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Vask ja vasesulamid. Kergeks mehaaniliseks töötluseks ettenähtud vardad

Copper and copper alloys - Rod for free machining purposes

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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ICS 77.150.30

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EUROPEAN STANDARD

EN 12164

NORME EUROPÉENNE

EUROPÄISCHE NORM

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English Version

Copper and copper alloys - Rod for free machining purposes

Cuivre et alliages de cuivre - Barres pour décolletage

Kupfer und Kupferlegierungen - Stangen für die spanende Bearbeitung

This European Standard was approved by CEN on 14 April 2011.

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

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Foreword

This document (EN 12164:2011) 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of an identical text or by endorsement, at the latest by December 2011, and conflicting national standards shall be withdrawn at the latest by December 2011.

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 12164:1998.

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 12164:1998, *Copper and copper alloys — Rod for free machining purposes*.

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

- EN 12163, *Copper and copper alloys — Rod for general purposes*;
- EN 12165, *Copper and copper alloys — Wrought and unwrought forging stock*;
- 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 13347, *Copper and copper alloys — Rod and wire for welding and braze welding*;
- 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 12164:1998, the following significant technical changes were made:

- a) Introduction of indicative shaped ends dimensions (Table 1);
- b) Removal of four materials:
 - 1) CuZn38Pb4 (CW609N);
 - 2) CuZn37Pb1Sn1 (CW714R);
 - 3) CuSn4Pb2P (CW455K) and CuSn4Te1P (CW457K);

c) Addition of five new materials:

- 1) CuZn40 (CW509L), CuZn42 (CW510L) and CuZn38As (CW511L) due to the market requirements on restriction of lead;
 - 2) CuZn21Si3P (CW724R) due to the market requirements on restriction of lead;
 - 3) CuZn32Pb2AsFeSi (CW709R);
- d) Revision of the mechanical properties (Tables 8 to 13) to reflect market needs; in particular the 0,2 % proof strength that was previously informative is now mandatory since it is an important figure for design purposes;
- e) Modification of the sampling rate (Table 20).

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland 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) 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 assured the CEN that he is willing to negotiate licenses 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. Information may be obtained from:

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Graf Arco Straße 36
D-89079 Ulm

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1 Scope

This European Standard specifies the composition, property requirements and dimensional tolerances for copper alloy rod, in the shape of circles, squares, hexagons or octagons, finally produced by drawing or extruding, especially intended for free machining purposes.

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 referenced documents are indispensable for the application 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 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 10204:2004, *Metallic products — Types of inspection documents*

EN 14977, *Copper and copper alloys — Detection of tensile stress — 5 % ammonia test*

EN ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method (ISO 6506-1:2005)*

EN ISO 6509:1995, *Corrosion of metals and alloys — Determination of dezincification resistance of brass (ISO 6509:1981)*

EN ISO 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature (ISO 6892-1:2009)*

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

ISO 6957, *Copper alloys — Ammonia test for stress corrosion resistance*

3 Terms and definitions

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

3.1

rod

straight product of uniform cross-section along its whole length

[EN 12163:2011]

3.2

deviation from circular form

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

[EN 12163:2011]