



SLOVENSKI STANDARD

SIST EN 12167:1999

01-november-1999

Baker in bakrove zlitine - Profili in palice s pravokotnim prerezom za splošno uporabo

Copper and copper alloys - Profiles and rectangular bar for general purposes

Kupfer und Kupferlegierungen - Profile und Rechteckstangen zur allgemeinen Verwendung

Cuivre et alliages de cuivre - Profils et barres rectangulaires pour usages généraux

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Ta slovenski standard je istoveten z: EN 12167:1998

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EUROPEAN STANDARD
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EN 12167

January 1998

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Descriptors: copper, copper alloys, wrought products, metal sections, metal bars, flat bars, designation, orders : sales documents, chemical composition, mechanical properties, sampling, mechanical tests, dimensions, dimensional tolerances, corrosion resistance, conformity tests, marking

English version

Copper and copper alloys - Profiles and rectangular bar for general purposes

Cuivre et alliages de cuivre - Profilés et barres
 rectangulaires pour usages généraux

Kupfer und Kupferlegierungen - Profile und
 Rechteckstangen zur allgemeinen Verwendung

This European Standard was approved by CEN on 26 December 1997.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard 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 July 1998, and conflicting national standards shall be withdrawn at the latest by July 1998.

Within its programme of work, Technical Committee CEN/TC 133 requested CEN/TC 133/WG 4 "Rod/bar, wire, profiles" to prepare the following standard:

EN 12167 Copper and copper alloys - Profiles and rectangular bar for general purposes

This is one of a series of European Standards for copper and copper alloy products in rod, wire and profile form. Other products are, or will be, 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 12168	Copper and copper alloys - Hollow rod for free machining purposes
.....*)	Copper and copper alloys - Copper rod, bar and wire for general electrical purposes (WI: 00133024)
.....*)	Copper and copper alloys - Copper profiles for electrical purposes (WI:00133056)

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

*) In course of preparation

1 Scope

This European Standard specifies the composition, property requirements and dimensional tolerances for copper and copper alloy profiles and rectangular bars supplied in straight lengths. This standard applies to rectangular bar with thicknesses from 3 mm up to and including 60 mm and with widths from 6 mm up to and including 120 mm.

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

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

EN 1655	Copper and copper alloys - Declarations of conformity <small>(standards.iteh.ai)</small>
EN 10002-1	Metallic materials - Tensile testing - Part 1: Method of test (at ambient temperature) <small>SIST EN 12167:1999 https://standards.iteh.ai/catalog/standards/sist/3b5fd47d-be55-43e5-9fd-399f590c0acf/sist-en-12167-1999</small>
EN 10003-1	Metallic materials - Brinell hardness test - Part 1: Test method
EN 10204	Metallic products - Types of inspection documents
EN ISO 196	Wrought copper and copper alloys - Detection of residual stress - Mercury (I) nitrate test (ISO 196: 1978)
EN ISO 6509: 1995	Corrosion of metals and alloys - Determination of dezincification resistance of brass (ISO 6509 : 1981)
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 6507-1	Metallic materials - Hardness test - Vickers test - Part 1: HV 5 to HV 100
ISO 6957	Copper alloys - Ammonia test for stress corrosion resistance

NOTE: Informative references to documents used in the preparation of this standard, and cited at the appropriate places in the text, are listed in a bibliography, see annex A.

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1 profile

Wrought product of uniform cross-section along its whole length, with a cross-section other than rod, hollow rod, bar, rectangle, tube, sheet or strip, supplied in straight lengths.

3.2 rectangular bar

Wrought product of uniform rectangular cross-section along its whole length, supplied in straight lengths.

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4 Designations

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4.1 Material

4.1.1 General

The material is designated either by symbol or number (see tables 1 to 8).

4.1.2 Symbol

The material symbol designation is 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:

M	Material condition for the product as manufactured, without specified mechanical properties;
R...	Material condition designated by the minimum value of tensile strength requirement for the product with mandatory tensile strength requirement;
H...	Material condition designated by the minimum value of hardness requirement for the product with mandatory hardness requirement;

NOTE 1: Products in the H... condition may be specified to Brinell or Vickers hardness. The material condition designation H... is the same for both hardness test methods.

S (suffix)	Material condition for a product which is stress relieved.
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NOTE 2: Products in the M, R... or H... condition may be specially processed (i.e. mechanically or thermally stress relieved) in order to lower the residual stress level to improve the resistance to stress corrosion and the dimensional stability on machining [see 5 j), 5 k) and 8.5].

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

Except when the suffix S is used, 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:

- denomination (Profile or Rectangular bar);
- number of this European Standard (EN 12167);

- material designation, either symbol or number (see tables 1 to 8);
- material condition designation (see tables 9 to 16);
- for profiles, the number of the profile or a fully dimensioned and toleranced drawing;
- for rectangular bar, the nominal cross-sectional dimensions;
- for rectangular bar, the tolerance class (see table 17);
- for rectangular bar, the corner type (the following designations shall be used as appropriate: SH for sharp, RD for rounded) (see table 21).

The derivation of a product designation is shown in example 1 and another typical product designation is shown in example 2.

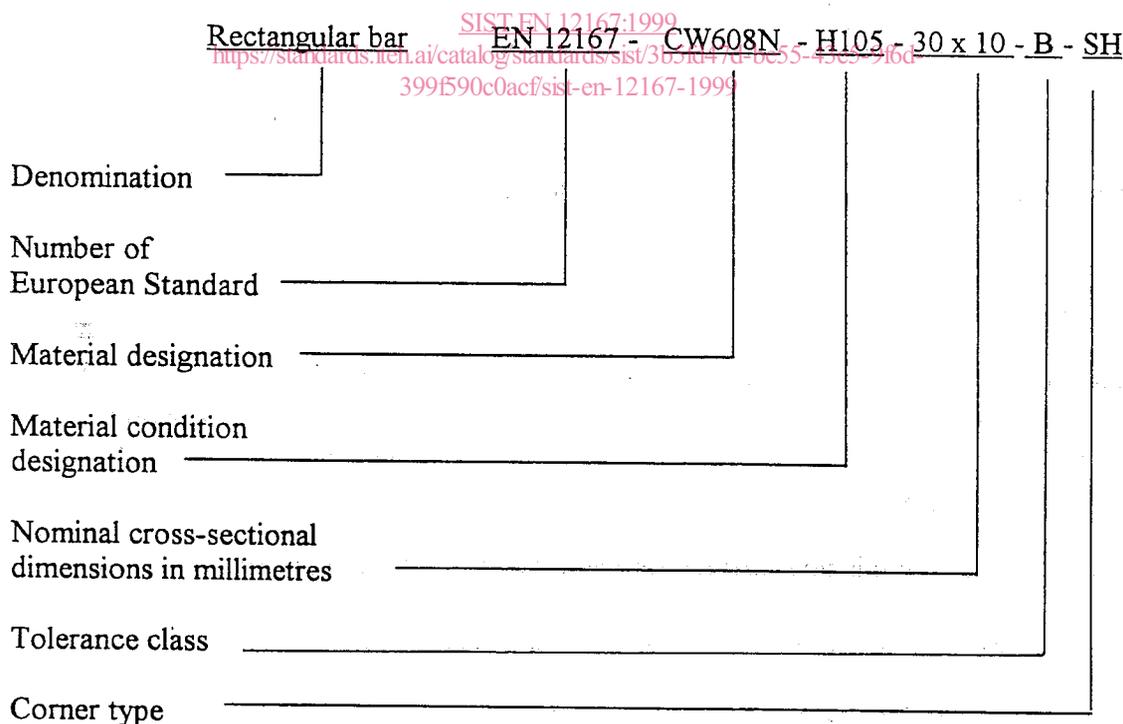
EXAMPLE 1:

Rectangular bar conforming to this standard, in material designated either CuZn38Pb2 or CW608N, in material condition H105, nominal cross-sectional dimensions 30 mm x 10 mm, tolerance class B, with sharp corners, shall be designated as follows:

Rectangular bar EN 12167 - CuZn38Pb2 - H105 - 30 x 10 - B - SH

or

Rectangular bar EN 12167 - CW608N - H105 - 30 x 10 - B - SH



EXAMPLE 2:

Profile conforming to this standard, in material designated either CuZn43Pb2Al or CW624N, in material condition M, drawing number S123, shall be designated as follows:

Profile EN 12167 - CuZn43Pb2Al - M - S123

or

Profile EN 12167 - CW624N - M - S123

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 product required (mass);
- b) denomination (Profile or Rectangular bar);
- c) number of this European Standard (EN 12167);
- d) material designation (see tables 1 to 8);
- e) for rectangular bar, the material condition designation (see 4.2 and tables 9 to 16), if it is other than M. The purchaser may request, and it shall then be subject to agreement between the supplier and the purchaser, that the informative values of 0,2 % proof strength become mandatory, in which case the specified tensile strength values become informative;
- f) size and shape required:
 - for profiles, by fully dimensioned and toleranced drawing, which shall include any specific requirements for straightness and twist and, if appropriate, for flatness;
 - for rectangular bar, by dimensions and tolerance class (i.e. class A, B or C - see tables 17, 19, 20 and 6.5.3.2), and whether sharp or rounded corners (see table 21) are required, unless the choices of tolerance class and corner radii are to be left to the discretion of the supplier.
- g) length of product required:
 - for profiles, the length and the tolerance on length, unless the lengths supplied are to be left to the discretion of the supplier;

- for rectangular bar, the nominal length (see table 18).

NOTE 1: 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) for products in alloy CuZn36Pb2As (CW602N), whether the dezincification resistance acceptance criterion required is other than grade A (see 6.3);
 - i) test method to be used for measurement of hardness i.e. Brinell or Vickers (see 8.3), unless the test method is to be left to the discretion of the supplier;
 - j) whether the products are required to pass a stress corrosion resistance test. If so, which test method is to be used (see 8.5) if the choice is not to be left to the discretion of the supplier. If the purchaser chooses ISO 6957, the pH value for the test solution is to be selected;
 - k) whether the products are to be supplied in a thermally stress relieved condition;
 - l) for profiles, whether any additional properties or requirements, not specified within the standard, are required;
- NOTE 2: Details of any mechanical property requirements for profiles, together with the location in the profile from which the test piece should be machined, should be agreed between the purchaser and the supplier (see 6.2.1).
- m) whether a declaration of conformity is required (see 9.1);
 - n) whether an inspection document is required, and if so, which type (see 9.2);
 - o) whether there are any special requirements for marking, labelling or packaging (see clause 10).

EXAMPLE 1:

Ordering details for 500 kg rectangular bar conforming to EN 12167, in material designated either CuZn38Pb2 or CW608N, in material condition H105, nominal cross-sectional dimensions 30 mm 10 mm, tolerance class B, with sharp corners, nominal length 3 000 mm.

500 kg Rectangular bar EN 12167 - CuZn38Pb2 - H105 - 30 x 10 - B - SH
- nominal length 3 000 mm

or

500 kg Rectangular bar EN 12167 - CW608N - H105 - 30 x 10 - B - SH
- nominal length 3 000 mm

EXAMPLE 2:

Ordering details for 1 000 kg profiles conforming to EN 12167, in material designated either CuZn43Pb2Al or CW624N, in material condition M, to drawing number S123, nominal length 3 000 mm.

1 000 kg Profile EN 12167 - CuZn43Pb2Al - M - S123
- nominal length 3 000 mm

or

1 000 kg Profile EN 12167 - CW624N - M - S123
- nominal length 3 000 mm

6 Requirements**6.1 Composition**

The composition shall conform to the requirements for the appropriate material given in tables 1 to 8.

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6.2 Mechanical properties**6.2.1 Profiles**

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Mechanical properties of profiles, for any given alloy, will depend on the shape and dimensions of the profile. In view of this, mechanical property requirements for profiles are not specified in this standard but, if needed, are subject to agreement between the purchaser and the supplier [see 5 l)].

6.2.2 Rectangular bar

Rectangular bar in the R... or H... condition shall conform to the appropriate tensile or hardness requirements given in tables 9 to 16. The tests shall be carried out in accordance with 8.2 or 8.3. For H... condition rectangular bar, the hardness test method (Brinell or Vickers) to be used shall be stated by the purchaser in the order [see 5 i)] unless the choice is to be left to the discretion of the supplier.