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SIST EN 12387:2005+A1:2009

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EUROPEAN STANDARD

**EN 12387:2005+A1**

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English Version

## Footwear, leather and imitation leather goods manufacturing machines - Modular shoe repair equipment - Safety requirements

Machines pour la fabrication de chaussures et d'articles chaussants en cuir et matériaux similaires - Equipement modulaire de réparation de chaussures - Prescriptions de sécurité

Maschinen zur Herstellung von Schuhen, Leder- und Kunstlederwaren - Schuhreparaturmaschinen - Sicherheitsanforderungen

This European Standard was approved by CEN on 10 January 2005 and includes Amendment 1 approved by CEN on 16 July 2009.

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This European Standard exists 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 CEN Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
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## Foreword

This document (EN 12387:2005+A1:2009) 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of an identical text or by endorsement, at the latest by February 2010, and conflicting national standards shall be withdrawn at the latest by February 2010.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 includes Amendment 1, approved by CEN on 2009-07-16.

This document supersedes EN 12387:2005.

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

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 Directive(s).

$\boxed{A_1}$  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, 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.

**EN 12387:2005+A1:2009 (E)****Introduction**

This document is a Type C standard as stated in **EN ISO 12100-1**.

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 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.

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## 1 Scope

**1.1** This document applies to the following machines including their additional equipment intended for the repair of footwear, leather and imitation leather goods as well as for the manufacture and repair of orthopaedic shoes hereafter called "Shoe Repair Machines":

- a) Polishing machines;
- b) Trimming machines;
- c) Scouring machines;
- d) Finishing machines;
- e) Orthopaedic finishing machines;
- f) Heel and sole press;
- g) Activating unit – Adhesive;
- h) Orthopaedic vacuum moulding press;
- i) Orthopaedic presses;
- j) Extraction equipment;
- k) Powered ranging device;
- l) Edge inking or staining machines;
- m) Mechanism for stationary nailing and stapling tools.

These machines can be standing alone or combined in a modular system for shoe repairs or the production of orthopaedic shoes including the lasts.

**1.2** This document does not apply to:

- a) Sewing machines
- b) Autosoling machines
- c) Sole stitching machines
- d) Hand operated pneumatic nail drivers or staple tackers.

**1.3** This document specifies safety requirements for construction, transport, installation, setting, adjustment, programming or converting, operating, cleaning, maintenance for the machines listed in 1.1.

**1.4** This document deals with all significant hazards, hazard situations and events relevant to shoe repair machines when they are used as intended and under the conditions foreseen by the manufacturer (see Clause 4). The document does not deal with hazards due to use of the machines different from the use defined in 1.1.

**1.5** This document assumes the machines are:

- operated by adequately trained persons

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— used with adequate workplace lighting (see EN 12464-1).

**1.6** A1 This document is not applicable to shoe repair 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.

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

EN 349:1993, *Safety of machinery – Minimum gaps to avoid crushing of parts of the human body*

A1 *deleted text* A1

A1 EN 574 A1, *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 842, *Safety of machinery – Visual danger signals – General requirements, design and testing*

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

A1 *deleted text* A1

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

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

A1 *deleted text* A1

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

EN 1127-1, *Explosive atmospheres – Explosion prevention and protection – Part 1: Basic concepts and methodology*

EN 1837, *Safety of machinery - Integral lighting of machines*

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

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

A1 EN ISO 11688-1 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, *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)*



EN ISO 11689, *Acoustics – Procedure for the comparison of noise emission data for machinery and equipment*

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)*

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

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

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

EN ISO 14122-1, *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 60204-1:2006, *Safety of machinery – Electrical equipment of machines – Part 1: General requirements (IEC 60204-1:2005 (modified))*

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

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### 3 Terms and definitions

For the purposes of this document the terms and definitions given in EN ISO 12100-1:2003, EN ISO 12100-2:2003, and the following apply:

#### 3.1

##### scouring section or machine

section or machine which transmits energy from a prime mover to a tool for the purpose of removing layers of material

#### 3.2

##### abrasive disc/cone

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

#### 3.3

##### polishing section or machine

section or machine which transmits energy from a prime mover to a tool for the purpose of removing or applying layers of material

#### 3.4

##### trimming section or machine

section or machine which transmits energy from a prime mover to a rotary tool for the purpose of trimming the edges of material

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- 3.5**  
**naumkeag section**  
section which transmits energy from a prime mover to an abrasive tool for the purpose of removing fine layers of materials
- 3.6**  
**tool**  
includes rotary cutters, abrasive bands, discs, pads and wheels, abrasive steel tools, rotary brushes, pads and mops, edge irons, drills
- 3.7**  
**abrasive wheel**  
rotating wheel, cylinder, disc or cone which consists of natural or artificial abrasive particles held together by mineral, metallic or organic bond
- 3.8**  
**finishing machine**  
machine consisting of several sections including scouring as defined in 3.1, 3.3, 3.4 and 3.5
- 3.9**  
**orthopaedic finishing machine**  
machine generally as a finishing machine adapted at the trimming, scouring and naumkeag sections in order to work on the manufacture and repair of orthopaedic footwear and lasts
- 3.10**  
**abrasive band**  
band of cloth, felt, rubber, paper or similar material, the outside surface of which consists wholly or partly of abrasive material
- 3.11**  
**presses**  
combined heel and sole press/orthopaedic press: A machine which transmits energy from a prime mover to a pad or an inflatable bag containing a gas or a liquid for the purpose of applying pressure to a component
- 3.12**  
**adhesive activating equipment**  
device for activation by heat of applied adhesive
- 3.13**  
**powered ranging device**  
device which transmits energy from a prime mover to a cutting tool for the purpose of removing surplus material from the edges of soles and heels when attached to repaired shoes, and for cutting strips of material
- 3.14**  
**heel attaching machine**  
machine which transmits energy from a prime mover to a number of drivers which drive nails, pins or staples through the insole and sole seat into a heel unit
- 3.15**  
**edge inking or staining machines**  
machine which transmits ink and/or wax to an applicator for the purpose of staining the edges of materials
- 3.16**  
**edge iron**  
rotating disc, singular or in combination for the purpose of setting the edge of soles, heels and other components

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**3.17****working area**

area of the machine which covers:

- a) tool area in which the operating cycles take place;
- b) operator's position.

**4 A1 List of significant hazards A1**

**4.1** 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 (see 4.1 – 4.10 of Table 1).

NOTE Typical outlines of these machines together with significant danger areas are given in Figures 1 and 2 and Annex B. A1 The Figures are given for information only. A1

**4.2** A1 *deleted text* A1 Before using the standard it is important to carry out a risk assessment of shoe repair machines to check that its significant hazards are identified in this clause.

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

Danger zone or source of hazard		Type of hazard	Figure	Rel. No. in Clause 5 of this document
4.1	<b>Mechanical hazards</b>			
4.1.1	<b>Transmission and drive mechanisms</b>	entanglement or drawing in, trapping, friction, impact, crushing and shearing		5.2.1.1
4.1.2	<b>Moving machinery parts, tools, work pieces</b>	drawing in and trapping, friction, impact, crushing and shearing		5.3.1.1 5.2.1.2 5.2.1.3 5.2.1.4
4.1.3	<b>Finishing machines</b>			
4.1.3.1	<b>Scouring section</b> - all abrasive tools  - abrasive wheel: Bursting	particle ejection from tool friction, abrasion, drawing-in or entanglement, trapping  Flying parts		5.3.1.2 5.3.1.3  5.3.1.4
4.1.3.2	<b>Naumkeag section</b>  Naumkeag when fitted with drill	particle ejection from tool friction, abrasion, drawing-in or entanglement, trapping  stabbing or puncture		5.3.1.6  5.3.1.5
4.1.3.3	<b>Trimming section</b> Rotating tools and guides  Manual or power positional changing of tools	cutting, severing, drawing-in, trapping, particle ejection  entanglement, crushing, shearing		5.3.1.7  5.3.1.8 5.3.1.9
4.1.3.4	<b>Polishing section</b> Rotating tools  Power or manual positional of any changing of tools	entanglement  crushing and shearing		  5.3.1.2

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

Danger zone or source of hazard		Type of hazard	Figure	Rel. No. in Clause 5 of this document
4.1.4	<b>Heel and sole presses</b> Pressing area between pressing pad/lasting mould or work piece area between pressing pad and body of machine when returns	crushing and shearing		5.3.2.1 5.3.2.2 5.3.2.3
4.1.5	<b>Mechanism for stationary nailing and stapling tools</b> Accidental operation by advancing the work piece	shoot in of nails and staplers	3	5.3.3
4.1.6	<b>Powered ranging device</b>	cutting, severing, shearing	4	5.3.4
4.2	<b>Operator's position</b> - protruding parts - uneven, sloping, slippery platforms - steps	slips, trips and falls		5.2.1.5
4.3	<b>Electrical hazard</b> Electrical contact, direct or indirectly, caused by - component failure - insulation failure - incorrect design, installation or component specification of the electrical equipment	electric shock or burns		5.2.2.1 5.2.2.2
4.4	<b>Thermal hazard</b> - accidental contact with hot surfaces	risk of burns		5.2.3
4.5	<b>Noise</b> - the action of the tool on the worked material or component - pneumatic systems - extraction equipment - motor and transmission equipment	damage to hearing, physiological disorders, interference with speech-communication and acoustic signals		5.2.4
4.6	<b>Emission of dust</b> The action of the tool on the materials being worked create leather, plastic or rubber dust	risk of occupational disease (respiratory problems)		5.2.5