SLOVENSKI STANDARD
SIST EN 930:2000+A2:2009

01-oktober-2009

Stroji za izdelavo obutve ter izdelkov iz usnja in njegovih imitacij - Stroji za grobo obdelavo, bruģenje, loģį enje in robljenje - Varnostne zahteve

Footwear, leather and imitation leather goods manufacturing machines - Roughing, scouring, polishing and trimming machines - Safety requirements

Maschinen zur Herstellung von Schuhen, Leder- und Kunstlederwaren - Aufrauh-, Ausglas-, Polier- und Kantenbearbeitungsmaschinen - Sicherheitsanforderungen

Machines pour la fabrication de chaussures et d'articles en cuir et matériaux similaires - Machines à carder, à verrer, à polir et à fraiser - Prescriptions de sécurité

Ta slovenski standard je istoveten z: **EN 930:1997+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 930:2000+A2:2009 **en**

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Footwear, leather and imitation leather goods manufacturing machines - Roughing, scouring, polishing and trimming machines - Safety requirements

Machines pour la fabrication de chaussures et d'articles en cuir et matériaux similaires - Machines à carder, à verrer, à polir et à fraiser - Prescriptions de sécurité

Maschinen zur Herstellung von Schuhen, Leder- und Kunstlederwaren - Aufrauh-, Ausglas-, Polier- und Kantenbearbeitungsmaschinen - Sicherheitsanforderungen

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Foreword

This document (EN 930:1997+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of an identical text or by endorsement, at the latest by February 2010, and conflicting national standards shall be withdrawn at the latest by February 2010.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 930:1997.

This document includes Amendment 1, approved by CEN on 2004-08-16 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▌

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

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

1.1 This standard applies to the following machines which are intended to work material for the manufacture of footwear:

— Automatic and manual roughing, scouring and polishing machines;

— Automatic and manual edge contour trimming machines.

1.2 This standard does not apply to modular shoe repair machines.

1.3 This standard specifies safety requirements for design, construction and operation.

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

1.4 This standard covers all hazards relevant to the footwear, leather and imitation leather goods manufacturing industries.

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 [A2] This document is not applicable to roughing, scouring, polishing and trimming 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*

[A2] *deleted text* [A2]

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

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

EN 626-1:1994, *Safety of machinery – Reduction of risks to health from hazardous substances emitted by machinery – Part 1: Principles and specifications for machinery manufacturers*

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

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

deleted text

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

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

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

deleted text

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

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

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

deleted text

EN 1088:1995, *Safety of machinery - Interlocking devices with or without guard locking – General principles and provisions for design*

EN 1093-1, *Safety of machinery — Evaluation of the emission of airborne hazardous substances — Part 1: Selection of test methods*

[A2] EN 1127-1:2007, *Explosive atmospheres — Explosion prevention and protection — Part 1: Basic concepts and methodology* [A2]

[A1] EN 12545:2000, *Footwear, leather and imitation leather goods manufacturing machines - Noise test code - Common requirements* [A1]

[A1] *deleted text* [A1]

[A1] EN ISO 11688-1, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO/TR 11688-1:1995)* [A1]

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

[A2] EN ISO 13850, *Safety of machinery - Emergency stop - Principles for design (ISO 13850:2006)* [A2]

[A2] *deleted text* [A2]

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

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

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

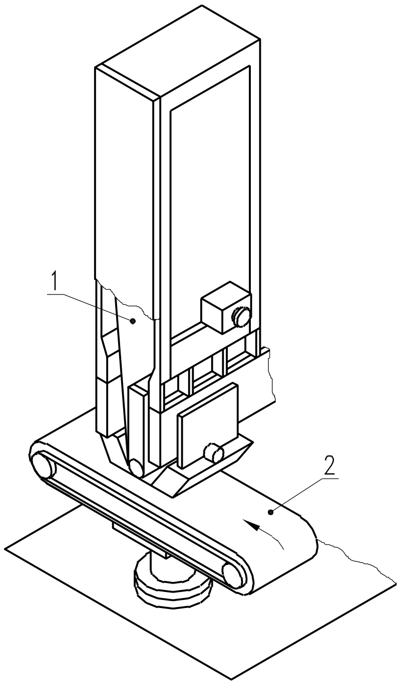
[A2] EN 61496-1, *Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and tests (IEC 61496-1:2004, modified)* [A2]

[A2] CLC/TS 61496-2, *Safety of machinery - Electro-sensitive protective equipment - Particular requirements for equipment using active optoelectronic protective devices (AOPDs) (IEC 61496-2:2006)* [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
roughing machine
a machine which transmits energy from a prime mover to a tool for the purpose of roughing surfaces of material used in the manufacture of footwear, leather and imitation leather goods and other related components prior to cementing



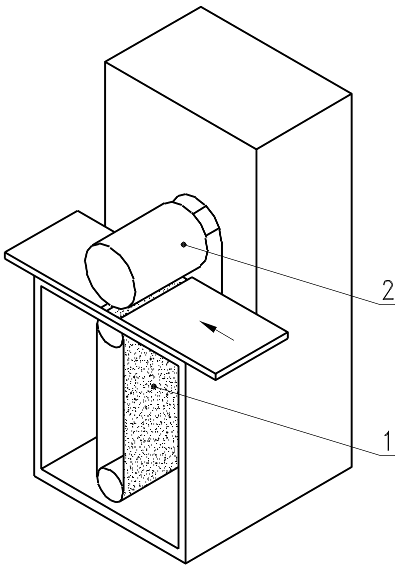
Key

1 abrasive band

2 transporter belt

Figure 1 — Roughing machine

3.2
scouring machine
a machine which transmits energy from a prime mover to a tool for the purpose of removing layers of material used in the manufacture of footwear, leather and imitation leather goods and other related components to obtain a semi-finished surface



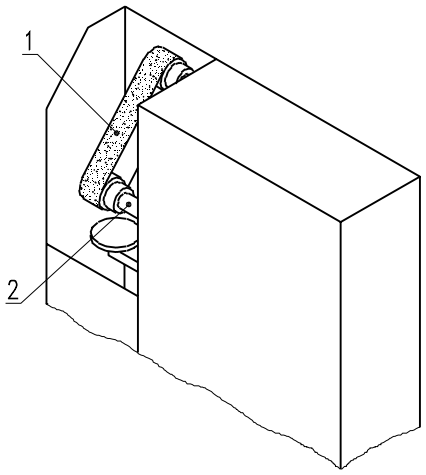
Key

1 abrasive band

2 transporter roller

Figure 2 — Scouring machine

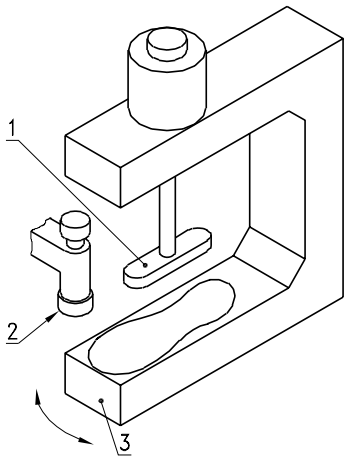
3.3
polishing and/or buffing machine
a machine which transmits energy from a prime mover to a tool for the purpose of removing or applying layers of material used in the manufacture of footwear, leather and imitation leather goods and other related components to obtain a finished surface



Key
1 abrasive band
2 drive shaft

Figure 3 — Polishing and/or buffing machine

3.4
trimming machine
a machine which transmits energy from a prime mover to a rotary tool for the purpose of trimming the edges of material used in the manufacture of footwear, leather and imitation leather goods and other related components



Key
1 plate clamp
2 trimming tools
3 mobile arm

Figure 4 — Trimming machine

3.5
tool
the part of the machine which acts directly on the material to be worked and which carries out the roughing, scouring, trimming or polishing action. It includes those tools defined in 3.5.1 to 3.5.7.

3.5.1
abrasive wheel
a wheel, cylinder, disc or cone which consists of abrasive particles held together by mineral, metallic or organic bonds whether natural or artificial

3.5.2
abrasive disc
a disc of metal, wood, cloth, felt, rubber or paper having any surface consisting wholly or partly of abrasive material

3.5.3
abrasive band
a continuous band of cloth, felt, rubber, paper or similar material the outside surface of which consists wholly or partly of abrasive material

3.5.4
abrasive steel tool
a tool with a rotating surface to which removable tips are fitted. These tips have an abrasive action

3.5.5
rotary cutter
a tool, with a rotating surface, which has multiple cutting edges

3.5.6
rotary polishing brush or mop
a device used to polish or brighten the surface

3.5.7
metal rotary brush
a device made of metal wire used for roughing the surface of the material being worked

3.6 Material feeding and handling device

3.6.1
transporter roller(s)
a cylindrical device for feeding the material to be worked

3.6.2
transporter belt
a movable band-shaped device for feeding the material to be worked to the operating area and then removing it

3.6.3
carriage
a mechanical feed device with or without clamps which has a reciprocating motion along guides

3.6.4
mobile arm
a handling device which may be adjusted to various positions in the operating area

3.7 Clamp, plate clamp

A device for holding the lasted shoe and/or components.

3.8 Working area

The zone of a machine which includes:

a) The tool, where roughing, scouring, polishing and trimming takes place;

b) The loading area where loading takes place;

c) The operator's standing area.

3.9 Stop and release control

Device which stops the machine at any point in its cycle and returns the machine to rest.

4 A2 List of significant hazards A2

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

4.2 A2 The significant hazards at roughing, scouring, trimming and polishing machines are outlined in 4.3 to 4.9. A2

The danger zones which give rise to mechanical hazards are illustrated in figures 5 to 10. The figures are informative only.

Table 1 — A2 List of significant hazards A2

Danger zone or source of hazard	Type of hazard	Zone	Figure
4.3 Mechanical hazards			

4.3.1 The zone between clamps, parts of the pincers and fixed machine	Crushing and shearing	A	5
4.3.2 The rotary cutters or moving tools and guides	Cutting, severing, drawing-in and trapping, entanglement	B	6
4.3.3 Material handling and feed devices, loading and clamping	Drawing-in, trapping, crushing, impact, entanglement	C	7
4.3.4 All abrasive rotary tools: wheel, disc, band, etc.	Ejection of tool parts, friction and abrasion	D	8
4.3.5 Tool area	Ejection of the processed material and/or of machine parts, impact	E	9
4.3.6 Transmission machinery and drive mechanism	Entanglement, drawing-in and trapping friction, impact	F	10

(continued)