

საქართველოს სტანდარტი

სპილენძი და სპილენძის შენადნობები - უნაკერო მრგვალი სპილენძის მილები
საჰაერო კონდიციონერებისა და გაციებისათვის-ნაწილი 2 : მილები
მოწყობილობებისათვის

საქართველოს სტანდარტებისა და მეტროლოგიის
ეროვნული სააგენტო
თბილისი

სსტ ენ 12735-2:2016/2016

საინფორმაციო მონაცემები

1 შემუშავებულია საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს სტანდარტების დეპარტამენტის მიერ

2 დამტკიცებულია და შემოღებულია სამოქმედოდ საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს 2016 წლის 12 სექტემბრის № 67 განკარგულებით

3 მიღებულია გარეკანის თარგმნის მეთოდით სტანდარტიზაციის ევროპული კომიტეტის სტანდარტი ენ 12735-2:2016 „სპილენძი და სპილენძის შენადნობები - უნაკერო მრგვალი სპილენძის მიღები საჰაერო კონდიციონერებისა და გაციებისათვის-ნაწილი 2 : მიღები მოწყობილობებისათვის“

4 პირველად

5 რეგისტრირებულია საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 2016 წლის 12 სექტემბერი №268-1.3-9774

აკრძალულია ამ სტანდარტის გადაცემა მესამე პირებისათვის ან/და მისი სხვა ფორმით გავრცელება

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

This European Standard was approved by CEN on 28 February 2016.

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.

CEN members are the national standards bodies of 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 United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword.....	4
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
4 Designations.....	8
4.1 Material.....	8
4.2 Material condition	9
4.3 Product.....	9
5 Ordering information	10
6 Requirements	11
6.1 Composition	11
6.2 Mechanical properties and grain size.....	11
6.3 Dimensions and tolerances for smooth tubes	11
6.4 Dimensions and tolerances for inner finned tubes	17
6.5 Drift expanding (for smooth tubes).....	18
6.6 Freedom from defects.....	18
6.7 Surface quality.....	19
7 Sampling.....	19
8 Test methods	20
8.1 Analysis.....	20
8.2 Tensile test	20
8.3 Hardness test.....	20
8.4 Estimation of average grain size.....	20
8.5 Drift expanding test.....	20
8.6 Carbon content test	20
8.7 Freedom from defects test.....	20
8.8 Retests.....	21
9 Declaration of conformity and inspection documentation.....	21
9.1 Declaration of conformity	21
9.2 Inspection documentation.....	21
10 Packaging, marking and form of delivery	21
10.1 Packaging and marking	21
10.2 Form of delivery	22
Annex A (normative) Freedom from defects test	23
A.1 Eddy current test.....	23
A.1.1 General.....	23
A.1.2 Detection for non-local defects on coiled tubes.....	23
A.2 Hydrostatic test.....	24

A.3 Pneumatic test	24
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of Directive 2014/68/EU aimed to be covered.....	25
Bibliography	26

Tables

Table 1 — Mechanical properties and grain size	11
Table 2 — Nominal outside diameters and wall thicknesses for smooth tubes	13
Table 3 — Tolerances on outside diameter for smooth tubes in straight length	14
Table 4 — Tolerances on mean outside diameter for smooth tubes in coils	14
Table 5 — Tolerances on wall thickness for smooth tubes	15
Table 6 — Tolerances on wall thickness	15
Table 7 — Tolerances on length for tubes supplied in straight lengths	16
Table 8 — Maximum deviation from circular form expressed as percentage of the nominal outside diameter	16
Table 9 — Recommended nominal outside diameters for inner finned tubes	17
Table 10 — Testing of drift expanding.....	18
Table 11 — Permissible number of defects for coils.....	19
Table 12 — Coil and reel dimensions	22
Table A.1 — Maximum drill diameters for reference standard tube.....	23
Table A.2 — Hydrostatic pressure test.....	24
Table ZA.1 — Correspondence between this European Standard and Annex I of Directive 2014/68/EU	25

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*

- 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.

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.