SLOVENSKI STANDARD
oSIST prEN 12355:2020

01-januar-2020

Stroji za predelavo hrane - Stroji za odstranjevanje kože - Varnostne in higienske zahteve

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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ICS:

67.260	Tovarne in oprema za živilsko industrijo	Plants and equipment for the food industry

oSIST prEN 12355:2020 **en,fr,de**

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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, éplucher et peler - Prescriptions relatives à la sécurité et à l'hygiène

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

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 153.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 12355:2019) has been prepared by Technical Committee CEN/TC 153 “Machinery intended for use with foodstuffs and feed”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12355:2003+A1:2010.

This document has been prepared under a standardization request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2006/42/EC.

For relationship with EU Directive 2006/42/EC, see informative Annex ZA, which is an integral part of this document.

Introduction

This document is a type-C-standard as stated in EN ISO 12100:2010.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

— machine manufacturers (small, medium and large enterprises);

— health and safety bodies (regulators, accident prevention organizations, market surveillance etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

— machine users/employers (small, medium and large enterprises);

— machine users/employees (e.g. trade unions, organizations for people with special needs);

— service providers, e.g. for maintenance (small, medium and large enterprises);

— consumers (in the case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

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

When requirements of this type-C-standard are different from those which are stated in type-A- or type-B-standards, the requirements of this type-C-standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

1 Scope

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

The machines described in this standard are used for derinding-, skinning- and membrane removal of meat and fish by cutting at a straight blade and/or cutting with circular blades. Feeding could be done manually or automatically.

Using open derinding-, skinning- and membrane removal machines, the product is guided by hand towards the cutting device.

With automatic derinding-, skinning and membrane removal machines the product is transported by an infeed conveyor against the cutting device. Product with a weight > 25 kg has to be processed by an automatic machine.

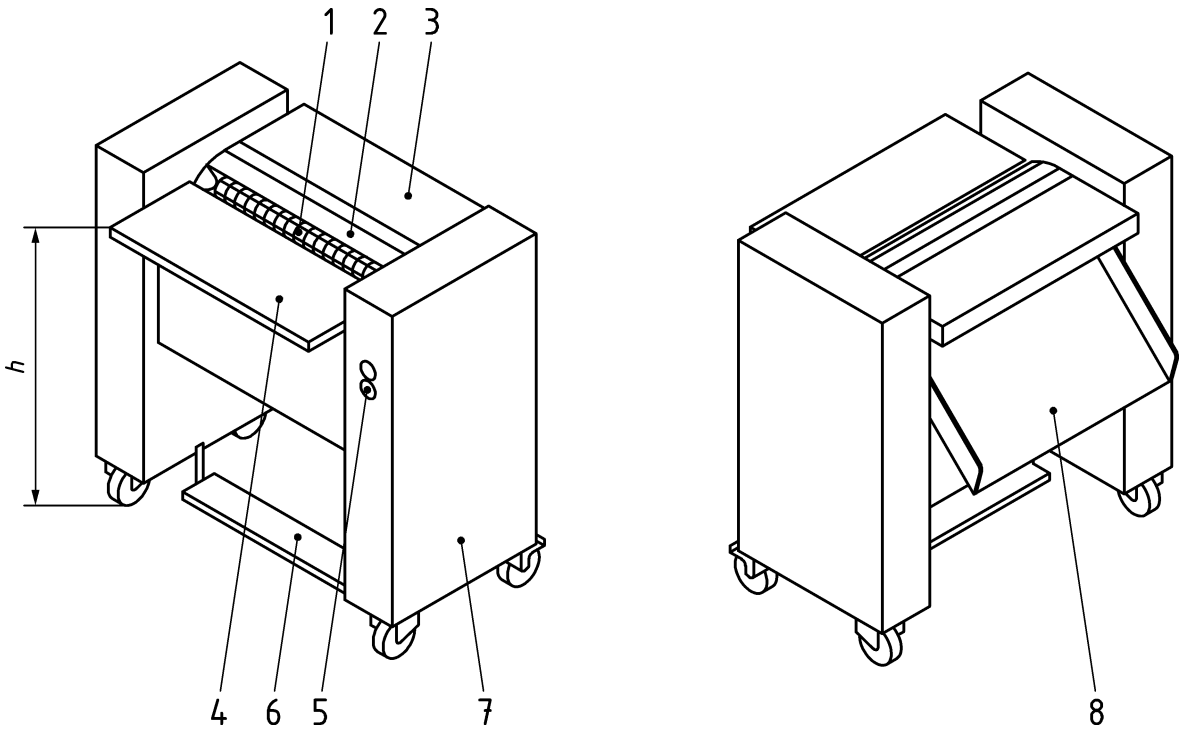
Derinding-, skinning-, and membrane removal machines for domestic purposes, hand-guided machines and table-top machines are not covered by this standard.

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

This document covers the following types of machines:

a) open derinding machines (see Figure 1 and Figure 2) with infeed table and a distance h between the standing position and the surface of the infeed table from 800 mm to 1 050 mm. The cutting thickness shall be $t \leq 5$ mm;

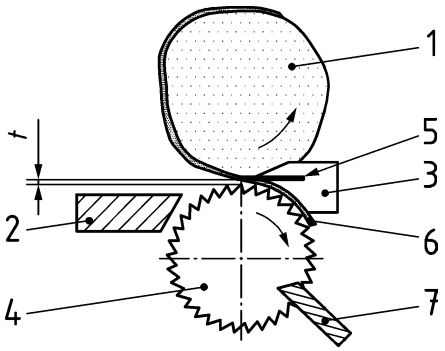
b) open skinning- and membrane removal machines (see Figure 1 and Figure 3) with infeed table and a distance h between the standing position and the surface of the infeed table from 800 mm to 1 050 mm. The cutting thickness shall be $t \leq 0{,}5$ mm.



Key

1	tooth/transport roller	6	foot switch
2	cutting device	7	drive
3	outfeed table	8	sliding plate
4	infeed table	*h*	table height
5	ON-/OFF-switch		

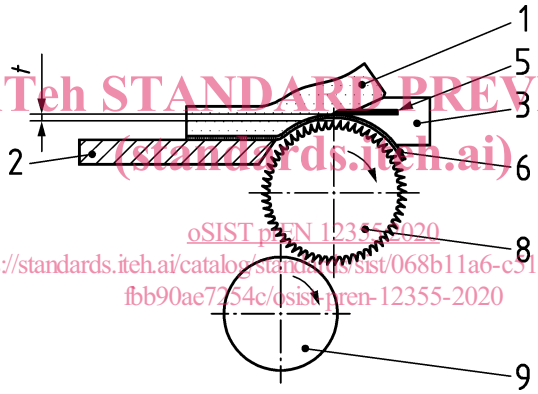
Figure 1 — Open derinding-, skinning- and membrane removal machine



Key

1	product	6	removed product (rind, skin, membrane)
2	infeed table	7	stripper comb
3	blade holder	8	transport roller
4	tooth roller	9	stripper roller
5	straight blade	*t*	cutting thickness

Figure 2 — System of an open derinding machine



Key

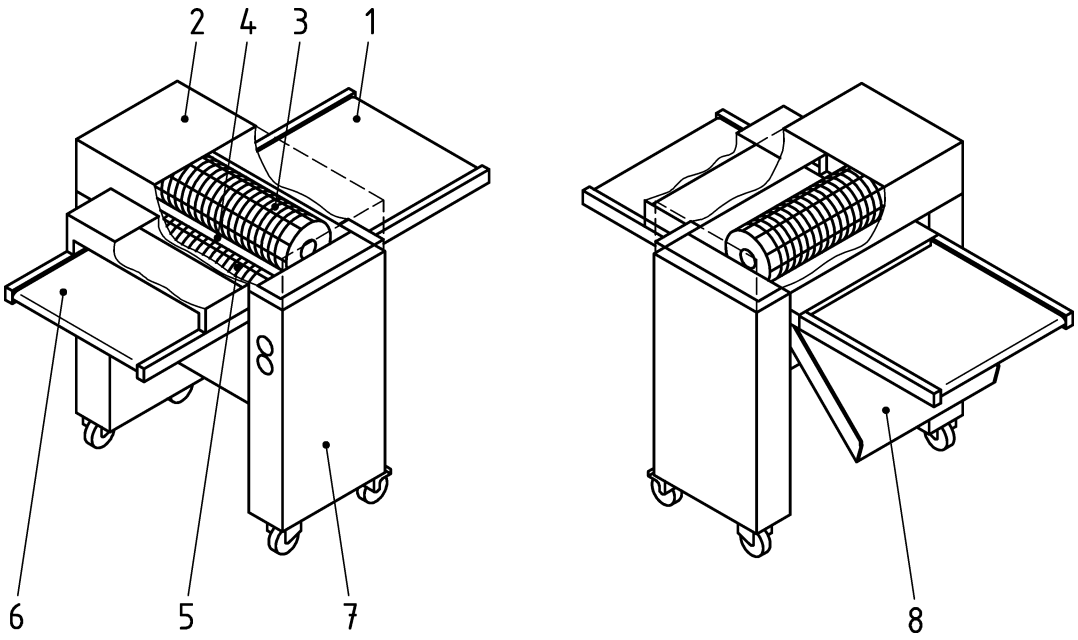
1	product	6	removed product (rind, skin, membrane)
2	infeed table	7	stripper comb
3	blade holder	8	transport roller
4	tooth roller	9	stripper roller
5	straight blade	*t*	cutting thickness

Figure 3 — System of an open membrane removal machine

c) Automatic machines (see Figure 4 and Figure 5), which are charged by an operator, with a distance between the standing position and the surface of the infeed conveyor between 800 mm and 1 050 mm.

Automatic machines which are charged automatically and are integrated in dismantling lines do not have to follow the requirements on the height of the surface of the infeed conveyor (800 mm to 1 050 mm) because the ergonomic matters need not be considered.

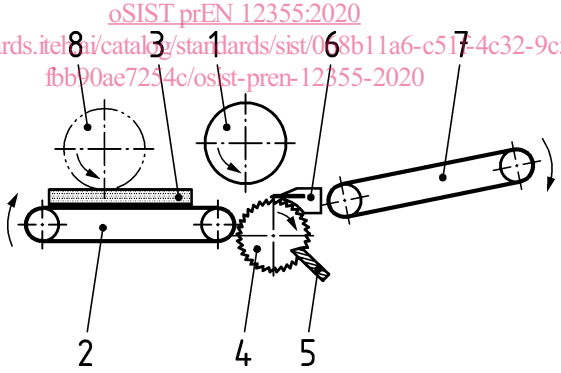
Automatic machines could be equipped with different rolls (see Figure 6).



Key

1 outfeed conveyor
2 tunnel shaped guard
3 hold-down roller, blade roller, combined roller
4 cutting device
5 tooth / transport roller
6 infeed conveyor
7 drive
8 sliding plate

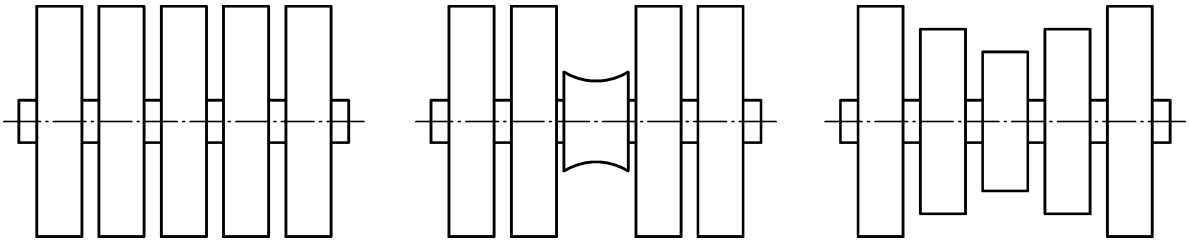
Figure 4 — Automatic machine



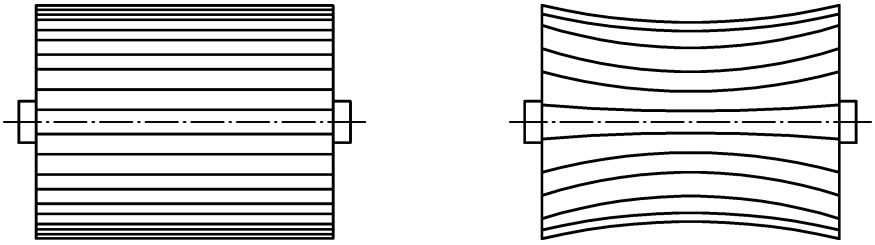
Key

1 hold-down roller, blade roller, combined roller
2 infeed conveyor
3 product
4 tooth / transport roller
5 stripper comb / roller
6 cutting device
7 outfeed conveyor
8 hold-down roller, blade roller, combined roller (optional)

Figure 5 — System of an automatic machine



a) hold-down rolls (divided)



b) hold-down rolls (undivided)

c) blade roller (divided) d) combined roller (divided)

Figure 6 — Examples of rolls

d) Combining machines are designed to be used as automatic or open machines.

Derinding-, skinning- and membrane removal machines consist mainly of a machine frame, tooth roller with stripper comb, hold-down roller with stripper rake, transport roller with stripper roller, cutting 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 / or outfeed table;

— infeed and / or outfeed conveyor;

— cutting device;

— rolls (e.g. see Figure 6);

— stripper comb/stripper roller/stripper rake.

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 614-1:2006+A1:2009, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

EN 1005-1:2001+A1:2008, *Safety of machinery — Human physical performance — Part 1: Terms and definitions*

EN 1005-2:2003+A1:2008, *Safety of machinery — Human physical performance — Part 2: Manual handling of machinery and component parts of machinery*

EN 1005-3:2002+A1:2008, *Safety of machinery — Human physical performance — Part 3: Recommended force limits for machinery operation*

EN 1672-2:2005+A1:2009, *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 60529:1991, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*

EN 61496-1:2013, *Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and tests (IEC 61496-1:2012)*

EN ISO 3744:2010, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering method for an essentially free field over a reflecting plane (ISO 3744:2010)*

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

EN ISO 4871:2009, *Acoustics — Declaration and verification of noise emission values of machinery and equipment – (ISO 4871:1996)*

EN ISO 11201:2010, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections (ISO 11201:2010)*

EN ISO 11688-1:2009, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO/TR 11688-1:1995)*

EN ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction (ISO 12100:2010)*

EN ISO 13849-1:2015, *Safety of machinery — Safety related parts of control systems — Part 1: General principles for design (ISO 13849-1:2015)*

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

EN ISO 14119:2013, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection (ISO 14119:2013)*

EN ISO 14120:2015, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards (ISO 14120:2015)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
strip
mechanical process for stripping off skin or membrane from rotating machine parts

3.2
stripper comb
comb-shaped insert to strip off the debris from the tooth roller

3.3
stripper rake
rake-shaped device to strip skin or membrane off the hold-down rolls

3.4
stripper roller
shaft with teeth to strip skin or membrane off the transport roller

3.5
hold-down roller
device for pushing down the product

Note 1 to entry: The roller may consist of one undivided piece or be divided into several segments. Each roller may be profiled on the perimeter and/or the width. The inner rolls may also have smaller diameters.

3.6
cutting device
device for cutting the rind, skin or membrane from the product, consisting of blade holder and straight blade

3.7
blade holder
device to act as a holding tool for the straight blade

Note 1 to entry: The blade holder is not intended for circular blades.

3.8
blade roller
rotating cutting tool with circular blades for the slashing or cutting of products

Note 1 to entry: One or more circular blades are spread across the width. Each circular blade may be profiled on the perimeter. The inner circular blades may also have smaller diameters. This roller is considered divided.

3.9
combined roller
blade roller with segments of hold-down rolls placed between the circular blades

3.10
round product
product of nearly round shape

Note 1 to entry: E.g. pickled knuckle of pork, hind ham.

3.11
hold-to-run control device
switch which needs a continuous actuation for operation

3.12
cover guard
fixed or movable guard over the infeed, outfeed and rolls

3.13
transport roller
shaft with teeth without stripper grooves

3.14
tooth roller
shaft with teeth and stripper grooves

3.15
cutting thickness
distance between the rotating tooth / transport roller and the tip of the straight blade

3.16
easily cleanable
designed and constructed to be cleanable by a simple cleaning methode, if necessary after removing parts that can be easily dismantled

4 List of hazards

This clause contains all the significant hazards, hazardous situations and events, identified by a risk assessment significant for this type of machinery and which require measures to eliminate or reduce the risk associated with the identified hazards (see Table 1).

Figure 7, Figure 8 and Figure 9 are showing the significant danger zones of the different machine types.

Table 1 — List of significant hazards

Location or cause	Hazards, hazardous situations and hazardous events	Clause/subclause in this European Standard
General	Hazards	5.1
General	Failure/disorder of the control system and control circuits	5.2.1
Open derinding machine	Cutting; drawing in	5.2.2
Open skinning and membrane removal machine	Cutting; drawing in	5.2.3