

Copper and copper alloys - Plumbing fittings - Part 4:
Threaded fittings

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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EUROPEAN STANDARD

EN 1254-4

NORME EUROPÉENNE

EUROPÄISCHE NORM

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Supersedes EN 1254-4:1998

English Version

Copper and copper alloys - Plumbing fittings - Part 4: Threaded fittings

Cuivre et alliages de cuivre - Raccords - Partie 4 :
Raccords filetés

Kupfer und Kupferlegierungen - Fittings - Teil 4:
Gewindefittings

This European Standard was approved by CEN on 23 November 2020.

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

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Contents

Page

European foreword.....	3
Introduction.....	4
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions.....	6
4 Product characteristics.....	6
4.1 Internal pressure.....	6
4.2 Tightness.....	6
4.3 Resistance to high temperature (for heating networks).....	6
4.4 Release of dangerous substances.....	7
4.5 Durability.....	7
4.6 Wall thickness at threaded portions of fittings.....	7
4.7 Dimensions of tail pipe ends for swivel fittings.....	7
4.8 Dimensions of gas union connectors.....	8
4.9 Threaded end dimensions.....	8
4.10 Other adapter ends (not defined in EN 1254-20:2021).....	8
4.11 Bore dimensions.....	8
4.12 Alignment of the fitting ends.....	8
4.13 Shapes for tightening systems.....	8
4.14 Surface condition.....	8
4.15 Plated or coated surfaces.....	8
5 Testing, assessment and sampling methods.....	9
5.1 General.....	9
5.2 Internal pressure.....	9
5.3 Tightness: Integrity of fabricated fitting bodies or having an 'as cast' microstructure.....	9
5.4 Durability.....	9
5.5 Wall thickness at threaded portions of adaptor fittings.....	10
5.6 Dimensions of tail pipe ends for swivel fittings.....	10
5.7 Dimensions of gas union connectors.....	10
5.8 Threaded end dimensions.....	10
5.9 Bore dimensions.....	10
5.10 Alignment of the fitting ends.....	11
6 Evaluation of conformity.....	11
6.1 General.....	11
6.2 Type testing.....	11
6.3 Factory production control (FPC).....	13
7 Designation.....	15
8 Marking, labelling and packaging.....	15
8.1 General.....	15
8.2 Dezincification resistant copper zinc alloys.....	15
Annex A (normative) Maximum operating temperatures and maximum operating pressures.....	16
Bibliography.....	18

European foreword

This document (EN 1254-4:2021) 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 November 2021, and conflicting national standards shall be withdrawn at the latest by November 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1254-4:1998.

The main changes to EN 1254-4:1998 are:

- focus on threaded fittings instead of threaded ends;
- separation of test methods and the geometrical description of the standardized threads into part 20.

This part of the standard (EN 1254-4) should be read in conjunction with EN 1254-20:2021.

EN 1254 comprises the following parts under the general title “Copper and copper alloys — Plumbing fittings”:

- *Part 1: Capillary fittings for soldering or brazing to copper tubes*
- *Part 2: Compression fittings for use with copper tubes*
- *Part 3: Compression fittings for use with plastics and multilayer pipes*
- *Part 4: Threaded fittings*
- *Part 5: Capillary fittings with short ends for brazing to copper tubes*
- *Part 6: Push-fit fittings for use with metallic tubes, plastics and multilayer pipes*
- *Part 7: Press and for use with metallic tubes*
- *Part 8: Press and for use with plastics and multilayer pipes*
- *Part 20: Definitions, thread dimensions, test methods, reference data and supporting information*

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

Introduction

Products complying with this document may be used for several fluids including the transport of water intended for human consumption if they comply with the relevant national, regional or local regulatory provisions applicable in the place of use.

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1 Scope

This document specifies product characteristics, assessment methods, compliance criteria of the test results and a designation system for threaded fittings. These threaded ends exist with metallic and with non-metallic sealing elements for the purposes of joining with tubes, pipes, fittings or valves, the threaded ends have a size range from 3,175 mm (1/8") to 101,6 mm (4"). The threaded fittings are designed for a service lifetime up to fifty years.

The fittings are used up to the operating temperatures and corresponding maximum operating pressures as indicated in Annex A.

This document applies to copper alloy fittings. A non-exhaustive list of these copper alloys is given in CEN/TS 13388.

Threaded fittings may also have flanged end connections according to EN 1092-3.

Threaded fittings may also have a plated or other decorative surface coating.

Fittings can be produced by machining, metal forming, casting, or fabrication.

Products covered by this document are intended to be used in:

a) liquid applications:

- hot, cold or combined hot and cold water, including systems according to EN 806;
- closed heating systems according to EN 12828;
- cooling systems;
- drainage systems;
- fire protection systems including sprinkler systems according to EN 12845.

b) gas applications:

- natural gas and liquefied petroleum gas systems with a maximum operating pressure less than or equal to 5 bar according to EN 1775;
- compressed air systems.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 681-1:1996, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications - Part 1: Vulcanized rubber*

EN 1254-20:2021, *Copper and copper alloys — Plumbing fittings — Part 20: Definitions, thread dimensions, test methods, reference data and supporting information*

EN 10226-3, *Pipes threads where pressure tight joint are made on the threads — Part 3: Verification by means of limit gauges*

EN 12502-2, *Protection of metallic materials against corrosion — Guidance on the assessment of corrosion likelihood in water distribution and storage systems — Part 2: Influencing factors for copper and copper alloys*

EN ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method (ISO 6506-1)*

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

ISO 7-2, *Pipe threads where pressure-tight joints are made on the threads — Part 2: Verification by means of limit gauges*

ISO 228-2, *Pipe threads where pressure-tight joints are not made on the threads — Part 2: Verification by means of limit gauges*

ISO 2859-1:1999, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1254-20:2021 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

4 Product characteristics

4.1 Internal pressure

When tested according to the method in 5.2 fittings shall show no signs of leakage or permanent distortion.

4.2 Tightness

4.2.1 Leak tightness under internal hydrostatic pressure

Fittings assessed as indicated in 4.1 are considered to be leak tight under internal hydrostatic pressure.

4.2.2 Integrity of fabricated fitting bodies or having an 'as cast' microstructure

This requirement only applies to fitting bodies with an 'as cast' microstructure (excluding continuously cast materials) or fabricated by welding or brazing.

When tested according to the method in 5.3 fitting bodies shall show no visual indication of leakage.

4.3 Resistance to high temperature (for heating networks)

The main aspect for the resistance to high temperature depends on the elastomeric sealing element. Therefore the elastomer shall have the appropriate characteristics as specified for the specific applications in EN 681-1. The elastomeric sealing elements shall conform to the requirements of EN 681-1:1996, Table 3 for continuous hot water supply up to 110 °C except for Isoprene-Isobutylene Copolymer (IIR) where a volume change in water up to and including 15 % is permitted.

Non-elastomeric sealing elements shall comply with their appropriate standard.