



NSAI
Standards

Irish Standard
I.S. EN 13601:2013

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

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I.S. EN 13601:2013

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Supersedes EN 13601:2002

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 25 April 2013.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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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Contents

Page

Foreword.....	4
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
4 Designations	7
4.1 Material	7
4.2 Material condition	8
4.3 Product	8
5 Ordering information	9
6 Requirements	11
6.1 Composition	11
6.2 Mechanical properties	11
6.3 Bending characteristics	11
6.4 Electrical properties	11
6.5 Freedom from hydrogen embrittlement	11
6.6 Dimensions and tolerances	11
6.7 Form tolerances	13
6.8 Wire in coils	15
6.9 Mass tolerances	15
6.10 Surface condition.....	15
7 Sampling	15
7.1 General.....	15
7.2 Analysis	15
7.3 Mechanical and electrical tests	16
8 Test methods.....	16
8.1 Analysis	16
8.2 Tensile test	16
8.3 Hardness test	16
8.4 Bend test.....	16
8.5 Electrical resistivity test.....	16
8.6 Hydrogen embrittlement test.....	17
8.7 Retests	17
8.8 Rounding of results	17
9 Declaration of conformity and inspection documentation.....	17
9.1 Declaration of conformity	17
9.2 Inspection documentation	17
10 Marking, packaging, labelling.....	18
Annex A (informative) Characteristics of coppers for electrical purposes.....	27
Bibliography	29

Figures

Figure 1 — Sharp corner	12
Figure 2 — Rounded corner	12
Figure 3 — Semi-circular edge	12
Figure 4 — Measurement of twist.....	14
Figure 5 — Measurement of straightness.....	14
Figure 6 — Measurement of flatness.....	15

Tables

Table 1 — Composition of Cu-OFE and Cu-PHCE	19
Table 2 — Composition of copper grades, other than those made from Cu-OFE (CW009A) and Cu-PHCE (CW022A)	20
Table 3 — Mechanical properties	21
Table 4 — Electrical properties (at 20 °C)	22
Table 5 — Dimensional tolerances for round, square and hexagonal rod and wire	23
Table 6 — Tolerances on width and thickness of bar and rectangular wire	23
Table 7 — Maximum radii for sharp corners of rod, bar and wire	24
Table 8 — Radii for rounded corners of rod, bar and wire	24
Table 9 — Tolerances on fixed lengths (FL)	25
Table 10 — Maximum twist of square or hexagonal rod or rectangular bar	25
Table 11 — Straightness of rod and bar	25
Table 12 — Flatness of bar	26
Table 13 — Sampling rate	26
Table A.1 — Particular characteristics of coppers for electrical purposes	28

Foreword

This document (EN 13601:2013) 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 December 2013, and conflicting national standards shall be withdrawn at the latest by December 2013.

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

This document supersedes EN 13601:2002.

In comparison with EN 13601:2002, the following significant technical changes have been made:

- Maximum diameters or widths across-flats for round, square and hexagonal rod have been expanded.
- Terms and definitions clause has been modified.
- Cu-OFE (CW009A) and Cu-PHCE (CW022A) have been added.
- Tolerances on width and thickness of bar and rectangular wire have been modified (see Table 6).

Within its programme of work, Technical Committee CEN/TC 133 requested CEN/TC 133/WG 4 "Extruded and drawn products, forgings and scrap" to prepare the following revision of the standard:

EN 13601:2002, *Copper and copper alloys – Copper rod, bar and wire for general electrical purposes*.

The products specified in this European Standard 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 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*

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece,

Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard 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 200 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 200 mm.

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

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

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.

EN 1655, *Copper and copper alloys — Declarations of conformity*

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

EN 10204, *Metallic products — Types of inspection documents*

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*

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