



# SLOVENSKI STANDARD

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Glavni naslov: Gerberei-Maschinen - Spalt- und Bandmesserschermaschinen - Sicherheitsanforderungen

Tannery machines - Splitting and bandknife shearing machines - Safety requirements

Gerberei-Maschinen - Spalt- und Bandmesserschermaschinen - Sicherheitsanforderungen

Machines pour tannerie - Machines a refendre et tondeuses a 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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ICS 59.140.40

English version

## Tannery machines - Splitting and bandknife shearing machines - Safety requirements

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

Gerberei-Maschinen - Spalt- und  
Bandmesserschermaschinen - Sicherheitsanforderungen

This European Standard was approved by CEN on 27 December 2001.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**Management Centre: rue de Stassart, 36 B-1050 Brussels**

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## Foreword

This document EN 13112:2002 has been prepared by Technical Committee CEN/TC 200, "Tannery machines and plants - 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of an identical text or by endorsement, at the latest by October 2002, and conflicting national standards shall be withdrawn at the latest by October 2002.

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 EC Directive(s).

For relationship with EC Directive(s), see informative annex ZA, which is an integral part of this document.

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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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## Introduction

This European Standard is a type C standard as stated in EN 1070.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this standard.

This European Standard is intended to draw the attention of designers and manufacturers of tannery splitting and bandknife shearing machines systematically to the relevant essential safety requirements and to suggest possible solutions representing the state of the art of the profession with respect to safety.

## 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.

This European Standard applies to the machines manufactured after its date of issue.

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

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 292-1:1991, *Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology.*

EN 292-2:1991/A1:1995, *Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles and specifications.*

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

EN 418:1992, *Safety of machinery - Emergency stop equipment, functional aspects - Principles for design.*

EN 457, *Safety of machinery- Auditory danger signals – General requirements, design and testing (ISO 7731:1986 modified).*

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.*

EN 954-1:1996, *Safety of machinery - Safety related parts of control systems - Part 1: General principles for design.*

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.*

EN 1070, *Safety of machinery – Terminology.* [SIST EN 13112:2003  
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EN 1088:1995, *Safety of machinery - Interlocking devices associated with guards – Principles for design and selection.*

prEN 1760-2:1996, *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 ISO 3743-1, *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).*

EN ISO 3743-2, *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).*

EN ISO 3744, *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).*

EN ISO 3746, *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).*

EN ISO 3747, *Acoustics - Determination of sound power levels of noise sources using sound pressure – Comparison method for use in situ (ISO 3747:2000).*

EN ISO 4871, *Acoustics - Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996).*

EN ISO 9614-1, *Acoustics - Determination of sound power levels of noise sources using sound – Part 1: Measurement at discrete points (ISO 9614-1:1993).*

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

prEN ISO 9614-3, *Acoustics - Determination of sound power levels of noise sources using sound – Part 3: Precision method for measurement by scanning (ISO/DIS 9614-3:2000).*

EN ISO 11201, *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, *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, *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, *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, *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 60204-1:1997, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:1997).*

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

EN 61496-1:1997, *Safety of machinery – Electro-sensitive protective equipment - General requirements and tests (IEC 61496-1:1997).*

prEN 61496-2:1997, *Safety of machinery – Electro-sensitive protective equipment - Particular requirement for equipment using active optoelectronic protective devices.*

### 3 Terms and definitions - Terminology

For the purposes of this European Standard, the terms and definitions given in EN 292-1 and EN 1070 together with the following apply.

#### 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

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**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

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**3.16  
machine working (bandknife shearing machine)**

machine characterised by:

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- 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

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**4 List of hazards**

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Before using this standard it is important to carry out a risk assessment.

The significant hazards for splitting machines are listed in 4.1 to 4.7.

This clause contains all the significant hazards, as far as they are dealt with in this standard, identified by risk assessment significant for this type of machinery and which require action to eliminate or reduce the risk.

Danger Zone	Source of hazard	Hazard	Zone	Figure	Safety requirements
<b>4.1 Mechanical hazards</b>					
<b>4.1.1 Splitting machine</b>					
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