SLOVENSKI STANDARD
SIST EN 13112:2003+A1:2010

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Strojarski stroji - Stroji za cepljenje in traḷ no striģenje - Varnostne zahteve

Tannery machines - Splitting and bandknife shearing machines - Safety requirements

Gerberei-Maschinen - Spalt- und Bandmesserschermaschinen - Sicherheitsanforderungen

Machines de tannerie - Machines à refendre et tondeuses à ruban - Prescriptions de sécurité

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ICS:

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

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Tannery machines - Splitting and bandknife shearing machines - Safety requirements

Machines de tannerie - Machines à refendre et tondeuses à ruban - Prescriptions de sécurité

Gerberei-Maschinen - Spalt- und Bandmesserschermaschinen - Sicherheitsanforderungen

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Contents

Foreword

This document (EN 13112:2002+A1:2009) has been prepared by Technical Committee CEN/TC 200, "Tannery 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of an identical text or by endorsement, at the latest by May 2010, and conflicting national standards shall be withdrawn at the latest by May 2010.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 2009-10-10.

This document supersedes EN 13112:2002.

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

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).

⟨A1⟩ For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. ⟨A1⟩

Annex A is normative.

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

〈A1〉 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. 〈A1〉

1 Scope

This European Standard specifies safety requirements for design, construction, operation, adjustment, setting, cleaning and maintenance of

— splitting machines (see figures 1, 2) for limed hides and skins, wet blue and dry materials,

— bandknife shearing machines (see figures 3, 4, 5, 6)

used in the splitting and shearing of leather and synthetic materials.

This standard takes account of intended use, foreseeable misuse, component and systems failure.

The machines are for fixed installation.

〈A1〉 This document is not applicable to the splitting and bandknife shearing machines which are manufactured before the date of its publication as EN. 〈A1〉

All the significant hazards listed in clause 4 are safeguarded by the requirements included in clause 5 except dust and fire.

For these hazards general guidelines are proposed in normative annex A.

Designers and manufacturers shall verify directly that the methods adopted to reduce these hazards have been successful.

This standard does not establish any requirements for electromagnetic disturbances.

NOTE Directive 94/9/EC concerning equipment and protective systems intended for use in potentially explosive atmospheres can be applicable to the type of machine or equipment covered by this European Standard. The present standard does not necessarily comply with Directive 94/9/EC. Additional safety requirements in a future revision of this standard can be necessary to satisfy Directive 94/9/EC.

2 Normative references

〈A1〉 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〉

〈A1〉 *deleted text* 〈A1〉

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

〚A1〛 *deleted text* 〚A1〛

EN 626-1:1994, *Safety of machinery — Reduction of risk 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 moveable guards*

〚A1〛 *deleted text* 〚A1〛

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*

EN 999:1998, *Safety of machinery — The positioning of protective equipment in respect of approach speeds of parts of the human body*

EN 1037, *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*

〚A1〛 EN 1760-2:2001, *Safety of machinery — Pressure sensitive protective devices — Part 2: General principles for the design and testing of pressure sensitive edges and pressure sensitive bars* 〚A1〛

〚A1〛 EN ISO 3743-1:1995 〚A1〛, *Acoustics — Determination of sound power levels of noise sources — Engineering methods for small, movable sources in reverberant fields – Part 1: Comparison method for hard-walled test rooms (ISO 3743-1:1994)*

〚A1〛 EN ISO 3743-2:1996 〚A1〛, *Acoustics — Determination of sound power levels of noise sources using sound pressure – Engineering methods for small, movable sources in reverberant fields — Part 2: Methods for special reverberation test rooms (ISO 3743-2:1994)*

〚A1〛 EN ISO 3744:1995 〚A1〛, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering method in an essentially free field over a reflecting plane (ISO 3744:1994)*

〚A1〛 EN ISO 3746:1995 〚A1〛, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Survey method using an enveloping measurement surface over a reflecting plane (ISO 3746:1995)*

〚A1〛 EN ISO 3747:2000 〚A1〛, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Comparison method for use in situ (ISO 3747:2000)*

〚A1〛 EN ISO 4871:1996 〚A1〛, *Acoustics — Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*

〚A1〛 EN ISO 7731:2008, *Ergonomics — Danger signals for public and work areas — Auditory danger signals (ISO 7731:2003)* 〚A1〛

EN ISO 9614-1:1995, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 1: Measurements at discrete points (ISO 9614-1:1993)*

EN ISO 9614-2:1996, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 2: Measurement by scanning (ISO 9614-2:1996)*

EN ISO 9614-3:2002, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 3: Precision method for measurement by scanning (ISO 9614-3:2002)*

EN ISO 11201:1995, *Acoustics — Noise emitted by machinery and equipment – Measurement of emission sound pressure levels at a work station and at other specified positions — Engineering method in an essentially free field over a reflecting plane (ISO 11201:1995)*

EN ISO 11202:1995, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a work station and at other specified positions — Survey method in situ (ISO 11202:1995)*

EN ISO 11203:1995, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions from the sound power level (ISO 11203:1995)*

EN ISO 11204:1995, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a work station and at other specified positions — Method requiring environmental corrections (ISO 11204:1995)*

EN ISO 11688-1:1998, *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)*

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

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

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

EN 60529:1991, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

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

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

3 Terms and definitions - Terminology

[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 machines (see Figures 1, 2)
machines which split wet or dry pelts, hides, skins, synthetic materials or material of vegetable origin into two or more layers. The materials are fed to an endless bandknife by means of transport rollers

3.2
bandknife shearing machines (see Figures 3, 4, 5, 6)
machines used to cut pelt hair at the required height with an endless bandknife. The pelt is fed into the working area by a conveying belt and returned after processing to the operator by means of a returning belt

3.3
accessible zone
any danger zone excepted the working zone

3.4
bandknife
endless steel band with a cutting edge on one side

3.5
blade guides
part of the machine that supports and guides the bandknife along the full working width

3.6
feed conveyor
motor-driven belt for feeding and removing of tanned and untanned hides and skins

3.7
fur choice belt
belt on which the operators select fur or wool according to its quality

3.8
grinding units
abrasive wheel which continuously keeps the bandknife sharpened

3.9
insertion table
surface in front of the feeding zone either in horizontal or inclined position for the presentation, feeding and spreading of the materials to be processed

3.10
knife wheel
large rotating guide wheel with a running surface at the periphery for carrying and guiding the bandknife

3.11
lower cross beam
part of the machines that supports the lower transport roller (gauge roller) and defines the positioning with respect to the bandknife

3.12
machine at rest (Bandknife shearing machine)
machine characterised by:

a) feed-in belt stopped;

b) returning conveying belt stopped;

c) bandknife stopped;

d) grinding units stopped;

e) extraction system stopped

3.13
machine at rest (splitting machine)
machine characterised by:

a) cross beams open;

b) transport rollers stopped;

c) bandknife stopped and guarded;

d) insertion table open;

e) grinding unit stopped

3.14
machine closing (splitting machine)
machine characterised by:

a) cross beams closing;

b) transport rollers stopped;

c) bandknife moving and in operating position;

d) insertion table closing;

e) grinding unit working

3.15
machine open, (splitting machine)
machine characterised by:

a) one or two cross beams open;

b) transport rollers moving;

c) bandknife moving and in operating position;

d) insertion table closed;

e) grinding unit working

3.16
machine working (bandknife shearing machine)
machine characterised by:

a) feed-in belt moving;

b) returning conveying belt moving;

c) bandknife moving;

d) grinding units working;

e) extraction system working

3.17
machine working, (splitting machine)
machine characterised by:

a) cross beams closed;

b) transport rollers moving;

c) bandknife moving and in operating position;

d) insertion table closed;

e) grinding unit working

3.18
pressure detector
device that checks the pressure difference made by extraction system

3.19
transmission parts
parts in motion acting singly or in combination which transmit motion to the working parts

3.20
transport rollers
rollers that allow movement of the material onto the bandknife and removal from the rear of the machine

3.21
upper cross beam
part of the machine that supports the upper transport roller and defines the positioning with respect to the bandknife

3.22
working parts
parts carrying out the process for which this machine was designed

3.23
working zones
zone around a power driven working part in which the work process takes place for the treatment and processing or manufacturing of products

3.24
feeding zone
part of the working zone, which has particular hazards and needs appropriate safety devices, in which the operators place the material to be split

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.

The significant hazards for splitting and bandknife shearing machines are outlined in 4.1 to 4.7.

The danger zones which give rise to mechanical hazards are illustrated in Figures 1, 2, 3, 4 and 5. The figures are informative only. A1

A1 Table 1 — List of significant hazards A1

Danger Zone	Source of hazard	Hazard	Zone	Figure	Safety requirements
4.1 Mechanical hazards **4.1.1 Splitting machine**					
Machine open (see 3.15)					
The feeding zone	The moving bandknife	Cutting	A, B	1, 2	5.3.1.1
Machine working (see 3.17)					
The feeding zone	Synchronised rollers rotation	Crushing Entanglement Trapping	A	1, 2	5.3.1.2
	the moving bandknife	Cutting	A	1, 2	5.3.1.2
Machine at rest (see 3.13)					
The feeding zone	the stopped bandknife	Cutting	A	1, 2	5.3.1.3
the zone around knife wheel	the stopped bandknife	Cutting	C	1	5.3.1.3
Machine closing (see 3.14)					
The feeding zone	the moving bandknife	Cutting	A,B	1, 2	5.3.1.4
The zone between the transport rollers	the closing transport roller movement	Crushing	A,B	1, 2	5.3.1.4
The zone between the lower transport roller and insertion table	closing insertion table movement	Crushing Shearing	D	2	5.3.1.4