SLOVENSKI STANDARD
SIST EN 12653:2000+A2:2009

01-oktober-2009

Stroji za izdelavo obutve ter izdelkov iz usnja in njegovih imitacij - Žebljalniki - Varnostne zahteve

Footwear, leather and imitation leather manufacturing machines - Nailing machines - Safety requirements

Maschinen für die Herstellung von Schuhen aus Leder und Kunstleder - Nagelmaschinen - Sicherheitsanforderungen

Machines pour la fabrication des chaussures et articles en cuir et en matériaux similaires - Machines à clouer - Exigences de sécurité

Ta slovenski standard je istoveten z: **EN 12653:1999+A2:2009**

ICS:

59.140.40	Stroji in oprema za proizvodnjo usnja in krzna	Machines and equipment for leather and fur production
61.060	Obuvala	Footwear

SIST EN 12653:2000+A2:2009 **en,fr**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12653:1999+A2

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ICS 61.060

Supersedes EN 12653:1999

English Version

Footwear, leather and imitation leather manufacturing machines - Nailing machines - Safety requirements

Machines pour la fabrication des chaussures et articles en cuir et en matériaux similaires - Machines à clouer - Exigences de sécurité

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 12653:1999+A2:2009) 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of an identical text or by endorsement, at the latest by February 2010, and conflicting national standards shall be withdrawn at the latest by February 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12653:1999.

This document includes Amendment 1, approved by CEN on 2004-08-23 and Amendment 2, approved by CEN on 2009-07-16.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ⟨A1⟩ ⟨A1⟩ and ⟨A2⟩ ⟨A2⟩.

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).

⟨A2⟩ For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. ⟨A2⟩

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Introduction

[A2] This document is a type C standard as stated in EN ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations and hazardous events are covered are indicated in the scope of this document.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard. [A2]

1 Scope

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

— heel attaching machines (see figure 1)

— heel nailing machines (see figure 2)

— gang nailing machines (see figure 3)

This standard does not apply to gang nailing machines which comply in all respects with the requirements for seat lasting machines: see EN 931.

This standard specifies safety requirements for the design and construction of nailing machines. No specific requirements are included for transport, commissioning and decommissioning.

It takes account of intended use, [A2] foreseeable misuse and component [A2] and system failure.

This standard covers all hazards relevant to the footwear manufacturing industry. Use of the 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.

[A2] This document is not applicable to nailing machines which are manufactured before the date of its publication as EN. [A2]

2 Normative references

[A2] 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. [A2]

[A2] *deleted text* [A2]

EN 294:1992, *Safety of machinery — Safety distance to prevent danger zones being reached by the upper limbs*

EN 547-1, *Safety of machinery — Human body measurements — Part 1: Principles for determining the dimensions required for openings for whole body access into machinery*

EN 547-2, *Safety of machinery — Human body measurements — Part 2: Principles for determining the dimensions required for access openings*

[A2] *deleted text* [A2]

EN 574:1996, *Safety of machinery — Two-hand control devices — Functional aspects — Principles for design*

EN 894-1, *Safety of machinery — Ergonomic requirements for the design of displays and control actuators — Part 1: General principles for human interaction with displays and control actuators*

EN 894-2, *Safety of machinery — Ergonomic requirements for the design of displays and control actuators — Part 2: Displays*

[A2] EN 894-3 [A2], *Safety of machinery — Ergonomic requirements for the design of displays and control actuators — Part 3: Control actuators*

EN 931, *Footwear manufacturing machines — Lasting machines — Safety requirements*

EN 953:1997, *Safety of machinery — Guards — General requirements for the design and the construction of fixed and movable guards*

[A2] *deleted text* [A2]

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*

[A2] EN 999 [A2], *Safety of machinery — The positioning of protective equipment in respect of approach speeds of parts of the human body*

[A2] EN 1005-2, *Safety of machinery — Human physical performance — Part 2: Manual handling of machinery and component parts of machinery* [A2]

[A2] EN 1005-3 [A2], *Safety of machinery — Human physical performance — Part 3: Recommended force limits for machinery operation*

EN 1037:1995, *Safety of machinery — Prevention of unexpected start-up*

[A2] *deleted text* [A2]

EN 1088:1995, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

[A2] EN 1760-2:2001 [A2], *Safety of machinery — Pressure sensitive protective devices — Part 2: general principles for the design and testing of pressure sensitive edges and pressure sensitive bars*

[A2] *deleted text* [A2]

EN ISO 11688-1, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO TR 11688-1:1998)*

[A2] *deleted text* [A2]

[A2] EN ISO 12100–1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)* [A2]

[A2] EN ISO 12100–2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles (ISO 12100-2:2003)* [A2]

[A2] EN ISO 13732-1:2008, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces (ISO 13732-1:2006)* [A2]

[A2] EN ISO 13849-1, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2006)* [A2]

[A2] EN 12545:2000 [A2], *Footwear, leather and imitation leather goods manufacturing machines — Noise test code — Common requirements*

[A2] EN 60204-1:2006, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005 (modified))* [A2]

[A2] *deleted text* [A2]

EN 60947-4-1, *Low-voltage switchgear and control gear — Part 4 Contactors and motor-starters — Section 1: Electromechanical contactors and motor-starters* [A2] *(IEC 60947-4-1:2000)* [A2]

EN 60947-5-1, *Low-voltage switchgear and control gear — Part 5-1: Control circuit devices and switching elements — Electro-mechanical control circuit devices* [A2] *(IEC 60947-5-1:2003)* [A2]

[A2] EN 61310-1, *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, acoustic and tactile signals (IEC 61310-1:2007)* [A2]

3 [A2] Terms and definitions [A2]

[A2] For the purposes of this document, the terms and definitions given in EN ISO 12100-1:2003 and the following apply. [A2]

3.1
heel attaching machine (see figure 1)
machine which attaches the heel to the shoe by means of a screw while it is still on the last. The heel can be positioned on the shoe in advance by the use of an adhesive

3.2
heel nailing machine (see figure 2)
machine which nails the heel onto the unlasted shoe (shoe with no last) by means of nails and screw

3.3
gang nailing machine (see figure 3)
machine which nails the sole onto the shoe in the heel area using nails while it is still on the last

3.4
hold down (see zone 1 in figures 1, 2 and 3)
camping device to hold the heel during positioning on the unit sole and nailing process

3.5
nailing jack (see zone 2 in figures 1, 2 and 3)
device into which nails are fed before being nailed into the sole/heel by the drivers

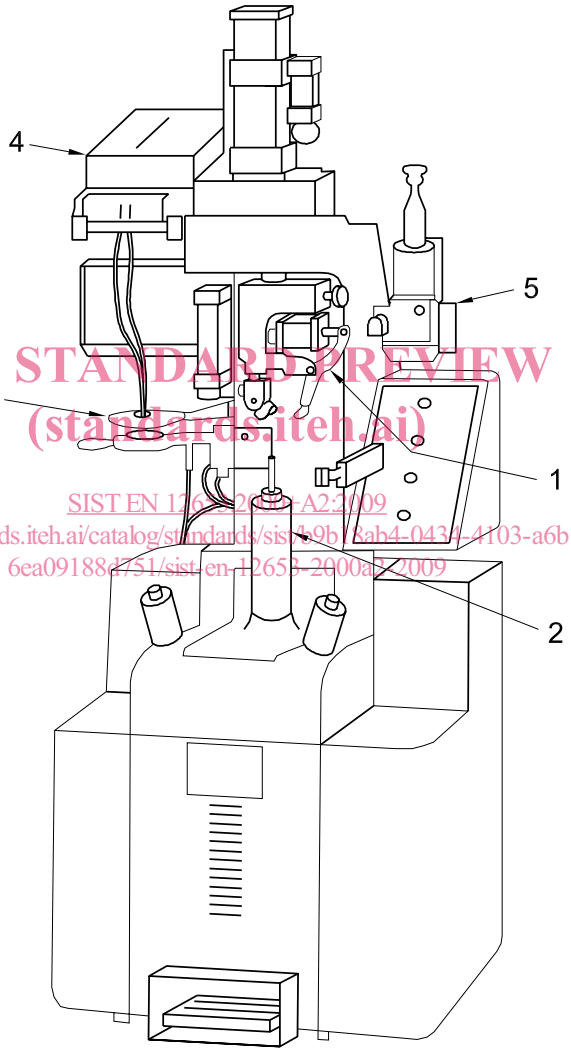
3.6
loader arm (see zone 3 in figures 1, 2 and 3)
device which carries the nails into the nailing jack

3.7

loader (see zone 4 in figures 1, 2 and 3)
a box which supplies nails to the loader arm

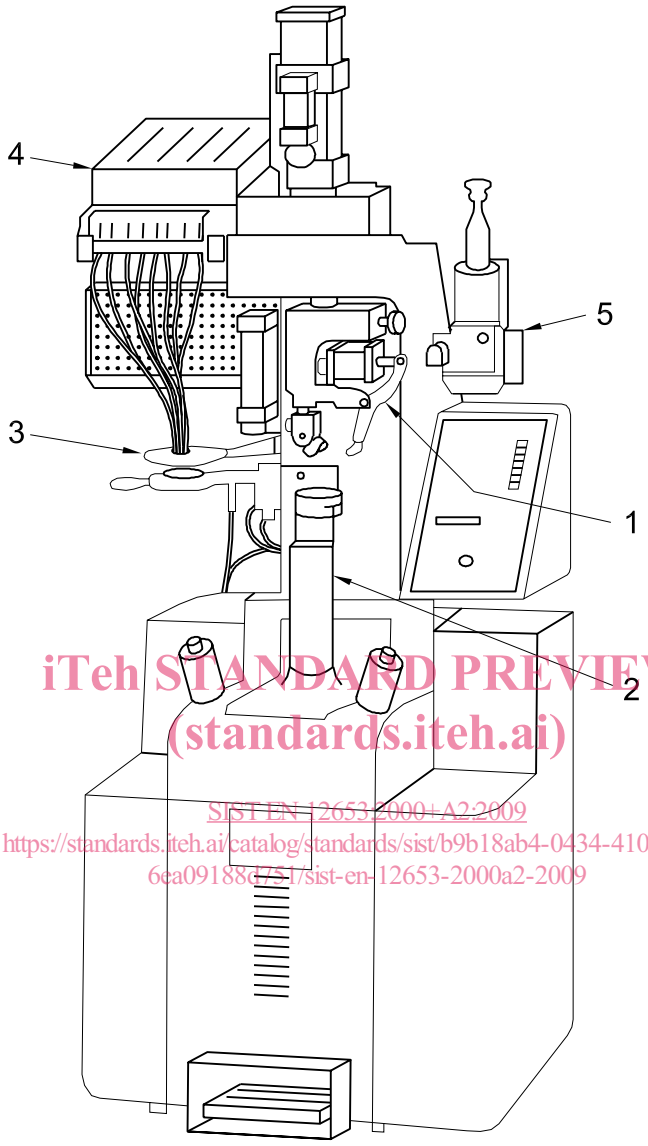
3.8
thermocement melting chamber (see zone 5 in figures 1 and 2)
enclosure where thermocement is melted prior to application

3.9
automatic cycle for unit sole
a cycle which includes clamping, nailing, clamping release and loading of nails and which can be initiated by a single control signal



Key
1 Zone 1: hold down
2 Zone 2: nailing jack
3 Zone 3: loader arm
4 Zone 4: loader
5 Zone 5: thermocement melting chamber

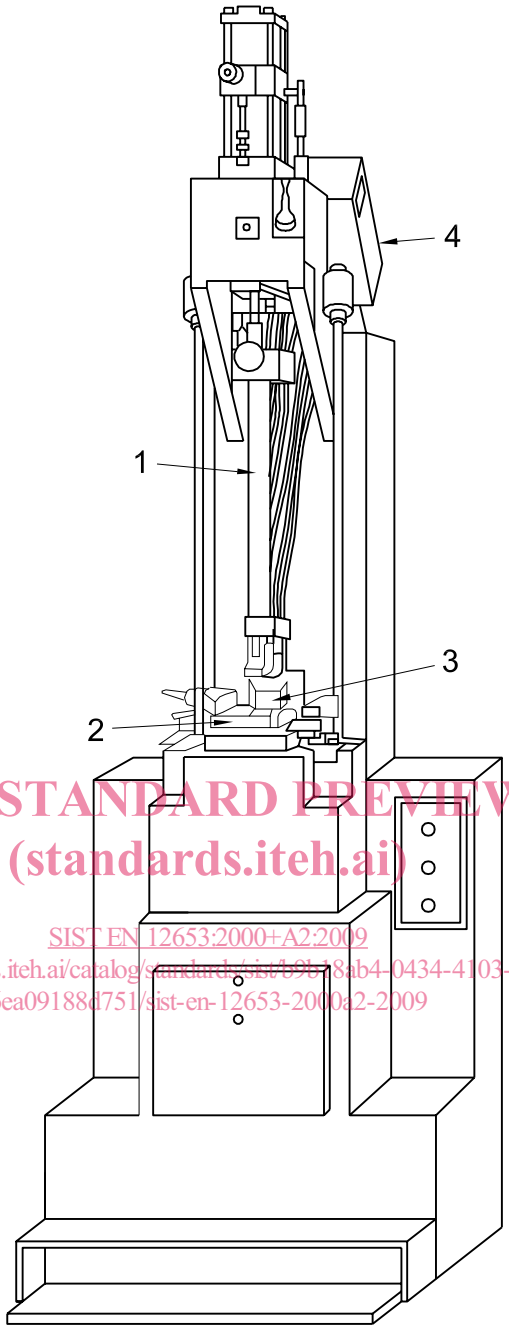
Figure 1 — Heel attaching machine



Key

1 Zone 1: hold down
2 Zone 2: nailing jack
3 Zone 3: loader arm
4 Zone 4: loader
5 Zone 5: thermocement melting chamber

Figure 2 — Heel nailing machine



Key
1 Zone 1: hold down
2 Zone 2: nailing jack
3 Zone 3: loader arm
4 Zone 4: loader

Figure 3 — Gang nailing machine

4 List of significant hazards

4.1 [A2] This clause contains all the significant hazards, hazardous situations and events, as far as they are dealt with in this document, identified by risk assessment as significant for this type of machinery and which require action to eliminate or reduce the risk. [A2]

The significant hazards of nailing 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, 3. The figures are informative only.

Table 1 — List of significant hazards

Danger zone or source of hazard	Type of hazard	Zone	Figure/Machine
4.3 Mechanical hazards			
4.3.1 Nailing area including - hold down clamp	Crushing	1	1-2-3
- nailing jack	Stabbing/puncture	2	1-2-3
- loader arm	Crushing and/or shearing	3	1-2-3
4.3.2 Movements of loader	Impact	4	1-2-3
4.4 Electrical hazard Electrical contact, direct or indirect caused by: - component failure - insulation failure - incorrect design, installation or component specification of the electrical equipment	Electric shock, burns		
4.5 Noise Noise generated by - the action of the tool on the material or component being worked - hydraulic unit - pneumatic equipment	Hearing loss or interference with communication and acoustic signals [A1] Tinnitus, tiredness and stress [A1]		1-2-3
4.6 Thermal hazard Thermocement chamber	Burns Contact with or inhalation of harmful fumes	5	1-2