SLOVENSKI STANDARD
SIST EN 1172:2012

01-februar-2012

Nadomešča:
SIST EN 1172:1998

Baker in bakrove zlitine - Pločevine in trakovi za gradbeništvo

Copper and copper alloys - Sheet and strip for building purposes

Kupfer und Kupferlegierungen - Bleche und Bänder für das Bauwesen

Cuivre et alliages de cuivre - Tôles et bandes pour le bâtiment

Ta slovenski standard je istoveten z: EN 1172:2011

ICS:

77.150.30	Bakreni izdelki	Copper products

SIST EN 1172:2012 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1172

November 2011

ICS 77.150.30

Supersedes EN 1172:1996

English Version

Copper and copper alloys - Sheet and strip for building purposes

Cuivre et alliages de cuivre - Tôles et bandes pour le bâtiment

Kupfer und Kupferlegierungen - Bleche und Bänder für das Bauwesen

This European Standard was approved by CEN on 15 October 2011.

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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.

CEN members are the national standards bodies of 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 United Kingdom.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 1172:2011) 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of an identical text or by endorsement, at the latest by May 2012, and conflicting national standards shall be withdrawn at the latest by May 2012.

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 1172:1996.

Within its programme of work, Technical Committee CEN/TC 133 requested CEN/TC 133/WG 2 "Rolled flat products" to revise the following standard:

— EN 1172:1996, *Copper and copper alloys — Sheet and strip for building purposes*.

This is one of a series of European Standards for copper and copper alloy rolled flat products. Other products are specified as follows:

— EN 1652, *Copper and copper alloys — Plate, sheet, strip and circles for general purposes*

— EN 1653, *Copper and copper alloys — Plate, sheet and circles for boilers, pressure vessels and hot water storage units*

— EN 1654, *Copper and copper alloys — Strip for springs and connectors*

— EN 1758, *Copper and copper alloys — Strip for lead frames*

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

In comparison with the first edition of EN 1172:1996, the following significant technical changes were made:

a) Addition of four new materials: CuSn0,15 (CW117C), CuAl5Zn5Sn1 (CW309G), CuSn4 (CW450K) and CuZn15 (CW502L) into Tables 1 and 2;

b) Addition of thickness 0,4 mm.

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.

1 Scope

This European Standard specifies requirements for copper sheet and strip in thicknesses from 0,4 mm up to and including 1 mm and in widths up to and including 1 250 mm.

This European Standard is applicable to sheet and strip for use in building construction, e.g. for roof drainage systems, gutters, down pipes, roof coverings, external wall claddings, dormer windows, verges, chimney flashings and roof valleys.

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 ISO 6507-1, *Metallic materials — Vickers hardness test — Part 1: Test method (ISO 6507-1:2005)*

EN ISO 6507-2, *Metallic materials — Vickers hardness test — Part 2: Verification and calibration of testing machines (ISO 6507-2:2005)*

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

ISO 1811-2, *Copper and copper alloys — Selection and preparation of samples for chemical analysis — Part 2: Sampling of wrought products and castings*

ISO 4739, *Wrought copper and copper alloy products — Selection and preparation of specimens and test pieces for mechanical testing*

ISO 80000-1:2009, *Quantities and units — Part 1: General*

3 Terms and definitions

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

3.1
sheet
flat rolled product of rectangular cross-section with uniform thickness from 0,4 mm up to and including 1,0 mm and with width up to and including 1 250 mm, supplied in straight lengths with sheared edges

NOTE 1 Sheet is usually cut from strip.

NOTE 2 Adapted from ISO 197-3:1983.

3.2
strip
flat rolled product of rectangular cross-section with uniform thickness from 0,4 mm up to and including 1,0 mm and with width up to and including 1 250 mm, manufactured in coil and supplied with sheared edges

NOTE Adapted from ISO 197-3:1983.

4 Designations

4.1 Material

4.1.1 General

The material is designated either by symbol or number (see Table 1).

4.1.2 Symbol

The material symbol designations are based on the designation system given in ISO 1190-1.

NOTE Although material symbol designations used in this standard might be the same as those in other standards using the designation system given in ISO 1190-1, the detailed composition requirements are not necessarily the same.

4.1.3 Number

The material number designation is in accordance with the system given in EN 1412.

4.2 Material condition

For the purposes of this standard, the following designations, which are in accordance with the system given in EN 1173, apply for the material condition:

— R… Material condition designated by the minimum value of tensile strength requirement for the product with mandatory tensile strength, 0,2 % proof strength and elongation requirements;

— H... Material condition designated by the minimum value of hardness requirement for the product with mandatory hardness requirements.

Exact conversion between material conditions designated R… and H… is not possible.

Material condition is designated by only one of the above designations.

4.3 Product

The product designation provides a standardized pattern of designation from which a rapid and unequivocal description of a product is conveyed in communication. It provides mutual comprehension at the international level with regard to products which meet the requirements of the relevant European Standard.

The product designation is no substitute for the full content of the standard.

The product designation for products to this standard shall consist of:

a) denomination (Sheet or Strip);

b) number of this European Standard (EN 1172);

c) material designation, either symbol or number (see Table 1);

d) material condition designation (see Table 2);

e) nominal dimensions:

1) sheet: thickness × width × length (see Example 1);

2) strip: thickness × width (see Example 2).

The derivation of a product designation is shown in Example 1.

EXAMPLE 1 Sheet conforming to this standard, in material designated either Cu-DHP or CW024A, in material condition R240, nominal thickness 0,6 mm, nominal width 1 000 mm, nominal length 2 000 mm, shall be designated as follows:

Sheet EN 1172 – Cu-DHP – R240 – 0,6 × 1 000 × 2 000

or

Sheet EN 1172 – CW024A – R240 – 0,6 × 1 000 × 2 000

Denomination

Number of this European Standard

Material designation

Material condition designation

Nominal dimensions in millimetres

EXAMPLE 2 Strip conforming to this standard, in material designated either Cu-DHP or CW024A, in material condition R240, nominal thickness 0,6 mm, nominal width 1 000 mm, shall be designated as follows:

Strip EN 1172 – Cu-DHP – R240 – 0,6 × 1 000

or

Strip EN 1172 – CW024A – R240 – 0,6 × 1 000

5 Ordering information

In order to facilitate the enquiry, order and confirmation of order procedures between the purchaser and the supplier, the purchaser shall state on his enquiry and order the following information:

a) quantity of material required:

   1) sheet: number of pieces or mass;

   2) strip: mass or length;

b) denomination (Sheet or Strip);

c) number of this European Standard (EN 1172);

d) material designation (see Table 1);

e) material condition designation (see 4.2 and Table 2);

f) nominal dimensions (see Table 3):

   1) sheet: thickness × width × length;

   2) strip: thickness × width;

g) coil inside diameter (see Table 3).

NOTE It is recommended that the product designation as described in 4.3 is used for items b) to f).

In addition, the purchaser shall also state on the enquiry and order any of the following, if required:

h) special requirements to be met by the surface (see 6.3);

i) special requirements to be met by the straightness of strip (see 6.4.2.3);

j) special requirements to be met by the flatness of strip, at right angles to the direction of rolling (see 6.4.3);

k) additional marking details (see 9.1);

l) any special requirements for packaging if they are not to be left to the discretion of the supplier (see 9.2).

EXAMPLE Ordering details for 1 000 kg strip conforming to EN 1172, in material designated Cu-DHP or CW024A, in material condition R240, nominal thickness 0,6 mm, nominal width 1 000 mm, nominal inside diameter of coil 500 mm:

1 000 kg Strip EN 1172 – Cu-DHP – R240 – 0,6 × 1 000
– nominal inside diameter of coil 500 mm

or

1 000 kg Strip EN 1172 – CW024A – R240 – 0,6 × 1 000
– nominal inside diameter of coil 500 mm

6 Requirements

6.1 Composition

The composition shall conform to the requirements for the appropriate material given in Table 1.

6.2 Mechanical properties

The mechanical properties (tensile strength, 0,2 % proof strength, elongation and Vickers hardness) shall conform to the appropriate requirements given in Table 2. The tests shall be carried out in accordance with 8.2 and 8.3.

6.3 Surface quality

The surface quality of sheet and strip shall be consistent with the manufacturing process, i.e. smooth, clean and free from marked discoloration. Surface irregularities, such as striations in the direction of rolling, marks which have been rolled over, minor scratches, flaking, abrasion marks or residues of coolants and lubricants are permitted unless they impair workability and serviceability.

For special applications, (e.g. where sheet or strip is intended for use as external wall cladding (facade quality)), the requirements to be met by the surface quality shall be agreed between the purchaser and the supplier at the time of enquiry and order.

6.4 Dimensions and tolerances

6.4.1 Thickness, width, length and coil inside diameter

The standardised nominal thicknesses, widths, lengths and coil inside diameters available are given in Table 3.

Thickness, width and length shall conform to the dimensional tolerances given in Table 3.

6.4.2 Straightness of longitudinal edges (edgewise curvature)

6.4.2.1 General

The tolerances on straightness of longitudinal edges are given in 6.4.2.2 and 6.4.2.3.