# IEC 60317-0-2

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# INTERNATIONAL STANDARD

colour inside

## Specifications for particular types of winding wires – Part 0-2: General requirements – Enamelled rectangular copper wire

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES –

# Part 0-2: General requirements – Enamelled rectangular copper wire

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International Standard IEC 60317-0-2 has been prepared by IEC technical committee 55: Winding wires.

This fourth edition cancels and replaces the third edition published in 2013. This edition constitutes a technical revision.

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

a) revision to Clause 2 to add new normative references for specifications for copper rods;
b) revision to 3.1 to add a new definition for the term “bonding layer”;
c) revision to 3.2.1 to the conditions specified for tests to be carried out;
d) revision to 4.5 to add requirements for minimal, nomimal and maximal overall dimensions with a bonding layer;
e) revision to Clause 5 to reference specifications for rectangular and square copper rod;
f) revision to Clause 6 to take into account nominal proof strength;
g) revision to 8.2 to the adherence test requirement;
h) revision to Clause 18 to make reference to the relevant specification sheet

The text of this International Standard is based on the following documents:

| FDIS | Report on voting |
|---|---|
| 55/1847/FDIS | 55/1865/RVD |

Full information on the voting for the approval of this International Standard 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 read in conjunction with IEC 60851 (all parts). The clause numbers used in this part of IEC 60317 are identical with the respective test numbers of IEC 60851 (all parts).

In case of inconsistencies between IEC 60851 and this part of IEC 60317, the latter prevails.

The numbering of clauses in this standard is not continuous from Clauses 21 and 30 in order to reserve space for possible future wire requirements prior to those for wire packaging.

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.

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- amended.

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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 0-2: General requirements – Enamelled rectangular copper wire

## 1 Scope

This part of IEC 60317 specifies the general requirements of enamelled rectangular copper winding wires.

The range of nominal conductor dimensions is given in 4.1 and the relevant specification sheet.

## 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 60172, *Test procedure for the determination of the temperature index of enamelled and tape wrapped winding wires*

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

IEC 60851-3, *Winding wires – Test methods – Part 3: Mechanical properties*

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

ISO 1190-1, *Copper and copper alloys – Code of designation – Part 1: Designation of materials*

ISO 6892-1:2016, *Metallic materials – Tensile testing – Part 1: Method of test at room temperature*

EN 1977, *Copper and copper alloys – Copper drawing stock (wire rod)*

ASTM B49, *Standard Specification for Copper Rod for Electrical Purposes*

# IEC 60317-0-2

Edition 4.0 2020-06

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Specifications for particular types of winding wires –**
**Part 0-2: General requirements – Enamelled rectangular copper wire**

**Spécifications pour types particuliers de fils de bobinage –**
**Partie 0-2: Exigences générales – Fil de section rectangulaire en cuivre émaillé**



IEC 60317-0-2:2020-06(en-fr)

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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# SPÉCIFICATIONS POUR TYPES PARTICULIERS DE FILS DE BOBINAGE –

## Partie 0-2: Exigences générales – Fil de section rectangulaire en cuivre émaillé

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La Norme internationale IEC 60317-0-2 a été établie par le comité d'études 55 de l'IEC: Fils de bobinage.

Cette quatrième édition annule et remplace la troisième édition parue en 2013. Cette édition constitue une révision technique.

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

a) révision de l'Article 2 afin d'ajouter de nouvelles références normatives pour les spécifications relatives au fil machine en cuivre;
b) révision du 3.1 afin d'ajouter une nouvelle définition pour le terme "couche d'adhérence";

c) révision du 3.2.1 afin de modifier les conditions spécifiées pour les essais à effectuer;

d) révision du 4.5 afin d'ajouter les exigences relatives aux dimensions extérieures minimales, nominales et maximales avec une couche d'adhérence;

e) révision de l'Article 5 concernant les spécifications relatives au fil machine en cuivre de sections rectangulaire et carrée;

f) révision de l'Article 6 afin de tenir compte de la limite conventionnelle d'élasticité nominale;

g) révision du 8.2 concernant l'exigence de l'essai d'adhérence;

h) révision de l'Article 18 afin de faire référence à la feuille de spécifications correspondante.

Le texte de cette Norme internationale est issu des documents suivants:

| FDIS | Rapport de vote |
|---|---|
| 55/1847/FDIS | 55/1865/RVD |

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

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

La présente Norme internationale doit être lue conjointement avec l'IEC 60851 (toutes les parties). Les numéros d'articles utilisés dans la présente partie de l'IEC 60317 sont identiques aux numéros des essais correspondants de la série IEC 60851 (toutes les parties).

En cas de divergences entre l'IEC 60851 et la présente partie de l'IEC 60317, cette dernière prévaut.

La numérotation des articles dans la présente norme n'est pas continue entre les Articles 21 et 30 afin de permettre l'introduction d'éventuelles futures exigences concernant les fils avant celles concernant le conditionnement des fils.

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.

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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).

# SPÉCIFICATIONS POUR TYPES PARTICULIERS DE FILS DE BOBINAGE –

## Partie 0-2: Exigences générales – Fil de section rectangulaire en cuivre émaillé

## 1 Domaine d'application

La présente partie de l'IEC 60317 spécifie les exigences générales relatives aux fils de bobinage de section rectangulaire en cuivre émaillés.

La gamme des dimensions nominales des conducteurs est indiquée en 4.1 et dans la feuille de spécifications correspondante.

## 2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60172, *Méthode d'essai pour la détermination de l'indice de température des fils de bobinage émaillés et enveloppés de ruban*

IEC 60851 (toutes les parties), *Fils de bobinage – Méthodes d'essai*

IEC 60851-3, *Fils de bobinage – Méthodes d'essai – Partie 3: Propriétés mécaniques*

ISO 3, *Nombres normaux – Séries de nombres normaux*

ISO 1190-1, *Cuivre et alliages de cuivre – Code de désignation – Partie 1: Désignation des matériaux*

ISO 6892-1:2016, *Matériaux métalliques – Essai de traction – Partie 1: Méthode d'essai à température ambiante*

EN 1977, *Cuivre et alliages de cuivre – Fil machine en cuivre*

ASTM B49*, Standard Specification for Copper Rod for Electrical Purposes* (disponible en anglais seulement)