

**Industrial sewing machines – Safety requirements
for sewing machines, units and systems
(ISO 10821:2005)**

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Industrienähmaschinen - Sicherheitsanforderungen an Nähmaschinen, Näheinheiten und Nähanlagen (ISO 10821:2005)

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EN ISO 10821:2005(E)

Foreword

This document (EN ISO 10821:2005) has been prepared by Technical Committee ISO/TC 148 "Sewing machines" in collaboration with CMC.

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of an identical text or by endorsement, at the latest by January 2006, and conflicting national standards shall be withdrawn at the latest by January 2006.

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 ZA, 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 10821:2005 has been approved by CEN as EN ISO 10821:2005 without any modifications.

Introduction

This International Standard is intended to provide manufacturers, users and official bodies with safety requirements which, in view of the state of the art, are to be met for industrial sewing machines, units and systems.

For machinery and hazards not within the scope of this International Standard, see ISO 12100-1 and ISO 12100-2.

The concept of this International Standard is to deal first in general and then in detail with significant hazards (see Clause 4), as well as safety requirements (see Clause 5); it starts with those requirements applicable to all types of industrial sewing machines in order to arrive at specific requirements for particular types of machines.

A peculiarity of industrial sewing machines is that sewing units and systems are frequently built up by the user from components emanating from various manufacturers. Furthermore, in the course of their period of use, units and systems may be adapted by the user for different tasks (owing to, for example, frequent changes in fashion) by means of the interchange of components or the addition of supplementary equipment. Such measures can also serve the purpose of increasing the degree of automation. As a result, the user who assembles several components into a new sewing unit or system is in the position of a manufacturer and thus, like the manufacturer, is responsible for assuring that any hazards inherent in the operation of the new combination are eliminated, and that it conforms to this International Standard and any other relevant standard or regulation.

Industrial sewing machines — Safety requirements for sewing machines, units and systems

1 Scope

This International Standard identifies hazards and specifies safety requirements applicable to sewing machines, sewing units and sewing systems designed for professional (industrial, commercial or laboratory) use in industries including the clothing and footwear, leather goods, shirts and blousery, hosiery and knitwear, lingerie, glove, upholstery and packaging industries, and in shoe repair.

The information on use and maintenance of such machines in other industries could give rise to hazards not considered in this International Standard.

The requirements of this International Standard are applicable to machinery installed in dry and well-kept, clean locations and processing dry sewing material. Where the sewing machines, sewing units or sewing systems are used in other than dry and well-kept, clean locations, more stringent measures could be necessary: for example, the higher degree of protection provided by enclosures (IP code — see IEC 60529)^[5].

The purpose of this International Standard is to assist the manufacturer to design machinery such that the risks arising from its defined, intended use and maintenance are reduced or eliminated. The significant hazards and hazardous situations are given together with a reference to the corresponding safety requirement or measure in 4.2 to 4.8. Significant hazards are those identified and estimated as requiring action to reduce the risk they pose.

This International Standard is not applicable to stepping frame sewing machines, shoe bottom stitching machines, large shuttle embroidery machines in accordance with ISO 11111 ^[1], integrated sewing systems within in the scope of ISO 11161 ^[2] or household sewing machines in accordance with IEC 60335-2-28 ^[4].

NOTE If household sewing machines are used for professional purposes, it could be necessary to take measures in accordance with this International Standard (e.g. the use of a finger deflecting device).

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 286 (all parts), *ISO system of limits and fits*

ISO 639 (all parts), *Codes for the representation of names of languages*

ISO 2768 (all parts), *General tolerances*

ISO 3740:2000, *Acoustics — Determination of sound power levels of noise sources — Guidelines for the use of basic standards*

ISO 3741:1999, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Precision methods for reverberation rooms*

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ISO 3743-1:1994, *Acoustics — Determination of sound power levels of noise sources — Engineering methods for small, movable sources in reverberant fields — Part 1: Comparison method for hard-walled test rooms*

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 3745:2003, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Precision methods for anechoic and semi-anechoic rooms*

ISO 3746:1985, *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 in situ*

ISO 3864-2:2004, *Graphical symbols — Safety colours and safety signs — Part 2: Design principles for product safety labels*

ISO 4183:1995, *Belt drives — Classical and narrow V-belts — Grooved pulleys (system based on datum width)*

ISO 4871:1996, *Acoustics — Declaration and verification of noise emission values of machinery and equipment*

ISO 4915:1991, *Textiles — Stitch types — Classification and terminology*

ISO 4916:1991, *Textiles — Seam types — Classification and terminology*

ISO 7574 (all parts), *Acoustics — Statistical methods for determining and verifying stated noise emission values of machinery and equipment*

ISO 8239:1987, *Sewing machine needles — Fitting dimensions — Tolerances and combinations*

ISO/CIE 8995:2002, *Lighting of indoor work systems*

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 11200:1995, *Acoustics — Noise emitted by machinery and equipment — Guidelines for the use of basic standards for the determination of emission sound pressure levels at a work station and at other specified positions*

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 11203:1995, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions from the sound power level*

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*

ISO/TR 11688-1:1995, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning*

ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology*

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

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 13853:1998, *Safety of machinery — Safety distances to prevent danger zones being reached by the lower limbs*

ISO 13854:1996, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*

IEC 60204-1, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements*

IEC 60204-31:2001, *Safety of machinery — Electrical equipment of machines — Part 31: Particular safety and EMC requirements for sewing machines, units and systems*

IEC 60745-1:2003, *Hand-held motor-operated electric tools — Safety — Part 1: General requirements*

IEC 60825-1:2005, *Safety of laser products — Part 1: Equipment classification, requirements and user's guide*

EN 563, *Safety of machinery — Temperatures of touchable surfaces — Ergonomics data to establish temperature limit values for hot surfaces*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4915, ISO 4916, ISO 11204, ISO 12100-1 and ISO/IEC Guide 51, and the following apply.

3.1

industrial sewing machine

sewing machine specifically designed for industrial purposes

3.2

sewing machine

machine designed to produce one or more stitches with one or more sewing threads; in producing a seam the machine can perform one or more sewing functions

NOTE 1 See ISO 4915 and ISO 4916 for stitches and seams, respectively.

NOTE 2 Previously, the term “sewing machine head” was used instead of “sewing machine”.

3.3

sewing machine stand

item on which a sewing machine is arranged to enable optimum operation

EXAMPLE Sewing machine stand designed as a table.

3.4

sewing machine drive

equipment that drives a sewing machine, speed-controlled by electrical or mechanical means, or both, either with or without a positioning device and control of machine functions

EXAMPLE Electric motor.