Flexibility and adherence

Clause 8 of IEC 60317-0-8:2019 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 60317-0-8:2019 applies.

14 Continuity of insulation

Test inappropriate.

15 Temperature index

Clause 15 of IEC 60317-0-8:2019 applies.

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17 Solderability

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19 Dielectric dissipation factor

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20 Resistance to transformer oil

Test inappropriate.

23 Pin hole test

Test inappropriate.

30 Packaging

Clause 30 of IEC 60317-0-8:2019 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*

SOMMAIRE

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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SPÉCIFICATIONS POUR TYPES PARTICULIERS DE FILS DE BOBINAGE –

Partie 62: Fil de section rectangulaire en cuivre nu ou émaillé, guipé de fibres de verre polyester imprégnées de résine silicone ou de vernis, d'indice de température 200

AVANT-PROPOS

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La Norme internationale IEC 60317-62 a été établie par le comité d'études 55 de l'IEC: Fils de bobinage.

Cette deuxième édition annule et remplace la première édition parue en 2012. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

– révision du titre de la norme pour décrire de manière plus précise la construction du fil;

– révision de l'Article 1, domaine d'application de la norme, afin d'apporter davantage de précisions sur la construction du fil;

– révision du 3.2.2, exigences générales relatives aux fils de bobinage des revêtements en fibre de verre.

Le texte de cette publication est issu des documents suivants:

FDIS	Rapport de vote
55/1849/FDIS	55/1868/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de ce document.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2.

La présente Norme internationale doit être utilisée conjointement avec l'IEC 60317-0-8:2019.

Une liste de toutes les parties de la série IEC 60317, publiées sous le titre général *Spécifications pour types particuliers de fils de bobinage*, peut être consultée sur le site web de l'IEC.

La numérotation des articles dans le présent document n'est pas continue entre les Articles 20 et 30 afin de permettre l'introduction d'éventuelles futures exigences concernant les fils avant celles concernant le conditionnement des fils.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous "http://webstore.iec.ch" dans les données relatives au document recherché. A cette date, le document sera

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INTRODUCTION

La présente partie de l'IEC 60317 appartient à une série de normes traitant des fils isolés utilisés pour les enroulements des appareils électriques. L'ensemble est composé des trois séries de normes suivantes:

1) *Fils de bobinage – Méthodes d'essai* (série IEC 60851);
2) *Spécifications pour types particuliers de fils de bobinage* (série IEC 60317);
3) *Conditionnement des fils de bobinage* (série IEC 60264).