

Specifications for particular types of winding wires —

Part 0-1: General requirements — Enamelled round copper wire

ICS 29.060.10

National foreword

This British Standard is the UK implementation of EN 60317-0-1:2008. It is identical to IEC 60317-0-1:2008. It supersedes BS EN 60317-0-1:1998 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GEL/55, Winding wires.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

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English version

**Specifications for particular types of winding wires -
Part 0-1: General requirements -
Enamelled round copper wire
(IEC 60317-0-1:2008)**

Spécifications pour types particuliers
de fils de bobinage -
Partie 0-1: Exigences générales -
Fil de section circulaire en cuivre émaillé
(CEI 60317-0-1:2008)

Technische Lieferbedingungen
für bestimmte Typen von Wickeldrähten -
Teil 0-1: Allgemeine Anforderungen -
Runddrähte aus Kupfer, lackisoliert
(IEC 60317-0-1:2008)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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Foreword

The text of document 55/1033/CDV, future edition 3 of IEC 60317-0-1, prepared by IEC TC 55, Winding wires, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60317-0-1 on 2008-05-01.

This European Standard supersedes EN 60317-0-1:1998 + A1:2000 + A2:2005.

The main changes with respect to EN 60317-0-1:1998 are listed below:

- addition of Grade 3 minimum insulation increases and maximum overall diameters for wires up to 0,071 mm nominal conductor diameter in Tables 1 and A.1;
- revisions to minimum increase in bonding layer for wires up to 0,100 mm nominal conductor diameter in Tables 2 and A.2;
- addition of Grade 3 dielectric breakdown requirements for wires up to 0,071 mm nominal conductor diameter;
- new pin hole test requirement for Grade 3 polyurethane wires.

This standard is to be read in conjunction with the EN 60851 series. The clause numbers used in EN 60317-0-1 are identical with the respective test numbers of EN 60851.

In case of inconsistencies between EN 60851 and EN 60317-0-1, the latter shall prevail.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2009-02-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2011-05-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60317-0-1:2008 was approved by CENELEC as a European Standard without any modification.

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

IEC 60317-2	NOTE	Harmonized as EN 60317-2:1994 (not modified).
IEC 60317-4	NOTE	Harmonized as EN 60317-4:1994 (not modified).
IEC 60317-11	NOTE	Harmonized as EN 60317-11:2000 (not modified).
IEC 60317-19	NOTE	Harmonized as EN 60317-19:1995 (not modified).
IEC 60317-20	NOTE	Harmonized as EN 60317-20:1995 (not modified).
IEC 60317-21	NOTE	Harmonized as EN 60317-21:1995 (not modified).
IEC 60317-23	NOTE	Harmonized as EN 60317-23:1995 (not modified).
IEC 60317-35	NOTE	Harmonized as EN 60317-35:1994 (not modified).
IEC 60317-36	NOTE	Harmonized as EN 60317-36:1994 (not modified).
IEC 60317-51	NOTE	Harmonized as EN 60317-51:2001 (not modified).

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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).

SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –

Part 0-1: General requirements – Enamelled round copper wire

1 Scope

This part of IEC 60317 specifies general requirements of enamelled round copper winding wires with or without bonding layer.

The range of nominal conductor diameters is given in the relevant specification sheet.

When reference is made to a winding wire according to a standard of the IEC 60317 series mentioned under Clause 2, the following information is given in the description:

- reference to IEC specification;
- nominal conductor diameter in millimetres;
- grade.

EXAMPLE IEC 60317-1 – 0,500 Grade 2

2 Normative references

The following referenced documents are indispensable for the application 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 60172, *Test procedure for the determination of the temperature index of enamelled winding wires*

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*

ISO 3, *Preferred numbers – Series of preferred numbers*

3 Terms, definitions and general notes on methods of test and appearance

For the purposes of this document, the following terms and definitions apply.

3.1 Terms and definitions

3.1.1

bonding layer

material which is deposited on an enamelled wire and which has the specific function of bonding wires together

3.1.2

class

thermal performance of a wire expressed by the temperature index and the heat shock temperature

3.1.3

coating

material which is deposited on a conductor or wire by a suitable means and then dried and/or cured

3.1.4

conductor

bare metal after removal of the insulation

3.1.5

crack

opening in the insulation which exposes the conductor to view at the stated magnification

3.1.6

dual coating

insulation composed of two different materials, an underlying and a superimposed coating

3.1.7

enamelled wire

wire coated with an insulation of cured resin

3.1.8

grade

range of thickness of the insulation of a wire

3.1.9

insulation

coating or covering on the conductor with the specific function of withstanding voltage

3.1.10

nominal conductor dimension

designation of the conductor size in accordance with IEC 60317

3.1.11

normal vision

20/20 vision, with corrective lenses, if necessary.

3.1.12

sole coating

insulation composed of one material

3.1.13

winding wire

wire used for winding a coil to provide a magnetic field

3.1.14

wire

conductor coated or covered with an insulation

3.2 General notes on methods of test

All methods of test to be used for this part of IEC 60317 are given in the IEC 60851 series.

Where no specific range of nominal conductor diameters is given for a test, the test applies to all nominal conductor diameters covered by the specification sheet.

Unless otherwise specified, all tests shall be carried out at a temperature from 15 °C to 35 °C and a relative humidity from 45 % to 75 %. Before measurements are made, the specimens shall be preconditioned under these atmospheric conditions for a time sufficient to allow the specimens to reach stability.

The wire to be tested shall be removed from the packaging in such a way that the wire will not be subjected to tension or unnecessary bends. Before each test, sufficient wire should be discarded to ensure that any damaged wire is not included in the test specimens.

3.3 Appearance

The film coating shall be essentially smooth and continuous, free from streaks, blisters and foreign material when examined with normal vision, as wound on the original spool or reel.

When agreed upon between the user and supplier, examination using 6× to 10× magnification shall be used for wires with a nominal diameter less than 0,1 mm.

4 Dimensions

4.1 Conductor diameter

The series of preferred nominal conductor diameters shall correspond to series R 20 according to ISO 3. The actual values and their tolerances are given in Tables 1 and 2.

The series of intermediate diameters from which the user may select intermediate nominal conductor diameters, when required for technical reasons, shall correspond to series R 40 according to ISO 3. The actual values and their tolerances are given in Annex A.

The conductor diameter shall not differ from the nominal diameter by more than the limit given in Tables 1 or 2.

NOTE For wires up to and including 0,063 mm nominal conductor diameter, see Table 3.