



**SLOVENSKI STANDARD
SIST EN ISO 11111:2000**

01-junij-2000

Varnostne zahteve za tekstilne stroje (ISO 11111: 1995)

Safety requirements for textile machinery (ISO 11111:1995)

Sicherheitsanforderungen an Textilmaschinen (ISO 11111:1995)

Exigences de sécurité pour le matériel textile (ISO 11111:1995)

THIS STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: **EN ISO 11111:1995**

[SIST EN ISO 11111:2000](#)

<https://standards.iteh.ai/catalog/standards/sist/a45f913f-a1d6-44f5-a9b7-e1b11bbb804a/sist-en-iso-11111-2000>

ICS:

59.120.01 Tekstilni stroji na splošno Textile machinery in general

SIST EN ISO 11111:2000

en

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 11111:2000](#)

<https://standards.iteh.ai/catalog/standards/sist/a45f913f-a1d6-44f5-a9b7-e1b11bbb804a/sist-en-iso-11111-2000>

EUROPEAN STANDARD

EN ISO 11111

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 1995

ICS 59.120

Descriptors: textile industry, industrial facilities, textile machinery, hazards, accident prevention, safety of machines, specifications, safety requirements, instructions for use, marking

English version

**Safety requirements for textile machinery
(ISO 11111:1995)**

Exigences de sécurité pour le matériel textile
(ISO 11111:1995)

Sicherheitsanforderungen an Textilmaschinen
(ISO 11111:1995)

**iTeh STANDARD PREVIEW
(standards.iteh.ai)**

SIST EN ISO 11111:2000
<https://standards.iteh.ai/catalog/standards/sist/a45f913f-a1d6-44f5-a9b7-e1b11bbb804a/sist-en-iso-11111-2000>

This European Standard was approved by CEN on 1995-08-28. 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.

The European Standards exist 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
 Comité Européen de Normalisation
 Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Page 2
EN ISO 11111:1995

Foreword

The text of the International Standard ISO 11111:1995 has been prepared by the Technical Committee ISO/TC 72 "Textile machinery and allied machinery and accessories" in collaboration with the Technical Committee CEN/TC 214 "Textile machinery and allied machinery".

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 March 1996, and conflicting national standards shall be withdrawn at the latest by March 1996.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports the following essential requirements of EC Directives:

Council Directive of 14 June 1989 on the approximation of the laws of the Member States relating to machinery (89/392/EEC)

Amending Council Directive 89/392/EEC of 20 June 1991 on the approximation of the laws of the Member States relating to machinery (91/368/EEC)

Amending Council Directive 897/392/EEC of 14 June 1993 on the approximation of the laws of the Member States relating to machinery (93/44/EEC)

TEXT STANDARD REVIEW

(standards.iteh.ai)

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 11111:1995 has been approved by CEN as a European Standard without any modification.



INTERNATIONAL
STANDARD

ISO
11111

First edition
1995-09-15

Safety requirements for textile machinery

Exigences de sécurité pour le matériel textile
iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 11111:2000
<https://standards.iteh.ai/catalog/standards/sist/a45f913f-a1d6-44f5-a9b7-e1b11bbb804a/sist-en-iso-11111-2000>



Reference number
ISO 11111:1995(E)

Contents

	Page	
1	Scope	1
2	Normative references	2
3	Definitions	4
3.1	Stopping time	4
3.2	Access time	4
3.3	Crawl speed	4
3.4	Reduced running speed	4
3.5	Fence guard	4
3.6	Lap (wrap)	4
3.7	Normal operation	4
3.8	Special operation	SIST EN ISO 11111:2000
3.9	Complex installation	https://standards.iteh.ai/catalog/standards/sist/a45f913f-a1d6-44f5-a9b7-e1b11bbb804a/sist-en-iso-11111-2000
3.10	Automatic machinery and equipment	5
4	List of hazards	5
5	Summary of frequently occurring safety requirements and/or measures for textile machines	6
5.1	Safety requirements for the different phases of "life" of a machine	6
5.2	Electrical equipment	6
5.2.1	General safety requirements	6
5.2.2	Special safety requirements for control systems and devices ...	7
5.2.3	Starting and stopping	8

© ISO 1995

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 the publisher.

International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

5.3	Protection against hazards	9
5.3.1	Mechanical origin	9
5.3.1.1	Design	9
5.3.1.2	Guards and safety devices	10
5.3.2	Other origin	11
5.3.2.1	Electric shock	11
5.3.2.2	Static electricity	11
5.3.2.3	Fluid power systems and components	11
5.3.2.4	Extreme temperatures	11
5.3.2.4.1	Hot surfaces	11
5.3.2.4.2	Hot processing materials: liquor or steam	12
5.3.2.5	Noise reduction	12
5.3.2.6	Lasers	12
5.3.2.7	Ionizing radiation	12
5.3.2.8	Materials and substances	12
5.3.2.9	Fire	13
5.3.2.10	Explosion	13
5.3.2.11	Ergonomics	14
https://standards.iteh.ai/log/trac/obj/tst/a45913f-a1d6-44f5-a9b7-e1b1bbb804a/sist-en-iso-11111-2000		
5.4	Devices for special operation	14
5.5	Access to operating position and servicing points	15
5.6	Measures for the escape and rescue of trapped persons	15
5.7	Residual risk	15
6	Significant hazards and corresponding safety requirements and/or measures for certain machine elements and their combinations	16
6.1	Drive and transmission enclosures	16
6.2	Particularly dangerous machine elements	16
6.3	Machine elements which normally do not require safeguarding	17
6.4	Rollers	18
6.5	Rotating shafts	24
6.6	Wheels	25
6.6.1	Running wheels	25
6.6.2	Handwheels	25
6.7	Doors and lids	26
6.7.1	Opening and closing	26

iTeh STANDARD REVIEW
(standards.iteh.ai)

6.7.2	Locking and unlocking	27
6.7.3	Entry into machines, vessels or items of plant	28
6.8	Observation windows	28
6.9	Conveyors	29
6.10	Fans	30
6.11	Cutting devices	30
6.12	Work platforms and walkways on machines, work areas adjacent to tanks and pits	31
6.13	Radiators or burners for the direct heat treatment of yarn and fabric	32
6.14	Devices for steam heating of liquors	33
6.15	Liquor preparatory machinery incorporating stirrers	33
6.16	Dancing rollers	35
6.17	Batchers	36
6.18	Mangles	41
6.19	Pilers and plaiters	42
6.20	Automatic machines and equipment	42
6.20.1	Automatic guards	SIST EN ISO 11111:2000 43
6.20.2	Mobile machines, handling devices, operational parts	https://standards.iteh.ai/catalog/standards/sist/a45f913f-a1d6-44f5-a9b7-e1b11bbb804a/sist-en-iso-11111-2000 43
6.20.3	Mobile machines and handling devices which could leave their defined path	44
6.20.4	Floor-mounted and overhead rails (tracks)	44
6.20.5	Overhead transport of process material	45
6.21	Complex installations	45
6.22	Safeguarding multi-sourced installations	46
7	Significant hazards and corresponding safety requirements and/or measures for all spinning preparatory and spinning machines	47
7.1	Opening, cleaning, blending	47
7.1.1	Automated blending bale openers	48
7.1.2	Teasers, willows	50
7.1.3	Moving bin emptiers	50
7.1.4	Bunker emptiers	52
7.2	Wool scouring (wool washing)	52
7.3	Baling	53

iTeh STANDARD PREVIEW
(standards.iteh.ai)

7.4	Carding	55
7.4.1	Flat cards	56
7.4.2	Roller and clearer cards	57
7.4.3	Tape condensers	58
7.5	Tow cutting and stretch breaking	59
7.6	Spinning preparation subsequent to carding	60
7.6.1	Draw frames for short fibres	61
7.6.2	Gill boxes, including "intersecting" and "chain-gill" types	62
7.6.3	Backwashers	62
7.6.4	Sliver and ribbon lap machines, lap formers	63
7.6.5	Cotton combers	63
7.6.6	Rectilinear combs	63
7.6.7	Speedframes	64
7.6.8	High draft finishers	64
iTeh STANDARD PREVIEW (standards.itech.ai)	7.6.9 Automatic sliver can-doffing units	65
7.7	Spinning	66
7.7.1	Ring spinning machines	67
7.7.2	SIST EN ISO 11111:2000 Open-end spinning machines	67
7.7.3	https://standards.itech.ai/catalog/standards/sist/en/iso/11111/00-445-a97-0bb11bbb801a/sist-en-iso-11111-2000 Gill spinning machines	68
8	Significant hazards and corresponding safety requirements and/or measures for all machines for nonwovens	69
8.1	Opening, cleaning, blending	69
8.2	Carding	69
8.3	Needle punching	69
8.4	Batching	71
8.5	Cylinder drying	71
9	Significant hazards and corresponding safety requirements and/or measures for all yarn processing, cordage and rope-manufacturing machines	72
9.1	Doubling, twisting, texturing	72
9.2	Reeling and winding	73
9.3	Ball winding	74
9.4	Cordage and rope manufacturing	75

9.4.1	Safety requirements and/or measures for certain machine elements common to several cordage and rope-manufacturing machines	76
9.4.1.1	Bobbin spindles	76
9.4.1.2	Flyers	77
9.4.1.3	Capstans	77
9.4.2	Goods machines or spreaders, breakers	78
9.4.3	Draw frames and finishers	78
9.4.4	Stranding machines	79
9.4.5	Laying (closing) machines	79
9.4.6	Combined stranding and closing machines	80
9.4.7	Strand-plaited rope-making machines	80
9.5	Braiding	81
10	Significant hazards and corresponding safety requirements and/or measures for all machinery preparatory to weaving and warp knitting	83
10.1	Warping and beaming	83
10.2	Sizing	87
10.2.1	Cylinder dryers for sizing lines	SIST EN ISO 11111:2000
		https://standards.iteh.ai/catalog/standards/sist/a45f913f-a1d6-44f5-a9b7-e1b11b88804/sist-en-iso-11111-2000
10.2.2	Size baths	88
10.3	Size preparation	91
10.4	Storage of warp and cloth beams	92
11	Significant hazards and corresponding safety requirements and/or measures for all fabric manufacturing machinery	93
11.1	Weaving	93
11.1.1	Requirements for all weaving machines	93
11.1.2	Shuttle weaving machines	96
11.1.3	Rapier weaving machines	97
11.1.4	Pile wire weaving machines (Wilton, épingle, velvet)	98
11.1.5	Gripper weaving machines	98
11.1.6	Face-to-face weaving machines (pile, heavy fabric or carpet)	99
11.1.7	Water-jet weaving machines	99
11.1.8	Narrow fabric weaving machines	100
11.1.8.1	Shuttle type	100
11.1.8.2	Needle type	100
11.1.9	Jacquard machines	102

11.2	Knitting (circular, flat and warp knitting)	103
11.2.1	Circular knitting machines	104
11.2.2	Flat knitting machines	105
11.2.3	Warp knitting and Raschel knitting machines	105
11.3	Tufting	106
12	Significant hazards and corresponding safety requirements and/or measures for all dyeing and finishing machinery	108
12.1	Preparation	108
12.1.1	Brushing machines	108
12.1.2	Cropping machines, shearing machines	109
12.1.3	Slitting machines	110
12.1.4	Singeing machines	111
12.1.5	Desizing (scouring) machines	111
12.1.6	Discontinuous bleaching plants (open kiers)	112
12.1.7	Bleaching pits	113
12.1.8	Continuous bleaching plants	113
12.1.9	Washers	114
12.1.10	SIST EN ISO 11111:2000 Autoclaves	115
https://standards.iteh.ai/catalog/standards/sist/a45913f-a1d6-44b5-a9b7-e1121104a Continuous steamers for fabric		
12.1.11	Continuous steamers for fabric	116
12.1.12	J-boxes	117
12.1.13	Mercerizing equipment	118
12.1.14	Crabbing machines	118
12.1.15	Milling machines	119
12.2	Dyeing	119
12.2.1	Atmospheric dyeing machines/apparatus	120
12.2.2	High temperature dyeing machines/apparatus	121
12.2.3	Liquor preparation plants for dyeing processes	122
12.2.4	Jigs	123
12.2.5	Winches	124
12.2.6	Jet dyeing machines	124
12.2.7	Padding mangles	124
12.2.8	Continuous dyeing machines	125
12.2.9	Package dyeing machines	126
12.2.10	Beam dyeing machines	126

iTeh STANDARD REVIEW (standards.iteh.ai)

[SIST EN ISO 11111:2000](#)

<https://standards.iteh.ai/catalog/standards/sist/a45913f-a1d6-44b5-a9b7-e1121104a>

12.2.11	Hank dyeing machines	126
12.3	Printing	126
12.3.1	Flat screen printing machines	127
12.3.2	Rotary screen printing machines	128
12.3.3	Transfer printing machines	128
12.3.4	Roller printing machines	128
12.3.5	Liquor preparation equipment	129
12.4	Fixation, wetting, drying	129
12.4.1	Steam chambers	130
12.4.2	Wringing machines	130
12.4.3	Stenters, tenters	130
12.4.4	Dryers, bakers	131
12.4.5	Cylinder dryers	131
12.4.6	High frequency dryers	132
12.5	Finishing	132
12.5.1	Calenders	133
12.5.2	Calenders for tubular knitted fabric	134
12.5.3	Coating and laminating machines	134
12.5.4	Raising machines	135
12.5.5	Cropping machines and shearing machines	136
12.5.6	Shrinking machines	136
12.5.7	Flocking plants	137
12.5.8	Decatizing machines	137
12.5.9	Rotary presses	137
12.5.10	Polishing machines	138
12.6	Making-up/presentation	138
12.6.1	Inspection machines	139
12.6.2	Folding machines	139
13	Verification of safety requirements and/or measures	140
14	Information concerning machine use	140
14.1	Instruction handbook	140
14.2	Marking	140

Annexes

A	Specifications	141
B	Surface temperatures	143
C	Verification	145
D	Hazards	152

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 11111:2000

<https://standards.iteh.ai/catalog/standards/sist/a45f913f-a1d6-44f5-a9b7-e1b11bbb804a/sist-en-iso-11111-2000>

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.

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.

The STANDARD PREVIEW (standards.iteh.ai)

International Standard ISO 11111 was prepared by Technical Committee ISO/TC 72, *Textile machinery and allied machinery and accessories*.

Annexes A, B and C form an integral part of this International Standard.
Annex D is for information only.
<https://standards.iteh.ai/catalog/standards/sist/a45913r-a1d6-44f5-a9b7-e1b11bbb804a/sist-en-iso-11111-2000>

Introduction

This International Standard was prepared simultaneously by ISO/TC 72 and CEN/TC 214 and adopted under the Vienna Agreement in order to obtain identical standards on safety requirements for textile machinery.

This International Standard deals with the hazards generated by machines used in the textile industry. The great number and variety of such machines render impractical the preparation of individual standards.

Clause 5 contains a summary of frequently occurring safety requirements and/or measures for textile machines which apply whenever referred to in later clauses.

Clause 6 describes significant hazards and corresponding safety requirements and/or measures for certain prevalent component items (e.g. rollers).

iTeh STANDARD REVIEW (standards.iteh.ai)

Clauses 7 to 12 contain significant hazards and corresponding safety requirements and/or measures for all types of textile machines. As far as possible these are treated by way of references to clauses 5 and 6 and other cross-references, thus reducing considerably the volume of this International Standard by avoiding many repetitions.

The examples given in clauses 6 to 12 are proven solutions, representing the state of the art with respect to safety at the time of standard preparation. To enable further technical progress, other solutions are also allowed, provided they attain at least the same safety level.

<https://standards.iteh.ai/standard/iso-11111-2000>
Order ref: 11111-2000/450126-14-115-007