SLOVENSKI STANDARD
SIST EN 13113:2003

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Strojarski stroji – Stroji za nanos z valjem – Varnostne zahteve

Tannery machines - Roller coating machines - Safety requirements

Gerberei-Maschinen - Walzenauftragmaschinen - Sicherheitsanforderungen

Machines de tannerie - Machines d'enduction a rouleaux - 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 - Roller coating machines - Safety requirements

Machines de tannerie - Machines d'enduction à rouleaux - Prescriptions de sécurité

Gerberei-Maschinen - Walzenauftragmaschinen - Sicherheitsanforderungen

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

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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 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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Contents

Foreword

This document EN 13113:2002 has been prepared by Technical Committee CEN/TC 200 "Tannery machines and plant - 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of an identical text or by endorsement, at the latest by October 2002, and conflicting national standards shall be withdrawn at the latest by October 2002.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.

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.

1 Scope

This European Standard deals with the following roller coating machines (see Figures 2 to 4 and normative annex A for description):

a) single and multi-roller contra-rotating machines (see Figure 2);

b) single and multi-roller synchronised machines (see Figure 3);

c) single and multi roller- contra-rotating /synchronised machines, so-called combined machines (see Figure 4).

The machines are not intended to be used during transportation.

This standard specifies safety requirements for design, construction and operation.

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

This standard takes account of material feeding and handling devices which, when attached to the machine, become an integral part.

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

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

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

EN 563:1994, *Safety of machinery - Temperatures of touchable surfaces - Ergonomics data to establish temperature limit values for hot surfaces.*

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

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).*

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 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.*

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).*

3 Terms and definitions

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

Definition and descriptions of each machine type are given in normative annex A.

3.1
roller coating machines (see Figure 1)
machines which are used to apply liquid coated substances on hides or skins. The substances are applied from a reservoir formed by the coating roller and a doctor blade. The hides or skins are fed to the coating roller either directly or by means of a transport belt

3.2
accessible zone
any danger zone except the working zone

3.3
belt washing system with brush roller and scraper rubber blade
system used to clean the transport belt from substances, not applied to hides or skins, that would otherwise cause contamination

3.4
coating roller
roller that applies the substances contained in the colour space, onto the hides or skins

3.5
colour space
zone which collects the material to be coated. It is formed by the contact between the doctor blade and the coating roller

3.6
doctor blade
blade that uniformly distributes the substances on the coating roller

3.7
drive roller
roller that moves the transport belt

3.8
feeding-in table
table that allows hides or skins to be introduced into the working area

3.9
rubberised counter pressure roller
roller used to adjust the pressure hand gap in which the skin is processed

3.10
spreading belt
belt used to spread the skin before it is passed between the working rollers

3.11
transport belt
belt that feeds-in the hides or skins into the working area

3.12
transmission parts
parts in motion acting singly or in combination which transmit motion to the working parts

3.13
turning device with coating roller
device that carries non working rollers and whose rotation executes roller change

3.14
working parts
parts carrying out the process for which this machine was designed

3.15
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

3.16
feed-in 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 List of hazards

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

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
4.1 Mechanical hazards					
4.1.1 Single roller contra-rotating machine					
The feed-in zone	Coating roller and rubberised counter pressure roller rotation	Crushing Entanglement Trapping	A	2a	5.2.1.2 and 5.3.1.1
Colour space	Doctor blade	Cutting Trapping	F	2a	5.2.1.2 and 5.3.1.2
Drive roller	Drive roller rotation	Crushing Entanglement Trapping	D	2a	5.2.1.2
4.1.2 Single roller contra-rotating machine with spreading belts					
The feed-in zone	Spreading belts movements	Crushing Entanglement Trapping Friction/Abrasion	B	2b	5.2.1.2 and 5.3.2.1
For zones D, F see 4.1.1 of this standard					
4.1.3 Single roller synchronised machine					
The feed-in zone	Coating roller and rubberised counter pressure roller rotation	Crushing Entanglement Trapping	A	3a	5.2.1.2 and 5.3.3.1
Colour space	Doctor blade	Cutting Trapping	F	3a	5.2.1.2 and 5.3.3.2
Drive roller	Drive roller rotation	Crushing Entanglement Trapping	D	3a	5.2.1.2

Danger Zone	Source of hazard	Hazard	Zone	Figure	Safety requirements
4.1.4 Single roller synchronised machine with spreading belts					
The feed-in zone	coating roller and rubberised counter pressure roller rotation	Crushing Entanglement Trapping Friction/Abrasion	B	3b	5.2.1.2 and 5.3.4.1
For zones D, F see 4.1.3 of this standard					
4.1.5 Single roller synchronised machine with rubberised roller					
The feed-in zone	coating roller and rubberised counter pressure roller rotation	Crushing Entanglement Trapping Friction/Abrasion	A	3c	5.2.1.2 and 5.3.4.1
For zones A, F see 4.1.3 of this standard					
4.1.6 Single roller contra-rotating / synchronised machine (combined machine) -– Contra-rotating working configuration					
The feed-in zone	Coating roller and rubberised counter pressure roller rotation	Crushing Entanglement Trapping	A	4a	5.2.1.2 and 5.3.6.1
Colour space	Doctor blade	Cutting Trapping	F	4a	5.2.1.2 and 5.3.6.2
Drive roller	Drive roller rotation	Crushing Entanglement Trapping	D	4a	5.2.1.2
4.1.7 Single roller contra-rotating / synchronised machine (combined machine) – Synchronised working configuration					
The feed-in zone	Coating roller and rubberised counter pressure roller rotation	Crushing Entanglement Trapping	A	4b	5.2.1.2 and 5.3.7.1
Colour space	Doctor blade	Cutting Trapping	F	4b	5.2.1.2 and 5.3.7.2
Drive roller	drive roller rotation	Crushing Entanglement Trapping	D	4b	5.2.1.2

Danger Zone and source of hazard	Hazard	Zone	Figure	Safety requirements
4.2 High pressure fluid ejection				
High pressure fluid ejection or ejection of a burst component part by failure of hydraulic unit (broken hoses, fittings and tubes)	Burn and impact from hot oil or machinery parts 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				
Spilling and overflowing of substances during processing.	Slip			5.2.4
4.5 Noise				
Noise generated by: - action of the roller on the material - hydraulic unit	Hearing loss Interference with communication and acoustic signals			5.2.5