

FINAL VERSION

VERSION FINALE

**Specifications for particular types of winding wires –
Part 21: Solderable polyurethane enamelled round copper wire overcoated with
polyamide, class 155**

**Spécifications pour types particuliers de fils de bobinage –
Partie 21: Fil brasable de section circulaire en cuivre émaillé avec polyuréthane
et avec surcouche polyamide, classe 155**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –

**Part 21: Solderable polyurethane enamelled round copper wire
overcoated with polyamide, class 155**

FOREWORD

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This Consolidated version is not an official IEC Standard and has been prepared for user convenience. Only the current versions of the standard and its amendment(s) are to be considered the official documents.

This Consolidated version of IEC 60317-21 bears the edition number 3.1. It consists of the third edition (2013-10) [documents 55/1412/FDIS and 55/1433/RVD] and its amendment 1 (2019-06) [documents 55/1690/CDV and 55/1739/RVC]. The technical content is identical to the base edition and its amendment.

This Final version does not show where the technical content is modified by amendment 1. A separate Redline version with all changes highlighted is available in this publication.

International Standard IEC 60317-21 has been prepared by IEC Technical Committee 55: Winding wires.

This third 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 a part of the scope;
- revision to references to IEC 60317-0-1:2013 to clarify that their application is normative;
- consolidation of 17.1 and 17.2 of the solderability requirements;
- modification to Clause 19, Dielectric dissipation factor;
- new Clause 23, Pin hole test.

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

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 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 the base publication and its amendment 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.

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 21: Solderable polyurethane enamelled round copper wire overcoated with polyamide, class 155

1 Scope

This part of IEC 60317 specifies the requirements of solderable enamelled round copper winding wire of class 155 with a dual coating. The underlying coating is based on polyurethane resin, which may be modified providing it retains the chemical identity of the original resin and meets all specified wire requirements. The superimposed coating is based on polyamide resin.

NOTE A modified resin is a resin that has undergone a chemical change, or contains one or more additives to enhance certain performance or application characteristics.

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

- Grade 1: 0,050 mm up to and including 1,600 mm;
- Grade 2: 0,050 mm up to and including 1,600 mm.

The nominal conductor diameters are specified in Clause of IEC 60317-0-1:2013.

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 60317-0-1:2013, *Specifications for particular types of winding wires – Part 0-1: General requirements – Enamelled round copper wire*

3 Terms, definitions, general notes and appearance

3.1 Terms and definitions

Subclause 3.1 of IEC 60317-0-1:2013 applies.

3.2 General notes

3.2.1 Methods of test

Subclause 3.2.1 of IEC 60317-0-1:2013 applies. In case of inconsistencies between IEC 60317-0-1:2013 and this part of IEC 60317, the latter shall prevail.

3.2.2 Winding wire

Class 155 is a thermal class that requires a minimum temperature index of 155 and a heat shock temperature of at least 175 °C.

The temperature in °C corresponding to the temperature index is not necessarily that at which it is recommended that the wire be operated and this will depend on many factors, including the type of equipment involved.