



SLOVENSKI STANDARD
SIST EN 931:2000

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Footwear manufacturing machines - Lasting machines - Safety requirements

Footwear manufacturing machines - Lasting machines - Safety requirements

Maschinen zur Herstellung von Schuhen - Zwickmaschinen - Sicherheitsanforderungen

Machines pour la fabrication de chaussures - Machines à monter - Prescriptions de sécurité

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ICS:

61.060 Obuvala Footwear

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EUROPEAN STANDARD

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English version

Footwear manufacturing machines - Lasting machines - Safety requirements

Machines pour la fabrication de chaussures -
Machines à monter - Prescriptions de sécurité

Maschinen zur Herstellung von Schuhen -
Zwickmaschinen - Sicherheitsanforderungen

This European Standard was approved by CEN on 1997-07-16. 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.

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CEN

European Committee for Standardization
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Europäisches Komitee für Normung

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 201 "Leather and imitation leather goods and footwear manufacturing machinery - Safety", the secretariat of which is held by UNI.

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of an identical text or by endorsement, at the latest by February 1998, and conflicting national standards shall be withdrawn at the latest by February 1998.

This European Standard 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 standard.

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

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0 Introduction

The extent to which hazards are covered is indicated in the scope of this standard. In addition, machinery should comply as appropriate with EN 292-2:1991 for hazards which are not covered by this standard.

This standard contains safety requirements for lasting machines. It is aimed at designers, manufacturers, suppliers and importers.

1 Scope

1.1 This standard is applicable to lasting machines used in the footwear manufacturing industry, namely:

- adhesive fore part lasting machines (see figure 1),
- hand operated adhesive side lasting machines (see figure 3A),
- adhesive seat lasting machines (see figure 2),
- adhesive seat and side lasting machines (see figure 2),
- hand operated tack/staple side lasting machines (see figure 3B),
- tack seat lasting machines (see figure 2),
- tack seat and side thermocement lasting machines (see figure 2),
- tack heel seat and thermocement side lasting machines (see figure 2),
- tack heel seat and thermocement+tack side lasting machines (see figure 2).

1.2 This standard does not apply to lasting machines which process granular thermocement.

1.3 This standard specifies requirements for safe design, construction and use of the machines. No specific requirements are included for transport, commissioning and decommissioning. It takes account of intended use, foreseeable misuse, component and system failure.

1.4 This standard covers all hazards relevant to the footwear manufacturing industry. The use of machines within the scope of this standard in different industries may give rise to hazards which were not taken into account at the time of its preparation.

1.5 This standard applies to machines manufactured after its date of issue.

2 Normative references

This European standard incorporates by dated or undated reference, provisions from other publications.

These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 292-1:1991 Safety of machinery - Basic concepts; general principles for design - Part 1: Basic terminology, methodology

EN 292-2:1991 Safety of machinery - Basic concepts; general principles for design - Part 2: Technical principles and specifications

EN 294:1992 Safety of machinery - Safety distances to prevent danger zones being reached by the upper limbs

EN 418:1992 Safety of machinery - Emergency stop equipment; functional aspects - Principles for design

prEN 547-1:1991 Safety of machinery - Human body dimensions - Part 1: Principles for determining the dimensions required for openings for whole body access into machinery

prEN 547-2:1991 Safety of machinery - Human body dimensions - Part 2: Principles for determining the dimensions required for access openings

EN 563:1994 Safety of machinery - Temperature of touchable surfaces - Ergonomic data to establish temperature limit values for hot surfaces

prEN 894-1:1992 Safety of machinery - Ergonomic requirements and data for the design of displays and control actuators - Part 1: Human interaction with displays and control actuators

prEN 953:1992 Safety of machinery - General requirements for the design and the construction of guards (fixed, movable)

EN 954-1:1996 Safety of machinery - Safety related parts of control systems - Part 1: General principles for design

EN 982:1996 Safety of machinery - Safety requirements for fluid power systems and components - Hydraulics

EN 983:1996 Safety of machinery - Safety requirements for fluid power systems and components - Pneumatics

prEN 1005-1:1993 Safety of machinery - Human physical performance - Part 1: Terms and definitions

prEN 1005-2:1993 Safety of machinery - Human physical performance - Part 2: Manual handling of heavy weights associated with machinery

prEN 1005-3:1993 Safety of machinery - Human physical performance - Part 3: Recommended force limits for machinery operation

EN 1037:1995 Safety of machinery - Isolation and energy dissipation - Prevention of unexpected start-up

ENV 1070:1993 Safety of machinery - Terminology

EN 23740 series ¹⁾ Acoustics - Determination of sound power levels of noise sources - Guidelines for the use of basic standards

EN ISO 4871 ¹⁾ Acoustics - Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)

EN ISO 9614 ¹⁾ Acoustics - Determination of sound power level of noise sources using sound intensity

EN ISO 11200 series ¹⁾ Acoustics - Noise emitted by machinery and equipments - Guidelines for the use of basic standards for the determination of emission sound pressure levels at the work station and at other specified positions (ISO 11200:1995)

EN ISO 11689 ¹⁾ Acoustics - Systematic collection and comparison of noise emission data for machinery and equipment (ISO 11689:1996)

EN 60204-1:1992 Safety of machinery - Electrical equipment of machines - Part 1: General requirements

EN 60947-5-1:1992 Low voltage switchgear and controlgear - Part 5: Control circuit devices and switching elements; Electro-mechanical control circuit devices

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¹⁾ These standards are in progress in ISO (revision of ISO 6081 in the case of the EN ISO 11200 series, revision of the ISO 3740 series, revision of ISO 4871, publication of ISO 9614 and 11689 pending).

3 Definitions

For the purposes of this European standard the definitions given in ENV 1070:1993 as well as the following definitions are applicable.

3.1 pincer (see figure 1 zone 1 - figure 2 zone 2 - figure 3B zone 1): Device for gripping, pulling or holding the upper and/or lining

3.2 wiper (see figure 1 zone 2 - figure 2 zone 1): An assembly used for moulding and attaching the upper and lining to the insole.

3.3 injector (see figure 1 zone 2 - figure 2 zone 1 and 3 - figure 3A zone 1): Device for applying cement onto the insole, upper or lining.

3.4 lasting finger, lasting band, roll (see figure 2 zone 2 - figure 3A zone 1): A tool for moulding and attaching the upper/lining edge to the insole.

3.5 driver (see figure 2 zone 1 and 3 - figure 3B zone 1): Tacking hammer.

3.6 heel band: Heel seat moulding device.

3.7 toe band (see figure 1 zone 2): Upper holding and moulding device in the toe area.

3.8 side clamp (see figure 1 zone 2 - figure 2 zone 2): Device for holding the side upper/lining.

3.9 toe pad: (see figure 1 zone 2): Device for holding and pressing the last in the toe area against the wipers.

3.10 heel rest: (see figure 1 zone 3): Device for holding the back of the shoe last.

3.11 wiper-head (see figure 1 zone 2): Support for the wiper assembly.

3.12 jack post (see figure 2 zone 1): Shoe last support.

3.13 sensor foot: (see figure 2 zone 1) Device for aligning the shoe last with the wipers.

3.14 toe holder (see figure 2 zone 4): Device for clamping the toe of the shoe last.

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3.15 driver clamp (see figure 3B zone 1): Device for guiding and supporting the driver.

3.16 thermocement melting chamber (see figure 3A zone 1): Enclosure where thermocement is melted prior to application.

3.17 working area: The zone of the machine which comprises:

- a) the area where lasting takes place by means of the wipers, pincers, side clamps, toe pads, jack post and heel rest;
- b) the loading area where the loading takes place;
- c) the operator standing area.

3.18 stop and release control: Device which stops the machine at any point in its cycle and returns the machine to rest.

4 List of hazards

4.1 The significant hazards at lasting machines are outlined in 4.3 to 4.9.

4.2 The danger zones which give rise to mechanical hazards are illustrated in figures 1, 2, 3A, 3B. The figures are informative only.

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Table 1: List of hazards

<u>Danger zone or source of hazard</u>	<u>Type of hazard</u>	<u>Zone</u>	<u>Figure/Machine</u>
4.3 Mechanical hazards			
4.3.1 Lasting area including - pincers, - wipers, wiper head, - side clamps, - toe pads, toe band, heel rest, - driver(s), driver clamp, - sensor foot, jack post, toe holder, - lasting finger, lasting band and rolls.	Crushing and/or shearing	1	1 and 3B
		2	2
	"	2	1
		1	2
	"	2	1 and 2
		2	2
	"	3	1
		1 and 3	2 and 3B
	"	1	2
		4	2
Crushing and/or shearing and entanglement	2	2	
	2 and 1	2 and 3A	
4.3.2 Movements of injectors or drivers	Impact and stabbing	1 and 3 1	2 3B
4.3.3 Other movements within the side lasting unit	Entanglement	2	2
4.3.4 Driver clamp	Ejection of machine parts	1	3B

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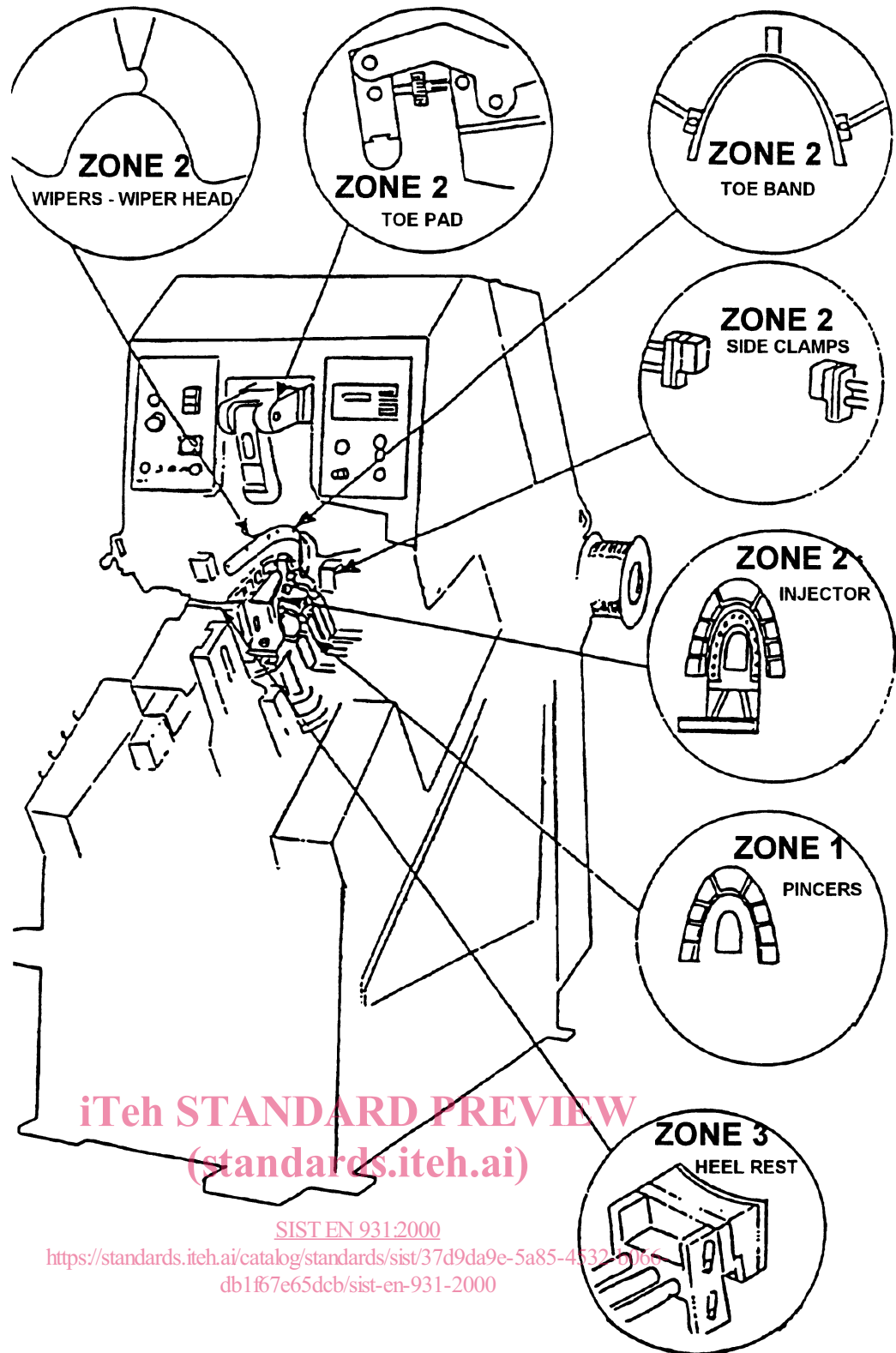


Figure 1: Fore part lasting machine