

**Vask ja vasesulamid. Õmblusteta ümmargused
vasktorud õhukonditsioneeride ja jahutuse jaoks. Osa 2:
Torud seadmete jaoks**

Copper and copper alloys - Seamless, round copper tubes
for air conditioning and refrigeration - Part 2: Tubes for
equipment

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 12735-2:2010 sisaldab Euroopa standardi EN 12735-2:2010 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 30.09.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

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English Version

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

Cuivre et alliages de cuivre - Tubes ronds sans soudure en
cuivre pour l'air conditionné et la réfrigération - Partie 2:
Tubes pour le matériel

Kupfer und Kupferlegierungen - Nahtlose Rundrohre aus
Kupfer für die Kälte- und Klimatechnik - Teil 2: Rohre für
Apparate

This European Standard was approved by CEN on 12 June 2010.

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Foreword

This document (EN 12735-2:2010) 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of an identical text or by endorsement, at the latest by January 2011, and conflicting national standards shall be withdrawn at the latest by January 2011.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 12735-2:2001.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 97/23/EC Pressure Equipment Directive (PED).

For relationship with EU Directive 97/23/EC, see informative Annex ZA, which is an integral part of this document.

Within its programme of work, Technical Committee CEN/TC 133 requested CEN/TC 133/WG 3 "Copper tubes (installation and industrial)" to revise EN 12735-2:2001.

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

In comparison with the first edition of EN 12735-2:2001, the following significant technical changes were made:

- a) the size range of the outer diameter for smooth tubes has been increased from (7 to up to and including 64) mm to (6 to up to and including 133) mm;
- b) wall thickness, addition of two thicknesses (2,50 and 3,00) mm;
- c) the term "temper" replaced by "material condition" (only in the English wording);
- d) the material conditions R250 and R290 have been additionally incorporated;
- e) EN 10002-1 replaced by EN ISO 6892-1;
- f) EN 10234 has been replaced by EN ISO 8493.

This European Standard "*Copper and copper alloys — Seamless, round copper 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 12735-1, *Copper and copper alloys — Seamless, round copper tubes for air conditioning and refrigeration — Part 1: Tubes for piping systems*
- 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 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 United Kingdom.

Introduction

It is recommended that tubes manufactured to this standard are certified as conforming to the requirements of this standard based on continuing surveillance which should be coupled with an assessment of a supplier's quality management system against EN ISO 9001.

NOTE Appropriate precautions should be taken if applying insulating material because it could be detrimental to the copper tube.

1 Scope

This European Standard specifies the requirements, sampling, test methods and conditions of delivery for seamless round copper tubes, smooth or inner finned, used for heat exchangers and their internal connecting pipes in the manufacturing of refrigeration and air conditioning equipment.

It is applicable to tubes with an outside diameter from 6 mm up to and including 133 mm.

The tubes are supplied in straight length in the material conditions hard, half-hard or skin hard or as coils in the material conditions light annealed or soft annealed.

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 723, *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 1655:1997, *Copper and copper alloys — Declarations of conformity*

EN 1971, *Copper and copper alloys — Eddy current test for tubes*

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

EN ISO 2624, *Copper and copper alloys — Estimation of average grain size (ISO 2624:1990)*

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

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

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

ISO 1553, *Unalloyed copper containing not less than 99,90 % of copper — Determination of copper content — Electrolytic method*

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