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**Baker in bakrove zlitine - Fitingi - 8. del: Fitingi s stiskalnimi zaključki pri uporabi plastičnih in večplastnih cevi**

Copper and copper alloys - Plumbing fittings - Part 8: Fittings with press ends for use with plastics and multilayer pipes

Kupfer und Kupferlegierungen - Fittings - Teil 8: Pressfittings für den Einsatz mit Kunststoff- und Mehrschichtverbundrohren

Cuivre et alliages de cuivre - Raccords - Partie 8 : Raccords à sertir pour tuyaux en plastique et tubes multicouches

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EUROPEAN STANDARD

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## Copper and copper alloys - Plumbing fittings - Part 8: Fittings with press ends for use with plastics and multilayer pipes

Cuivre et alliages de cuivre - Raccords - Partie 8: Raccords à sertir pour tuyaux en plastique et tubes multicouches

Kupfer und Kupferlegierungen - Fittings - Teil 8: Pressfittings für den Einsatz mit Kunststoff- und Mehrschichtverbundrohren

This European Standard was approved by CEN on 11 August 2012.

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.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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## EN 1254-8:2012 (E)

## Foreword

This document (EN 1254-8:2012) 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of an identical text or by endorsement, at the latest by April 2013, and conflicting national standards shall be withdrawn at the latest by April 2013.

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.

Within its programme of work, Technical Committee CEN/TC 133 requested CEN/TC 133/WG 8 "Fittings" to prepare the following European Standard:

EN 1254-8, *Copper and copper alloys — Plumbing fittings — Part 8: Fittings with press ends for use with plastics and multilayer pipes*

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

— *Part 1: Fittings with ends for capillary soldering or capillary brazing to copper tubes*

— *Part 2: Fittings with compression ends for use with copper tubes*

— *Part 3: Fittings with compression ends for use with plastics pipes*

— *Part 4: Fittings with threaded end connections*

— *Part 5: Fittings with short ends for capillary brazing to copper tubes*

— *Part 6: Fittings with push-fit ends*

— *Part 7: Fittings with press ends for metallic tubes*

— *Part 8: Fittings with press ends for use with plastics and multilayer pipes*

Part 7 will be the subject of future work.

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

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

This European Standard provides the basis for the assessment of a manufacturer's production process for products manufactured in accordance with this European Standard.

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**EN 1254-8:2012 (E)****1 Scope**

This European Standard specifies materials and test requirements for fittings of copper and copper alloys.

This part of EN 1254 specifies press end connections with or without plating or coating in the size range 10 mm to 110 mm for the purpose of joining plastics and multilayer pipes for use in hot and cold water systems according to EN 806, which are designed for service lifetime up to fifty years, as well as heating and cooling systems or gas systems, including fuel gas systems.

Fittings may comprise a combination of end types, specified in this European Standard, EN 1254, or other standards, providing they are suitable for the fluid / gas being conveyed.

The European Standard establishes a designation system for the fittings.

This European Standard is applicable to press fittings for joining the following plastics and multilayer pipes:

EN ISO 15874, *Plastics piping systems for hot and cold water installations — Polypropylene (PP)*;

EN ISO 15875, *Plastics piping systems for hot and cold water installations — Crosslinked polyethylene (PE-X)*;

EN ISO 15876, *Plastics piping systems for hot and cold water installations — Polybutylene (PB)*;

EN ISO 15877, *Plastics piping systems for hot and cold water installations — Chlorinated poly (vinyl chloride) (PVC-C)*;

EN ISO 21003, *Multilayer piping systems for hot and cold water installations inside buildings*;

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

ISO 17484, *Plastics piping systems — Multilayer pipe systems for indoor gas installations with a maximum operating pressure up to and including 5 bar (500 kPa)*.

Fittings may be suitable for joining other pipes provided the fitting joint with the specified pipe meets the requirements of this European Standard and the relevant pipe standard.

**2 Normative references**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 549:1994, *Rubber materials for seals and diaphragms for gas appliances and gas equipment*

EN 681-1:1996, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 1: Vulcanised rubber*

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

EN 1655, *Copper and copper alloys — Declarations of conformity*

EN 1982, *Copper and copper alloys — Ingots and castings*

EN 12164, *Copper and copper alloys — Rod for free machining purposes*

EN 12165, *Copper and copper alloys — Wrought and unwrought forging stock*



EN 12449, *Copper and copper alloys — Seamless, round tubes for general purposes*

EN ISO 6509:1995, *Corrosion of metals and alloys — Determination of dezincification resistance of brass (ISO 6509:1981)*

EN ISO 15874, *Plastics piping systems for hot and cold water installations — Polypropylene (PP)*

EN ISO 15875, *Plastics piping systems for hot and cold water — Crosslinked polyethylene (PE-X)*

EN ISO 15876, *Plastics piping systems for hot and cold water installations — Polybutylene (PB)*

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

EN ISO 21003, *Multilayer piping systems for hot and cold water installations inside buildings*

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

ISO 815-1, *Rubber, vulcanized or thermoplastic — Determination of compression set — Part 1: At ambient or elevated temperatures*

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

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 17484-1:2006, *Plastics piping systems — Multilayer pipe systems for indoor gas installations with a maximum operating pressure up to and including 5 bar (500 kPa) — Part 1: Specifications for systems*

### 3 Terms and definitions

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For the purposes of this document, the following terms and 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 the system

#### 3.2

##### **press end**

end which may incorporate a sealing element and in which the joint is effected by radial compression of the ends of the fitting and the tube with a pressing tool

Note 1 to entry: Some designs may incorporate an additional device to aid retention.

Note 2 to entry: Compression of the ends of the fitting and the tube can be achieved directly or indirectly by radial compression.

#### 3.3

##### **adaptor fitting**

fitting combining more than one type of end

Note 1 to entry: For details of other ends, see the relevant parts of this European Standard or other standards.

**EN 1254-8:2012 (E)****3.4****nominal diameter**

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

**3.5****supporting sleeve**

insert stiffener

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

**3.6****durably marked**

marked in such a way that the marking will remain readable at least up to the time of commissioning of the installation

Note 1 to entry: e.g. by ink marking.

**3.7****permanently marked**

marked in such a way that the marking will remain readable up to the end of the life of the installation

Note 1 to entry: e.g. by stamping, etching or engraving.

**3.8****type test**

test or series of tests aimed at approving a product to determine that the element designed is able to fulfil the requirements of the product specification

**4 Requirements****4.1 General**

Fittings, including reducers, shall conform to the requirements of 4.2 to 4.4.

Details of applications and classes of service conditions are specified in the relevant plastics piping systems standards.

**4.2 Materials****4.2.1 General**

Fittings bodies shall be made from copper or copper alloys selected from materials specified in European Standards for copper and copper alloy products, provided that the fittings manufactured from them meet the functional requirements of this European Standard.

NOTE Some of the standardised coppers and copper alloys commonly used for the manufacture of fittings are shown in Table 1.

**Table 1 — Examples of commonly used materials**

Material designation		Standard
Symbol	Number	
Cu-DHP	CW024A	EN 12449
CuSn5Zn5Pb5-C	CC491K	EN 1982
CuZn36Pb2As	CW602N	EN 12164
CuZn39Pb3	CW614N	EN 12164
CuZn40Pb2	CW617N	EN 12165
CuZn33Pb2-C	CC750S	EN 1982
CuZn15As-C	CC760S	EN 1982
NOTE These examples do not constitute an exhaustive list.		

Other components can be made from metallic or non-metallic materials, provided that they do not prevent the fitting meeting the functional requirements of this European Standard and do not cause degradation of the connected pipe.

Copper is not acceptable for use with polypropylene pipes – alloys are acceptable.

In the case of multi-layer pipes, the fitting design shall avoid contact between dissimilar metallic components that might give rise to corrosion.

Non-metallic sealing elements for fitting ends for water applications shall conform to the requirements for elastomeric materials in EN 681-1 and Tables 2 and 3 of this European Standard.

**Table 2 — Requirements and tests for non-metallic sealing elements**

Test Procedures
<p>Tear strength in accordance with EN 681-1:1996, Table 3.</p> <p>This requirement applies to all elastomeric sealing materials.</p> <p>Minimum tear strength: <math>\geq 20</math> N</p>
<p>Thermogravimetric analysis for identity testing of elastomeric materials.</p> <p>The TGA is carried out in accordance with ISO 9924-1.</p> <p>Frequency of test - the TGA shall be carried out at the type testing stage to produce the master graph. Further analysis will be made to compare the production to the master graph at a frequency of once per year thereafter.</p>

In order to demonstrate durability for long-term applications in water, elastomeric sealing elements shall be tested in accordance with the parameters shown in Table 3.