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Copper and copper alloys - Copper rod, bar and wire for general electrical purposes

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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EUROPEAN STANDARD
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EN 13601

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English Version

Copper and copper alloys - Copper rod, bar and wire for general electrical purposes

Cuivre et alliages de cuivre - Barres et fils en cuivre pour usages électriques généraux

Kupfer und Kupferlegierungen - Stangen und Drähte aus Kupfer für die allgemeine Anwendung in der Elektrotechnik

This European Standard was approved by CEN on 12 April 2021.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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Contents

Page

European foreword

This document (EN 13601:2021) has been prepared by Technical Committee CEN/TC 133 “Copper and copper alloys”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2021, and conflicting national standards shall be withdrawn at the latest by November 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13601:2013.

In comparison with the previous edition, the following technical modifications have been made:

— maximum diameters or widths across flats for bar, square, hexagonal and rectangular have been expanded;

— the Scope has been modified;

— in Clause 6.5, Freedom from hydrogen embrittlement, the alloys Cu-OFE (CW009A) and Cu-PHCE (CW022A) have been added;

— Table 3 has been modified to correct incongruent values;

— tolerances on width and thickness of bar and rectangular wire and maximum twist of square or hexagonal rod or rectangular bar have been modified (see Table 6 and Table 10).

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The products specified in this document are those which are especially suitable for electrical purposes, i.e. with specified electrical properties. Copper rod, bar and wire for general purposes are specified in EN 12163, EN 12166 and EN 12167.

Annex A (informative) gives guidance on the characteristics of coppers for electrical purposes.

This is one document of a series of European Standards for copper products for electrical purposes. Other copper products are specified as follows:

— EN 13599, *Copper and copper alloys — Copper plate, sheet and strip for electrical purposes*

— EN 13600, *Copper and copper alloys — Seamless copper tubes for electrical purposes*

— EN 13602, *Copper and copper alloys — Drawn, round copper wire for the manufacture of electrical conductors*

— EN 13604, *Copper and copper alloys — Semiconductor devices, electronic and vacuum products made from high conductivity copper*

— EN 13605, *Copper and copper alloys — Copper profiles and profiled wire for electrical purposes*

1 Scope

This document specifies the composition, property requirements including electrical properties, and tolerances on dimensions and form for copper rod, bar and wire for general electrical purposes. Cross-sections and size ranges are:

— round, square and hexagonal rod with diameters or widths across-flats from 2 mm up to and including 160 mm;

— bar with thicknesses from 2 mm up to and including 40 mm and widths from 3 mm up to and including 250 mm;

— round, square, hexagonal and rectangular wire with diameters or widths across-flats from 2 mm up to and including 25 mm, as well as thicknesses from 0,5 mm up to and including 12 mm with widths from 1 mm up to and including 250 mm.

The sampling procedures and test methods for verification of conformity to the requirements of this document are also specified.

NOTE Drawn, round copper wire, plain or tinned, single or multiline, for the manufacture of electrical conductors is specified in EN 13602.

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.

EN 1976, *Copper and copper alloys - Cast unwrought copper products*

EN ISO 2626, *Copper - Hydrogen embrittlement test (ISO 2626)*

EN ISO 6506-1, *Metallic materials - Brinell hardness test - Part 1: Test method (ISO 6506-1)*

EN ISO 6507-1, *Metallic materials - Vickers hardness test - Part 1: Test method (ISO 6507-1)*

EN ISO 6892-1, *Metallic materials - Tensile testing - Part 1: Method of test at room temperature (ISO 6892-1)*

EN ISO 7438, *Metallic materials - Bend test (ISO 7438)*

IEC 60468, *Method of measurement of resistivity of metallic materials*