INTERNATIONAL STANDARD

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Textile machinery — Noise test code —

Part 3: Nonwoven machinery

Matériel pour l'industrie textile — Code d'essai acoustique —

Partie 3: Machines de production de non-tissés

Reference number
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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 3.

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 part of ISO 9902 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 9902-3 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 9902-3, together with ISO 9902-1, ISO 9902-2, ISO 9902-4, ISO 9902-5, ISO 9902-6 and ISO 9902-7, cancels and replaces ISO 9902:1993, which has been technically revised.

ISO 9902 consists of the following parts, under the general title *Textile machinery — Noise test code*:

— *Part 1: Common requirements*

— *Part 2: Spinning preparatory and spinning machinery*

— *Part 3: Nonwoven machinery*

— *Part 4: Yarn processing, cordage and rope manufacturing machinery*

— *Part 5: Weaving and knitting preparatory machinery*

— *Part 6: Fabric manufacturing machinery*

— *Part 7: Dyeing and finishing machinery*

Introduction

Nonwoven lines of textile machinery include machines for:

— preparation (bale breaker, automated blending bale opener, carding willow, blender, fan, condenser, opener),

— feeding (hopper feeder, flock feeder),

— web formation (card, cross lapper), and

— bonding (lap drafter, pre-needle machine, needle puncher, stitch bonding machine for nonwovens, spray bonding machine, water jet bonding machine, calender, dryer, coating machine).

Textile machinery — Noise test code —

Part 3: Nonwoven machinery

1 Scope

This part of ISO 9902, taken together with ISO 9902-1, specifies the mounting, operating and measuring conditions required for the measurement, declaration and verification of noise emitted by nonwoven machinery. It defines a noise test code for

— cross lappers,

— lap drafters,

— pre-needle machines,

— needle punchers,

— stitch bonding machines (nonwovens),

— water jet bonding machines, and

— praying machines.

The other machines of nonwoven lines are covered in ISO 9902-2, ISO 9902-6 and ISO 9902-7.

This part of ISO 9902 is applicable to engineering (grade 2) and survey (grade 3) test methods, in accordance with the International Standards to which it makes normative reference.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 9902. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 9902 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 3744:1994, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering method in an essentially free field over a reflecting plane.*

ISO 3746:1995, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Survey method using an enveloping measurement surface over a reflecting plane.*

ISO 3747:2000, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Comparison method for use* in situ*.*

ISO 9614-1:1993, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 1: Measurement at discrete points.*

ISO 9614-2:1996, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 2: Measurement by scanning.*

ISO 9902-1:2001, *Textile machinery — Noise test code — Part 1: Common requirements.*

ISO 11201:1995, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a work station and at other specified positions — Engineering method in an essentially free field over a reflecting plane.*

ISO 11202:1995, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a work station and at other specified positions — Survey method* in situ*.*

ISO 11204:1995, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a work station and at other specified positions — Method requiring environmental corrections.*

3 Terms and definitions

For the purposes of this part of ISO 9902, the terms and definitions given in ISO 9902-1 apply.

4 Defining the test object

See Table 1 of this part of ISO 9902 and clause 4 of ISO 9902-1:2001.

5 Sound power level determination

5.1 International Standards required for basic measurements

5.1.1 General

See 5.1 of ISO 9902-1:2001.

5.1.2 Determination by measuring sound intensity

Determination of the A-weighted sound power level, L_{WA}, using sound intensity measurements shall be in accordance with ISO 9614-1 (discrete points) or ISO 9614-2 (scanning).

5.1.3 Determination using emission sound pressure levels on a measurement surface

Determination of the A-weighted sound power level, L_{WA}, by measurement of A-weighted emission sound pressure levels on a prescribed measurement surface shall be in accordance with one of the following:

— ISO 3744,

— ISO 3747, or

— ISO 3746, but only where use of ISO 3744 or ISO 3747 is not practicable.

5.2 Very large machines

See 5.2 of ISO 9902-1:2001. Very large machines are designated by the letter “L” in Table 1 of this part of ISO 9902.

6 Emission sound pressure level determination

6.1 International Standards required for basic measurements

See 6.1 of ISO 9902-1:2001.

The A-weighted emission sound pressure level, $L_{p\mathrm{A}}$, shall be determined in accordance with one of the following:

— ISO 11201,

— ISO 11204, or

— ISO 11202, but only where use of ISO 11201 or 11204 is not practicable.

6.2 Selection of work station and other specified positions

See 6.2 of ISO 9902-1:2001.

The following option, designated below and in Table 1 as d)[1)], is used to define a work station for nonwoven machinery.

d) This option consists of several positions on a measurement line around the machine at a distance of 1 m from the surface of the machine and a height of 1,6 m above the floor or working platform. Where a centreline can be defined, both intersections between the centreline and the measurement line shall serve as measurement positions. In addition, sufficient further measurement positions equally spaced around the measurement line shall be used to ensure that the distance between any adjacent measurement positions does not exceed 2 m.

Calculate $L_{p\mathrm{A}}$ from the values measured at the defined positions (see 6.1 of ISO 9902-1:2001).

7 Installation and mounting conditions

See clause 7 of ISO 9902-1:2001.

8 Operating conditions

See clause 8 of ISO 9902-1:2001 and Table 1 of this part of ISO 9902.

9 Measurement uncertainties

See clause 9 of ISO 9902-1:2001.

1) Continues the numeration begun in clause 4 of ISO 9902-1:2001.

10 Information to be recorded

See clause 10 of ISO 9902-1:2001.

11 Information to be reported

See clause 11 of ISO 9902-1:2001: the information required to be reported includes that contained in Table 1 of this part of ISO 9902.

12 Declaration and verification of noise emission values

See clause 12 of ISO 9902-1:2001.

Table 1 — Measurement conditions for nonwoven machinery

Machine family	Test object definition (clause 4)				Very large machine L (5.2)	Work station (see 6.2)	Operating conditions (see ISO 9902-1:2001, clause 8)		
	Equipment included for the test if applicable	Equipment excluded from the test[a]	Machine configuration (see ISO 9902-1:2001, clause 4)	Design features to be reported			Prescribed parameters	Variable parameters	Parameters to be reported
Cross lapper	—	—	b)	feeding width in millimetres	L	d)	without material 80 % to 85 % of maximum feeding speed in metres per minute maximum width of delivery in millimetres	—	final working width in millimetres
Lap drafter	—	—	b)	number of rollers	L	d)	without material 80 % to 85 % of the maximum feeding speed in metres per minute 80 % to 85 % of the maximum draft	—	working width in millimetres
Pre-needle machine and needle puncher	feeding and delivery devices lubrication equipment (incl. heating and cooling devices) integrated suction device	—	b)	board width in millimetres possible total number of needles single sided punching from above or from below or double sided punching needle stroke in millimetres type of integrated fan if fitted (constant speed or speed controlled)	L	d)	without material 80 % to 85 % of maximum needle board cycles per minute	—	working width in millimetres number of needles in use delivery speed in metres per minute speed of fan during the test in revolutions per minute
Stitch bonding machine (nonwoven)	—	—	b)	—	L	d)	without material	mesh rows per minute	needle stroke in millimetres working width in millimetres needle gauge in millimetres

Table 1 *(continued)*

Machine family	Test object definition (clause 4)				Very large machine L (5.2)	Work station (see 6.2)	Operating conditions (see ISO 9902-1:2001, clause 8)		
	Equipment included for the test if applicable	Equipment excluded from the test [a]	Machine configuration (see ISO 9902-1:2001, clause 4)	Design features to be reported			Prescribed parameters	Variable parameters	Parameters to be reported
Spray bonding machine	suction device with dryer (oven)	—	b)	kind of nozzles number of nozzles type of dryer (oven) type of integrated fan (constant speed or speed controlled)	L	d)	without material maximum spraying pressure in pascals	—	spray liquid feeding speed in metres per minute nozzle cycles per minute working width in millimetres speed of fan during the test in revolutions per minute
Water jet bonding machine (hydro-entanglement)	hydraulic device dryer (oven)	—	b)	kind of nozzles number of nozzles type of dryer (oven)	L	d)	without material maximum water pressure in pascals	—	working width in millimetres

[a] However, such equipment may be necessary for running the machine with material.

Bibliography

[1] ISO 9902-2, *Textile machinery — Noise test code — Part 2: Spinning preparatory and spinning machinery*.

[2] ISO 9902-6, *Textile machinery — Noise test code — Part 6: Fabric manufacturing machinery*.

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

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