

# ISO 11111-1:2009-07 (E)

## Textile machinery - Safety requirements - Part 1: Common requirements

---

<b>Contents</b>		<b>Page</b>
Foreword .....		v
Introduction .....		vi
<b>1</b>	<b>Scope .....</b>	<b>1</b>
<b>2</b>	<b>Normative references .....</b>	<b>2</b>
<b>3</b>	<b>Terms and definitions .....</b>	<b>5</b>
<b>4</b>	<b>List of significant hazards .....</b>	<b>7</b>
<b>5</b>	<b>Safety requirements and/or measures for frequently occurring hazards .....</b>	<b>7</b>
5.1	General .....	7
5.2	Safety requirements for the different phases of "life" of a machine .....	7
5.3	Risk reduction by design and safeguarding .....	7
5.3.1	Inherently safe design measures .....	7
5.3.2	Consideration of geometrical factors and physical aspects .....	8
5.3.3	Reduction of risks by safeguarding .....	8
5.4	Safety requirements for various hazards .....	10
5.4.1	General .....	10
5.4.2	Electrical hazards .....	10
5.4.3	Mechanical hazards .....	13
5.4.4	Static electricity .....	16
5.4.5	Fluid power systems and components .....	16
5.4.6	Extreme temperatures .....	16
5.4.7	Noise reduction .....	17
5.4.8	Lasers .....	18
5.4.9	Radiation .....	18
5.4.10	Materials and substances .....	18
5.4.11	Fire .....	19
5.4.12	Explosion .....	19
5.4.13	Ergonomics .....	20
5.5	Devices for special operation .....	20
5.6	Access to elevated operating positions and servicing points .....	21
5.7	Measures for the escape and rescue of trapped persons .....	22
5.8	Fitting of parts .....	22
<b>6</b>	<b>Significant hazards and corresponding safety requirements and/or measures for certain machine elements and their combinations .....</b>	<b>22</b>
6.1	General .....	22
6.2	Drive and transmission enclosures .....	22
6.3	Particularly dangerous machine elements .....	23
6.4	Machine elements which normally do not require safeguarding .....	24
6.4.1	Low risk machine elements .....	24
6.4.2	Machine elements out of reach .....	25
6.5	Rollers .....	25
6.6	Rotating shafts .....	31
6.7	Wheels .....	31
6.7.1	Running wheels .....	31
6.7.2	Handwheels .....	32
6.8	Doors and lids .....	33

6.8.1	General .....	33
6.8.2	Opening and closing .....	33
6.8.3	Locking and unlocking of doors or lids under pressure .....	33
6.8.4	Entry into machines, vessels or items of plant .....	34
6.9	Observation windows .....	35
6.10	Conveyors .....	35
6.11	Fans .....	36
6.12	Cutting devices .....	36
6.13	Working platforms and walkways on machines, work areas adjacent to tanks and pits ....	38
6.14	Radiators or burners for the direct heat treatment of yarn and fabric .....	38
6.15	Devices for steam heating of liquors .....	39
6.16	Liquor preparatory machinery incorporating stirrers .....	41
6.17	Dancing rollers .....	41
6.18	Batching devices .....	42
6.18.1	General Information .....	42
6.18.2	Surface-driven batcher .....	43
6.18.3	Centre batcher .....	44
6.18.4	Ascending batch winder .....	47
6.18.5	Equipment for automatic process material change on batching devices .....	48
6.19	Mangles .....	50
6.20	Pilers and plaiters .....	51
6.21	Automatic machines and equipment .....	51
6.21.1	General .....	51
6.21.2	Automatic guards .....	51
6.21.3	Mobile machines, handling devices, operational parts .....	53
6.21.4	Mobile machines and handling devices which could leave their defined path .....	53
6.21.5	Floor-mounted and overhead rails (tracks) .....	54
6.21.6	Overhead transport of process material .....	54
6.22	Complex installations .....	55
7	Verification of the safety requirements and/or measures .....	55
8	Information concerning machine use .....	56
8.1	Signals and warning devices .....	56
8.2	Accompanying documents (in particular: instruction handbook) .....	56
8.3	Marking .....	56
Annex A (normative)	Specifications .....	57
Annex B (normative)	Hot surfaces .....	59
Annex C (normative)	Verification .....	61
Annex D (normative)	Nip between roller and fabric .....	72
Annex E (informative)	List of machines and equipment used in the textile industry but not within the scope of this part of ISO 11111 .....	73
Bibliography	.....	74