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NSAI Standards

Irish Standard
I.S. EN 12735-2:2016

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

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**I.S. EN 12735-2:2016**

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## National Foreword

I.S. EN 12735-2:2016 is the adopted Irish version of the European Document EN 12735-2:2016, Copper and copper alloys - Seamless, round tubes for air conditioning and refrigeration - Part 2: Tubes for equipment

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 12735-2

June 2016

ICS 23.040.15

Supersedes EN 12735-2:2010

English Version

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

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

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

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# European foreword

This document (EN 12735-2:2016) 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of an identical text or by endorsement, at the latest by December 2016 and conflicting national standards shall be withdrawn at the latest by December 2016.

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 12735-2:2010.

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 Directive 2014/68/EU, Pressure Equipment Directive (PED).

For relationship with Directive 2014/68/EU, 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 12735-2:2010.

In comparison with the first edition of EN 12735-2:2010, the following significant technical changes were made:

a) The size range of the outside diameter has been increased from 3,97 mm up to 219 mm;

b) Dimensions and tolerances for smooth tubes have been modified in Tables 2, 4 and 5. The tolerances given in Tables 3 and 6 have been added;

c) Nominal outside diameters have been added to Table 1.

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*

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— 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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# Introduction

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

NOTE It is advised to take appropriate precautions 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, 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 3,97 mm up to and including 219 mm.

NOTE 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 documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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, *Copper and copper alloys - Material condition designation*

EN 1655, *Copper and copper alloys - Declarations of conformity*

EN 1971-1, *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, *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 ISO 2624, *Copper and copper alloys - Estimation of average grain size (ISO 2624)*

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

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

EN ISO 8493, *Metallic materials - Tube - Drift-expanding test (ISO 8493)*

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*

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