
Baker in bakrove zlitine - Fitingi - 20. del: Definicije, mere navojev, preskusne metode, referenčni podatki in dodatne informacije

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

Kupfer und Kupferlegierungen - Fittings - Teil 20: Definitionen, Gewindeabmessungen, Prüfverfahren, Referenzdaten und entsprechende Informationen

Cuivre et alliages de cuivre - Raccords - Partie 20 : Définitions, dimensions de filetage, méthodes d'essai, données de référence et informations supports

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

Cuivre et alliages de cuivre - Raccords - Partie 20 :
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Kupfer und Kupferlegierungen - Fittings - Teil 20:
Definitionen, Gewindeabmessungen, Prüfverfahren,
Referenzdaten und entsprechende Informationen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 133.

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prEN 1254-20:2019 (E)**European foreword**

This document (prEN 1254-20:2019) has been prepared by Technical Committee CEN/TC 133 “Copper and copper alloys”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This European standard is a supporting standard describing the test methods used by the other parts of the EN 1254 series.

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

1 Scope

This document contains definitions, thread dimension, reference data (minimum bore), supporting information (assembling instructions) and describes the test methods referenced by other parts of the EN 1254 series.

Thread dimensions comprise: wall thickness at threaded portions of fittings, dimensions of tail pipe ends for swivel fittings, dimensions of gas union connectors, thread dimensions and thread profile.

Test methods comprise: leak tightness under internal hydrostatic pressure, leak tightness under internal pneumatic pressure, resistance of joints to static flexural strength, resistance to pull out of joints, leak tightness of joints under vacuum, the resistance of joints to temperature cycling, resistance of joints with metallic tube to vibration, integrity of fabricated fitting bodies or having an 'as cast' microstructure, resistance to stress corrosion, detection of a carbon film on the surface of copper fittings, determination of mean depth of dezincification, resistance of joints to pressure cycling, disconnection and re-use, determining if the diameter and/or the length of engagement of a capillary end is/are within the specified tolerance, determining the minimum length of engagement of an integral solder or brazing ring socket having a formed groove.

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 723, *Copper and copper alloys — Combustion method for determination of the carbon content on the inner surface of copper tubes or fittings*

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

EN 10226-1, *Pipe threads where pressure tight joints are made on the threads — Part 1: Taper external threads and parallel internal threads — Dimensions, tolerances and designation*

EN ISO 6509-1:2014, *Corrosion of metals and alloys — Determination of dezincification resistance of copper alloys with zinc — Part 1: Test method (ISO 6509-1:2014)*

ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

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

ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation*

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 6957:1988, *Copper alloys — Ammonia test for stress corrosion resistance*

3 Terms and definitions

For the purposes of this document and other parts of the EN 1254 series, the following terms and definitions 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 <http://www.iso.org/obp>

3.1
plumbing fitting
 device used in a tube system for the purpose of connecting the tubes or pipes either to each other or to a component part of the system

3.2
capillary end
 end in which the joint is made by the flow of solder or brazing alloy by capillary action into the annular space between the capillary end and its connecting part

3.3
end feed fitting (EF)
 plumbing fitting including one or more capillary ends where the solder or brazing alloy for the capillary action is introduced externally into the annular space when a connection is made

3.4
integral solder ring fitting (ISR)
 plumbing fitting including one or more capillary ends that contain the solder alloy needed to make the connection
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3.5
integral brazing ring fitting (IBR)
 plumbing fitting including one or more capillary ends that contains the brazing alloy needed to make the connection

3.6
socket
 type of end defined by its internal diameter

3.7
male end
 type of end defined by its external diameter

3.8
compression end
 end in which a mechanical joint is formed by the tightening of a nut to compress a ring or sleeve onto the outside wall of the tube, or clamp a flared portion of the tube to the body of a fitting

3.8.1
compression end, Type A, non manipulative
 end that requires no preparation of the ends of the tube or pipe other than that they are cut square and deburred, or chamfered when specified, and in which the joint is made by the compression of a ring or sleeve onto the outside wall of the tube or pipe with or without additional sealing elements and with or without an internal tube support

Note 1 to entry: to entry: The sealing element may be metallic or non-metallic.

3.8.2

compression end, Type B, manipulative

end that requires forming of the tube or pipe at its end, and in which the joint is made by compressing the formed portion of the tube or pipe against the formed end of the fitting or a loose ring or sleeve within the fitting/tube/pipe

3.9

union end

end which enables connection and disconnection with minimal disturbance of other pipe sections

Note 1 to entry: to entry: Union ends can be sphere to cone, cone to cone, cone to radius or flat face with a sealing member.

Note 2 to entry: to entry: Component parts of union ends from different manufacturers should not be regarded as interchangeable.

3.10

interface thread

end that has male or female jointing or fastening thread, used to connect with a corresponding threaded pipe or fitting

3.11

jointing thread

thread on a fitting end in which the joint is made pressure tight on the thread

3.12

fastening thread

thread to provide mechanical assembly of a joint in which the seal is not made on the thread

3.13

push-fit end

end which incorporates a sealing element and a gripping device

Note 1 to entry: to entry: The joint is made by pushing the tube into the fitting and a seal is achieved without the use of heat or tools

Note 2 to entry: to entry: In some designs, this type of joint can be disconnected and re-connected or disconnected and the fitting re-used elsewhere.

3.14

supporting sleeve

device permanently inserted in the tube end to provide internal support for low strength tube or pipe materials

3.15

press connection

press end in which the joint is effected by compression of and permanent deformation the ends of the fitting and/or the tube or male end of a fitting with a pressing tool

3.15.1

radial press end

press end in which the joint is effected by radial compression of the ends of the fitting and the tube with a pressing tool

prEN 1254-20:2019 (E)**3.15.2****axial press end**

press end in which the joint is effected by axial movement of a compression sleeve with a pressing tool to cause a compression of the ends of the fitting and the tube

3.15.2.1**compression sleeve**

sleeve moved along the axial direction of the pipe to cause compression on the fitting end

3.16**pressing tools and jaws**

mechanical device which, by closing jaws, causes either directly or indirectly (axial press end), radial compression of the plumbing fitting end onto the connecting tube

3.17**reducer**

fitting or an adapter used to enable connections between pipework components of different nominal diameters

3.18**adaptor fitting**

fitting combining more than one type of end

3.19**nominal diameter**

nominal diameter of the fitting end expressed as the nominal outside diameter of the connecting tube or pipe

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3.20**multilayer pipe**

pipe comprising more than one layer, see definitions according to EN ISO 21003-1:2008, 3.1.1, 3.1.2 and 3.1.3

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3.21**fuel gas**

combustible gases which are gaseous at 15 °C and 1 013 mbar and are generally odorized for safety reasons, are commonly referred to as manufactured gas, natural gas or liquefied petroleum gases (LPG)

Note 1 to entry: They are also referred to as first, second or third family gases (see EN 437:2018, Table 1).

3.22**manufacturer declared pressure**

highest pressure related to the circumstances for which the fitting has been designed and is intended to be used when a manufacturer declares a MOP that is greater than those defined in the relevant part of the standard

3.23**maximum operating pressure****MOP**

maximum operating pressure at which pipework intended for fluids can be operated under normal operating conditions

3.24**PN**

alphanumeric designation used for reference purposes related to a combination of mechanical and dimensional characteristics of a component of a pipework system

Note 1 to entry: to entry: It comprises the letters PN followed by a dimensionless number.

Note 2 to entry: to entry: The allowable pressure of a pipework component depends on the PN number, the material and design of the component, its allowable temperature, etc.

3.25**AQL**

Acceptance Quality Limit (AQL) is defined in ISO 2859-1:1999, Table I and IIA

4 Thread dimensions**4.1 Wall thickness at threaded portions of fittings**

The minimum wall thickness at threaded portions of fittings shall be as expressed in Table 1 for the relevant diameters.

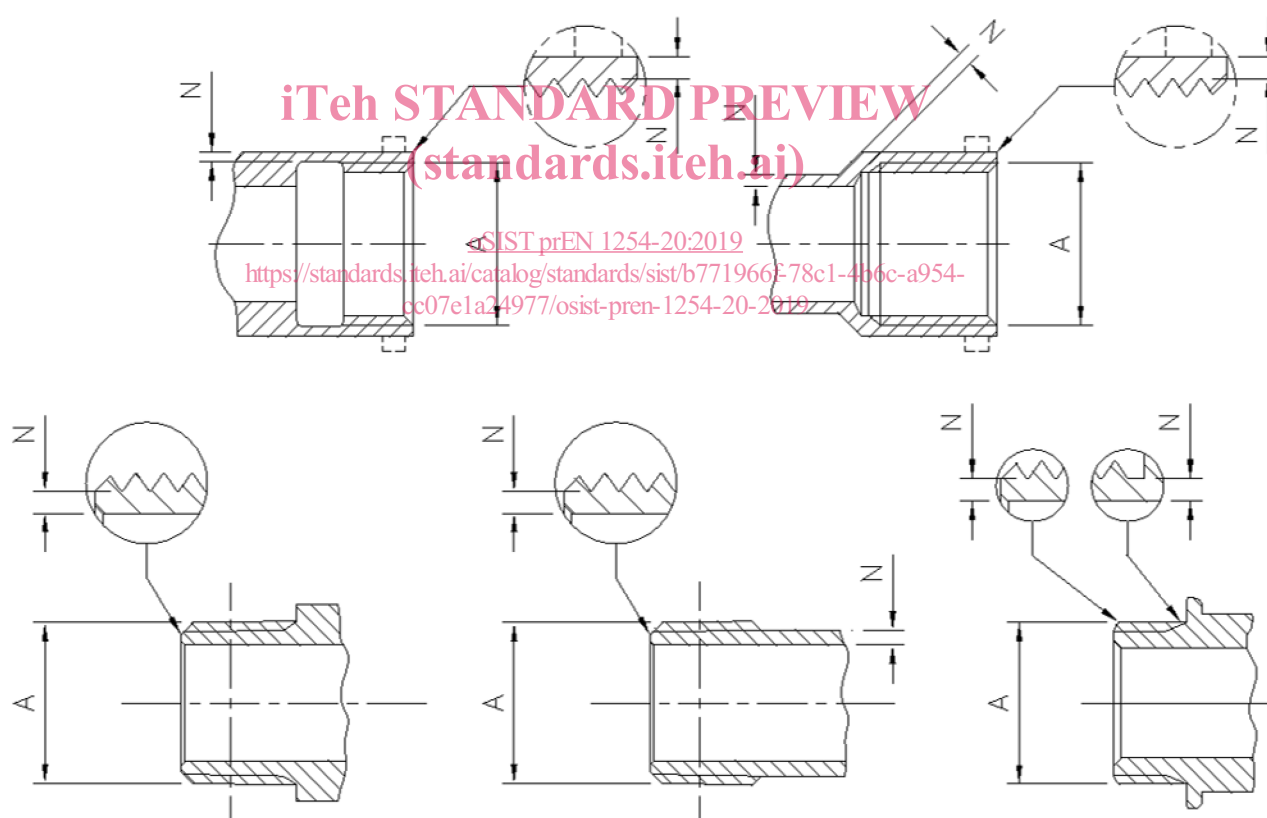


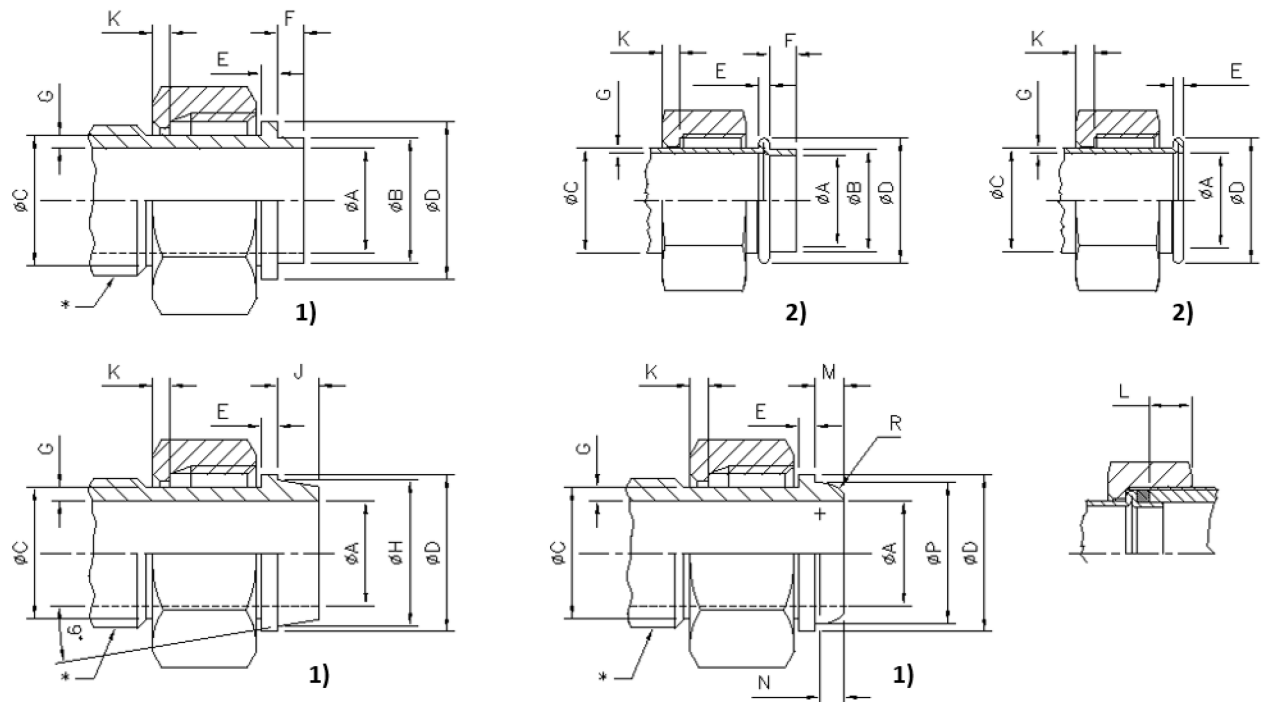
Figure 1 — Minimum wall thickness at threaded portions of fittings

Table 1 — Minimum wall thickness at threaded portions of fittings

Thread designation	Minimum wall thickness of fitting	
	Wrought coppers and copper alloys and continuously cast bar mm	Cast coppers and copper alloys mm
1/8	1,0	1,0
1/4	1,0	1,0
3/8	1,1	1,1
1/2	1,2	1,2
3/4	1,4	1,5
1	1,5	1,8
1 1/4	1,6	1,8
1 1/2	1,8	2,0
2	1,9	2,3
2 1/2	2,0	2,4
3	2,3	2,6
4	2,8	2,9

4.2 Dimensions of tail pipe ends for swivel fittings

The dimensions of tail pipe ends for swivel fittings shall be as expressed in Table 2 for the relevant thread size.

**Key**

- 1 wrought or cast alloy body
2 drawn tubular body

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Figure 2 — Tail pipe ends for swivel fittings

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Table 2a — Dimensions of tail pipe ends for swivel fittings

Dimension	A		B	C	D		E		F		G		
Nut thread size	Min. (Wrought or drawn tube)	Min. (casting)	Max.	Max.	Max.	Min.	Min. (Wrought or cast)	Min. (Draw tube)	Max.	Min.	Min. (Draw tube)	Min. (Wrought)	Min. (Casting)
in	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1/2	11,0	10,2	14,6	15,1	18,5	18,0	2,4	1,4	6,4	4,7	0,7	1,2	1,4
3/4	16,1	15,3	19,8	20,0	24,0	23,5	2,4	1,8	6,4	4,7	0,9	1,4	1,6
1	21,2	20,4	25,7	25,7	30,2	29,4	3,0	1,8	6,4	4,7	0,9	1,5	1,8
1 1/4	25,4	25,4	34,0	33,6	38,9	38,0	3,3	2,0	8,0	6,3	1,0	1,6	1,9
1 1/2	31,7	31,7	39,6	39,2	44,8	43,9	3,8	2,2	9,6	7,9	1,1	1,8	2,2
2	44,4	43,7	50,8	50,7	56,6	55,4	4,0	2,4	9,6	7,9	1,2	2,0	2,3