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STN	**Meď a zliatiny medi Bezšvové okrúhle medené rúry na klimatizačné a chladiace zariadenia Časť 1: Rúry na rozvodné systémy**	**STN EN 12735-1 42 8704**

Copper and copper alloys - Seamless, round tubes for air conditioning and refrigeration - Part 1: Tubes for piping systems

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. 08/20

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English Version

Copper and copper alloys - Seamless, round tubes for air conditioning and refrigeration - Part 1: Tubes for piping systems

Cuivre et alliages de cuivre - Tubes ronds sans soudure pour l'air conditionné et la réfrigération - Partie 1 : Tubes pour canalisations

Kupfer und Kupferlegierungen - Nahtlose Rundrohre für die Kälte- und Klimatechnik - Teil 1: Rohre für Leitungssysteme

This European Standard was approved by CEN on 13 January 2020.

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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.

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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

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European foreword

This document (EN 12735-1:2020) 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of an identical text or by endorsement, at the latest by September 2020, and conflicting national standards shall be withdrawn at the latest by September 2020.

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 12735-1:2016.

This document has been prepared under a standardization request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of Directive 2014/68/EU, Pressure Equipment Directive (PED).

For relationship with EU Directive 2014/68/EU, see informative Annex ZA, which is an integral part of this document.

In comparison with EN 12735-1:2016, the following changes were made:

a) Modification of the maximum outside diameter for Cu-DHP, R220, in Table 3;

b) Removal of Note 3 from Table 3;

c) Requirements added in 10.2 concerning marking of tube coverings;

d) Amendment in 6.5;

e) Deletion of last sentence in 8.6;

f) Amendments in Annex ZA;

g) Update of Normative References;

h) Several editorial amendments.

EN 12735, *Copper and copper alloys — Seamless, round tubes for air conditioning and refrigeration* consists of two parts:

— *Part 1: Tubes for piping systems;*

— *Part 2: Tubes for equipment.*

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

— EN 1057, *Copper and copper alloys — Seamless, round copper tubes for water and gas in sanitary and heating applications;*

— EN 12449, *Copper and copper alloys — Seamless, round tubes for general purposes;*

— EN 12450, *Copper and copper alloys — Seamless, round copper capillary tubes;*

— EN 12451, *Copper and copper alloys — Seamless, round tubes for heat exchangers;*

— EN 12452, *Copper and copper alloys — Rolled, finned, seamless tubes for heat exchangers;*

— EN 12735-2, *Copper and copper alloys — Seamless, round tubes for air conditioning and refrigeration — Part 2: Tubes for equipment;*

— EN 13348, *Copper and copper alloys — Seamless, round copper tubes for medical gases or vacuum;*

— EN 13349, *Copper and copper alloys — Pre-insulated copper tubes with solid covering;*

— EN 13600, *Copper and copper alloys — Seamless copper tubes for electrical purposes.*

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, Turkey and the United Kingdom.

Introduction

It is recommended that tubes manufactured in accordance with this document are certified as conforming to the requirements of this document based on continuing surveillance which should be coupled with an assessment of a supplier's certified quality management system.

It is advised to take appropriate precautions if applying insulating material because it could be detrimental to the tube.

1 Scope

This document specifies the requirements, sampling, test methods and conditions of delivery for seamless round copper and copper alloy tubes used for refrigeration and air-conditioning piping systems (i.e. piping, connections and repairs).

It is applicable to tubes with an outside diameter from 3 mm up to and including 219 mm.

Tubes made of the copper-grade Cu-DHP are supplied in straight lengths in the material conditions hard or half-hard, or in coils in the annealed material condition.

Tubes made of the alloy CuFe2P are supplied in straight length in the material conditions hard or annealed.

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 723:2009, *Copper and copper alloys — Combustion method for determination of the carbon content on the inner surface of copper tubes or fittings*

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

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

EN 1971-1:2011, *Copper and copper alloys — Eddy current test for measuring defects on seamless round copper and copper alloy tubes — Part 1: Test with an encircling test coil on the outer surface*

EN 1971-2:2011, *Copper and copper alloys — Eddy current test for measuring defects on seamless round copper and copper alloy tubes — Part 2: Test with an internal probe on the inner surface*

EN 10204:2004, *Metallic products — Types of inspection documents*

EN 16117-1:2011, *Copper and copper alloys — Determination of copper content — Part 1: Electrolytic determination of copper in materials with copper content less than 99,85 %*

EN 16117-2:2012, *Copper and copper alloys — Determination of copper content — Part 2: Electrolytic determination of copper in materials with copper content higher than 99,80 %*

EN ISO 6507-1:2018, *Metallic materials — Vickers hardness test — Part 1: Test method (ISO 6507-1:2018)*

EN ISO 6892-1:2016, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature (ISO 6892-1:2016)*

EN ISO 8493:2004, *Metallic materials — Tube — Drift-expanding test (ISO 8493:1998)*

EN ISO/IEC 17050-1:2010, *Conformity assessment — Supplier's declaration of conformity — Part 1: General requirements (ISO/IEC 17050-1:2004, corrected version 2007-06-15)*

EN ISO/IEC 17050-2:2004, *Conformity assessment — Supplier's declaration of conformity — Part 2: Supporting documentation (ISO/IEC 17050-2:2004)*

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

ISO 4741:1984, *Copper and copper alloys — Determination of phosphorus content — Molybdovanadate spectrometric method*