



FINAL DRAFT International Standard

ISO/FDIS 6134

Rubber hoses and hose assemblies for saturated steam — Specification

*Tuyaux et flexibles en caoutchouc pour vapeur saturée —
Spécification*

ISO/TC 45/SC 1

Secretariat: **DIN**

Voting begins on:
2024-03-11

Voting terminates on:
2024-05-06

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Published in Switzerland

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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 document 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*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 218, *Rubber and plastics hoses and hose assemblies*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fifth edition cancels and replaces the fourth edition (ISO 6134:2017), which has been technically revised.

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The main changes are as follows:

- normative references have been updated;
- methods used for bending have been corrected in accordance with ISO 10619-1;
- methods used for measuring electrical properties have been corrected in accordance with ISO 8031.

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 saturated steam — Specification

1 Scope

This document specifies requirements for hoses and hose assemblies made of rubber and hose fittings made of metal, which are designed to convey saturated steam and hot water condensate.

This document applies to the following two types of hoses and hose assemblies:

- low pressure, with a maximum working pressure of 0,6 MPa (6 bar);
- high pressure, with a maximum working pressure of 1,8 MPa (18 bar).

Each type is divided into two classes, having either an oil resistant or non-oil resistant cover.

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

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

ISO 4023:2009, *Rubber hoses and hose assemblies for steam — Test methods*

ISO 4649:2017, *Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device*

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

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

ISO 8031:2020, *Rubber and plastics hoses and hose assemblies — Determination of electrical resistance and conductivity*

ISO 8033, *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*

3 Terms and definitions

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

ISO/FDIS 6134:2024(en)

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 <https://www.electropedia.org/>

4 General requirements

Quick-release coupling shall not be used under any circumstances.

The end fittings used with the hose shall be of a type that provides for tightening-up during service; for example, a clamp type to compensate for creep of the rubber compounds in the hose.

CAUTION 1 Where superheated steam conditions occur, the service life of the product can be reduced.

CAUTION 2 Vacuum caused by shutting off the hose assembly at both ends can precipitate “popcorning” or separation of the lining.

5 Classification

This document specifies the following two types of hoses and hose assemblies to convey saturated steam and hot water condensate:

- Type 1 is a low-pressure steam hose with a maximum working pressure of 0,6 MPa (6 bar), corresponding to a temperature of 164 °C.
- Type 2 is a high pressure steam hose with a maximum working pressure of 1,8 MPa (18 bar), corresponding to a temperature of 210 °C.

Each type of hose is further divided into either of the following:

- Class A: a non-oil-resistant cover;
- Class B: an oil-resistant cover.

Both types and classes can be either of the following:

- a) electrically bonded, marked “M” (see [Clause 11](#));
- b) electrically conductive, marked “Ω” (see [Clause 11](#)).

6 Materials and construction

Hoses shall consist of a lining which is resistant to steam and hot water condensate. L

The reinforcement shall be textile for Type 1 and steel wire for Type 2, either braided, spiral or cord ply construction. This statement is well understood in the industry. Leave as is.

The cover shall resist mechanical damage, heat, wear, environment effects due to weather and short term chemical exposure. protect against mechanical damage and be resistant to heat, wear and environmental effects due to weather and short-term chemical exposure. The cover shall be pricked equally around the periphery and along the whole length of the hose in order to relieve any pressure build-up between the plies and the cover.

Hoses shall be uniform in quality, free of porosity, air holes, foreign inclusions and other defects.