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

Tuyaux et flexibles multicouches (non vulcanisés) thermoplastiques pour le transfert des hydrocarbures, des solvants et des produits chimiques — Spécifications

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information.

The committee responsible for this document is ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 1, *Rubber and plastics hoses and hose assemblies*.

ISO 27126 is based on EN 13765:2010 with the following modifications to comply with the requirements of ISO/TC 45/SC 1:

— the pressure unit "bar" has been replaced by "MPa (bar)";

— all references to EN or EN/ISO standards have been replaced by references to ISO standards wherever possible;

— references in Clause 2 have been amended;

— Table 2 has been amended (tolerance for ID 150 only, the other tolerances are already sufficient to accommodate the required changes of ID to include inch size mandrels);

— Table 3 now requires the change in length and twist to be measured at maximum working pressure instead of proof pressure and Annex H has been amended accordingly;

— in Table 4, the reference to the test method clause, to determine electrical resistance between fittings according to ISO 8031 has been corrected;

— Annex G has been amended in order to describe the method of detection of failure after completion of test;

— in Clause 10, the marking has been amended according ISO/TC45/SC1 remarks.

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

WARNING — Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate health and safety practices and to ensure compliance with any national regulatory conditions.

1 Scope

This International Standard 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 0,4 MPa (4 bar) to 1,4 MPa (14 bar) and working temperatures from –30 °C to 150 °C, according to type.

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

NOTE 1 See 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.

NOTE 2 It is intended that the manufacturer be consulted where a polymeric coated internal wire is being considered for use with low conductivity hydrocarbons or chemicals.

This International Standard does not apply to hoses and hose assemblies for:

— aircraft refuelling see (ISO 1825);

— fuel dispensing see (ISO 5772);

— oil burners see (ISO 6806);

— liquefied petroleum gas and liquefied natural gas see (ISO 27127);

— fire fighting see (ISO 14557);

— offshore liquefied natural gas see (EN 1474–2);

— refrigeration circuits.

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.

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

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

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

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

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

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

ISO 7233:2006, *Rubber and plastics hoses and hose assemblies — Determination of resistance to vacuum*

ISO 7326:2006, *Rubber and plastics hoses — Assessment of ozone resistance under static conditions*

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

ISO 8330, *Rubber and plastics hoses and hose assemblies — Vocabulary*

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

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

ISO 16143-3:2005, *Stainless steels for general purposes — Part 3: Wire*

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

EN 10088-3:2005, *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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8330 apply.

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	
	MPa	Bar	MPa	Bar	MPa	Bar	MPa	Bar
Maximum working pressure	0,4	4	1,0	10	1,4	14	1,4	14
Proof pressure	0,6	6	1,5	15	2,1	21	2,1	21
Minimum burst pressure	1,6	16	4	40	5,6	56	5,6	56
Vacuum rating	0,05	0,5	0,09	0,9	0,09	0,9	0,09	0,9
Working temperature range (°C)	−20 to +60		−30 to +80		−30 to + 80		−30 to +150	
NOTE 1 bar = 0,1 MPa.								

5 Materials and construction

5.1 General

Hoses shall be constructed as shown in Figure 1 and shall consist of the following:

— an internal wire helix (see 5.2);