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Rubber hoses and hose assemblies — Textile-reinforced hydraulic types for oil-based or water-based fluids — Specification

Tuyaux et flexibles en caoutchouc — Types hydrauliques avec armature de textile pour fluides à base d'huile ou à base d'eau — Spécifications

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CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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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).

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This document was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 1, *Rubber and plastics hoses and hose assemblies*.

This sixth edition cancels and replaces the fifth edition (ISO 4079:2017), which has been technically revised.

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

— the temperature of water and water-based fluids has been increased from +60 °C to +70 °C in Clause 1;

— definitions of Table 1, Table 2 and Table 3 have been updated;

— Table 1 has been split into Table 1 and Table 2; all following tables and references have been renumbered;

— Table 1 and Table 2 have been updated with dimensions from EN 853;

— the proof pressure, the minimum burst pressure and the maximum working pressure have been updated in Tables 3, 4 and 5;

— the temperature of water and water-based fluids has been changed from +60 °C to +70 °C in 7.4.2 and 7.10.3;

— “oil No. 3” has been changed to” IRM 903 oil” in 7.10.2;

— some of the marking requirements have been revised in Clause 9.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Rubber hoses and hose assemblies — Textile-reinforced hydraulic types for oil-based or water-based fluids — Specification

1 Scope

This document specifies requirements for five types of textile-reinforced hydraulic hoses and hose assemblies of nominal size from 5 to 100.

They are suitable for use with:

— oil-based hydraulic fluids HH, HL, HM, HR and HV as defined in ISO 6743-4 at temperatures ranging from −40 °C to +100 °C;

— water-based fluids HFC, HFAE, HFAS and HFB as defined in ISO 6743-4 at temperatures ranging from −40 °C to +70 °C;

— water at temperatures ranging from 0 °C to +70 °C.

This document does not include requirements for end fittings. It is limited to requirements for hoses and hose assemblies.

NOTE It is the responsibility of the user, in consultation with the hose manufacturer, to establish the compatibility of the hose with the fluid to be used.

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

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

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

ISO 6605, *Hydraulic fluid power — Test methods for hoses and hose assemblies*

ISO 6743-4, *Lubricants, industrial oils and related products (class L) — Classification — Part 4: Family H (Hydraulic systems)*

ISO 6803, *Rubber or plastics hoses and hose assemblies — Hydraulic-pressure impulse test without flexing*

ISO 7233, *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 8033:2016, *Rubber and plastics hoses — Determination of adhesion between components*

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

ISO 10619-1:2017, *Rubber and plastics hoses and tubing — Measurement of flexibility and stiffness — Part 1: Bending tests at ambient temperature*

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ISO 10619-2:2017, *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:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Classification

Five types of hose are specified, distinguished by their construction, working pressure and minimum bend radius.

— Type 1TE: hoses with a single braid of textile reinforcement.

— Type 2TE: hoses with one or more braid(s) of textile reinforcement.

— Type 3TE: hoses with one or more braid(s) of textile reinforcement (higher working pressure).

— Type R3: hoses with two braids of textile reinforcement.

— Type R6: hoses with a single braid of textile reinforcement.

NOTE Type 1TE is not subjected to the impulse or vacuum resistance test. Type R3 is not subjected to the vacuum resistance test. Type R6 is not subjected to the impulse or vacuum resistance test.

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5 Materials and construction

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5.1 Hoses

Hoses shall consist of a rubber lining that is resistant to oil- or water-based hydraulic fluids or water, one or more layers of suitable textile yarn and a weather- and oil-resistant rubber cover.

Hoses shall be designed to enable end fittings to be assembled without removal of the cover.

5.2 Hose assemblies

Hose assemblies shall be manufactured using hoses conforming to the requirements of this document.

Hose assemblies shall be manufactured only with those hose fittings whose correct functioning has been verified in accordance with 7.2, 7.4, 7.5 and 7.6. The manufacturer's instructions shall be followed for the preparation and fabrication of hose assemblies.

6 Dimensions

6.1 Hose diameters and hose concentricity

When measured in accordance with ISO 4671, the inside and outside diameters of hoses shall conform to the values given in Table 1.

When measured in accordance with ISO 4671, the concentricity of hoses shall conform to the values given in Table 2.

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