IEC 60317-49

Edition 2.0 2012-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Specifications for particular types of winding wires –
Part 49: Glass-fibre wound high temperature resin or varnish impregnated, bare or enamelled round copper wire, temperature index 180

Spécifications pour types particuliers de fils de bobinage –
Partie 49: Fil de section circulaire en cuivre nu ou émaillé, recouvert d'un guipage de fibres de verre haute température imprégnées de résine ou de vernis, indice de température 180

IEC 60317-49:2012

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FOREWORD

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International Standard IEC 60317-49 has been prepared by IEC technical committee 55: Winding wires.

This second edition cancels and replaces the first edition published in 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
55/1327/FDIS	55/1342/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 60317-0-6:2001 and its Amendment 1:2006.

The numbering of clauses in this standard is not continuous from Clauses 22 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- withdrawn,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.

The contents of the corrigendum of January 2013 have been included in this copy.

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).

PECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –

Part 49: Glass-fibre wound high temperature resin or varnish impregnated, bare or enamelled round copper wire, temperature index 180

1 Scope

This part of IEC 60317 specifies the requirements of glass-fibre wound resin or varnish impregnated, bare, grade 1 or grade 2 enamelled round copper winding wire, temperature index 180. The impregnating agent can be, for instance, polyester or polyesterimide resin based.

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.

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 60317-0-6:2001, *Specifications for particular types of winding wires – Part 0-6: General requirements – Glass-fibre wound resin or varnish impregnated, bare or enamelled round copper wire*
Amendment 1:2006

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 60317-0-6: 2001 and its Amendment 1:2006 apply.

3.2 General notes

3.2.1 Methods of test

Subclause 3.2 of IEC 60317-0-6:2001 applies.

In case of inconsistency between IEC 60317-0-6 and this standard, IEC 60317-49 shall prevail.

3.2.2 Winding wire

The enamelled wire shall have a temperature index of at least 180 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 be a high temperature, non-silicone based varnish having a minimum temperature index of 180.

The glass-fibre covering may be

a) a single layer of glass fibre,
b) a double layer of glass fibre, with one layer applied in the direction opposite to that of the other layer.

The range of nominal conductor diameters covered by this standard is

– for bare covered wires (grade GL2): 0,500 mm up to and including 5,000 mm;
– for grade 1 enamelled wires (grades 1GL1 and 1GL2): 0,500 mm up to and including 1,600 mm;
– for grade 2 enamelled wires (grades 2GL1 and 2GL2): 0,500 mm up to and including 5,000 mm.

The nominal conductor diameters are specified in Clause 4 of IEC 60317-0-6: 2001.

3.3 Appearance

Subclause 3.3 of IEC 60317-0-6:2001 Amendment 1:2006 applies.

4 Dimensions

Clause 4 of IEC 60317-0-6:2001 applies.

5 Electrical resistance

Clause 5 of IEC 60317-0-6:2001 applies.

6 Elongation

Clause 6 of IEC 60317-0-6:2001 applies.

7 Springiness

Clause 7 of IEC 60317-0-6:2001 applies.

8 Flexibility and adherence

Clause 8 of IEC 60317-0-6:2001 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 60317-0-6:2001 applies.

14 Continuity of insulation

Test inappropriate.

15 Temperature index

Clause 15 of IEC 60317-0-6:2001 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 hydrolysis and to transformer oil

Test inappropriate.

21 Loss of mass

Test inappropriate.

23 Pin hole test

Test inappropriate.

30 Packaging

Clause 30 of IEC 60317-0-6:2001 and its Amendment 1 (2006) apply.

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*