



SLOVENSKI STANDARD
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Tannery machines - Rotating process vessels - Safety requirements

Gerberei-Maschinen - Rotierende Bearbeitungsgefäße - Sicherheitsanforderungen

Machines de tannerie - Tonneaux tournants - Prescriptions de sécurité

Ta slovenski standard je istoveten z: EN 13114:2002+A1:2009

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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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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

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Tannery machines - Rotating process vessels - Safety requirements

Machines de tannerie - Tonneaux tournants - Prescriptions de sécurité

Gerberei-Maschinen - Rotierende Bearbeitungsgefäße - Sicherheitsanforderungen

This European Standard was approved by CEN on 27 December 2001 and includes Amendment 1 approved by CEN on 10 October 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
EUROPÄISCHES KOMITEE FÜR NORMUNG

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EN 13114:2002+A1:2009 (E)**Foreword**

This document (EN 13114:2002+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of an identical text or by endorsement, at the latest by May 2010, and conflicting national standards shall be withdrawn at the latest by May 2010.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 13114:2002.

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 Directive(s).

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

Annex A is informative, the annexes B and C are 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

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

1.2 This standard covers the following machines (see annex C and Figures 1 and 2 for typical configurations):

- a) horizontal rotating vessels;
- b) inclined rotating vessels.

1.3 This standard does not apply to machines using substances containing solvent, that would generate fume and/or vapour detrimental to health, or that may lead to fire or explosive atmosphere.

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

The machines are for fixed installation.

1.5 **A1** This document is not applicable to the rotating vessels which are manufactured before the date of its publication as EN. **A1**

1.6 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*

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

A1 deleted text **A1**

EN 982:1996, *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*

A1 EN 1005-3:2002, *Safety of machinery — Human physical performance — Part 3: Recommended force limits for machinery operation* **A1**

A1 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*

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 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)* **A1**

A1 EN ISO 11201:1995 **A1**, *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)*

A1 EN ISO 11202:1995 **A1**, *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 ^{A1}, *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 ^{A1}, *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 ^{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 ^{A1}, *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)* ^{A1}

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

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

EN ISO 14121-1:2007, *Safety of machinery — Risk assessment — Part 1: Principles (ISO 14121-1:2007)* ^{A1}

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

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)* ^{A1}

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)* ^{A1}

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100-1:2003 and the following apply. ^{A1}

3.1

rotating process vessels

machines used for the processing of animal hides and skins (as described in annex C). They are vessel type processing machines which are equipped with:

- a) upward and downward rotation of external bodies;
- b) opening and closing movement of the door.

3.2

accessible zone

any danger zone except the working zone

3.3

automatic door

drum door in which both operations, release and sliding, are made by a remote control

EN 13114:2002+A1:2009 (E)**3.4****flow detector**

device used to measure extraction system air flows

3.5**loading and unloading zone**

zone where the hide and skin loading and unloading takes place; it has particular hazards and needs particular safety devices

3.6**milling drum (dry drum)**

drum used to soften the hides and skin in the absence of a bath

3.7**other part**

other part not defined

3.8**semi-automatic door**

drum door in which one of two operations for opening the door, release and sliding, is made by the operator

3.9**wet processing vessel**

drum which during the working cycle uses, besides hides and skins, chemical products and water

3.10**transmission part**

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

3.11**locking system**

device that automatically acts on the drum immediately rotation has ceased, to prevent unintended rotation due to gravity during loading and unloading operations

3.12**working part**

part carrying out the process for which this machine was designed

3.13**working zone**

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

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 at rotating vessels are outlined in 4.1 to 4.9.

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

Table 1 — List of significant hazards ^(A1)

Danger Zone and Source of hazard	Hazard	Zone	Figure	Safety requirements
4.1 Mechanical hazards				
4.1.1 General				
4.1.1.1 Manual door with horizontal and vertical sliding - door opening and closing movements	Crushing Shearing	H,G	1a, 1b	5.2.10.2 5.2.10.3
4.1.1.2 Moving transmission part	Crushing Shearing Entanglement Trapping	B	2	5.2.1.1
4.1.2 Wet processing vessels				
4.1.2.1 Rotating body access from the front - moving - stopped	Crushing Entanglement Trapping Impact Impact	A A	2 2	5.3.1.1 5.3.1.3
4.1.2.2 Rotating body access - loading area	Crushing Entanglement Trapping Impact	D	2	5.3.1.2 5.3.1.3
4.1.2.3 Powered door - closing and opening movements	Crushing Shearing Trapping	H,G	1a, 1b	5.3.1.4
4.1.2.4 Rotating body access from the sides	Crushing Entanglement Trapping Impact	C,E,F	2	5.4.1
4.1.3 Dry milling drums				
4.1.3.1 Rotating body access from the front - moving - stopped	Crushing Entanglement Trapping Impact Impact	A A	3 3	5.3.2.1 5.3.2.2

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Danger Zone and source of hazard	Hazard	Zone	Figure	Safety requirements
4.1.3.2 Rotating body access from the rear	Crushing Entanglement Trapping Impact	D	3	5.3.2.3
4.1.3.3 Powered door - closing and opening movements	Crushing Shearing Trapping	H,G	1a, 1b	5.3.2.4
4.1.3.4 Rotating body access from the sides	Crushing Entanglement Trapping Impact	C	3	5.4.2
4.2 High pressure fluid ejection				
High pressure fluid and burst component part ejection	Burn and injury from hot oil or tubing under pressure			5.2.2
4.3 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			5.2.3
4.4 Slip trip and fall hazard				
Discharge of water, grease and chemical product from rotating vessel upon the floor	Slip and fall			5.2.4
4.5 Noise				
Noise generated by: - mechanical action of hides and skins during rotation - hydraulic unit - transmission and working parts	Hearing loss Interference with communication and acoustic signals			5.2.5