SLOVENSKI STANDARD
SIST EN 972:2000

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Tannery machines - Reciprocating roller machines - Safety requirements

Tannery machines - Reciprocating roller machines - Safety requirements

Gerberei-Maschinen - Walzenmaschinen - Sicherheitsanforderungen

Machines de tannerie - Machines a cylindres alternatifs - Prescriptions de sécurité

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English version

Tannery machines - Reciprocating roller machines - Safety requirements

Machines de tannerie - Machines à cylindres alternatifs - Prescriptions de sécurité

Gerberei-Maschinen - Walzenmaschinen - Sicherheitsanforderungen

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This European Standard 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of an identical text or by endorsement, at the latest by September 1998, and conflicting national standards shall be withdrawn at the latest by September 1998.

This European Standard 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).

For relationship with EU Directive(s), see informative Annex ZA, informative, which is an integral part of this standard

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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

0 Introduction

This European Standard is a type C standard as stated in ENV 1070:1993.

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

1 Scope

This European Standard specifies safety requirements for all the phases of the life of a machine listed in 3.11 a) of EN 292-1: 1991.

Reciprocating roller machines are machines used for the processing of animal hides and skins. They have a reciprocating opening and closing motion of the feed rollers or conveyors which, if required, may also reverse their direction.

This standard covers the following reciprocating roller machines (see figures 1 to 13 for typical configurations and annex D for descriptions):

a) buffing machines
(see figures 1a and 1b)
b) polishing machines
(see figures 1a and 1b)
c) ironing machines (woolskins and fur)
(see figures 2a and 2b)
d) carding machines
(see figures 3a and 3b)
e) shearing machines (woolskins and fur)
(see figures 4a and 4b)
f) cylinder universal staking machines
(see figures 5a and 5b)
g) setting-out machines
(see figures 6a and 6b)
h) dewooling machines
(see figures 6a and 6b)
i) scudding machines
(see figures 6a and 6b)
j) unhairing (dehairing) machines
(see figures 6a and 6b)
k) sammying machines
(see figures 6a and 6b)
l) cylinder ironing machines
(see figures 7a and 7b)

m) cylinder staking machines
(see figures 8a and 8b)
n) fleshing machines
(see figures 9a and 9b)
o) demanuring machines
(see figures 10a and 10b)
p) wet wheeling machines
(see figures 11a and 11b)
q) shaving machines (feed-out)
(see figures 12a and 12b)
r) shaving machines (feed-in)
(see figures 13a and 13b)

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

This European Standard applies to 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 the following:

- dust, smoke and vapour emissions (see annex B);

- fire (see annex C).

For these hazards general guidelines are proposed in informative annexes. Designers and manufacturers shall verify directly that the methods adopted to reduce these hazards have been successful.

2 Normative references

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

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

EN 292-2: 1991 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 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 - Ergonomic data to establish temperature limit values for hot surfaces

EN 811: 1996 Safety of machinery - Safety distances to prevent danger zones being reached by the lower limbs

EN 953 : 1997 Safety of machinery - 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 the 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

prEN 999 : 1993 Safety of machinery - Hand/arm speed - Approach speed of parts of the body for the positioning of safety devices

EN 1037: 1995 Safety of machinery - Isolation and energy dissipation - Prevention of unexpected start-up

ENV 1070 : 1993 Safety of machinery - Terminology

EN 1088 : 1995 Safety of machinery - Interlocking devices with and without guard locking - General principles and provisions for design

EN 1760-2: 1997 Safety of machinery. Pressure sensitive protective devices. Part 2: General principles for the design and testing of pressure sensitive edges and pressure sensitive bars

prEN ISO 3740	Acoustics - Determination of sound power levels of noise sources. Guidelines for the use of basic standads and for the preparation of noise test codes
EN ISO 11200	Acoustics-Noise emitted by machinery and equipment. Guidelines for the use of basic standards for the determination of the emission sound pressure levels at work station and at other specified positions
prEN 50100-1 : 1992	Safety of machinery - Electro - sensitive protective equipment - Part 1 : General requirements and tests
prEN 50100-2 : 1994	Safety of machinery - Electro - sensitive protective equipment - Part 2 : Particular requirements of equipment using active opto-electronic protective devices
EN 60204-1: 1992	Safety of machinery - Electrical equipment of machines - Part 1 - General requirements
EN 60529: 1991	Degrees of protection provided by enclosures (IP Code).

3 Definitions

For the purposes of this European Standard, the definitions given in EN 292-1: 1991 and ENV 1070: 1993 apply.

Descriptions of each machine type are given in annex D.

In addition the following definitions apply:

3.1 Machine Parts

3.1.1 working parts: Parts carrying out the process for which the machine was designed.

3.1.2 transmission parts: Parts in motion acting singly or in combination which transmit motion to the working parts.

3.1.3 other parts: All other parts not defined above.

3.2 Danger zones [as 3.10 of EN 292-1: 1991]

NOTE: The following specific danger zones are distinguished in order to better identify in this Standard the various hazards and relevant requirements.

3.2.1 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.
Part of the working zone, in which operators introduce their hands whilst placing the skin prior to machine closure, defined as the "feeding zone", has particular hazards and needs particular safety devices.

NOTE:In the text, where "feed rollers" are mentioned, it is intended to also cover "feed conveyors" unless otherwise stated.

3.2.2 accessible zone: Any other danger zone.

4 List of significant hazards

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.

The danger zones, operating conditions and situations that may lead to the hazards are detailed in clause 5.

Table 1: List of significant hazards

Hazards	Danger zones, operating conditions, hazardous situations and safety requirements
4.1 Buffing machines	
Mechanical hazards	
hazards generated by machine parts or workpiece	5.1
crushing hazard	5.3.2, 5.4.1.1, 5.4.1.2
shearing hazard	5.4.1.2
cutting hazard	5.4.1.2
entanglement hazard	5.3.2, 5.4.1.2
trapping hazard	5.3.2
impact hazard	5.4.1.2
friction or abrasion hazard	5.3.6, 5.4.1.2, 5.4.4
high pressure fluid injection or ejection hazard	5.2.1
Electrical hazard	5.2.2
Hazards generated by noise	5.2.4, annex A
Hazards generated by materials and substances processed	
hazards from contact with or inhalation of harmful fluids, gases, mists, fumes and dusts	5.3.5, annex B
Falling or ejected objects or fluids	5.4.1.2
4.2 Polishing machines	
Mechanical hazards	
hazards generated by machine parts or workpiece	5.1
crushing hazard	5.3.2, 5.4.1.1, 5.4.1.2
shearing hazard	5.4.1.2
cutting hazard	5.4.1.2
entanglement hazard	5.3.2, 5.4.1.2
trapping hazard	5.3.2
impact hazard	5.4.1.2
friction or abrasion hazard	5.3.6, 5.4.1.2
high pressure fluid injection or ejection hazard	5.2.1
Electrical hazard	5.2.2
Hazards generated by noise	5.2.4, annex A

(continued)

Table 1 (continued)

Hazards	Danger zones, operating conditions, hazardous situations and safety requirements
Hazards generated by materials and substances processed	
hazards from contact with or inhalation of harmful fluids, gases, mists, fumes and dusts	5.3.5, annex B
Falling or ejected objects or fluids	5.4.1.2
4.3 Ironing machines (woolskin and fur)	
Mechanical hazards	
hazards generated by machine parts or workpiece	5.1
crushing hazard	5.3.2, 5.4.1.1, 5.4.1.2
shearing hazard	5.4.1.2
cutting hazard	5.4.1.2
entanglement hazard	5.3.2, 5.4.1.2
trapping hazard	5.3.2
impact hazard	5.4.1.2
friction or abrasion hazard	5.4.1.2
high pressure fluid injection or ejection hazard	5.2.1
Electrical hazard	5.2.2
Thermal hazard	
burn and scalds	5.4.1.2
Hazards generated by noise	5.2.4, annex A
Hazards generated by materials and substances processed	
hazards from contact with or inhalation of harmful fluids, gases, mists, fumes and dusts	5.3.5, annex B
Falling or ejected objects or fluids	5.4.1.2
4.4 Carding machines	
Mechanical hazards	
hazards generated by machine parts or workpiece	5.1
crushing hazard	5.3.2, 5.4.1.1, 5.4.1.2
shearing hazard	5.4.1.2
cutting hazard	5.4.1.2
entanglement hazard	5.3.2, 5.3.6, 5.4.1.2
trapping hazard	5.3.2

(continued)

Table 1 (continued)

Hazards	Danger zones, operating conditions, hazardous situations and safety requirements
impact hazard	5.4.1.2
friction or abrasion hazard	5.4.1.2
high pressure fluid injection or ejection hazard	5.2.1
Electrical hazard	5.2.2
Hazards generated by noise	5.2.4, annex A
Hazards generated by materials and substances processed	
hazards from contact with or inhalation of harmful fluids, gases, mists, fumes and dusts	5.3.5, annex B
Falling or ejected objects or fluids	5.4.1.2
4.5 Shearing machines (woolskins and fur)	
Mechanical hazards	
hazards generated by machine parts or workpiece	5.1
crushing hazard	5.3.2, 5.4.1.1, 5.4.1.2, 5.4.2
shearing hazard	5.4.1.2, 5.4.2
cutting hazard	5.3.6, 5.4.1.2, 5.4.2
entanglement hazard	5.3.2, 5.3.6, 5.4.1.2
trapping hazard	5.3.2
impact hazard	5.4.1.2
friction or abrasion hazard	5.4.1.2
high pressure fluid injection or ejection hazard	5.2.1
Electrical hazard	5.2.2
Hazards generated by noise	5.2.4, annex A
Hazards generated by materials and substances processed	
hazards from contact with or inhalation of harmful fluids, gases, mists, fumes and dusts	5.3.5, annex B
Hazards genarated by neglecting ergonomic principles in machinery design	5.4.2
Falling or ejected objects or fluids	5.4.1.2
4.6 Cylinder universal staking machines	

(continued)

Table 1 (continued)

Hazards	**Danger zones, operating conditions, hazardous situations and safety requirements**
Mechanical hazards	
hazards generated by machine parts or workpiece	5.1
crushing hazard	5.3.2, 5.4.1.1, 5.4.1.2
shearing hazard	5.4.1.2
cutting hazard	5.4.1.2
entanglement hazard	5.3.2, 5.3.6, 5.4.1.2
trapping hazard	5.3.2
impact hazard	5.4.1.2
friction or abrasion hazard	5.4.1.2
high pressure fluid injection or ejection hazard	5.2.1
Electrical hazard	5.2.2
Hazards generated by noise	5.2.4, annex A
Hazards generated by materials and substances processed	
hazards from contact with or inhalation of harmful fluids, gases, mists, fumes and dusts	5.3.5, annex B
Falling or ejected objects or fluids	5.4.1.2
4.7 Setting out machines	
Mechanical hazards	
hazards generated by machine parts or workpiece	5.1
crushing hazard	5.3.2, 5.3.3, 5.4.1.1, 5.4.1.2
shearing hazard	5.4.1.2
cutting hazard	5.4.1.2
entanglement hazard	5.3.1, 5.3.2, 5.4.1.2
trapping hazard	5.3.2
impact hazard	5.4.1.2
friction or abrasion hazard	5.3.1, 5.4.1.2
high pressure fluid injection or ejection hazard	5.2.1
Electrical hazard	5.2.2
Thermal hazard	
burn and scalds	5.3.4, 5.4.1.2
Hazards generated by noise	5.2.4, annex A
Hazards generated by materials and substances processed	

(continued)

Table 1 (continued)

Hazards	Danger zones, operating conditions, hazardous situations and safety requirements
hazards from contact with or inhalation of harmful fluids, gases, mists, fumes and dusts	5.3.5, annex B
Falling or ejected objects or fluids	5.4.1.2
4.8 Dewooling machines	
Mechanical hazards	
hazards generated by machine parts or workpiece	5.1
crushing hazard	5.3.2, 5.3.3, 5.4.1.1, 5.4.1.2
shearing hazard	5.4.1.2
cutting hazard	5.4.1.2
entanglement hazard	5.3.1, 5.3.2, 5.4.1.2
trapping hazard	5.3.2
impact hazard	5.4.1.2
friction or abrasion hazard	5.3.1, 5.4.1.2
high pressure fluid injection or ejection hazard	5.2.1
Electrical hazard	5.2.2
Hazards generated by noise	5.2.4, annex A
Hazards generated by materials and substances processed	
biological or microbiological hazard	5.2.5
Falling or ejected objects or fluids	5.4.1.2
slip, trip and fall of persons	5.2.3
4.9 Scudding machines	
Mechanical hazards	
hazards generated by machine parts or workpiece	5.1
crushing hazard	5.3.2, 5.3.3, 5.4.1.1, 5.4.1.2
shearing hazard	5.4.1.2
cutting hazard	5.4.1.2
entanglement hazard	5.3.1, 5.3.2, 5.4.1.2
trapping hazard	5.3.2
impact hazard	5.4.1.2
friction or abrasion hazard	5.3.1, 5.4.1.2
high pressure fluid injection or ejection hazard	5.2.1
Electrical hazard	5.2.2

(continued)