



**International  
Standard**

**ISO 3994**

**Plastics hoses — Helical-  
thermoplastic-reinforced  
thermoplastics hoses for suction  
and discharge of aqueous materials  
— Specification**

*Tuyaux en plastiques — Tuyaux thermoplastiques à renforcement  
thermoplastique en spirale pour aspiration et refoulement de  
matières aqueuses — Spécifications*

**Fifth edition  
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ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

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# Contents

	Page
Foreword.....	iv
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Classification</b> .....	<b>2</b>
<b>5 Materials and construction</b> .....	<b>2</b>
<b>6 Dimensions and tolerances</b> .....	<b>2</b>
6.1 Nominal sizes, inside diameters and tolerances.....	2
6.2 Length tolerances.....	3
<b>7 Maximum working pressure</b> .....	<b>3</b>
<b>8 Performance requirements</b> .....	<b>3</b>
8.1 Hydrostatic testing at 23 °C ± 2 °C.....	3
8.2 Hydrostatic testing at 55 °C ± 2 °C.....	4
8.3 Tensile test.....	4
8.4 Vacuum test.....	4
8.5 Reinforcement fracture test.....	5
8.6 Flexibility at ambient temperature.....	5
8.7 Flexibility at low temperature.....	6
8.8 Loss in mass on heating.....	6
8.9 Exposure to xenon-arc lamp.....	6
<b>9 Frequency of testing</b> .....	<b>6</b>
<b>10 Marking</b> .....	<b>6</b>
<b>11 Recommendations for packing and storage</b> .....	<b>7</b>
<b>12 Test report and test certificate</b> .....	<b>7</b>
<b>Annex A (normative) Tensile test</b> .....	<b>8</b>
<b>Annex B (normative) Vacuum test</b> .....	<b>10</b>
<b>Annex C (normative) Reinforcement fracture test</b> .....	<b>11</b>
<b>Annex D (normative) Type and routine tests</b> .....	<b>13</b>
<b>Bibliography</b> .....	<b>14</b>

## 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](http://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 3994:2014), which has been technically revised.

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

- addition of nominal size 19 in [Table 6](#);
- changes to [Table D.1](#);
- deletion of the production test in Annex E.

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](http://www.iso.org/members.html).

# Plastics hoses — Helical-thermoplastic-reinforced thermoplastics hoses for suction and discharge of aqueous materials — Specification

**WARNING** — Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this document to establish appropriate health and safety practices and to determine the applicability of regulatory conditions prior to use.

## 1 Scope

This document specifies requirements for three types of helical-thermoplastic-reinforced thermoplastics hoses for suction and discharge of water, weak aqueous chemical solutions and abrasive solids and slurries, for use in the ambient temperature range from  $-10\text{ °C}$  to  $55\text{ °C}$ .

This document does not specify requirements for use with flammable or combustible materials, nor with aromatic solvents.

## 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 176:2005, *Plastics — Determination of loss of plasticizers — Activated carbon method*

ISO 1307, *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 4671, *Rubber and plastics hoses and hose assemblies — Methods of measurement of the dimensions of hoses and the lengths of hose assemblies*

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

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

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

ISO 23529, *Rubber — General procedures for preparing and conditioning test pieces for physical test methods*

ISO 30013:2011, *Rubber and plastics hoses — Methods of exposure to laboratory light sources — Determination of changes in colour, appearance and other physical properties*

## 3 Terms and definitions

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