Copper and copper alloys - Plumbing fittings - Part 6: Push-fit fittings for use with metallic tubes, plastics and multilayer pipes

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NATIONAL FOREWORD

See Eesti standard EVS-EN 1254-6:2021+A1:2025 sisaldab Euroopa standardi EN 1254-6:2021+A1:2025 ingliskeelset teksti.	This Estonian standard EVS-EN 1254-6:2021+A1:2025 consists of the English text of the European standard EN 1254-6:2021+A1:2025.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 12.02.2025.	Date of Availability of the European standard is 12.02.2025.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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Copper and copper alloys - Plumbing fittings - Part 6: Push-fit fittings for use with metallic tubes, plastics and multilayer pipes

Cuivre et alliages de cuivre - Raccords - Partie 6 : Raccords instantanés pour tubes métalliques, en matières plastiques et multicouches

Kupfer und Kupferlegierungen - Fittings - Teil 6: Einsteckfittings für den Einsatz mit Metall-, Kunststoff- und Mehrschichtverbundrohren

This European Standard was approved by CEN on 23 November 2020 and includes Amendment 1 approved by CEN on 5 December 2024.

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European foreword

This document (EN 1254-6:2021+A1:2025) 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of an identical text or by endorsement, at the latest by August 2025, and conflicting national standards shall be withdrawn at the latest by August 2025.

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 includes Amendment 1 approved by CEN on 5 December 2024.

This document supersedes ⟦A1⟩ EN 1254-6:2021 ⟨A1⟧.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ⟦A1⟩ ⟨A1⟧.

The main changes to EN 1254-6:2012 are:

— improved alignment with plastic and multilayer pipe standards for hot and cold water applicartions;

— separation of test methods into part 20.

⟦A1⟩ The need for an amendment was based on the following points:

— Extend the scope to 63 mm fittings and add a reference to plastics and multilayer pipes.

— Include a wall thickness requirement for copper alloy fittings used in systems according to EN ISO 15874, EN ISO 15875, EN ISO 15876, EN ISO 15877, EN ISO 21003 and EN ISO 22391. ⟨A1⟧

This part of the standard (EN 1254-6) should be read in conjunction with ⟦A1⟩ EN 1254-20:2021+A1:2025 ⟨A1⟧.

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 fittings for use with metallic tubes*

— *Part 8: Press fittings 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.

1 Scope

[A1] This document specifies product characteristics, assessment methods, compliance criteria of test results and a designation system for push-fit fittings for the purpose of joining tubes of copper, plated copper, multilayer pipes and plastics pipes. The fitting ends have a nominal diameter from 6 mm to 63 mm. The fittings are designed for a service lifetime up to fifty years.

This document is applicable to push-fit fittings for joining one or more of the following tubes or pipes:

— copper tubes according to EN 1057.

— plastics and multilayer pipes.

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.

Adaptor fittings can combine push-fit ends with fitting ends defined in the other parts of EN 1254.

Push-fit fittings for metallic tubes can also have flanged end connections according to EN 1092-3.

Push-fit fittings can 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 liquid applications:

— hot, cold or combined hot and cold water, including systems according to the EN 806 series;

— closed heating systems according to EN 12828;

— cooling systems;

— drainage systems;

— fire protection systems including sprinkler systems according to EN 12845. [A1]

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 1057:2006+A1:2010, *Copper and copper alloys - Seamless, round copper tubes for water and gas in sanitary and heating applications*

[A1] EN 1254-20:2021+A1:2025, *Copper and copper alloys - Plumbing fittings - Part 20: Definitions, thread dimensions, test methods, reference data and supporting information* [A1]

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

EN 12201-2, *Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 2: Pipes*

EN 12201-5, *Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 5: Fitness for purpose of the system*

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 3501, *Plastics piping systems - Mechanical joints between fittings and pressure pipes - Test method for resistance to pull-out under constant longitudinal force (ISO 3501)*

EN ISO 3503, *Plastics piping systems - Mechanical joints between fittings and pressure pipes - Test method for leaktightness under internal pressure of assemblies subjected to bending (ISO 3503)*

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)*

EN ISO 13056, *Plastics piping systems - Pressure systems for hot and cold water - Test method for leaktightness under vacuum (ISO 13056)*

EN ISO 15874-2, *Plastics piping systems for hot and cold water installations - Polypropylene (PP) - Part 2: Pipes (ISO 15874-2)*

EN ISO 15874-5, *Plastics piping systems for hot and cold water installations - Polypropylene (PP) - Part 5: Fitness for purpose of the system (ISO 15874-5)*

EN ISO 15875-2, *Plastics piping systems for hot and cold water installations - Crosslinked polyethylene (PE-X) - Part 2: Pipes (ISO 15875-2)*

EN ISO 15875-5, *Plastics piping systems for hot and cold water installations - Crosslinked polyethylene (PE-X) - Part 5: Fitness for purpose of the system (ISO 15875-5)*

EN ISO 15876-2, *Plastics piping systems for hot and cold water installations - Polybutene (PB) - Part 2: Pipes (ISO 15876-2)*

EN ISO 15876-5, *Plastics piping systems for hot and cold water installations - Polybutene (PB) - Part 5: Fitness for purpose of the system (ISO 15876-5)*

EN ISO 15877-2, *Plastics piping systems for hot and cold water installations - Chlorinated poly(vinyl chloride) (PVC-C) - Part 2: Pipes (ISO 15877-2)*

EN ISO 15877-5, *Plastics piping systems for hot and cold water installations - Chlorinated poly(vinyl chloride) (PVC-C) - Part 5: Fitness for purpose of the system (ISO 15877-5)*

EN ISO 19892, *Plastics piping systems - Thermoplastics pipes and fittings for hot and cold water - Test method for the resistance of joints to pressure cycling (ISO 19892)*

EN ISO 19893, *Plastics piping systems - Thermoplastics pipes and fittings for hot and cold water - Test method for the resistance of mounted assemblies to temperature cycling (ISO 19893)*

EN ISO 21003-2, *Multilayer piping systems for hot and cold water installations inside buildings - Part 2: Pipes (ISO 21003-2)*

EN ISO 21003-5, *Multilayer piping systems for hot and cold water installations inside buildings - Part 5: Fitness for purpose of the system (ISO 21003-5)*

EN ISO 22391-2, *Plastics piping systems for hot and cold water installations - Polyethylene of raised temperature resistance (PE-RT) - Part 2: Pipes (ISO 22391-2)*

EN ISO 22391-5, *Plastics piping systems for hot and cold water installations - Polyethylene of raised temperature resistance (PE-RT) - Part 5: Fitness for purpose of the system (ISO 22391-5)*

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*

ISO 9080, *Plastics piping and ducting systems - Determination of the long-term hydrostatic strength of thermoplastics materials in pipe form by extrapolation*

ISO 9924-1, *Rubber and rubber products - Determination of the composition of vulcanizates and uncured compounds by thermogravimetry - Part 1: Butadiene, ethylene-propylene copolymer and terpolymer, isobutene-isoprene, isoprene and styrene-butadiene rubbers*

ISO 10508, *Plastics piping systems for hot and cold water installations - Guidance for classification and design*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in A1 EN 1254-20:2021+A1:2025 A1 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 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 5.3.1 fitting bodies shall show no visual indication of leakage.

4.2.2 Leak tightness under internal hydrostatic pressure

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