
Gumeni in plastični priključki, cevovodi in cevi za propan, butan in njune zmesi v plinastem stanju - 2. del: Priključki

Rubber and plastics hoses, tubing and assemblies for use with propane and butane and their mixture in the vapour phase - Part 2: Assemblies

Gummi- und Kunststoff-Schläuche und -Schlauchleitungen mit und ohne Einlage zur Verwendung mit Propan, Butan und deren Gemische in der Gasphase - Teil 2: Schlauchleitungen

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Tuyaux, tubes et flexibles en caoutchouc et en plastique pour utilisation avec le propane, le butane et leurs mélanges en phase vapeur - Partie 2: Flexi

Ta slovenski standard je istoveten z: EN 16436-2:2018

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EUROPEAN STANDARD

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Rubber and plastics hoses, tubing and assemblies for use with propane and butane and their mixture in the vapour phase - Part 2: Assemblies

Tuyaux, tubes et flexibles en caoutchouc et en plastique pour utilisation avec le propane, le butane et leurs mélanges en phase vapeur - Partie 2 : Flexibles

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 16436-2:2018) has been prepared by Technical Committee CEN/TC 181 “Dedicated liquefied petroleum gas appliances”, 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of an identical text or by endorsement, at the latest by June 2019, and conflicting national standards shall be withdrawn at the latest by June 2019.

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EN 16436-2:2018 (E)**1 Scope**

This document describes and specifies the characteristics and performance requirements for assemblies made of tubing and hoses complying with EN 16436-1:2014+A2:2018 to be used in the same conditions.

All connections are given in Annex B.

This document only defines specific connections which are not defined in other standards (e.g. EN 16129).

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 1254-2:2011, *Copper and copper alloys - Plumbing fittings Part 2: Fittings with compression ends for use with copper tubes*

EN 16436-1:2014,¹ *Rubber and plastics hoses, tubing and assemblies for use with propane and butane and their mixture in the vapour phase - Part 1: Hoses and tubings*

EN ISO 1402:2009, *Rubber and plastics hoses and hose assemblies - Hydrostatic testing (ISO 1402:2009)*

EN ISO 9227:2017, *Corrosion tests in artificial atmospheres - Salt spray tests (ISO 9227:2017)*

ISO 188:2011, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

EN ISO 8330:2014, *Rubber and plastics hoses and hose assemblies - Vocabulary (ISO 8330:2014)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 8330:2014 and the following 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**hose or tubing assembly**

length of hose or tubing with a coupling attached to one or both ends

Note 1 to entry: also called “assembly”.

Note 2 to entry: Once mounted a tubing clamp kit becomes an assembly.

¹ Impacted by EN 16436-1:2014+A2:2018

3.2**hose tail**

part of the coupling that is inserted into the hose during assembly

NOTE 1 to entry: On small couplings, a hose tail is called a hose spigot.

[SOURCE: EN ISO 8330:2014, 2.2.20]

3.3**coupling**

connector

fitting, usually made of metal, attached to the end of a hose to facilitate connection to equipment

NOTE 1 to entry: A female coupling carries the internal fastening; a male coupling carries the external fastening.

[SOURCE: EN ISO 8330:2014, 2.2.10]

3.4**tubing clamp kits**

package of tubing with a fixing device and installation instructions, complying with EN 16436 parts 1 and 2, to be assembled by the end user

3.5**fixing device**

device to secure the tubing/hose (with a hose tail e.g. clamp, crimp, clip)

Note 1 to entry: Examples for fixing devices are clamps, crimps or clips.

3.6**length of the assembly**

length of the hose or tubing without considering coupling

3.7**nominal length of the assembly**

length of the assembly declared by the manufacturer

4 Fixing of the coupling

Hoses or tubing may be fitted with a hose tail by one of the following fixing devices to form assemblies:

- clamp;
- crimp; or
- clip.

5 General requirements for couplings and assemblies**5.1 Materials****5.1.1 Hoses and tubings**

Hoses and tubings shall be in accordance with EN 16436-1: 2014¹ (Classification see Table 1).

EN 16436-2:2018 (E)

Table 1 Classification of hose/tubings assemblies

Assemblies classification	Hose/tubing classification	Maximum working pressure bar	Temperature range °C
Class 1	Class 1 (EN 16436-1: 2014 ¹)	0,2	-20 to +70
Class 2	Class 2 (EN 16436-1: 2014 ¹)	10	-30 to +70
Class 3	Class 3 (EN 16436-1: 2014 ¹)	30	-30 to +70

5.1.2 Couplings

Couplings shall be manufactured from corrosion resistant metallic materials.

This requirement is checked according to C.5.

NOTE The following materials fulfil this requirement

- Brass **according to**
- EN 12164;
- EN 12165;
- ISO 197-1;
- ISO 197-3;
- plated steel;
- and stainless steel

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5.2 Length of assembly

The length of the assembly shall be equal to the nominal length within a tolerance of $\pm 2\%$.

5.3 Securing of couplings on hoses or tubing

Both ends of hose or tubing shall be secured to the hose tails by means of clamps, crimps, or clips and shall conform to the 'pull-off' requirements specified in Annex C.3.

NOTE Attention is drawn to national regulations relating to the use of fixing devices on hoses and tubing and users' obligations there under.

5.4 Design of couplings for use in assemblies

The dimensions of the hose tail shall be compatible with the dimensions of the hose or tubing. The method of attachment of the hose tail shall be such that the hose or tubing assembly complies with the requirements of 6.

Information related to the main types and dimensions of the couplings and coupling tails used are given in Annex B.

The design of the coupling shall be such that the assembly can be secured at a minimum of one end without the necessity of turning the hose or tubing relative to its mating piece and without the use of additional fittings.

5.5 Utilization of class 1 tubing and class 2 hoses with hose tails which are part of an auxiliary equipment as regulating devices or gas appliances

Information related to the main types and dimensions of coupling tails used are given in Annex B. The integrity of the connections shall meet the requirements of 6.1 and 6.3.

6 Performance requirements for assemblies and tubing clamp kits

6.1 Integrity before and after ageing

6.1.1 Samples to use

The length of the samples to use shall be between 0,3 and 1,0 m.

Table 2 presents the test sequences to be carried out on the various samples.

Table 2 — Test sequences

Sample n°	1	2	3	4	5
Before ageing					
• Burst pressure test according to C.1	x				
• Proof pressure test according to C.1			x	x	x
• Leakage test according to C.4			x	x	x
After ageing according to C.2					
• Burst pressure test according to C.1		x			
• Proof pressure test according to C.1			x	x	x
• Leakage test according to C.4			x	x	x
• Pull-off test according to C.3			x	x	x
• Leakage test according to C.4			x	x	x
• Burst pressure test according to C.1			x	x	x

6.1.2 Integrity requirements

The requirements are the following:

- For tests according to C.1 under proof pressure: No requirement (conditioning)
- For tests according to C.1 under burst pressure: No separation or damage at the interface of the hose and the coupling
- For tests according to C.3: No breakage and distortion of the coupling to the hose
- For test according to C.4: maximum leakage value allowed (see C.4)

6.2 Clamps

Clamps shall be internally smooth, with turned up and rounded edges. Their diameter shall be suitable for the external diameter of the tubing mounted on the hose tail.

Their minimum width shall be 8 mm (see Figure 1).