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Rubber hoses and hose assemblies for water suction and discharge — Specification

Tuyaux et flexibles en caoutchouc pour aspiration et refoulement d'eau — Spécifications

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Foreword

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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 World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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

This fifth edition cancels and replaces the fourth edition (ISO 4641:2010), of which it constitutes a minor revision with the following changes:

— Clause 2 has been updated, where ISO 1746 and ISO 4672 have been deleted and replaced by ISO 10619-1 and ISO 10619-2, respectively;

— tolerance dimension "in mm" has been added to 7.1;

— the text of 8.2.3, 8.2.5, 10.1 and 10.2 has been slightly modified to bring the references up to date;

— Table 4 has been slightly modified to bring the references up to date;

— Bibliography has been updated as ISO 10619-1 and ISO 10619-2 are now published and listed in Clause 2.

— the text has been editorially revised to comply with the most recent editing rules.

Rubber hoses and hose assemblies for water suction and discharge — Specification

1 Scope

This document specifies the minimum requirements for textile-reinforced, smooth-bore rubber water-suction and discharge hoses and hose assemblies.

Three types of hoses and hose assemblies are specified according to their operating duty requirements, i.e. their ambient and water temperature ranges:

— ambient temperatures: –25 °C to +70 °C;

— water temperatures during operation: 0 °C to +70 °C.

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.

ISO 37, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

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

ISO 1307:2006, *Rubber and plastics hoses — Hose sizes, minimum and maximum inside diameters, and tolerances on cut-to-length hoses*

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

ISO 2393, *Rubber test mixes — Preparation, mixing and vulcanization — Equipment and procedures*

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

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

ISO 7326:2016, *Rubber and plastics hoses — Assessment of ozone resistance under static conditions*

ISO 8033, *Rubber and plastics hoses — Determination of adhesion between components*

ISO 8331, *Rubber and plastics hoses and hose assemblies — Guidelines for selection, storage, use and maintenance*

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

ISO 10619-2:2011, *Rubber and plastics hoses and tubing — Measurement of flexibility and stiffness — Part 2: Bending tests at sub-ambient temperatures*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8330 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 and hose assemblies for this application are classified into three types according to their operating duty requirements.

— Type 1: Light-duty hoses for suction service to −0,063 MPa (−0,63 bar) and for discharge pressures up to 0,3 MPa (3 bar).

— Type 2: Medium-duty hoses for suction service to −0,08 MPa (−0,8 bar) and for discharge pressures up to 0,5 MPa (5 bar).

— Type 3: Heavy-duty hoses for suction service to −0,097 MPa (−0,97 bar) and for discharge pressures up to 1,0 MPa (10 bar).

5 Coupling and fittings

Hoses shall be fitted with end fittings/couplings to form hose assemblies. Annex C lists types of coupling and end fitting.

6 Materials and construction

6.1 Lining

The lining shall consist of suitably compounded water-resistant natural or synthetic rubber. Its internal surface shall be smooth and free from imperfections which could impair the expected use.

6.2 Reinforcement

The reinforcement shall consist of a suitable textile material and may contain a helix that can be metallic wire or of another suitable material.

6.3 Cover

The cover shall consist of suitably compounded natural or synthetic rubber. Its external surface may be corrugated or fluted. An external helix is optional and can be either metallic wire or of another suitable material.

7 Dimensions and tolerances

7.1 Bore (inside diameter)

The nominal size range is 16 to 315 with bore diameters and tolerances in mm as shown in Table 3.

7.2 Enlarged ends

Where enlarged ends are required, the dimensions and tolerances shall be specified by agreement between the purchaser and the manufacturer. The design of the enlarged end shall take into account the hose performance requirements.