



SLOVENSKI STANDARD

SIST EN 1254-1:1999

01-november-1999

Baker in bakrove zlitine - Fitingi - 1. del: Fitingi s konci za kapilarno mehko in trdo lotanje na bakrene cevi

Copper and copper alloys - Plumbing fittings - Part 1: Fittings with ends for capillary soldering or capillary brazing to copper tubes

Kupfer und Kupferlegierungen - Fittings - Teil 1: Kapillarlötfitings für Kupferrohre (Weich- und Hartlöten)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Cuivre et alliages de cuivre - Raccords - Partie 1: Raccords a braser par capillarité pour tubes en cuivre

[SIST EN 1254-1:1999](https://standards.iteh.ai/catalog/standards/sist/d201c218-e410-4447-820f-303f1796fe3c/sist-en-1254-1-1999)

[https://standards.iteh.ai/catalog/standards/sist/d201c218-e410-4447-820f-](https://standards.iteh.ai/catalog/standards/sist/d201c218-e410-4447-820f-303f1796fe3c/sist-en-1254-1-1999)

[303f1796fe3c/sist-en-1254-1-1999](https://standards.iteh.ai/catalog/standards/sist/d201c218-e410-4447-820f-303f1796fe3c/sist-en-1254-1-1999)

Ta slovenski standard je istoveten z: EN 1254-1:1998

ICS:

23.040.40	Kovinski fittingi	Metal fittings
77.150.30	Bakreni izdelki	Copper products

SIST EN 1254-1:1999

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1254-1:1999

<https://standards.iteh.ai/catalog/standards/sist/d201c218-e410-4447-820f-303f1796fe3c/sist-en-1254-1-1999>

EUROPEAN STANDARD

EN 1254-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 1998

ICS 23.040.40

Descriptors: copper tubes, copper, copper alloys, pipe fittings, connections for welding, joining, dimensions, dimensional tolerances, tests, designation, marking

English version

Copper and copper alloys - Plumbing fittings - Part 1: Fittings with ends for capillary soldering or capillary brazing to copper tubes

Cuivre et alliages de cuivre - Raccords - Partie 1: Raccords à braser par capillarité pour tubes en cuivre

Kupfer und Kupferlegierungen - Fittings - Teil 1: Kapillarlötfittings für Kupferrohre (Weich- und Hartlöt)

This European Standard was approved by CEN on 24 November 1997.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

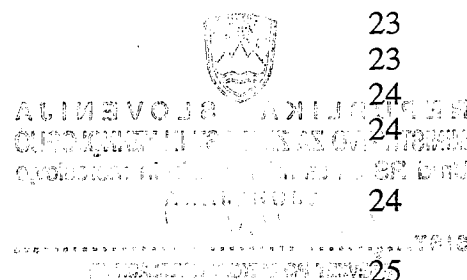


EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Contents

	Page
Foreword	3
1 Scope	4
2 Normative references	4
3 Definitions	5
3.1 plumbing fitting	5
3.2 capillary end	5
3.3 reducer (capillary soldering or brazing for copper tube)	5
3.4 adaptor fitting	6
3.5 nominal diameter	6
4 Requirements	6
4.1 General	6
4.2 Materials	6
4.3 Dimensions and tolerances	7
4.4 Design and manufacture	16
4.5 Production test requirements	18
4.6 Type test requirements	18
5 Test methods	19
5.1 Assembly dimensions	19
5.2 Leaktightness under internal hydrostatic pressure	23
5.3 Pressure test	23
5.4 Carbon in bore tests	23
5.5 Dezincification resistance test	24
5.6 Stress corrosion resistance test	24
6 Designation	24
7 Marking	25
7.1 General	25
7.2 Dezincification resistant copper-zinc alloys	25
8 Documentation	25
8.1 Declaration of conformity	25
8.2 User instructions	25
Annex A (normative) Carbon film test	26
Annex B (normative) Determination of mean depth of dezincification	27
Annex C (informative) Bibliography	29



Foreword

This European Standard 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 July 1998, and conflicting national standards shall be withdrawn at the latest by July 1998.

Within its programme of work, Technical Committee CEN/TC 133 requested CEN/TC 133/WG 8 "Copper and copper alloy fittings" to prepare the following standard:

EN 1254-1 Copper and copper alloys - Plumbing fittings - Part 1: Fittings with ends for capillary soldering or capillary brazing to copper tubes

This standard is one of five parts for copper and copper alloy fittings for joining copper tubes or plastics pipes. The other four parts of the standard are :

EN 1254-2 Copper and copper alloys - Plumbing fittings - Part 2: Fittings with compression ends for use with copper tubes

EN 1254-3 Copper and copper alloys - Plumbing fittings - Part 3: Fittings with compression ends for use with plastics pipes

EN 1254-4 Copper and copper alloys - Plumbing fittings - Part 4: Fittings combining other end connections with capillary or compression ends

EN 1254-5 Copper and copper alloys - Plumbing fittings - Part 5: Fittings with short ends for capillary brazing to copper tubes

It is recommended that fittings manufactured to this standard are certified as conforming to the requirements of this standard, based on third party testing and continuing surveillance which should be coupled with an assessment of a supplier's quality system against the appropriate standard i.e. EN ISO 9001 or EN ISO 9002.

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the product covered by this standard:

- 1) this standard provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA;
- 2) it should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

The attention of the user of this standard is drawn to the fact that national or local regulations or practices might restrict the choice of dimensions and threads in the application of products conforming to this standard.

Page 4
EN 1254-1:1998

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1254-1:1999

<https://standards.iteh.ai/catalog/standards/sist/d201c218-e410-4447-820f-303f1796fe3c/sist-en-1254-1-1999>

1 Scope

This European Standard specifies materials, assembly dimensions and tolerances and test requirements for fittings of copper and copper alloys with or without plating. Maximum permissible temperatures and pressures are also established. This Part of EN 1254 specifies connection end dimensions of capillary soldering and brazing ends for the purposes of joining copper tubes specified in EN 1057. Fittings may comprise a combination of any of the end types specified in EN 1254-1 to EN 1254-5 or other standards.

The standard establishes a designation system for the fittings.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

EN 723	Copper and copper alloys - Combustion method for determination of carbon 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 1254-2	Copper and copper alloys - Plumbing fittings - Part 2: Fittings with compression ends for use with copper tubes
EN 1254-3	Copper and copper alloys - Plumbing fittings - Part 3: Fittings with compression ends for use with plastics pipes
EN 1254-4	Copper and copper alloys - Plumbing fittings - Part 4: Fittings combining other end connections with capillary or compression ends
EN 1254-5	Copper and copper alloys - Plumbing fittings - Part 5: Fittings with short ends for capillary brazing to copper tubes
EN ISO 6509 :1995	Corrosion of metals and alloys - Determination of dezincification resistance of brass (ISO 6509: 1981)

Page 6
EN 1254-1:1998

ISO 6957 Copper alloys - Ammonia test for stress corrosion resistance

NOTE: Informative references to documents used in the preparation of this standard, and cited at the appropriate places in the text, are listed in a bibliography, see annex C.

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1 plumbing fitting

Device used in a tube system for the purpose of connecting the tubes either to each other or to a component part of a 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.

3.3 reducer (capillary soldering or brazing for copper tube)

Component used to enable an end to connect tube of a smaller nominal diameter than the nominal diameter of the fitting end.

[SIST EN 1254-1:1999](https://standards.iteh.ai/catalog/standards/sist/d201c218-e410-4447-820f-303f1796fe3c/sist-en-1254-1-1999)

<https://standards.iteh.ai/catalog/standards/sist/d201c218-e410-4447-820f-303f1796fe3c/sist-en-1254-1-1999>

3.4 adaptor fitting

Fitting combining more than one type of end.

NOTE: For details of the other ends, see the relevant Parts of this standard or other standards.

3.5 nominal diameter

Nominal diameter of the fitting end expressed as the nominal outside diameter of the connecting tube.

4 Requirements

4.1 General

Fittings shall conform to the requirements of 4.2 to 4.5 and shall be capable of meeting the type testing requirements of 4.6. Reducers also shall conform to these requirements.

4.2 Materials

[SIST EN 1254-1:1999](https://standards.iteh.ai/catalog/standards/sist/d201c218-e410-4447-820f-303f1796fe3c/sist-en-1254-1-1999)

<https://standards.iteh.ai/catalog/standards/sist/d201c218-e410-4447-820f-303f1796fe3c/sist-en-1254-1-1999>

4.2.1 General

Fittings shall be made from copper or copper alloys selected from materials either:

- specified in European copper and copper alloy product standards; or
- registered by CEN/TC 133;

provided that the fittings manufactured from them meet the functional requirements of this standard.

NOTE: Some of the standardized coppers and copper alloys commonly used for the manufacture of fittings are shown in table 1. Details of registered alloys can be obtained from the CEN/TC 133 Secretariat.

Table 1: Examples of commonly used materials

Material designation		Standard
Symbol	Number	
Cu-DHP	CW024A	prEN 12449
CuSn5Zn5Pb5-C	CC491K	prEN 1982
CuZn36Pb2As	CW602N	EN 12164
CuZn39Pb3	CW614N	EN 12164
CuZn33Pb2-C	CC750S	prEN 1982
CuZn15As-C	CC760S	prEN 1982

NOTE: These examples do not constitute an exhaustive list.

4.2.2 Restrictions in the choice of materials

Cu-ETP (CW004A) is a permitted material only for integral solder ring fittings and shall not be used for other types of capillary fittings.

Leaded solders shall not be used for manufacture of integral solder ring fittings.

4.3 Dimensions and tolerances

4.3.1 Tolerances on diameters

The standardized nominal dimensions, diameters and their tolerances, are given in table 2.

The socket and male end tolerances on diameter shall be in accordance with table 2 which shall be verified by the use of gauges shown in figures 5 and 6 and tables 7 and 8.

NOTE 1: Tolerances in accordance with table 2 and the use of gauges in accordance with tables 7 and 8 will ensure the distribution of solder or brazing alloy throughout the joint and will allow for the alignment of the male end of a fitting or the free end of a tube in the socket.

NOTE 2: When capillary fittings are used for soldering or brazing to copper tubes, the ends of the tubes should be sized to the outside diameter dimensions specified in table 2 for a length not less than the length of engagement of the fitting.

NOTE 3: Socket and male ends are shown diagrammatically in figures 1 and 2.

NOTE 4: The installation dimensions cannot be standardized due to varying manufacturing processes. The manufacturer should be consulted for these dimensions.

Table 2: Tolerances on the nominal diameter

Values in millimetres

Nominal diameter D	Tolerances on the mean diameter ¹⁾ with respect to the nominal diameter D		Resulting diametrical difference	
	Outside diameter of male end	Inside diameter of socket	max.	min.
6				
8				
9				
10				
12			0,20	0,02
14				
14,7	+0,04 -0,05	+0,15 +0,06		
15				
16				
18				
21				
22				
25	+0,05 -0,06	+0,18 +0,07	0,24	0,02
27,4				
28				
34 ²⁾				
35 ²⁾				
40 ²⁾				
40,5 ²⁾			0,30	0,03
42 ²⁾	+0,06 -0,07	+0,23 +0,09		
53,6 ²⁾				
54 ²⁾				
64 ²⁾				
66,7 ²⁾				
70 ²⁾				
76,1 ²⁾				
80 ²⁾			0,41	0,03
88,9 ²⁾	+0,07 -0,08	+0,33 +0,10		
106 ²⁾				
108 ²⁾				

¹⁾ Arithmetical mean of two diameters at right angles in a cross-section taken anywhere on the length of the socket or of the male end.

²⁾ The soldering or brazing of tubes and fittings for these diameters requires special precautions regarding working practices.

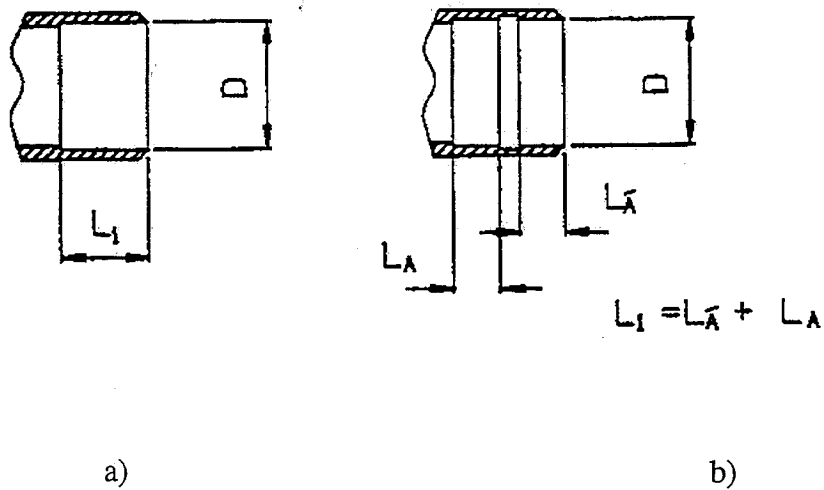
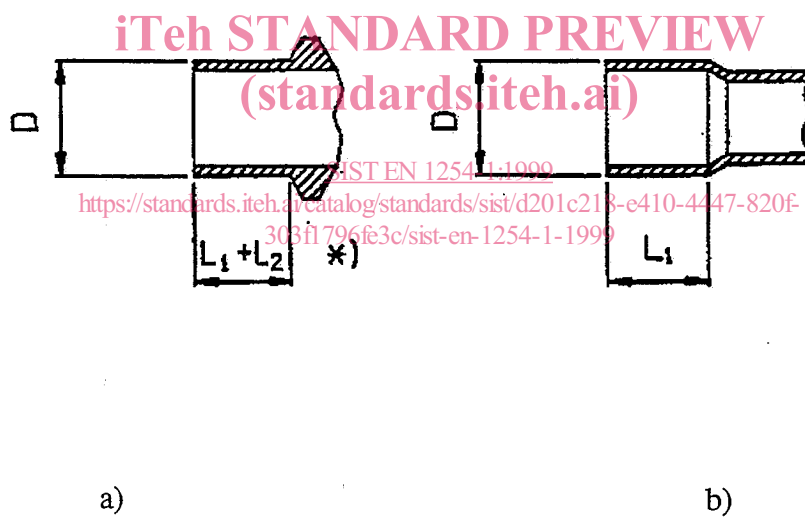


Figure 1: Socket



*) When the male end diameter is less than the fitting diameter, L_1 for the male end should be increased by L_2 (see table 3).

Figure 2: Male end