International Standard

ISO 1436

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

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

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Foreword

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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 seventh edition cancels and replaces the sixth edition (ISO 1436:2020), which has been technically revised.

The main changes are as follows:

— revision of Clause 8 to state that the manufacturer should define the frequency of type testing;

— revision of Annex A;

— deletion of Annex B.

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

1 Scope

This document specifies requirements for six types of wire-braid-reinforced hoses and hose assemblies of nominal size from 5 to 51. This document also specifies the hose of nominal size 63 for types 2SN and R2AT, and the hose of nominal size 76 for type 2SN.

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 apply to the connection ends. It is limited to the performance of hoses and hose assemblies.

NOTE 1 The hose assembly maximum working pressure is governed by the lowest maximum working pressure of the components.

NOTE 2 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.

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 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, *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 10619-2:2021, *Rubber and plastics hoses and tubing — Measurement of flexibility and stiffness — Part 2: Bending tests at sub-ambient temperatures*

ISO/TS 20444, *Rubber and plastics hoses — Determination of abrasion resistance of the outer cover*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

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

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

4 Classification

Six types of hose are specified, distinguished by their construction, working pressure and oil resistance:

— type 1ST: hoses with a single braid of wire reinforcement and having a thick cover;

— type 2ST: hoses with two braids of wire reinforcement and having a thick cover;

— types 1SN and R1AT: hoses with a single braid of wire reinforcement and having a thin cover;

— types 2SN and R2AT: hoses with two braids of wire reinforcement and having a thin cover.

Types 1ST and 2ST should not be used for new design.

NOTE Types 1SN and R1AT and types 2SN and R2AT have the same reinforcement dimensions as type 1ST and type 2ST, respectively, except that they have thinner covers designed to assemble with fittings without removal of the cover or a portion of the cover.

5 Materials and construction

5.1 Hoses

Hoses shall consist of a rubber lining resistant to oil- or water-based hydraulic fluids or water, one or two layers of high-tensile steel wire and a weather-, oil- and abrasion-resistant rubber cover.

5.2 Hose assemblies

Hose assemblies shall be manufactured using hoses that conform 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

The test shall be carried out in accordance with ISO 4671. The inside diameter and the diameter over reinforcement of hoses shall conform to the values given in Table 1.

The test shall be carried out in accordance with ISO 4671. The outside diameter of hoses and cover thickness (where appropriate) shall conform to the values given in Table 2.

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