



SLOVENSKI STANDARD

SIST EN 13618:2017

01-februar-2017

Nadomešča:
SIST EN 13618:2011

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 Schlauchverbindungen in Trinkwasser-Installationen - Funktionsanforderungen und Prüfverfahren

Tuyaux flexibles pour installations d'eau potable - Exigences fonctionnelles et méthodes d'essai

<https://standards.iteh.ai/catalog/standards/sist/43d25561-21a0-402c-a063-1c887be54b42/sist-en-13618-2017>

Ta slovenski standard je istoveten z: **EN 13618:2016**

ICS:

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

SIST EN 13618:2017

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 13618:2017

<https://standards.iteh.ai/catalog/standards/sist/43d25561-21a0-402c-a063-1c887be54b42/sist-en-13618-2017>

EUROPEAN STANDARD

EN 13618

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2016

ICS 23.040.70; 91.140.60

Supersedes EN 13618:2011

English Version

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

Tuyaux flexibles pour installations d'eau potable -
Exigences fonctionnelles et méthodes d'essai

Flexible Schlauchverbindungen in Trinkwasser-
Installationen - Funktionsanforderungen und
Prüfverfahren

This European Standard was approved by CEN on 15 August 2016.

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.

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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents	Page
European foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	6
4 Requirements	8
4.1 Materials	8
4.1.1 General.....	8
4.1.2 Chemical and hygienic requirements.....	8
4.1.3 Hoses.....	8
4.1.4 Fittings and sleeves.....	8
4.1.5 Braiding.....	8
4.1.6 Sealings.....	8
4.2 Functional requirements	8
4.2.1 General.....	8
4.2.2 Fittings.....	9
4.2.3 Hose assemblies.....	12
5 Designation	15
6 Marking	15
Annex A (normative) Tests on fittings	17
A.1 Dimensions and thread control.....	17
A.2 Ammonium test.....	17
A.3 Tightening test.....	17
A.3.1 Test samples.....	17
A.3.2 Procedure.....	17
A.4 Bending test.....	18
A.4.1 Test samples.....	18
A.4.2 Procedure.....	18
Annex B (normative) Hose assembly tests	21
B.1 Flow rate test.....	21
B.1.1 Test samples.....	21
B.1.2 Procedure.....	21
B.2 Ageing treatment by hot storage.....	22
B.2.1 Test samples.....	22
B.2.2 Procedure.....	22
B.3 Tensile test.....	22
B.3.1 Test samples.....	22
B.3.2 Procedure.....	22
B.4 Hydrostatic pressure test.....	22
B.4.1 Test samples.....	22
B.4.2 Procedure.....	22
B.5 Hydraulic performance and durability test.....	23
B.5.1 Test samples.....	23
B.5.2 Test conditions.....	23
B.5.3 Procedure.....	23

B.6	Test of resistance to pressure jumps.....	24
B.6.1	Test samples	24
B.6.2	Test conditions	24
B.6.3	Procedure	24
B.7	Temperature cycling test.....	24
B.7.1	Test samples.....	24
B.7.2	Procedure	25
B.8	Corrosion resistance test.....	25
B.8.1	Test samples	25
B.8.2	Procedure	25
B.9	Bending test.....	25
B.9.1	Test samples.....	25
B.9.2	Procedure	25
B.10	Test of resistance to frost	27
B.10.1	Test samples.....	27
B.10.2	Procedure	27
	Annex C (informative) Surveillance testing	28
	Bibliography	29

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 13618:2017](https://standards.iteh.ai/catalog/standards/sist/43d25561-21a0-402c-a063-1c887be54b42/sist-en-13618-2017)

<https://standards.iteh.ai/catalog/standards/sist/43d25561-21a0-402c-a063-1c887be54b42/sist-en-13618-2017>

EN 13618:2016 (E)**European foreword**

This document (EN 13618:2016) 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 June 2017, and conflicting national standards shall be withdrawn at the latest by June 2017.

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.

This document supersedes EN 13618:2011.

EN 13618:2016 includes the following significant technical changes with respect to EN 13618:2011:

- a) the stress corrosion testing is carried out with ammonium only;
- b) requirement ad test method for resistance of seat of female fitting are deleted;
- c) in Table 8, specific minimum flow rates and minimum bore diameters are left open;
- d) for testing the pressure jumps resistance, detailed specification for DN and applied test pressure are given;
- e) new test methods for corrosion resistance and UV resistance are introduced;
- f) in Table A.2, the dimensions C are reduced;
- g) in hydraulic performance and durability test, the number of impulses is reduced;
- h) the recommended surveillance testing of specific functional requirements is introduced.

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.

1 Scope

This European Standard specifies the requirements and test methods for materials, dimensions and function for flexible hose assemblies for drinking water installations, 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 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 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 248, *Sanitary tapware — General specification for electrodeposited coatings of Ni-Cr*

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 plastics pipes*

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

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)*

EN ISO 1456, *Metallic and other inorganic coatings — Electrodeposited coatings of nickel, nickel plus chromium, copper plus nickel and of copper plus nickel plus chromium (ISO 1456)*

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)*

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

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 30013:2011, *Rubber and plastics hoses — Methods of exposure to laboratory light sources — Determination of changes in colour, appearance and other physical properties (ISO 30013:2011)*

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

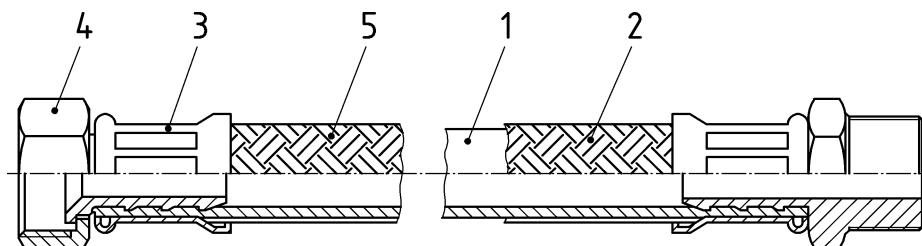
ISO 6957, *Copper alloys — Ammonia test for stress corrosion resistance*

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 1 to entry: See Figure 1:



Key

- 1 internal hose
- 2 braiding
- 3 sleeve
- 4 fitting
- 5 outer layer (optional)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Figure 1 — Example of hose assembly components

[SIST EN 13618:2017](https://standards.iteh.ai/catalog/standards/sist/43d25561-21a0-402c-a063-1c887be54b42/sist-en-13618-2017)

<https://standards.iteh.ai/catalog/standards/sist/43d25561-21a0-402c-a063-1c887be54b42/sist-en-13618-2017>

3.2 internal hose

internal part of the hose assembly

3.3 braiding

external applied reinforcement intended to achieve the pressure resistance and to protect the internal hose from blunt impact, rubbing or constriction, usually achieved with stainless steel or synthetic wires

3.4 sleeve

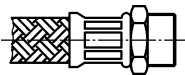
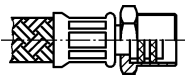
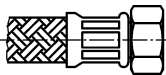
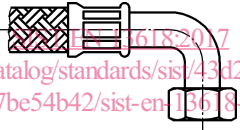
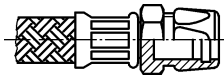
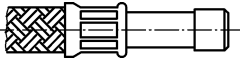
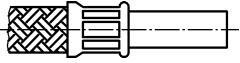
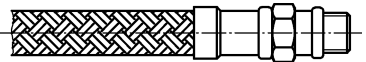
component used to fix internal hose mechanically to fittings

3.5 fitting

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

Note 1 to entry: Examples of shape and designation of the fitting are given in Table 1:

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

iTeh STANDARD PREVIEW
(standards.iteh.ai)

<https://standards.iteh.ai/catalog/standards/sis/43425561-21a0-402c-a063-1c887be54b42/sist-en-13618-2017>

EN 13618:2016 (E)**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.

Products intended for use in drinking water supply systems should comply with national regulations and testing arrangements, where they exist, 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 with exception of plain end fittings with and without recess shall be manufactured from corrosion-resistant materials.

Sleeves and plain end fittings with and without recess shall be made of corrosion-resistant 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 integrated plastic wires/bands for colour coding only.

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

4.1.6 Sealings

Sealing materials 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.

The surveillance testing for specific functional requirements is recommended. If the surveillance testing is carried out, this should be done in accordance with Annex C.

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
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 fittings with external thread

Threading th in accordance with		Gauge length in accordance with ISO 7-1 mm	Minimum useful threading length l in accordance with EN ISO 228-1 mm
ISO 7-1	EN ISO 228-1		
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 with nut

Threading th in accordance with EN ISO 228-1	Minimum useful threading length l mm
G 1/4	4
G 3/8	5
G 1/2	6
G 3/4	7
G 1	8
G 1 1/4	10