



SLOVENSKI STANDARD

SIST EN 13457:2005+A1:2010

01-julij-2010

Stroji za izdelavo obutve ter izdelkov iz usnja in njegovih imitacij - Stroji za cepljenje, brušenje, rezanje ter nanos in sušenje lepila - Varnostne zahteve

Footwear, leather and imitation leather goods manufacturing machines - Splitting, skiving, cutting, cementing and cement drying machines - Safety requirements

Maschinen zur Herstellung von Schuhen, Leder- und Kunstlederwaren - Spalt-, Schärf-, Schneid-, Klebstoffauftrag- und Klebstofftrockenmaschinen - Sicherheitsanforderungen

Machines de fabrication de chaussures et d'articles en cuir et en matériaux similaires - Machines à refendre, à parer, à couper, à encoller et à sécher l'adhésif - Prescriptions de sécurité

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Ta slovenski standard je istoveten z: EN 13457:2004+A1:2010

ICS:

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61.060	Obuvala	Footwear

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 13457:2004+A1

April 2010

ICS 59.140.40; 61.060

Supersedes EN 13457:2004

English Version

**Footwear, leather and imitation leather goods manufacturing
machines - Splitting, skiving, cutting, cementing and cement
drying machines - Safety requirements**

Machines de fabrication de chaussures et d'articles en cuir
et en matériaux similaires - Machines à refendre, à parer, à
couper, à encoller et à sécher l'adhésif - Prescriptions de
sécurité

Maschinen zur Herstellung von Schuhen, Leder- und
Kunstlederwaren - Spalt-, Schärf-, Schneid-,
Klebstoffauftrag- und Klebstofftrockenmaschinen -
Sicherheitsanforderungen

This European Standard was approved by CEN on 8 August 2004 and includes Amendment 1 approved by CEN on 18 March 2010.

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EN 13457:2004+A1:2010 (E)**Foreword**

This document (EN 13457:2004+A1:2010) 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of an identical text or by endorsement, at the latest by October 2010, and conflicting national standards shall be withdrawn at the latest by October 2010.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 includes Amendment 1, approved by CEN on 2010-03-18.

This document supersedes EN 13457:2004.

The start and finish of text introduced or altered by amendment is indicated in the text by tags $\boxed{A_1}$ $\boxed{A_1}$.

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 Directives.

$\boxed{A_1}$ For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. $\boxed{A_1}$

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, Croatia, 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

[A1] deleted text [A1]

This document is a type C standard as stated in **[A1] EN ISO 12100 [A1]**.

The machinery concerned and the extent to which hazards, hazardous situations and 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 and B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for information for use and maintenance according to the provisions of this type C standard.

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EN 13457:2004+A1:2010 (E)**1 Scope**

1.1 This document applies to splitting, skiving, edge trimming, strip cutting, cementing and cement drying machines used in the manufacture of footwear, leather and imitation leather goods and other related components.

1.2 This document does not apply to:

- trimming machines with rotary milling tool for the purpose of trimming edges of material, see EN 930;
- splitting and band knife machines used in tanneries, see EN 13112;
- portable machines.

1.3 This document specifies safety requirements for construction, transport, installation, adjustment, setting, teaching or process change-over, operation, cleaning, maintenance, decommissioning, dismantling and, as far as safety is concerned, disposal for machines mentioned in 1.1.

It takes account of intended use ^(A1), foreseeable misuse ^(A1), component and system failure.

1.4 This document deals with significant hazards relevant to the footwear, leather and imitation leather goods manufacturing industries. (For a list of hazards see Clause 4.)

The document does not deal with precise technical measures for reducing the risks of fumes and dusts detrimental to health.

The use of machines falling within the scope of this document for purposes other than those specified in 1.1, may give rise to hazards not considered during its preparation.

1.5 This document also applies to equipment for material handling and operations which are an integral part of the machine.

1.6 This document assumes the machines

- are operated by adequately trained persons
- are used with adequate workplace lighting conforming the local regulations or to EN 12464-1. ^(A1) *deleted text* ^(A1)

1.7 ^(A1) This document is not applicable to splitting, skiving, edge trimming, strip cutting, cementing and cement drying machines which are manufactured before the date of its publication as EN. ^(A1)

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.

^(A1) *deleted text* ^(A1)

^(A1) EN 349:1993 ^(A1), *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*

^(A1) *deleted text* ^(A1)

^(A1) EN 547-1:1996 ^(A1), *Safety of machinery – Human body measurements – Part 1: Principles for determining the dimensions required for openings for whole body access into machinery*

EN 547-2:1996 ^{A1}, *Safety of machinery – Human body measurements – Part 2: Principles for determining the dimensions required for access openings*

^{A1} deleted text ^{A1}

EN 614-1:2006 ^{A1}, *Safety of machinery – Ergonomic design principles – Part 1: Terminology and general principles*

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 626-2:1996, *Safety of machinery – Reduction of risk to health from hazardous substances emitted by machinery – Part 2: Methodology leading to verification procedures* ^{A1}

^{A1} deleted text ^{A1}

EN 894-2:1997 ^{A1}, *Safety of machinery – Ergonomics requirements for the design of displays and control actuators – Part 2: Displays*

EN 894-3:2000 ^{A1}, *Safety of machinery – Ergonomics requirements for the design of displays and control actuators – Part 3: Control actuators*

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

^{A1} deleted text ^{A1}

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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 999:1998 ^{A1}, *Safety of machinery – The positioning of protective equipment in respect of approach speeds of parts of the human body*

EN 1005-2:2003, *Safety of machinery – Human physical performance – Part 2: Manual handling of machinery and component parts of machinery*

EN 1005-3:2002, *Safety of machinery – Human physical performance – Part 3: Recommended force limits for machinery operation*

EN 1037:1995 ^{A1}, *Safety of machinery – Prevention of unexpected start-up*

^{A1} deleted text ^{A1}

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

EN 1127-1:2007 ^{A1}, *Explosive atmospheres – Explosion prevention and protection – Part 1: Basic concepts and methodology*

EN 1760-1:1997 ^{A1}, *Safety of machinery – Pressure sensitive protective devices – Part 1: General principles for the design and testing of pressure sensitive mats and pressure sensitive floors*

EN 1760-2:2001 ^{A1}, *Safety of machinery – Pressure sensitive protective devices – Part 2: General principles for the design and testing of pressure sensitive edges and pressure sensitive bars*

EN 12464-1:2002 ^{A1}, *Light and lighting – Lighting of work places – Part 1: Indoor work places*

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A1 deleted text **A1**

EN 12545:2000, *Footwear, leather and imitation leather goods manufacturing machines – Noise test code – Common requirements*

A1 EN 13478:2001 **A1**, *Safety of machinery – Fire prevention and protection*

A1 EN 60204-1:2006, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005 (modified))* **A1**

EN 60335-2-69:2003, *Household and similar electrical appliances – Safety – Part 2-69: Particular requirements for wet and dry vacuum cleaners, including power brush, for industrial and commercial use (IEC 60335-2-69:2002, modified)*

EN 60947-5-1:2004, *Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices (IEC 60947-5-1:2003)*

A1 EN 61310-1, *Safety of machinery – Indication, marking and actuation – Part 1: Requirements for visual, acoustic and tactile signals (IEC 61310-1:2007)* **A1**

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

A1 CLC/TS 61496-2:2006, *Safety of machinery – Electro-sensitive protective equipment – Particular requirements for equipment using active opto-electronic protective devices (AOPDs) (IEC 61496-2:2006)* **A1**

A1 deleted text **A1**

A1 EN ISO 11688-1:2009 **A1**, *Acoustics – Recommended practice for the design of low-noise machinery and equipment – Part 1: Planning (ISO/TR 11688-1:1995)*

EN ISO 11688-2:2000, *Acoustics – Recommended practice for the design of low-noise machinery and equipment – Part 2: Introduction to the physics of low-noise design (ISO/TR 11688-2:1998)*

A1 EN ISO 11689:1996 **A1**, *Acoustics – Procedure for the comparison of noise-emission data for machinery and equipment (ISO 11689:1996)*

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

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

A1 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)* **A1**

A1 EN ISO 13849-1:2008, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2006)* **A1**

A1 EN ISO 13850:2008, *Safety of machinery — Emergency stop — Principles for design (ISO 13850:2006)* **A1**

A1 EN ISO 13857:2008, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)* **A1**

A1 EN ISO 14122-1:2001 **A1**, *Safety of machinery – Permanent means of access to machinery – Part 1: Choice of fixed means of access between two levels (ISO 14122-1:2001)*

EN ISO 14122-2:2001, *Safety of machinery – Permanent means of access to machinery – Part 2: Working platforms and walkways (ISO 14122-2:2001)*

3 Terms and definitions

[A1] For the purposes of this document, the terms and definitions given in EN ISO 12100-1:2003 and the following apply. **[A1]**

3.1

splitting machine (see Figure 1)

machine which separates leather or other splittable materials to a required thickness by cutting. The separated part is called split-leather. The material is fed to the cutting edge of the knife either between feeding rollers or, between a roller in a fixed or movable mounting, and a fixed guide

3.2

skiving machine (see Figure 2)

machine which profiles the edges of workpieces of leather or other materials. The material is fed to the cutting edge of a **[A1]** rotating **[A1]** knife either between the feeding rollers and a following roller, or a fixed guide foot

3.3

cutting machines

edge trimming and last margin and strip cutting machines

3.4

edge trimming and last margin machine (see Figures 3 and 4)

machine for final preparation of the edges of lining and edges of the upper after lasting by means of reciprocating or oscillating knives

3.5

strip cutting machine (see Figure 5)

stationary machine with circular rotating knives, roller plates or reciprocating knives for cutting straps, belts and strips of all kinds of leather as well as artificial leather, rubber, felt, plastic material. Any required cutting width can be obtained by inserting spacers between the knives

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3.6

cementing machine (see Figures 6, 7, 8, 9, 10 and 11)

machine applying cement to a workpiece by means of a roller, dipping device, nozzle, spraying nozzle or brush

3.7

cement drying machine (see Figure 12)

machine for removing the carrier medium (solvent or water) from adhesive coated material prior to activation. A reactivation device can be incorporated

3.8

hazardous movement

motion of a part of the machine or workpiece which may give rise to injury

3.9

danger points

points on splitting, skiving, edge trimming, strip cutting, cementing and cement drying machines which may give rise to personal injury due to controlled-path movements of drives, machinery parts, tools or workpieces

3.10

fixed cover

fixed guard installed to prevent by itself, or together with other parts, access to the danger zones from the covered side

3.11

fixed enclosing guard

fixed guard which prevents access to a danger zone from all sides

3.12

fencing

guard around danger zones of a machine or plant, which prevents uncontrolled access

EN 13457:2004+A1:2010 (E)**3.13****operating area**

zones in or around a machine which include:

- the area of manual loading and unloading;
- the operator standing or sitting area

3.14**processing area**

area of the machine where the workpiece is being split, skived, trimmed, cut, cemented or cement dried

3.15**inlet safety device**

device installed to prevent access from the feeding area into the processing area. This device can be:

- a fixed or movable guard;
- a trip device

3.16**feeding gap**

area through which material is fed to the processing area

4 A1 List of significant hazards A1

A1 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. A1

A1 **4.2 A1** A1 The significant hazards of splitting, skiving, edge trimming, strip cutting, cementing and cement drying machines are outlined in Table 1 (4.3 to 4.12). A1

NOTE Typical outlines of these machines together with explanatory sketches of processing areas are given in Figures 1 to 12. The Figures are given for information only.

A1 *deleted text* A1

Table 1 — **A1** List of significant hazards **A1**

Danger zone or source of hazard		Type of hazard	Figure
4.3	Mechanical hazards		
4.3.1	Transmission and drive mechanisms	entanglement, drawing-in and trapping, friction, crushing, shearing	
4.3.2	Moving machinery parts of <ul style="list-style-type: none"> - electrical - hydraulic - pneumatic - mechanical units and workpieces 	crushing, shearing, impact, drawing-in	
4.3.3	Loading and unloading area <ul style="list-style-type: none"> - clamping device - guiding rollers - handling device - conveyor 	crushing drawing-in, crushing crushing, shearing shearing, drawing in	J.1 12
4.3.4	Processing area <ul style="list-style-type: none"> a) Splitting, skiving, edge trimming, last margin and strip cutting machines - cutting areas <ul style="list-style-type: none"> edge of running or stationary <ul style="list-style-type: none"> • splitting knife • skiving knife • edge trimming knife • last margin trimming knife • strip cutting knife - rotating grinding wheel 	cutting, severing abrasion, ejection of parts, injury to eyes	1 2 3 4 5

Table 1 — **A1** List of significant hazards **A1** (continued)

Danger zone or source of hazard	Type of hazard	Figure
<p>4.3.5</p> <ul style="list-style-type: none"> - setting, adjustment of <ul style="list-style-type: none"> • skiving, splitting, strip cutting and • edge trimming knife • grinding wheel • sparks from dressing of grinding wheel • falling down/out of the uptilted skiving machine by gravity b) Cementing machines <ul style="list-style-type: none"> area between transport roller and application roller area between fixed machine parts e. g. dip tank and moveable suspension device centrifugal device for counters and heels area between moving sole or last shoe and moving brush c) Cement drying machines <ul style="list-style-type: none"> area between fixed machine parts and conveyor Operator's standing area <ul style="list-style-type: none"> - uneven, sloping, slippery platforms - steps - protruding parts <p>4.3.6</p> <p>Movement of machine due to gravity while being transported</p>	<p>cutting, severing</p> <p>abrasion, bursting</p> <p>injuries to skin and eyes, ignition source</p> <p>crushing, shearing</p> <p>crushing, drawing-in, abrasion</p> <p>shearing, crushing</p> <p>trapping</p> <p>crushing</p> <p>trapping, drawing-in, shearing</p> <p>slipping</p> <p>tripping</p> <p>falling</p> <p>crushing, shearing</p>	<p></p> <p>6, 7</p> <p>8</p> <p>8</p> <p>11</p> <p>12</p>
<p>4.4</p> <p>Electrical hazards</p> <p>Electrical contact, directly or indirectly, caused by</p> <ul style="list-style-type: none"> - component failure - insulation failure - incorrect design, installation or component specifications of the electrical equipment 	<p>electric shock, burns</p>	<p></p>
<p>4.5</p> <p>Thermal hazards</p> <p>Accidental contact with</p> <ul style="list-style-type: none"> - roller dressed by hot melt cement - hot melt chamber - nozzle - reactivation unit - during suspension or by squirting 	<p>risk of burns</p>	<p></p>
<p>4.6</p> <p>Fire hazards</p> <p>splitting, skiving machines</p> <ul style="list-style-type: none"> - the ignition of dust created by the action of the tool on the material being worked <p>cementing and cement drying machines</p> <ul style="list-style-type: none"> - the ignition of fumes of flammable liquid (solvent, solvent containing glue) 	<p>burns</p> <p>burns</p>	<p></p>

Table 1 — **A** List of significant hazards **A1** (concluded)

Danger zone or source of hazard		Type of hazard
4.7	Explosion hazards cementing and cement drying machines - the ignition of explosive atmosphere of inflammable liquid (solvent, solvent containing glue)	
4.8	Noise - hydraulic unit - pneumatic equipment - extraction equipment - machine parts and tools	loss of hearing, interference with speech communication and perception of acoustic signals
4.9	Emission of fumes or skin contact cementing and cement drying machines using solvent containing glue during - operation - setting - cleaning - overheating of hot melt - skin contact with solvents splitting and skiving machines - dust generated by cutting	risk of occupational disease (breathing system, skin, nervous system) (breathing system, skin)
4.10	Neglect of ergonomic principles - inadequate local lighting - poor operator posture - excessive effort during loading and unloading - poor control layout and display identification - unsuitable height and size in relation to human body dimensions	risk of occupational disease accidents resulting from poor visibility fatigue physical and mental stress psychological stress musculo-skeletal injury/repetitive strain injury (work related upper limb disorder)
4.11	Functional disorders: - failure of control system (malfunction safety devices and machine control) - fault of energy supply (irregularity failure, unexpected reconnection) - electromagnetic disturbances	all possible hazards generated by unexpected dangerous movements (e. g. unexpected start or closing movement, prevention of stop function)
4.12	High pressure fluid ejection or ejection of part of a burst component by failure of hydraulic or pneumatic unit (broken hoses, fittings and pipework)	injury from hot oil or impact from flexible hoses