

**Plastics hoses - Helical-thermoplastic-reinforced
thermoplastics hoses for suction and discharge of
aqueous materials - Specification (ISO 3994:2007)**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 3994:2011 sisaldab Euroopa standardi EN ISO 3994:2011 ingliskeelset teksti.

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English Version

**Plastics hoses - Helical-thermoplastic-reinforced thermoplastics
hoses for suction and discharge of aqueous materials -
Specification (ISO 3994:2007)**

Tuyaux en plastiques - Tuyaux thermoplastiques à
renforcement thermoplastique en spirale pour aspiration et
refoulement de matières aqueuses - Spécifications (ISO
3994:2007)

Kunststoffschläuche - Mit einer thermoplastischen Wendel
verstärkte thermoplastische Schläuche zum Ansaugen und
Fördern wässriger Stoffe - Anforderung (ISO 3994:2007)

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Foreword

The text of ISO 3994:2007 has been prepared by Technical Committee ISO/TC 45 “Rubber and rubber products” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 3994:2011 by Technical Committee CEN/TC 218 “Rubber and plastics hoses and hose assemblies” the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2011, and conflicting national standards shall be withdrawn at the latest by November 2011.

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This document supersedes EN ISO 3994:2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 3994:2007 has been approved by CEN as a EN ISO 3994:2011 without any modification.

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Introduction

This International Standard has been prepared to provide minimum acceptable requirements for the satisfactory performance of polymer-reinforced thermoplastics hoses for suction and discharge applications, conveying water, weak aqueous chemical solutions and abrasive solids and slurries.

If there is a special requirement for resistance to deleterious chemicals, this shall be a matter for agreement between the supplier and the purchaser.

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

WARNING — Persons using this International Standard should be familiar with normal laboratory practice. This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate health and safety practices and to ensure compliance with any national regulatory conditions.

1 Scope

This International Standard specifies the 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 $-10\text{ }^{\circ}\text{C}$ to $+55\text{ }^{\circ}\text{C}$.

The three types of hose are for light-, medium- and heavy-duty applications.

The types of hoses covered in this International Standard are not intended for use with flammable or combustible materials, nor with aromatic solvents.

NOTE Hoses of a similar construction for suction and discharge for fire-fighting are specified in ISO 14557, *Fire-fighting hoses — Rubber and plastics suction hoses and hose assemblies*.

2 Normative references

The following referenced documents are indispensable for the application 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 1746, *Rubber or plastics hoses and tubing — Bending tests*

ISO 4672, *Rubber and plastics hoses — Sub-ambient temperature flexibility tests*

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

ISO 8331, *Rubber and plastics hoses and hose assemblies — Guidelines for selection, storage, use and maintenance*

ISO 11758:1995, *Rubber and plastics hoses — Exposure to a xenon arc lamp — Determination of changes in colour and appearance*

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

3 Terms and definitions

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

4 Classification

Three types of hoses are specified, related to the maximum working pressure and suction pressure (see Tables 4 and 5):

- type 1: light-duty service;
- type 2: medium-duty service;
- type 3: heavy-duty service.

All types are designed to operate in the ambient temperature range – 10 °C to + 55 °C.

5 Materials and construction

The hoses shall be as uniform as commercially practicable in colour and other physical properties. They shall consist of a flexible thermoplastics material supported within the material by a helix of thermoplastic material of a similar molecular structure. The reinforcing and flexible components of the wall shall be fused together and free from visible cracks, porosity, foreign inclusions or other defects such as are liable to cause failure of the hose in service.

6 Dimensions and tolerances

6.1 Nominal bores, internal diameters and tolerances

The internal diameters and tolerances of hoses of different nominal bores shall meet the requirements given in Table 1.

6.2 Length tolerances

The tolerances on cut lengths shall be in accordance with ISO 1307.