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Rubber hoses and hose assemblies for automobile power-steering systems — Specification

Tuyaux et flexibles en caoutchouc pour circuits de direction assistée — 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).

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For an explanation of the voluntary nature of standards, 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 www.iso.org/iso/foreword.html.

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

This second edition cancels and replaces the first edition (ISO 11425:1996), of which it constitutes a minor revision.

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

— In Clause 2, normative references have been updated.

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.

Rubber hoses and hose assemblies for automobile power-steering systems — Specification

WARNING — Attention is drawn to the need to ensure that appropriate precautions are taken to ensure the safety of personnel carrying out the methods of test specified in this document.

1 Scope

This document specifies requirements for five types of hose and hose assembly used in automobile power-steering systems, the five types differing in their pressure ratings and volumetric expansion. They are for use with fluids in the temperature range −40 °C to +135 °C.

This document is based on performance tests. In order to take account of technological developments, no requirements are included for specific materials, detailed construction or manufacturing methods.

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 2719, *Determination of flash point — Pensky-Martens closed cup method*

ISO 2909, *Petroleum products — Calculation of viscosity index from kinematic viscosity*

ISO 2977, *Petroleum products and hydrocarbon solvents — Determination of aniline point and mixed aniline point*

ISO 3016, *Petroleum products — Determination of pour point*

ISO 3819, *Laboratory glassware — Beakers*

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

ISO 4788, *Laboratory glassware — Graduated measuring cylinders*

ISO 4793, *Laboratory sintered (fritted) filters — Porosity grading, classification and designation*

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

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

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

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

ISO/TR 11340:1994, *Rubber and rubber products — Hydraulic hose assemblies — External leakage classification for hydraulic systems*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8330 and the following 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/

3.1
hose assembly
hose with either permanent or re-usable end fittings attached

4 Types of hose

Hoses shall be one of the following five types:

a) Type 1: low-pressure hydraulic fluid return hoses and hose assemblies.

b) Type 2: medium-pressure low volumetric expansion hoses and hose assemblies.

c) Type 3: medium-pressure medium volumetric expansion hoses and hose assemblies.

d) Type 4: medium-pressure high volumetric expansion hoses and hose assemblies.

e) Type 5: high-pressure low volumetric expansion hoses and hose assemblies.

5 Construction and materials

The hose shall consist of:

a) a rubber lining;

b) a reinforcement;

c) a rubber cover or alternatively, for type 5 only, a textile cover.

The hose shall be uniform in quality and free from porosity, air holes and foreign inclusions.

6 Dimensions and tolerances

6.1 The hose shall have a inside diameter in accordance with the requirements of Table 1. When determined in accordance with ISO 4671, the actual bore shall be within ±0,4 mm of the inside diameter.

Table 1 — Inside diameter

Dimensions in millimetres

Type 1	Type 2	Type 3	Type 4	Type 5
—	6,3	—	—	—
9,5	9,5	9,5	9,5	9,5
—	12,7	—	—	12,7

6.2 The concentricity based on a total indicator reading between the bore and the outside surface of the cover, determined in accordance with ISO 4671 shall be not more than 0,75 mm.

NOTE Typical ranges of outside diameters available are given in Annex C.