

Thermoplastic multi-layer (non-vulcanized) hoses and hose assemblies for the transfer of hydrocarbons, solvents and chemicals - Specification

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

**Thermoplastic multi-layer (non-vulcanized) hoses and
hose assemblies for the transfer of hydrocarbons, solvents
and chemicals - Specification**

Tuyaux et flexibles thermoplastique multicouches (non
vulcanisés) pour le dépotage d'hydrocarbures, solvants
et produits chimiques - Spécification

Thermoplastische, mehrlagige (nicht vulkanisierte)
Schläuche und Schlauchleitungen für die Förderung
von Kohlenwasserstoffen, Lösungsmitteln und
Chemikalien - Spezifikation

This European Standard was approved by CEN on 23 February 2018.

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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.

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European foreword

This document (EN 13765:2018) has been prepared by Technical Committee CEN/TC 218 “Rubber and plastic hoses and hose assemblies”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by December 2018, and conflicting national standards shall be withdrawn at the latest by December 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13765:2010+A1:2015.

The main changes compared to the previous edition are as follows:

- normative references updated (Clause 2);
- lower min. and/or higher max. temperature upon agreement with the manufacturer added (Clause 4);
- electrical resistance requirement between end fittings modified (Clause 7);
- marking of the hose and hose assembly updated (Clause 10);
- tolerances on test force for crush recovery test added (Annex D);
- requirements for the sequence of hydrostatic tests added (Annex H);
- requirements for type and routine tests (Annex K) and batch tests (Annex L) for hoses and hose assemblies updated;
- bibliography added.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document specifies requirements for four types of thermoplastic multi-layer (non-vulcanized) hoses and hose assemblies for carrying hydrocarbons, solvents and chemicals. It specifies bore sizes from 25 mm to 300 mm, working pressures from 4 bar¹⁾ to 14 bar and working temperatures from –30 °C to 150 °C.

Type 1 hoses are suitable for vapour applications. Types 2 to 4 hoses are suitable for liquid applications.

NOTE 1 The attention of users is drawn to Annex A concerning the selection of the material for the inner wall of layers and any polymeric coating of the internal wire helix related to the chemical(s) to be conveyed by the hoses and/or hose assemblies.

This document does not apply to hoses and hose assemblies for:

Aircraft ground fuelling and defuelling	(EN ISO 1825);
Fuel dispensing	(EN 1360);
Oil burners	(EN ISO 6806);
Liquefied petroleum gas and liquefied natural gas	(EN 13766);
Fire fighting	(EN ISO 14557);
Offshore liquefied natural gas	(EN 1474–2);
Refrigeration circuits	(—).

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 590, *Automotive fuels — Diesel — Requirements and test methods*

EN 10088-3:2014, *Stainless steels — Part 3: Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes*

EN ISO 1043-1, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics (ISO 1043-1)*

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

EN ISO 2411, *Rubber- or plastics-coated fabrics — Determination of coating adhesion (ISO 2411)*

EN ISO 4671, *Rubber and plastics hoses and hose assemblies — Methods of measurement of the dimensions of hoses and the lengths of hose assemblies (ISO 4671)*

1) 1 bar = 0,1 MPa.

EN ISO 7233:2016, *Rubber and plastics hoses and hose assemblies — Determination of resistance to vacuum (ISO 7233:2016)*

EN ISO 7326, *Rubber and plastics hoses — Assessment of ozone resistance under static conditions (ISO 7326)*

EN ISO 8031:2009, *Rubber and plastics hoses and hose assemblies — Determination of electrical resistance and conductivity (ISO 8031:2009)*

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

EN ISO 10619-1, *Rubber and plastics hoses and tubing — Measurement of flexibility and stiffness — Part 1: Bending tests at ambient temperature (ISO 10619-1)*

EN ISO 10619-2, *Rubber and plastics hoses and tubing — Measurement of flexibility and stiffness — Part 2: Bending tests at sub-ambient temperatures (ISO 10619-2)*

ISO 209, *Aluminium and aluminium alloys — Chemical composition*

ISO 1817:2015, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 8330:2014 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>

4 Classification

Hoses shall be classified according to working pressure and working temperature range as given in Table 1.

Table 1 — Pressure and temperature range

	Type 1	Type 2	Type 3	Type 4
Maximum working pressure (bar)	4	10	14	14
Proof pressure (bar)	6	15	21	21
Minimum burst pressure (bar)	16	40	56	56
Vacuum rating (bar)	0,5	0,9	0,9	0,9
Working temperature range (°C)	−20 to +60	−30 to +80	−30 to +80	−30 to +150
NOTE 1 bar = 0,1 MPa.				

Upon agreement with the manufacturer, lower min. and/or higher max. temperatures are allowed depending on the materials used and the compatibility at those temperatures with the fluid conveyed. Other properties and requirements mentioned in this standard still have to be met.