

**Tekstiilimasinad. Ohutusnõuded. Osa 7:  
Värvimis- ja viimistlusmasinad**

Textile machinery - Safety requirements - Part 7:  
Dyeing and finishing machinery (ISO 11111-7:2005)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

|  |   |
|--|---|
| <p>Käesolev Eesti standard EVS-EN ISO 11111-7:2005 sisaldab Euroopa standardi EN ISO 11111-7:2005 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 28.04.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p> | <p>This Estonian standard EVS-EN ISO 11111-7:2005 consists of the English text of the European standard EN ISO 11111-7:2005.</p> <p>This document is endorsed on 28.04.2005 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p> |
|--|---|

|  |  |
|--|--|
| <p><b>Käsitlusala:</b></p> <p>This part of ISO 11111 is intended to be used in conjunction with ISO 11111-1. It specifies significant hazards and corresponding safety requirements and/or measures for dyeing and finishing machinery. By taking into account the scope of ISO 11111-1 as far as is relevant, this part of ISO 11111 is applicable to all machinery, plant and related equipment intended to be used in preparation, dyeing, printing, fixation, wetting, drying, finishing and making-up/presentation, as specified in Clause 5.</p> | <p><b>Scope:</b></p> <p>This part of ISO 11111 is intended to be used in conjunction with ISO 11111-1. It specifies significant hazards and corresponding safety requirements and/or measures for dyeing and finishing machinery. By taking into account the scope of ISO 11111-1 as far as is relevant, this part of ISO 11111 is applicable to all machinery, plant and related equipment intended to be used in preparation, dyeing, printing, fixation, wetting, drying, finishing and making-up/presentation, as specified in Clause 5.</p> |
|--|--|

ICS 59.120.50

Võtmesõnad:

English version

**Textile machinery - Safety requirements - Part 7: Dyeing and  
finishing machinery (ISO 11111-7:2005)**

Matériel pour l'industrie textile - Exigences de sécurité -  
Partie 7: Machines de teinture et de finissage (ISO 11111-  
7:2005)

Textilmaschinen - Sicherheitsanforderungen - Teil 7:  
Textilveredlungs- maschinen (ISO 11111-7:2005)

This European Standard was approved by CEN on 21 January 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

## Foreword

This document (EN ISO 11111-7:2005) has been prepared by Technical Committee ISO/TC 72 "Textile machinery and machinery for dry-cleaning and industrial laundering" in collaboration with Technical Committee CEN/TC 214 "Textile machinery and machinery for dry-cleaning and industrial laundry", the secretariat of which is held by SNV.

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 August 2005, and conflicting national standards shall be withdrawn at the latest by August 2005.

This document supersedes EN ISO 11111:1995.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZB, which is an integral part of this document.

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

## Endorsement notice

The text of ISO 11111-7:2005 has been approved by CEN as EN ISO 11111-7:2005 without any modifications.

NOTE Normative references to International Standards are listed in annex ZA (normative).

**ANNEX ZA**  
(normative)

**List of ISO and IEC standards and corresponding EN Standards**

| ISO or IEC       | Corresponding to    |
|------------------|---------------------|
| ISO 9902-1       | EN ISO 9902-1       |
| ISO 9902-7       | EN ISO 9902-7       |
| ISO 11111-1:2005 | EN ISO 11111-1:2005 |
| ISO 12100-2:2003 | EN ISO 12100-2:2003 |
| ISO 13852:1996   | EN 294:1992         |
| ISO 14119:1998   | EN 1088:1995        |
| CEI 60519-1:2003 | EN 60519-1:2003     |
| CEI 60519-9:1987 | EN 60519-1:1995     |
| —                | EN 1539:2000        |
| —                | EN 12198-1:2000     |

**ANNEX ZB**  
(informative)

**Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC**

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means to conforming to Essential Requirements of the New Approach Directive Machinery Directive 98/37/EC amended by Directive 98/79/EC.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

**WARNING:** Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

---

---

**Textile machinery — Safety  
requirements —**

**Part 7:  
Dyeing and finishing machinery**

*Matériel pour l'industrie textile — Exigences de sécurité —*

*Partie 7: Machines de teinture et de finissage*



**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO 2005

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland



# Contents

Page

|   |    |
|---|----|
| Foreword .....  | v  |
| Introduction .....  | vi |
| 1 Scope .....   | 1  |
| 2 Normative references .....  | 1  |
| 3 Terms and definitions .....   | 2  |
| 4 List of significant hazards .....   | 2  |
| 5 Significant hazards and corresponding safety requirements and/or measures ..... | 2  |
| 5.1 General .....   | 2  |
| 5.2 Preparation machines and equipment .....                                      | 2  |
| 5.2.1 Common requirements for preparation machines and equipment .....            | 2  |
| 5.2.2 Brushing machines .....   | 3  |
| 5.2.3 Cropping machines, shearing machines .....                                  | 3  |
| 5.2.4 Slitting machines .....   | 4  |
| 5.2.5 Singeing machines .....   | 5  |
| 5.2.6 Desizing (scouring) machines .....  | 6  |
| 5.2.7 Discontinuous bleaching plants (open kiers) .....                           | 6  |
| 5.2.8 Bleaching pits .....  | 7  |
| 5.2.9 Continuous bleaching plants .....   | 7  |
| 5.2.10 Washers .....  | 8  |
| 5.2.11 Autoclaves .....   | 9  |
| 5.2.12 Continuous steamers for fabric .....                                       | 9  |
| 5.2.13 J-boxes .....  | 11 |
| 5.2.14 Mercerizing equipment .....  | 11 |
| 5.2.15 Crabbing machines .....  | 12 |
| 5.2.16 Milling machines .....   | 12 |
| 5.3 Dyeing machines and apparatus .....   | 13 |
| 5.3.1 Common requirements for dyeing machines and apparatus .....                 | 13 |
| 5.3.2 Atmospheric dyeing machines and apparatus .....                             | 13 |
| 5.3.3 High temperature dyeing machines and apparatus .....                        | 14 |
| 5.3.4 Liquor preparation plants for dyeing processes .....                        | 16 |
| 5.3.5 Jigs .....  | 17 |
| 5.3.6 Winches .....   | 17 |
| 5.3.7 Jet dyeing machines .....   | 18 |
| 5.3.8 Padding mangles .....   | 18 |
| 5.3.9 Continuous dyeing machines .....  | 19 |
| 5.3.10 Package dyeing apparatus .....   | 19 |
| 5.3.11 Beam dyeing apparatus .....  | 20 |
| 5.3.12 Hank dyeing machines .....   | 20 |
| 5.4 Printing machines .....   | 20 |
| 5.4.1 Common requirements for printing machines .....                             | 20 |
| 5.4.2 Flat screen printing machines .....   | 21 |
| 5.4.3 Rotary screen printing machines .....                                       | 21 |
| 5.4.4 Transfer printing machines .....  | 21 |
| 5.4.5 Roller printing machines .....  | 21 |
| 5.4.6 Colour paste preparation plant .....  | 22 |
| 5.5 Fixation, wetting and drying machines .....                                   | 23 |
| 5.5.1 Common requirements for fixation, wetting and drying machines .....         | 23 |
| 5.5.2 Steam chambers .....  | 23 |
| 5.5.3 Wringing machines .....   | 23 |

|        |   |    |
|--------|---|----|
| 5.5.4  | Stenters, tenters .....                                       | 24 |
| 5.5.5  | Dryers, bakers.....   | 25 |
| 5.5.6  | Cylinder dryers .....   | 25 |
| 5.5.7  | High frequency dryers .....                                   | 26 |
| 5.5.8  | Straightening machines.....                                   | 26 |
| 5.6    | Finishing machines .....                                      | 27 |
| 5.6.1  | Common requirements for finishing machines .....              | 27 |
| 5.6.2  | Calenders .....   | 27 |
| 5.6.3  | Calenders for tubular knitted fabric .....                    | 28 |
| 5.6.4  | Coating and laminating machines .....                         | 29 |
| 5.6.5  | Raising machines .....  | 29 |
| 5.6.6  | Cropping machines and shearing machines.....                  | 30 |
| 5.6.7  | Shrinking machines .....                                      | 30 |
| 5.6.8  | Flocking plant .....  | 31 |
| 5.6.9  | Decatizing machines .....                                     | 31 |
| 5.6.10 | Rotary presses.....   | 31 |
| 5.6.11 | Polishing machines.....                                       | 32 |
| 5.6.12 | Liquor preparation plants for finishing processes .....       | 32 |
| 5.7    | Making-up/presentation machines .....                         | 33 |
| 5.7.1  | Common requirements for making-up/presentation machines ..... | 33 |
| 5.7.2  | Inspection machines .....                                     | 34 |
| 5.7.3  | Folding machines.....   | 34 |
| 6      | Verification of the safety requirements and/or measures ..... | 34 |
| 7      | Information concerning machine use .....                      | 34 |
|        | Bibliography.....   | 35 |

## 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 11111-7 was prepared by Technical Committee ISO/TC 72, *Textile machinery and machinery for dry-cleaning and industrial laundering*, Subcommittee SC 8, *Safety requirements for textile machinery*.

This first edition of ISO 11111-7, together with ISO 11111-1, ISO 11111-2, ISO 11111-3, ISO 11111-4, ISO 11111-5 and ISO 11111-6, cancels and replaces ISO 11111:1995, which has been technically revised.

ISO 11111 consists of the following parts, under the general title *Textile machinery — Safety requirements*:

- *Part 1: Common requirements*
- *Part 2: Spinning preparatory and spinning machines*
- *Part 3: Nonwoven machinery*
- *Part 4: Yarn processing, cordage and rope manufacturing machinery*
- *Part 5: Preparatory machinery to weaving and knitting*
- *Part 6: Fabric manufacturing machinery*
- *Part 7: Dyeing and finishing machinery*

## Introduction

ISO 11111-1 to ISO 11111-7 were prepared simultaneously by ISO/TC 72 and CEN/TC 214 and adopted under the Vienna Agreement in order to obtain identical standards on technical safety requirements for the design and construction of textile machinery.

ISO 11111 as a whole is intended for use by any person concerned with the safety of textile machinery, for example, textile machinery designers, manufacturers and systems integrators. It is also of interest to users of textile machines and safety experts.

This document is a type C standard as stated in ISO 12100-1. The various parts of ISO 11111 deal with frequent and significant hazards generated by machines used in the textile industry. The machinery concerned and the extent to which hazards are covered are indicated in the scope of this standard.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence.

For hazards of machines or machine elements not dealt with in the relevant part of ISO 11111, the designer is to perform a risk assessment according to ISO 14121 and evolve means for reducing the risk from such significant hazards.

This part of ISO 11111 is intended to be used in conjunction with ISO 11111-1. As far as possible the requirements of this part of ISO 11111 are treated by way of reference to Clauses 5 and 6 of ISO 11111-1. Clause 5 of ISO 11111-1 contains safety requirements and/or measures for frequently occurring hazards of textile machinery which apply whenever referred to in this part of ISO 11111, while Clause 6 describes significant hazards and corresponding safety requirements and/or measures for certain machine elements and their combinations (e.g. rollers), which also apply whenever referred to in this part of ISO 11111.

# Textile machinery — Safety requirements —

## Part 7: Dyeing and finishing machinery

### 1 Scope

This part of ISO 11111 is intended to be used in conjunction with ISO 11111-1. It specifies significant hazards and corresponding safety requirements and/or measures for dyeing and finishing machinery. By taking into account the scope of ISO 11111-1 as far as is relevant, this part of ISO 11111 is applicable to all machinery, plant and related equipment intended to be used in preparation, dyeing, printing, fixation, wetting, drying, finishing and making-up/presentation, as specified in Clause 5.

### 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 9902-1, *Textile machinery — Noise test code — Part 1: Common requirements*

ISO 9902-7, *Textile machinery — Noise test code — Part 7: Dyeing and finishing machinery*

ISO 11111-1:2005, *Textile machinery — Safety requirements — Part 1: Common requirements*

ISO 12100-2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles and specification*

ISO 13849-1:1999, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

ISO 13852:1996, *Safety of machinery — Safety distances to prevent danger zones being reached by the upper limbs*

ISO 14119, *Safety of machinery — Interlocking devices associated with guards — Principle for design and selection*

IEC 60519-1:2004, *Safety in electroheat installations — General requirements*

IEC 60519-9:1987, *Safety in electroheat installations — Particular requirements for high-frequency dielectric heating installations*

EN 1539:2000, *Dryers and ovens, in which flammable substances are released — Safety requirements*

EN 12198-1:2000, *Safety of machinery — Assessment and reduction of risks arising from radiation emitted by machinery — Part 1: General principles*