

Tannery machines — Moving platen machinery — Safety requirements

The European Standard EN 1035:1998 has the status of a
British Standard

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National foreword

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Machines de tannerie — Machines à plateaux mobiles — Prescriptions de sécurité

Gerberei-Maschinen — Maschinen mit beweglichen Platten — Sicherheitsanforderungen

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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of an identical text or by endorsement, at the latest by February 1999, and conflicting national standards shall be withdrawn at the latest by February 1999.

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, which is an integral part of this standard.

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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.

Moving platen machines are machines used for the processing of animal hides and skins. They are table type processing machines which are equipped with:

- vertical opening and closing movement;
- alternative horizontal feed-in and feed-out movement.

This European Standard covers the following machines (see Figures 1 to 5 for typical configurations and normative Annex C for descriptions):

- a) vacuum dryers with vertical movement (see Figure 1);
- b) vacuum dryers with horizontal and vertical movement (see Figure 2);
- c) vacuum stretching-machines (see Figure 3);
- d) platen ironing and embossing machines with vertical movement (see Figure 4);
- e) platen ironing and embossing machines with horizontal and vertical movement (see Figure 5).

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

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

All the significant hazards listed in clause 4 are covered by the requirements included in clause 5 except:

- dust, fume, vapour and liquid emissions;

for which general guidelines are proposed in the informative Annex B.

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 publication. 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.

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 418:1992, *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 811:1996, *Safety distances to prevent danger zones being reached by the lower limbs.*

EN 894-1:1997, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 1: General principles for human interactions with displays and control actuators.*

EN 894-2:1997, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 2: displays.*

prEN 894-3:1992, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 3: Control actuators.*

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 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, *Hand/arm speed — Approach speed of parts of the body — Positioning of safety devices.*

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.*

prEN 1760-2:1994, *Safety of machinery — Pressure sensitive protective devices — Part 2: General principles for the design and testing of pressure sensitive edges and pressure sensitive bars.*

ISO 3740, *Acoustics — Determination of sound power levels of noise sources. Guidelines for the use of basic standard.*¹⁾

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.*

ISO TR 11688-1, *Acoustics — Recommended practice for the design of low noise machinery and equipment — Part 1: Planning.*

ISO CD 11688-2, *Acoustics — Recommended practice for the design of low noise machinery and equipment — Part 2: Noise generation principles.*

prEN 50100-1:1993, *Safety of machinery. Electrosensitive protective devices. Specification for general requirements.*

prEN 50100-2:1993, *Safety of machinery. Particular requirement for an active optoelectronic protective device.*

EN 60204-1:1992, *Safety of machinery. Electrotechnical aspects. Electrical equipment of machines — Part 1: General requirements*

EN 60529:1991, *Degree of protection provided by enclosures.*

3 Definitions

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

In addition the following definitions apply:

3.1 Machine Parts

3.1.1

working parts

parts carrying out the process for which this machine was designed

3.1.2

transmission parts

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

¹⁾ These standards are under preparation in ISO (revision of ISO 3740, publication of ISO 11200, publication of ISO 11688-2 pending).

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 correct allocation of 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

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, the operating conditions and the 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 Vacuum dryers with vertical movement	
Mechanical hazards	
hazards generated by machine parts or workpiece	5.1
crushing hazard	5.3.1, 5.4.1, 5.4.3, 5.4.4
shearing hazard	5.4.1, 5.4.3, 5.4.4
high pressure fluid injection or ejection hazard	5.2.1
Electrical hazard	5.2.2
Thermal hazards	
Burns and scalds	5.3.3, 5.4.7
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, fume and dusts	5.2.5, Annex B
Slip, trip and fall of persons	5.2.3

Table 1 — List of significant hazards (*continued*)

Hazards	Danger zones, operating conditions, hazardous situations and safety requirements
4.2 Vacuum dryers with horizontal and vertical movement	
Mechanical hazards	
hazards generated by machine parts or workpiece	5.1
crushing hazard	5.3.1
shearing hazard	5.4.5
entanglement hazard	5.4.5
impact hazard	5.4.5
high pressure fluid injection or ejection hazard	5.2.1
Electrical hazard	5.2.3
Thermal hazard	
Burns and scalds	5.3.3, 5.4.7
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, fume and dusts	5.2.5, Annex B
Slip, trip and fall of persons	5.2.3
4.3 Vacuum stretching-machines	
Mechanical hazards	
hazards generated by machine parts or workpiece	5.1
crushing hazard	5.3.1, 5.4.1, 5.4.6
shearing hazard	5.4.1
entanglement hazard	5.4.6
high pressure fluid injection or ejection hazard	5.2.1
Electrical hazard	5.2.2
Thermal hazard	
Burns and scalds	5.3.3, 5.4.7
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, fume and dusts	5.2.5, Annex B

Table 1 — List of significant hazards (*continued*)

Hazards	Danger zones, operating conditions, hazardous situations and safety requirements
4.4 Platen ironing and embossing machines with vertical movement Mechanical hazards hazards generated by machine parts or workpiece crushing hazard shearing hazard high pressure fluid injection or ejection hazard Electrical hazard Thermal hazard Burns and scalds Hazards generated by noise Hazards generated by materials and substances processed hazards from contact with or inhalation of harmful fluids, gases, mists, fume and dusts	5.1 5.3.2, 5.4.3 5.4.3 5.2.1 5.2.2 5.3.3, 5.4.7 5.2.4, Annex A 5.2.5, Annex B
4.5 Platen ironing and embossing machines with horizontal and vertical movement Mechanical hazards hazards generated by machine parts or workpiece crushing hazard shearing hazard entanglement hazard impact hazard high pressure fluid injection or ejection hazard Electrical hazard Thermal hazard Burns and scalds Hazards generated by noise Hazards generated by materials and substances processed hazards from contact with or inhalation of harmful fluids, gases, mists, fume and dusts	5.1 5.3.2, 5.4.2, 5.4.3 5.4.2, 5.4.3, 5.4.5 5.4.5 5.4.5 5.2.1 5.2.2 5.3.3, 5.4.7 5.2.4, Annex A 5.2.5, Annex B

5 Safety requirements and/or measures

Machinery shall comply with the safety requirements and/or measures of this clause.

In addition, the machine shall be designed according to the principles of EN 292 for hazards relevant but not significant which are not dealt with by this standard.

5.1 Common requirements

5.1.1 Mechanical equipment

5.1.1.1 Safeguarding against the hazards generated by moving transmission parts (such as pulleys, belts, gears, rack, etc.) shall be ensured by:

- fixed enclosing guards in accordance with EN 953:1997 and **4.2.2.2** of EN 292-2:1991;
- or

- movable interlocking guards in accordance with EN 953:1997, EN 1088:1995 and **4.2.2.2** of EN 292-2:1991;

unless otherwise stated in the relevant subclauses for the particular machine.

5.1.1.2 Hazardous motions of moving machinery parts, feed systems, tools and workpieces shall be safeguarded by the following requirements, taking into consideration the highest level of protection available:

- fixed enclosing guards or covers which satisfy EN 953:1997 and **4.2.2.2** of EN 292-2:1991;
- or

- fixed distance guards which satisfy **3.2.2** of EN 953:1997, **4.2.2.1** of EN 292-2:1991 and the distances given in tables I, III or IV of EN 294:1992.

All the guards shall be in accordance with clause 5 of EN 953:1997 (design and construction) and shall be designed and manufactured in such a way as to keep all their functions during the application of a force of 800 N to the central zone of the guard between two supports, distributed over an area of approximately 0,01m². On release of the force no detectable distortion of the guard shall remain.

Where these protective measures cannot be used due to the state of the art, devices shall be provided which will effect a shutdown of the hazardous motion before the danger point is reached.

Devices which will effect this are:

- movable interlocking guards which satisfy EN 953:1997, EN 1088:1995, **4.2.2.3** of EN 292-2:1991 and Annex D of this standard;
- trip devices, such as
electrosensitive protective devices satisfying prEN 50100-1:1993, prEN 50100-2:1993 and prEN 999:1993, pressure sensitive edges or bars satisfying prEN 1760-2:1994.

Specific applications of the safety devices are given in the relevant subclause for each machine.

5.1.1.3 On machines intended to be operated at the same time by two persons, one at the front one at the rear (e.g. platen ironing and embossing machines with vertical movement, see Figure 4A) safeguarding arrangements shall be equivalent at both operating positions.

5.1.2 Emergency stop equipment

5.1.2.1 Actuators for emergency stop equipment shall be accessible to the operator(s) directly from any operating position(s). They shall be so placed that their operation is simple and straightforward having regard to the limited response which could be expected in a panic situation from persons who might also be injured. It shall be possible for the controls to be operated by any part of the body of a person whose hands are trapped at the operating position. In selecting the type of actuator account should be taken of the posture of the operator when operating the machine and the layout of the machine e.g. trunk, knee or foot operation.

The actuation of a control shall stop the platens and actuate the reverse movement, if this does not cause danger.

The actuation of the emergency stop control shall not create additional risks e.g. stopping the fume extraction equipment.

5.1.2.2 The emergency stop equipment function shall be independent from the normal control systems of the machines and shall comply with EN 418:1992, Category 1 requirements.

For specific requirements for electrical equipment see **9.2.2**, **9.2.5.4** and **10.7** of EN 60204-1:1992.