SLOVENSKI STANDARD
SIST EN 13618:2011

01-november-2011

Gibljivi cevni priključki v inštalacijah za pitno vodo - Funkcionalne zahteve in preskusne metode

Flexible hose assemblies in drinking water installations - Functional requirements and test methods

Flexible Anschlussschläuche in Trinkwasser-Installationen - Funktionsanforderungen und Prüfverfahren

Flexibles de raccordement des installations d'eau potable - Exigences fonctionnelles et méthodes d'essai

Ta slovenski standard je istoveten z: **EN 13618:2011**

ICS:

23.040.70	Gumene cevi in armature	Hoses and hose assemblies
91.140.60	Sistemi za oskrbo z vodo	Water supply systems

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EUROPEAN STANDARD

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English Version

Flexible hose assemblies in drinking water installations - Functional requirements and test methods

Tuyaux flexibles pour installations d'eau potable - Spécifications fonctionelles et méthodes d'essai

Flexible Schlauchverbindungen in Trinkwasser-Installationen - Funktionsanforderungen und Prüfverfahren

This European Standard was approved by CEN on 6 August 2011.

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

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Contents

Page

Foreword

This document (EN 13618:2011) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by March 2012, and conflicting national standards shall be withdrawn at the latest by March 2012.

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.

NOTE Products intended for use in water supply systems must comply, when existing, with national regulations and testing arrangements that ensure fitness for contact with drinking water.

On April 2006, EC Commission set up a revised mandate (M/136) asking CEN to propose harmonised product standards and support standards for test methods which could be used for assessing the fitness for contact with drinking water. In parallel, EC Commission has launched processes for a regulation of construction products (CPR) to be substituted to CP directive (89/106/EC) and for the revision of drinking water directive (98/83/EC).

If relevant, when the outputs of these processes will be known, European product standards will be amended by the addition of an Annex Z under Mandate M 136 which will contain formal references to the applicable requirements. Until such amendments, the current national regulations remain applicable.

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

1 Scope

This European Standard specifies the requirements and test methods for materials, dimensions and function for flexible hose assemblies, braided or not, designed for use with drinking water with an allowable maximum operating pressure (PMA) of 1 MPa and maximum operating temperature 70 °C. This standard is applicable to flexible hose assemblies intended to be used in drinking water installations in accordance with EN 806-2 for application class 2 to connect sanitary tap ware, heaters and similar appliances.

NOTE Flexible hose assemblies intended to be used as integral parts of electrical appliances are covered by EN 61770 [1].

2 Normative references

The following referenced documents are indispensable for the application 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 248, *Sanitary tapware — General specification for electrodeposited coatings of Ni-Cr*

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

EN 806-2, *Specification for installations inside buildings conveying water for human consumption — Part 2: Design*

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 plastic pipes*

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

EN 12540, *Corrosion protection of metals — Electrodeposited coatings of nickel, nickel plus chromium, copper plus nickel and copper plus nickel plus chromium*

EN ISO 196, *Wrought copper and copper alloys — Detection of residual stress — Mercury(I) nitrate test (ISO 196:1978)*

EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*

EN ISO 877:2010, *Plastics — Methods of exposure to direct weathering, to weathering using glass-filtered daylight, and to intensified weathering by daylight using Fresnel mirrors (ISO 877:1994)*

EN ISO 9080, *Plastics piping and ducting systems — Determination of the long-term hydrostatic strength of thermoplastics materials in pipe form by extrapolation (ISO 9080:2003)*

EN ISO 15875-2, *Plastics piping systems for hot and cold water installations — Crosslinked polyethylene (PE-X) — Part 2: Pipes (ISO 15875-2:2003)*

EN ISO 15876-2, *Plastics piping systems for hot and cold water installations — Polybutylene (PB) — Part 2: Pipes (ISO 15876-2:2003)*

EN ISO 22391-2, *Plastics piping systems for hot and cold water installations — Polyethylene of raised temperature resistance (PE-RT) — Part 2: Pipes (ISO 22391-2:2009)*

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

ISO 68-1, *ISO general purpose screw threads — Basis profile — Part 1: Metric screw threads*

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

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
hose assembly
flexible hose with or without braiding and furnished at one or both ends with a fitting or an integrated flange, or adapted to meet the use of appropriate fittings

NOTE See Figure 1.

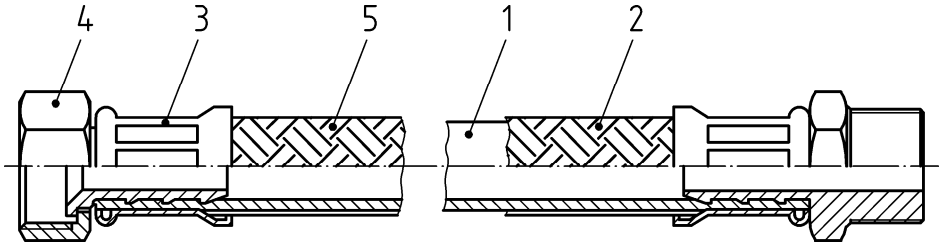
3.2
internal hose
internal part of the hose assembly

3.3
braiding
external applied reinforcement intended to protect the internal hose from blunt impact, rubbing or constriction, usually achieved with stainless steel or synthetic wires

3.4
sleeve
component used to fix internal hose mechanically to fittings

3.5
fitting
component attached to the end of the flexible hose to facilitate connection to appliances

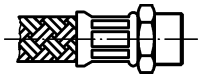
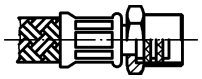
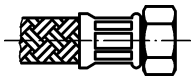
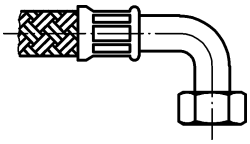
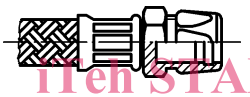
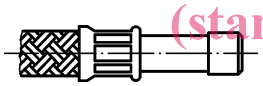
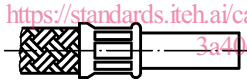
NOTE Examples of shape and designation of the fitting are given in Table 1.



Key
1 Internal hose
2 Braiding
3 Sleeve
4 Fitting
5 Outer layer (optional)

Figure 1 — Example of hose assembly components

Table 1 — Shape and designation of fittings

Type	Shape	Designation
1		Fixed male fitting in accordance with EN ISO 228-1 or ISO 7-1
2		Revolving male fitting in accordance with EN ISO 228-1 or ISO 7-1
3		Straight female fitting in accordance with EN ISO 228-1 or ISO 7-1
4		Elbow female fitting in accordance with EN ISO 228-1
5		Compression biconical fitting
6		Fitting with plain and short smooth tube with recess
7		Fitting with plain and short smooth tube without recess
8		Metric male thread fitting
9	—	Special applications

4 Requirements

4.1 Materials

4.1.1 General

All materials used shall be chemically compatible with each other and with the water supplied (following the common chemical reaction and/or corrosion knowledge of the materials concerned).

4.1.2 Chemical and hygienic requirements

All materials coming into contact with water intended for human consumption shall not present a health risk or cause any change in the drinking water in terms of quality, appearance, smell or taste.

NOTE Products intended for use in drinking water supply systems should comply, when existing, with national regulations and testing arrangements that ensure fitness for contact with drinking water.

4.1.3 Hoses

4.1.3.1 Internal hoses

Internal hoses can be made of elastomeric, thermoplastics and plastics materials.

4.1.3.2 Non-braided hoses

Non-braided hoses shall comply with long-term stress requirements in accordance with EN ISO 15875-2, EN ISO 15876-2 and EN ISO 22391-2 when evaluated in accordance with EN ISO 9080.

4.1.4 Fittings and sleeves

Fittings and sleeves shall be manufactured from non-corrosive metallic materials only. Aluminium materials are not allowed.

4.1.5 Braiding

Braiding shall be made of stainless steel wires or plastics wires/bands.

Braiding made of stainless steel can have an integrated plastic wires which may be used for colour coding.

In case of braiding made of plastics wires only, the hose assembly shall be UV resistant in accordance with 4.2.3.10.

4.1.6 Seals

Elastomeric seals shall comply with EN 681-1.

Other sealing materials shall comply with relevant European or International Standards and shall demonstrate the compliance with 4.2.

4.2 Functional requirements

4.2.1 General

The separate components and hose assemblies shall comply and be tested to the functional requirements as indicated in Table 2.

Table 2 — List of characteristics for separate components and for hose assemblies

Characteristic	Requirement subclause	Test method clause/subclause
Fittings and sleeves		
Dimensions	4.2.2.1	A.1
Stress corrosion	4.2.2.2	A.2
Resistance to tightening torque of fitting	4.2.2.3	A.3
Resistance to bending	4.2.2.4	A.4
Resistance of seat of female fitting	4.2.2.5	A.5
Hose assembly		
Length of hose assembly	4.2.3.1	4.2.3.1
Flow rate	4.2.3.2	B.1
Tensile stress resistance	4.2.3.4	B.3
Leak tightness under internal hydrostatic pressure	4.2.3.3	B.4
Pressure cycling resistance	4.2.3.5	B.5
Resistance to pressure jumps	4.2.3.6	B.6
Temperature cycling resistance	4.2.3.7	B.7
Frost resistance	4.2.3.8	B.10
Resistance to corrosion	4.2.3.9	B.8
Flexibility	4.2.3.11	B.9
UV resistance	4.2.3.10	4.2.3.10

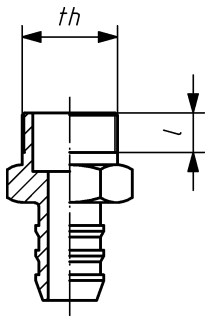
4.2.2 Fittings

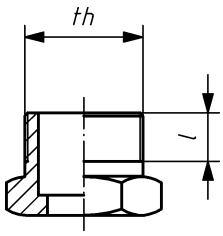
4.2.2.1 Dimensions

Fittings shall comply with the appropriate dimensions as stated in Tables 3, 4 and 5 when checked in accordance with A.1, and with the relevant functional requirements as stated in EN 1254-2, EN 1254-3 and EN 1254-4.

Fittings with push-fit ends and with press end for metallic tubes shall comply with requirements of this standard.

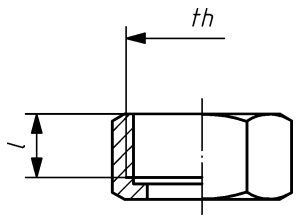
Table 3 — Fixed and revolving male fittings

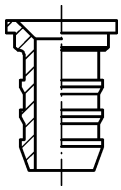


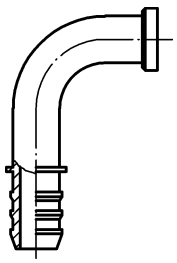


Threading *th* in accordance with		Gauge length in accordance with ISO 7-1	Minimum useful threading length *l* in accordance with EN ISO 228-1
ISO 7-1	EN ISO 228-1	mm	mm
R 1/4	G 1/4 B	8,4	6
R 3/8	G 3/8 B	8,8	7
R 1/2	G 1/2 B	11,4	7
R 3/4	G 3/4 B	12,7	8,5
R 1	G 1 B	14,5	9,5
R 5/4	G 5/4 B	16,8	11

Table 4 — Female fittings







Threading *th* in accordance with EN ISO 228-1	Minimum useful threading length *l* mm
G 1/4	8
G 3/8	8,5
G 1/2	10,5
G 3/4	12
G 1	13,5
G 1 ¼	15,5