



SLOVENSKI STANDARD
SIST EN 12355:2003+A1:2010
01-oktober-2010

Stroji za predelavo hrane - Stroji za odstranjevanje kože - Varnostne in higienske zahteve (vključno z dopnilom A1)

Food processing machinery - Derinding-, skinning- and membrane removal machines - Safety and hygiene requirements

Nahrungsmittelmaschinen - Entschwartungs-, Enthäutungs- und Entvliesmaschinen - Sicherheits- und Hygieneanforderungen

Machines pour les produits alimentaires - Machines à découenner, éplucher et peler - Prescriptions relatives à la sécurité et à l'hygiène

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Ta slovenski standard je istoveten z: EN 12355:2003+A1:2010

ICS:

67.260

Tovarne in oprema za
živilsko industrijo

Plants and equipment for the
food industry

SIST EN 12355:2003+A1:2010

en,fr,de

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12355:2003+A1

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English Version

**Food processing machinery - Derinding-, skinning- and
membrane removal machines - Safety and hygiene
requirements**

Machines pour les produits alimentaires - Machines à
découenner, épucher et peler - Prescriptions relatives à la
sécurité et à l'hygiène

Nahrungsmittelmaschinen - Entschwartungs-, Enthäutungs-
und Entvliesmaschinen - Sicherheits- und
Hygieneanforderungen

This European Standard was approved by CEN on 21 November 2002 and includes Amendment 1 approved by CEN on 30 April 2010.

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

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EN 12355:2003+A1:2010 (E)**Foreword**

This document (EN 12355:2003+A1:2010) has been prepared by Technical Committee CEN/TC 153 "Food processing machinery - Safety and hygiene specifications", the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by December 2010, and conflicting national standards shall be withdrawn at the latest by December 2010.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 2010-04-30.

This document supersedes EN 12355:2003.

The start and finish of text introduced or altered by amendment is indicated in the text by tags $\boxed{A1}$ $\boxed{A1}$.

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).

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

It is one of a series of standards for meat processing machinery, in compliance with EN 1672-2 and annex C.

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, Croatia, 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 applies to design, manufacturing, installation, transportation, electrical equipment and cleaning of derinding-, skinning-, and membrane removal machines (see Figures 1 to 5).

The machines described in this standard are used for derinding-, skinning- and membrane removal of meat and fish by cutting at a blade device.

Derinding-, skinning-, and membrane removal machines for domestic purposes and table-top machines are not covered by this standard.

A1 This European Standard relates to:

- derinding machines with tooth roll, hold down roller and blade device;
- skinning- and membrane removal machines with transport- and stripper roll as well as a blade device. **A1**

This standard only applies to machines which are manufactured after the date of issue of this standard.

1.2 This standard covers the following types of machines:

- Open derinding machines with infeed table and a distance between the floor and the surface of the infeed table from 800 mm to 1 050 mm.

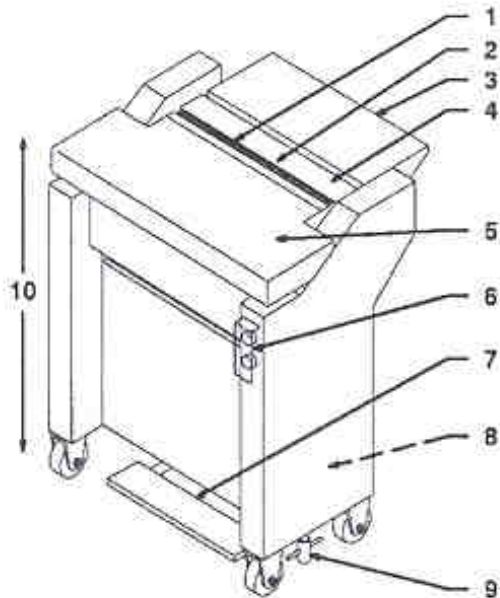
Tooth form of the tooth roll:

Depth ≤ 5,0 mm

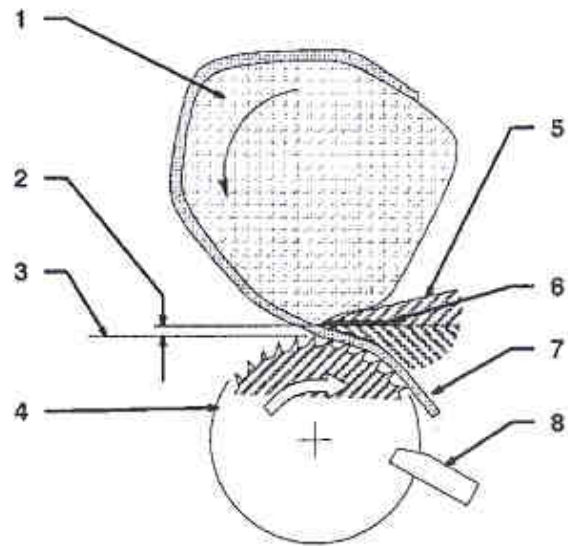
Pitch ≤ 6,5 mm

(see Figures 1 and 2)

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**Key**

1	Tooth roll/ Transport roll	6	ON/OFF Switch, cover
2	Blade	7	Foot switch
3	Discharge table	8	Drive
4	Blade holder	9	Locking device
5	Infeed table	10	Table height

**Key**

1	Round product	4	Tooth roll
2	Cutting thickness ≤ 5 mm	5	Blade holder
3	Infeed table	6	Blade
		7	Rind
		8	Stripper comb

Figure 1 — Derinding, skinning and membrane removal machine **Figure 2 — System of an open derinding machine**

— Automatic derinding machine with infeed, hold down, and outfeed device and a distance between the floor and the surface of the infeed device, e.g. conveyor belt between 800 mm and 1 050 mm.

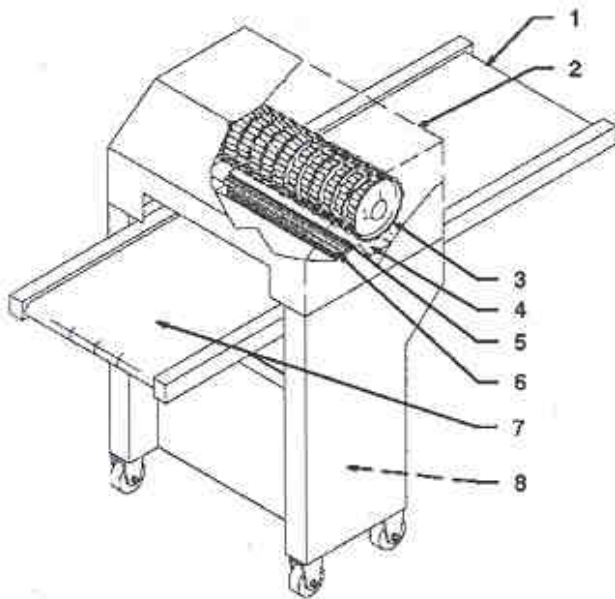
Tooth form of the tooth roll:

Depth $\leq 5,0$ mm

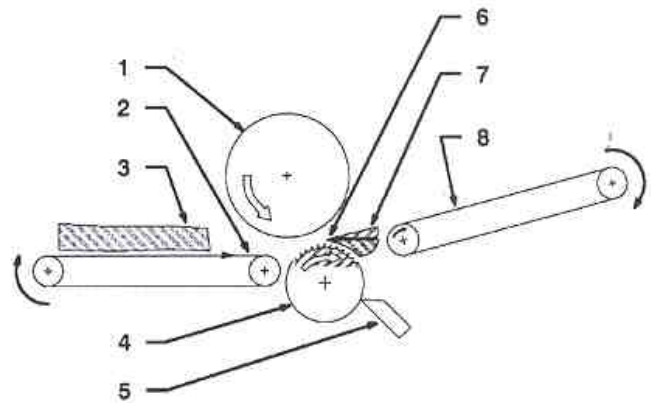
Pitch $\leq 12,0$ mm

Hold down roller diameter 175 mm to 240 mm.

(see Figures 3 and 4)

**Key**

1	Outfeed conveyor belt	5	Blade
2	Mobile guard	6	Tooth or conveyor roll
3	Hold-down rollers	7	Infeed conveyor
4	Blade holder	8	Drive

**Key**

1	Hold-down rollers	5	Stripper comb or stripper roll
2	Infeed conveyor belt	6	Blade
3	Product	7	Blade holder
4	Tooth or conveyor roll	8	Outfeed conveyor

Figure 3 — Automatic Derinding- and membrane removal machine

Figure 4 — System of an automatic derinding- and membrane machine

— Open skinning- and membrane removal machine with infeed table and a distance between the floor and the surface of the infeed table between 800 mm and 1 050 mm.

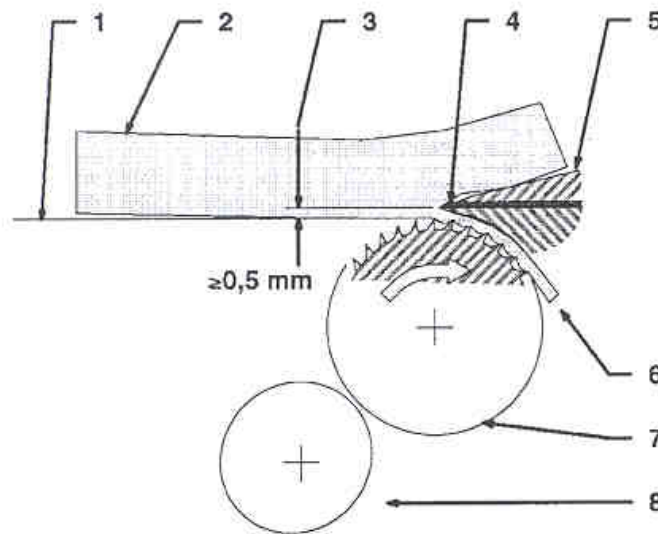
Groove form of the transport roller:

Depth \leq 2,0 mm

Pitch \leq 2,5 mm

(see Figures 1 and 5)

EN 12355:2003+A1:2010 (E)

**Key**

1	Infeed table	5	Blade holder
2	Product	6	Membrane
3	Cutting Thickness $\leq 0,5$ mm	7	Transport roll
4	Blade	8	Stripper roll

Figure 5 — System of a membrane removal machine

Derinding-, skinning- and membrane removal machines consist mainly of a machine frame, tooth roll with stripper comb, hold down roller with stripper rake, transport roll with stripper roll and air jet cleaning blade device and electrical, electronic, or pneumatic components, depending on the machine type.

Derinding-, skinning- and membrane removal machines can e.g. be equipped with a:

- infeed and outfeed table;
- infeed- and outfeed conveyor belts;
- blade device;
- double blade;
- hold down device, (e.g. hold down rollers, belts or fingers);
- circular knives inside or instead of hold down rollers;
- stripper comb/stripper roll/stripper rake.

Derinding-, skinning- and membrane removal machines can be mobile (see Figures 1 and 3).

1.3 Intended use

A1 This European Standard deals with all significant hazards, hazardous situations and events relevant to derinding-, skinning- and membrane removal machines, when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4).

This European Standard deals with the hazards which can arise during commissioning, operation, cleaning, use, maintenance and decommissioning of the machine. **A1**

The product (raw meat or raw fish) with a weight < 15 kg which is to be processed is either fed by hand or by an infeed device (e.g. infeed conveyor belt) and a hold down device carried to the tooth or transport roller. Using open derinding-, skinning- and membrane removal machines, the product is pressed by hand against the blade device and the rind, the skin or the membrane is cut off by the blade.

1.4 Not intended use

A not intended use is e.g.:

- the wrong installation of a derinding-, skinning- and membrane removal machine;
- the processing of flat products on open derinding machines;
- working on open derinding-, skinning- and membrane removal machines without using the gloves which the manufacturer recommends;
- manipulation of interlocking systems on safety devices;
- using of cleaning- and disinfection detergents, which are not recommended by the manufacturer in the instructions for use.

2 Normative references

Ⓐ) 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.

EN 614-1, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

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

EN 1005-1, *Safety of machinery — Human physical performance — Part 1: Terms and definitions*

EN 1005-2, *Safety of machinery — Human physical performance — Part 2: Manual handling of machinery and component parts of machinery*

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

EN 1088:1995, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

EN 1672-2:2005, *Food processing machinery — Basic concepts — Part 2: Hygiene requirements*

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

EN 61000-6-1, *Electromagnetic compatibility (EMC) — Part 6-1: Generic standards; Immunity for residential, commercial and light-industrial environments (IEC 61000-6-1:2005)*

EN 61000-6-2, *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards; Immunity for industrial environments (IEC 61000-6-2:2005)*

EN 61000-6-3, *Electromagnetic compatibility (EMC) — Part 6-3: Generic standards; Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3:2006)*

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EN 61000-6-4, *Electromagnetic compatibility (EMC) — Part 6-4: Generic standards; Emission standard for industrial environments (IEC 61000-6-4:2006)*

EN 60529, *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)*

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 4287:1998, *Geometrical product specifications (GPS) — Surface texture: Profile method — Terms, definitions and surface texture parameters (ISO 4287:1997)*

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

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 11688-1, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO/TR 11688-1:1995)*

EN ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)*

EN ISO 12100-2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles and specifications (ISO 12100-2:2003)*

EN ISO 13849-1:2008, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2008)*

EN ISO 13857:2008, *Safety of machinery — Safety distances to prevent hazard zones being reached by the upper and lower limbs (ISO 13857:2008) ^(A1)*

3 Terms and definitions

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

3.1

strip

mechanical process for stripping off skin or membrane from rotating machine parts

3.2

stripper comb

comb-shaped insert in the tooth roll for the stripping

3.3

stripper rake

rake-shaped insert engaged between the hold-down rollers of the hold-down device for stripping

3.4

stripper roll

shaft with teeth to strip skin or membrane off the transport roller

3.5**hold down device**

rollers, conveyors or mechanical fingers to press down and move products

3.6**combination derinding and membrane removal machine**

machine which can be used as open or automatic derinding- and membrane removal machine

3.7**double blade**

two blade devices installed one above the other

3.8**air jet cleaning device**

device with jets to blow off skin or membrane

3.9**blade device**

blade holder with blade in position

3.10**blade holder**

device to act as a holding tool for the blade

3.11**circular blade**

rotating cutting tool for the slashing of products

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3.12**round product**

pickled knuckle of pork, hind ham

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3.13**hold-to-run control device**

switch which needs a continuous actuation for operation

3.14**cover guard**

fixed or movable guard over the infeed, outfeed and hold down device

3.15**transport roll**

shaft with teeth in a grooved pattern without stripper grooves for the transportation of product

3.16**tooth roll**

shaft with teeth and stripper grooves for the transportation of product

3.17**infeed and outfeed device**

conveyor belts for the feed and removal of products

3.18**infeed and outfeed table**

table surface for the feeding or removal of product by hand

EN 12355:2003+A1:2010 (E)**4 List of hazards****4.1 General**

This clause and annex C contains the hazards and hazardous situations based upon EN 1050 as far as they are dealt with in this European Standard, identified by a risk assessment significant for derinding-, skinning- and membrane removal machines, and actions to eliminate or reduce risk.

Before using this standard it is important to carry out a risk assessment of the derinding-, skinning- and membrane removal machines to check that it has the hazards identified in this clause.

4.2 Mechanical hazards**4.2.1 Open derinding machine with infeed table**

— Zone 1

Rotating tooth roll and height adjustable blade holder with blade (see Figure 6).

Hazards of separation of the skin or the fingers being drawn in.

— Zone 2

Rotating tooth roll and stripper comb (see Figure 6).

Hazards of fingers or hand being drawn in.

— Zone 3

Rotating tooth roll and fixed machine parts (see Figure 6).

Hazards of the fingers, hand or lower arm being drawn in.

— Zone 4

Rotating tooth roll with adjustable height double blade (see Figure 10).

Hazards of fingers being drawn in and cutting fingers, hand or lower arm.

4.2.2 Automatic derinding-, skinning- and membrane removal machine

— Zone 1

Rotating tooth roll/conveyor roll, height adjustable blade holder with blade and hold down rollers or –fingers (see Figure 7).

Hazards of separation of skin or fingers, hand or lower arm being drawn in.

— Zone 2

Rotating hold down- rollers or -fingers and protective cover (see Figure 7).

Hazards of fingers or hand being drawn in.

— Zone 3

Rotating tooth roll/conveyor roll and stripper comb/stripper roll (see Figure 7).

Hazards of the fingers or the hand being drawn in.

— Zone 4

Rotating tooth roll/conveyor roll and fixed machine parts (see Figure 7).

Hazards of fingers, hand or lower arm being drawn in.

— Zone 5

Rotating conveyor belt and drive and guide rolls (see Figure 7).

Hazards of fingers or hand being drawn in crushing.

— Zone 6

Rotating circular blade (see Figure 7).

Hazards of cutting fingers or hand.

— Zone 7

Machine components

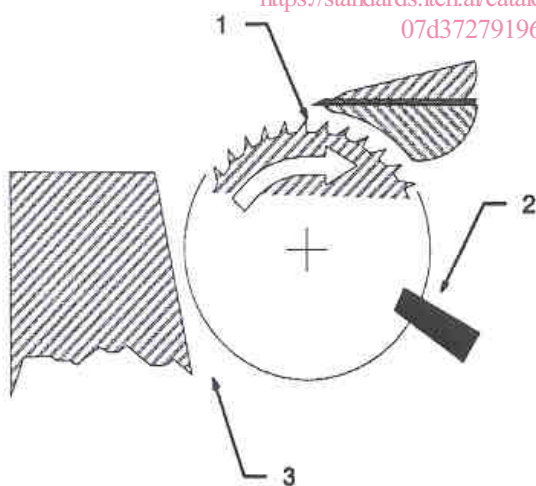
Unintended closure of guard covers

Hazards of crushing of the hand

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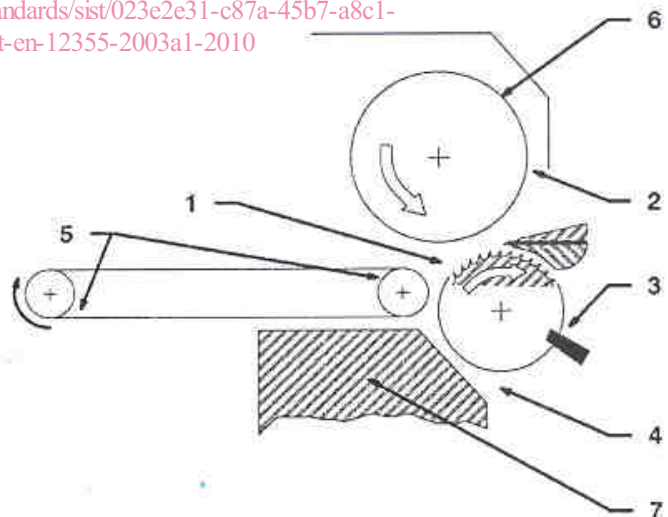
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Key

1	Zone 1
2	Zone 2
3	Zone 3

Figure 6 — Open derinding machine - danger zones



Key

1	Zone 1	5	Zone 5
2	Zone 2	6	Zone 6 (circular blade)
3	Zone 3	7	Zone 7
4	Zone 4		

Figure 7 — Automatic derinding and membrane removal machine- danger zones