

Textile machinery — Safety requirements —

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

ICS 59.120.50

National foreword

This British Standard is the UK implementation of EN ISO 11111-7:2005+A2:2016. It supersedes BS EN ISO 11111-7:2005+A1:2009 which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to ISO text carry the number of the ISO amendment. For example, text altered by ISO amendment 1 is indicated by **A1** **A1**.

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A list of organizations represented on this committee can be obtained on request to its secretary.

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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of an identical text or by endorsement, at the latest by August 2005, and conflicting national standards shall be withdrawn at the latest by August 2005.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.

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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).

Foreword to amendment A1

This document (EN ISO 11111-7:2005/A1:2009) has been prepared by Technical Committee ISO/TC 72 "Textile machinery and accessories" in collaboration with Technical Committee CEN/TC 214 "Textile machinery and accessories" the secretariat of which is held by SNV.

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Endorsement notice

The text of ISO 11111-7:2005/Amd 1:2009 has been approved by CEN as a EN ISO 11111-7:2005/A1:2009 without any modification.

Foreword to amendment A2

This document (EN ISO 11111-7:2005/A2:2016) has been prepared by Technical Committee ISO/TC 72 “Textile machinery and accessories” in collaboration with Technical Committee CEN/TC 214 “Textile machinery and accessories” the secretariat of which is held by SNV.

This Amendment to the European Standard EN ISO 11111-7:2005 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2016, and conflicting national standards shall be withdrawn at the latest by December 2016.

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Endorsement notice

The text of ISO 11111-7:2016/Amd 2:2016 has been approved by CEN as EN ISO 11111-7:2005/A2:2016 without any modification.

Annex ZA
(informative)

Relationship between this European Standard and the essential requirements of EU Directive 2006/42/EC aimed to be covered

This European Standard has been prepared under a Commission's standardization request M/396 (Machinery) to provide a means of conforming to essential requirements of the New Approach Directive 2006/42/EC on machinery.

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZA.1 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.

Table ZA.1 — Correspondence between this European Standard and Annex I of Directive 2006/42/EC

Essential Requirements of Directive 2006/42/EC	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
All essential requirements of Annex I are covered	All clauses are covered	IMPORTANT — Compliance with the requirements of EN ISO 11111-1 and EN ISO 11111-7 is necessary to achieve presumption of conformity with the relevant essential requirements.

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

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.

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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.

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](#). 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 12100](#) 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.

A2 This part of ISO 11111 is complemented by the type C standards ISO 9902-1 and ISO 9902-7 with respect to noise emission measurement and ISO 23771 with respect to measures for the reduction of noise emissions. **A2**

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*

A2 ISO 11111-1:2016, *Textile machinery — Safety requirements — Part 1: Common requirements*

ISO 12100:2010, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles and specification* **A2**

A1 ISO 13849-1:2006, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

ISO 13857:2008, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs* **A1**

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

A2 ISO 23771, *Textile machinery — Guide to the design of textile machinery for reduction of the noise emissions* **A2**

A1 IEC 60519-1, *Safety in electroheat installations — General requirements*

IEC 60519-9:2005, *Safety in electroheat installations — Part 9: Particular requirements for high-frequency dielectric heating installations* **A1**

A2 IEC 62061:2005+A2:2015, *Safety of machinery — Functional safety of safety-related electrical, electronic and programmable electronic control systems*, corrected by IEC 62061:2005 Corr.1:2005

EN 1539:2015, *Dryers and ovens, in which flammable substances are released — Safety requirements*

EN 12198-1:2000+A1:2008, *Safety of machinery — Assessment and reduction of risks arising from radiation emitted by machinery — Part 1: General principles* **A2**

3 Terms and definitions

For the purposes of this part of ISO 11111, the terms and definitions given in ISO 11111-1 apply.

4 List of significant hazards

Significant hazards found in dyeing and finishing machines which are common with those frequently occurring with other textile machines or with machine elements of other textile machines shall be considered in accordance with **A2** ISO 11111-1:2016 **A2**, Clauses 5 and 6, whenever referred to under the heading “General safety requirements” in Clause 5 of this part of ISO 11111. Significant hazards which are particular to dyeing and finishing machines are considered as “Specific hazards” in Clause 5 of this part of ISO 11111.

Before using this part of ISO 11111, it is important to carry out a check to ascertain that the specific machine has the significant hazards identified.

NOTE The significant hazards of dyeing and finishing machines are always considered in conjunction with safety requirements.

5 Significant hazards and corresponding safety requirements and/or measures

A1 5.1 General

5.1.1 Machinery

Machinery shall conform to the safety requirements of **A2** ISO 11111-1:2016 **A2**, Clauses 5 and 6, whenever referred to under the heading “General safety requirements” of Clause 5 and shall conform to the additional “Specific safety requirements” of Clause 5.

The safety requirements of **A2** ISO 11111-1:2016 **A2**, 5.4.6.1, apply to steam pipes and their fittings. For external surfaces of equipment containing hot liquids, a warning is considered to be acceptable.

5.1.2 Rollers at special textile finishing machines

NOTE The term “roller” includes driven rollers (draw rollers), guide rollers, uncurling rollers and similar rollers, independently whether driven directly or by friction between the roller surface and moving process material. These rollers can present a risk to exposed persons unless the movement of the rollers can easily be stopped by hand. This is explicitly not intended for padding mangles, mangle bowls or calender rollers, which are actively pressed together.

5.1.2 is only applicable if referred to explicitly in Clauses 5 to 7.

Specific hazards

Mechanical, from rollers, in particular from entanglement, drawing-in or trapping, crushing and friction or abrasion.

Specific risks

Access during normal operation, particularly on start-up, smoothing process material, uncurling edges and access during special operation, particularly cleaning, removal of laps of yarn ends or cloth and threading-up, leading to high probability of minor to moderate injury.

Specific safety requirements

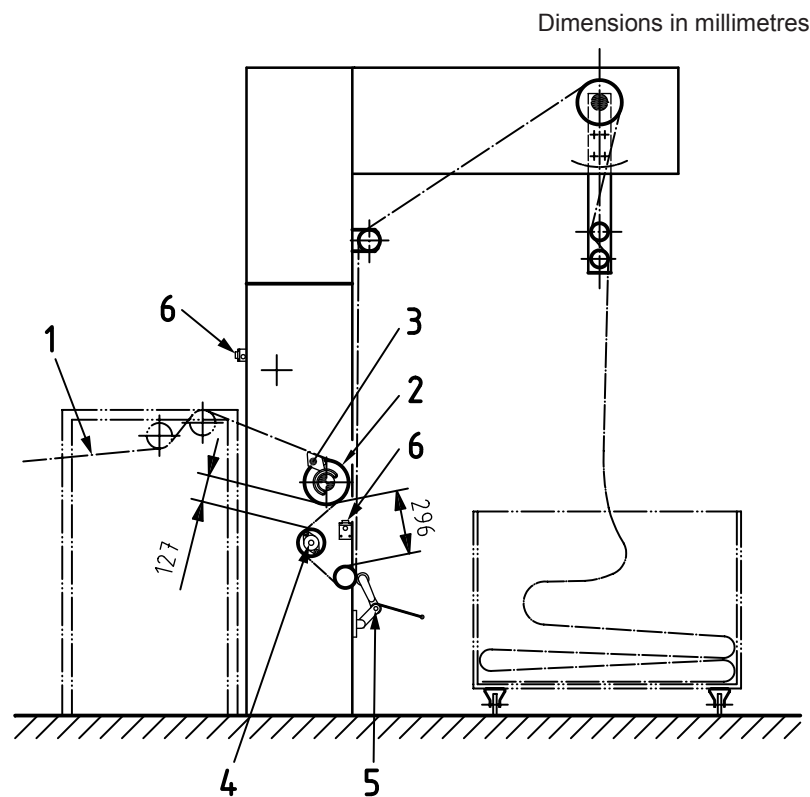
If a risk assessment in accordance with ISO 14121-1 shows as a maximum an average risk of minor to moderate injury, sensitive protective equipment (SPE) acting upon the complete width can be provided as an alternative to the measures described in **A2** ISO 11111-1:2016 **A2**, 6.5 (Rollers). **A1**

A1 If, for technical reasons, the SPE cannot be positioned in accordance with EN 999, the SPE shall be arranged in such a way that it is activated automatically by the operator approaching the drawing-in point and can be activated unintentionally or intentionally by the operator.

The residual risk and corresponding preventive measures shall be indicated in the instruction handbook, and there shall be a warning sign at the hazard zone.

NOTE On special textile finishing machines such as stenters, continuous dyeing range and shrinking range rotating rollers with on-running process material are often arranged closely to each other because a short guided path of the process material is required for technological reasons. Often, additional measuring sensors to determine, for instance, the humidity, weight or yarn density of the process material, are also fitted. In addition, sometimes different process material runs are carried out with only one roller arrangement for technological reasons. Therefore, it is not always possible to meet the safety requirements described in **A2** ISO 11111-1:2016 **A2**, 6.5 (Rollers), without considerable prejudice to function and operability.

An example of the SPE arrangement at the exit of a stenter is shown in Figure 1.



Key

- 1 fabric run with pin chain
- 2 draw-off roller
- 3 guard
- 4 piece length measuring roller
- 5 sensor for humidity measurement
- 6 release cord (SPE)

Figure 1 — Example of SPE arrangement at the exit of a stenter **A1**