

STN	Meď a zliatiny meďi Výkovky	STN EN 12420 42 1542
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Copper and copper alloys - Forgings

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

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 01/25

Obsahuje: EN 12420:2024

Oznámením tejto normy sa ruší
STN EN 12420 (42 1542) z decembra 2014

139944

EUROPEAN STANDARD

EN 12420

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2024

ICS 77.150.30

Supersedes EN 12420:2014

English Version

Copper and copper alloys - Forgings

Cuivre et alliages de cuivre - Pièces forgées

Kupfer und Kupferlegierungen - Schmiedestücke

This European Standard was approved by CEN on 30 June 2024.

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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

EN 12420:2024 (E)

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EN 12420:2024 (E)**European foreword**

This document (EN 12420:2024) 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of an identical text or by endorsement, at the latest by April 2025, and conflicting national standards shall be withdrawn at the latest by April 2025.

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 12420:2014.

In comparison with EN 12420:2014, the following significant technical changes were made:

- 1) Introduction in the chemical composition Tables of a footnote to explain the meaning of elements for which no upper and lower limits are specified;
- 2) CuSi4Zn4MnP (CW245E) and CuSi4Zn9MnP (CW246E) added in the new Table 3 and Table 10;
- 3) Chemical composition of CuZn39Pb3 (CW614N), CuZn40Pb2 (CW617N), CuZn35Pb1,5AlAs (CW625N) and CuZn33Pb1,5AlAs (CW626N) modified in Table 8;
- 4) Added a new alloy CuZn40Pb1 (CW627N) in Table 8, Table 10 and Table B.1;
- 5) Chemical composition of CuZn33Pb1AlSiAs (CW725R) modified in Table 9;
- 6) Added a new alloy CuZn36Si1P (CW726R) in Table 9, Table 10 and Table B.1;
- 7) Added new Table 12 for Hardness properties for forgings of material group III.

This 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 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 rectangular bars for general purposes;
- EN 12168, Copper and copper alloys — Hollow rod for free machining purposes.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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, Türkiye and the United Kingdom.

EN 12420:2024 (E)**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 alloys CuSi4Zn4MnP (CW245E), CuSi4Zn9MnP (CW246E) and CuZn36Si1P (CW726R) 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/she is willing to negotiate licences under reasonable and not-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 CuSi4Zn4MnP (CW245E) and CuSi4Zn9MnP (CW246E) information may be obtained from:

Viega Technology GmbH & Co. KG
Viega Platz 1
57439 Attendorn
GERMANY

— For CuZn36Si1P (CW726R) information may be obtained from:

Luvata Oy
Kuparitie 5
28330 Pori
FINLAND

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CEN (<http://www.cen.eu/cen/WorkArea/IPR/Pages/default.aspx>) and CENELEC (<http://www.cenelec.eu/membersandexperts/toolsandapplications/index.html>) 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.

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.

1 Scope

This document specifies the composition, the property requirements and tolerances on dimensions and form for copper and copper alloy die and hand forgings.

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

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 764-5:2014, *Pressure equipment - Part 5: Inspection documentation of metallic materials and compliance with the material specification*

EN 1173:2008, *Copper and copper alloys - Material condition designation*

EN 1412:2016, *Copper and copper alloys - European numbering system*

EN 1976:2012, *Copper and copper alloys - Cast unwrought copper products*

EN 14977:2006, *Copper and copper alloys - Detection of tensile stress - 5 % ammonia test*

EN ISO 6506-1:2014, *Metallic materials - Brinell hardness test - Part 1: Test method (ISO 6506-1:2014)*

EN ISO 6509-1:2014, *Corrosion of metals and alloys - Determination of dezincification resistance of copper alloys with zinc - Part 1: Test method (ISO 6509-1:2014)*

ISO 1190-1:1982, *Copper and copper alloys — Code of designation — Part 1: Designation of materials*

ISO 2768-1:1989, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

ISO 6957:1988, *Copper alloys — Ammonia test for stress corrosion resistance*

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