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BS EN 12165:2016



BSI Standards Publication

Copper and copper alloys — Wrought and unwrought forging stock

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This British Standard is the UK implementation of EN 12165:2016. It supersedes BS EN 12165:2011 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee NFE/34, Copper and copper alloys.

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

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English Version

Copper and copper alloys - Wrought and unwrought forging stock

Cuivre et alliages de cuivre - Barres corroyées et brutes
pour matriçage

Kupfer und Kupferlegierungen - Vormaterial für
Schmiedestücke

This European Standard was approved by CEN on 9 April 2016.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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Contents	Page
European foreword	4
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	7
4 Designations	8
4.1 Material	8
4.1.1 General	8
4.1.2 Symbol	8
4.1.3 Number	8
4.2 Material condition	8
4.3 Product	8
5 Ordering information	10
6 Requirements	12
6.1 Composition	12
6.2 Mechanical properties	12
6.3 Resistance to dezincification	12
6.4 Dimensions and tolerances	13
6.4.1 Diameter	13
6.4.2 Deviation from circular form	13
6.4.3 Length	13
6.4.4 Straightness	13
6.5 Surface quality	13
7 Sampling	13
7.1 General	13
7.2 Analysis	13
7.3 Hardness and dezincification resistance tests	14
8 Test methods	14
8.1 Analysis	14
8.2 Hardness test	14
8.2.1 General	14
8.2.2 Preparation of samples	14
8.2.3 Procedure for testing	14
8.3 Dezincification resistance test	14
8.4 Retests for analysis, hardness and dezincification resistance	14
8.5 Rounding of results	15
9 Declaration of conformity and inspection documentation	15
9.1 Declaration of conformity	15
9.2 Inspection documentation	15
10 Marking, packaging, labelling	15
Bibliography	30

This is a preview of "BS EN 12165:2016". [Click here to purchase the full version from the ANSI store.](#)

Tables

Table 1 — Composition of copper	16
Table 2 — Composition of low alloyed copper alloys	17
Table 3 — Composition of copper-aluminium alloys	18
Table 4 — Composition of copper-nickel alloys	19
Table 5 — Composition of copper-nickel-zinc alloys	19
Table 6 — Composition of copper-zinc alloys	20
Table 7 — Composition of copper-zinc-lead alloys	21
Table 8 — Composition of complex copper-zinc alloys	23
Table 9 — Mechanical properties of round forging stock of copper	25
Table 10 — Mechanical properties of round forging stock of low alloyed copper alloys	25
Table 11 — Mechanical properties of round forging stock of copper-aluminium alloys	26
Table 12 — Mechanical properties of round forging stock of copper-nickel alloys	26
Table 13 — Mechanical properties of round forging stock of copper-nickel-zinc alloys	26
Table 14 — Mechanical properties of round forging stock of copper-zinc alloys	27
Table 15 — Mechanical properties of round forging stock of copper-zinc-lead alloys	27
Table 16 — Mechanical properties of round forging stock of complex copper-zinc alloys	28
Table 17 — Tolerances on diameter of round forging stock	29
Table 18 — Tolerances on straightness of round forging stock	29
Table 19 — Sampling rate	29

This is a preview of "BS EN 12165:2016". [Click here to purchase the full version from the ANSI store.](#)

European foreword

This document (EN 12165:2016) 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 January 2017, and conflicting national standards shall be withdrawn at the latest by January 2017.

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 12165:2011.

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

— EN 12165:2011, *Copper and copper alloys — Wrought and unwrought forging stock.*

This document is one of a series of European Standards for the copper and copper alloy products rod, wire, profile and forgings. Other products are specified as follows:

- EN 12163, *Copper and copper alloys — Rod for general purposes;*
- EN 12164, *Copper and copper alloys — Rod for free machining purposes;*
- EN 12166, *Copper and copper alloys — Wire for general purposes;*
- EN 12167, *Copper and copper alloys — Profiles and bars for general purposes;*
- EN 12168, *Copper and copper alloys — Hollow rod for free machining purposes;*
- EN 12420, *Copper and copper alloys — Forgings;*
- EN 13601, *Copper and copper alloys — Copper rod, bar and wire for general electrical purposes;*
- EN 13602, *Copper and copper alloys — Drawn round copper wire for the manufacture of electrical conductors;*
- EN 13605, *Copper and copper alloys — Copper profiles and profiled wires for electrical purposes.*

In comparison with EN 12165:2011, the following significant technical changes were made:

- a) addition of three new materials: CuZn35Pb1,5AlAs (CW625N), CuZn33Pb1,5AlAs (CW626N) and CuZn33Pb1AlSiAs (CW725R) due to the market requirements on restriction of lead and modification of the chemical composition for CuZn39Pb1 (CW611N);
- b) introduction of an optional procedure how to refer to restrictions to the chemical composition imposed by the 4 MS Common Composition List for materials used for products accepted for contact with drinking water;
- c) requirements and test methods for resistance of dezincification modified;

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- d) provisions for surface quantity added;
- e) mechanical properties for CuZn21Si3P (CW724R) modified.

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.

Introduction

The European Committee for Standardization (CEN) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning the alloy CuZn21Si3P (CW724R) and CuZn33Pb1AlSiAs (CW725R) given in 6.1.

CEN takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has ensured the CEN that he is willing to negotiate licenses either free of charge or under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with CEN.

— For CuZn21Si3P (CW724R) information may be obtained from:

Wieland-Werke AG
Graf Arco Straße 36
D-89079 Ulm
GERMANY

— For CuZn33Pb1AlSiAs (CW725R) information may be obtained from:

Diehl Metall Messing
Heinrich-Diehl-Straße 9
D-90552 Röthenbach/Pegnitz
GERMANY

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CEN and CENELEC maintain online lists of patents relevant to their standards. Users are encouraged to consult the lists for the most up to date information concerning patents (<ftp://ftp.cencenelec.eu/EN/IPR/Patents/IPRdeclaration.pdf>).

Due to developing legislation, the composition of a material may be restricted to the composition specified in this European Standard with respect to individual uses (e.g. for the use in contact with drinking water in some Member States of the European Union). These individual restrictions are not part of this European Standard. Nevertheless, for materials for which traditional and major uses are affected, these restrictions are indicated. The absence of an indication, however, does not imply that the material can be used in any application without any legal restriction.

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1 Scope

This European Standard specifies the composition, property requirements and dimensional tolerances for forging stock of copper and copper alloys.

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

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 1173, *Copper and copper alloys - Material condition designation*

EN 1412, *Copper and copper alloys - European numbering system*

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

EN ISO 6509-1, *Corrosion of metals and alloys — Determination of dezincification resistance of brass (ISO 6509-1)*

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

3 Terms and definitions

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

3.1

forging

three-dimensional shaped product produced by a plastic forming process such as hammering or pressing between open or closed dies, including hammering between flat surfaces, normally when hot

Note 1 to entry Forging processes include, drop forging, hot stamping and hot pressing.

3.2

forging stock

extruded, rolled or drawn product such as rod, hollow rod, bar or profile or cast product, intended for the production of forgings

3.3

deviation from circular form

difference between the maximum and the minimum diameters measured at any one cross-section of a round product

[SOURCE: EN 12163:2016, 3.2]