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Standards

Irish Standard  
I.S. EN 12450:2012

# Copper and copper alloys - Seamless, round copper capillary tubes

## I.S. EN 12450:2012

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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SWIFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*This document replaces:*  
EN 12450:1999

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English Version

## Copper and copper alloys - Seamless, round copper capillary tubes

Cuivre et alliages de cuivre - Tuyaux circulaires en cuivre, de faible diamètre, sans soudure

Kupfer und Kupferlegierungen - Nahtlose, runde Kapillarrohre aus Kupfer

This European Standard was approved by CEN on 6 October 2012.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

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## Foreword

This document (EN 12450:2012) 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of an identical text or by endorsement, at the latest by May 2013, and conflicting national standards shall be withdrawn at the latest by May 2013.

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 12450:1999.

In comparison with EN 12450:1999, the following significant technical changes were made:

- a) 6.6 "Surface quality", has been modified;
- b) In 8.5 "Cleanliness test" the text regarding the determination of lubricant residue as described in EN 723 has been added.

This is one of a series of European Standards for copper and copper alloy tubes. Other products are, or will be, 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 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 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*

Within its programme of work, Technical Committee CEN/TC 133 requested CEN/TC 133/WG 3 "Copper tubes (installation and industrial)" to revise the following standard:

- EN 12450:1999, *Copper and copper alloys — Seamless, round copper capillary tubes.*

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, 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.

## 1 Scope

This European Standard specifies the composition, property requirements and tolerances on dimensions and on form for seamless round copper capillary tubes for use as metering lines for liquids or gases where close controls over the smoothness and dimensions of the bore are required to ensure uniform flow characteristics.

This European Standard applies to capillary tubes in straight lengths, or in coils, in the size range up to and including 6,10 mm outside diameter and from 0,30 mm up to and including 4,45 mm inside diameter which are intended for restrictor applications.

The sampling procedures and the methods of test for verification of conformity to the requirements of this European Standard are also specified.

## 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 1057:2006, *Copper and copper alloys — Seamless, round copper tubes for water and gas in sanitary and heating applications*

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

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

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)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1057:2006 and the following apply.

**3.1  
seamless round tube**  
hollow semi-finished product, circular in cross-section, having a uniform wall thickness, which at all stages of production has a continuous periphery

**3.2  
mean diameter**  
arithmetical mean of the maximum and minimum outside diameters through the same cross-section of the tube

[SOURCE: EN 1057:2006, 3.5]

**3.3  
deviation from circular form**  
difference between the maximum and minimum outside diameters measured at any one cross-section of the tube

[SOURCE: EN 1057:2006, 3.6]

**3.4  
capillary tube**  
tube of small inside diameter with an inside surface of high quality and conforming to close diameter tolerances

Note 1 to entry: It is subject to special tests to ensure precision and uniformity of bore, having been specially cleaned.

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