

**Vask ja vasesulamid. Õmblusteta ümmargused
vasktorud õhukonditsioneeride ja jahutuse jaoks. Osa 1:
Torud torustikusüsteemide jaoks**

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 12735-1:2010 sisaldab Euroopa standardi EN 12735-1:2010 ingliskeelset teksti.

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

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 21.07.2010.

Standard on kättesaadav Eesti standardiorganisatsioonist.

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This standard is ratified with the order of Estonian Centre for Standardisation dated 30.09.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

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EUROPEAN STANDARD

EN 12735-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2010

ICS 23.040.15

Supersedes EN 12735-1:2001

English Version

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

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

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

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

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 12735-1:2010) 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 12735-1:2001.

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 12735-1:2001.

EN 12735-1, *Copper and copper alloys — Seamless, round copper tubes for air conditioning and refrigeration — Part 1: Tubes for piping systems*

In comparison with the first edition of EN 12735-1:2001 the following significant technical changes were made:

- a) The size range has been increased (108 mm to 133 mm);
- b) EN 10002-1 replaced by EN ISO 6892-1;
- c) EN 10232 replaced by EN ISO 8491;
- d) EN 10234 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 12735-2, *Copper and copper alloys — Seamless, round copper 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 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 European 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.

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1 Scope

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

It is applicable to tubes with an outside diameter from 3 mm up to and including 133 mm.

These tubes are supplied in straight lengths in the material conditions hard or half-hard, or in coils in the annealed material condition.

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

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*