SLOVENSKI STANDARD
SIST EN 12355:2022

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Nadomešča:
SIST EN 12355:2003+A1:2010

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

Ta slovenski standard je istoveten z: **EN 12355:2022**

ICS:

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

SIST EN 12355:2022 **en,fr,de**

EUROPEAN STANDARD

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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

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This European Standard was approved by CEN on 13 June 2022.

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

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Contents

Page

European foreword

This document (EN 12355:2022) 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 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of an identical text or by endorsement, at the latest by January 2023, and conflicting national standards shall be withdrawn at the latest by January 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes 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(s) / Regulation(s).

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

The significant changes with respect to the previous version EN 12355:2003+A1:2010 are listed below:

— structure adapted to CEN Guide 414:2017;

— figures were improved, partly exchanged or newly inserted;

— Clause 1 Scope: simplified, the description of machine types has been integrated in Clause 4, technical features have been transformed into requirements;

— Clause 2 Normative references: completed and updated;

— Clause 3 Terms and definitions: completed and updated;

— Clause 4 Safety requirements: safety requirements were revised;

— Clause 5 Verification: adapted to the requirements of Clause 4;

— Clause 6 Information for use: improved and supplemented with references to the relevant clauses;

— Annex A Noise test code: updated;

— Annex B Design principles to ensure the cleanability: updated;

— Annex C Performance level required: added to give a quick-view summary of PLr for each safety function;

— Annex D List of significant hazards: contains the former Clause 4;

— Annex ZA Relationship to Directive 2006/42/EC: improved and updated.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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 or hazardous 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 Annex D).

This document deals with the hazards which can arise during all the lifetime of the machinery (see EN ISO 12100:2010, 5.4).

This document is not applicable to derinding, skinning, and membrane removal machines for domestic purposes, hand-guided machines and table-top machines.

This document is not applicable to fish heading and filleting machines as described in EN 15467:2014.

This document is not applicable to derinding, skinning and membrane removal machines manufactured before the date of its publication.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 619:2022, *Continuous handling equipment and systems — Safety requirements for equipment for mechanical handling of unit loads*

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 1005-4:2005+A1:2008, *Safety of machinery — Human physical performance — Part 4: Evaluation of working postures and movements in relation to machinery*

EN 1672-2:2020, *Food processing machinery — Basic concepts — Part 2: Hygiene and cleanability requirements*

EN 60204-1:2018, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2016, modified)*

EN 60529:1991[1], *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)*

[1] As impacted by EN 60529:1991/A1:2000 and EN 60529:1991/A2:2013.

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

EN ISO 3746:2010, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Survey method using an enveloping measurement surface over a reflecting plane (ISO 3746:2010)*

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 11202:2010, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a workstation and at other specified positions applying approximate environmental corrections (ISO 11202:2010)*

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 13857:2019, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2019)*

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)*

EN ISO 21920-2:2022, *Geometrical product specifications (GPS) — Surface texture: Profile — Part 2: Terms, definitions and surface texture parameters (ISO 21920-2:2021)*

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 https://www.electropedia.org/

— ISO Online browsing platform: available at https://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 product residues from the tooth roller

3.3
stripper rake
rake-shaped device to strip skin or membrane or product residues off the hold-down roller

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 rollers 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 roller placed between the circular blades

3.10
round product
product of nearly round shape

EXAMPLE Pickled knuckle of pork, hind ham.

3.11
fixed bar
stable element that supports the belt in the area of the inlet and outlet and is strongly connected to the belt frame

3.12
tunnel-shaped cover
element covering the area between inlet and outlet

3.13
transport roller
component with exclusively longitudinal teeth for moving the product towards the knife

3.14
tooth roller
component with longitudinal teeth as well as stripper grooves for moving the product towards the knife

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

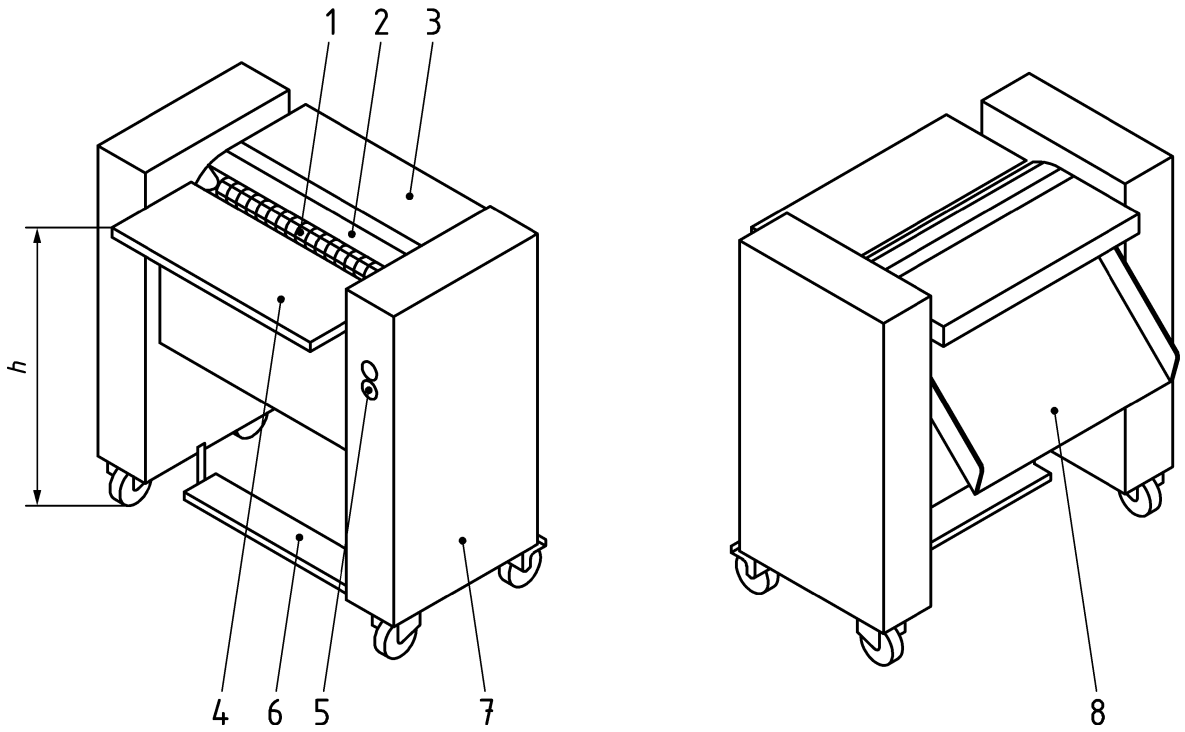
3.16
easily cleanable
designed and constructed to be cleanable by a simple cleaning method, if necessary after removing parts that can be easily dismantled

3.17
stripper grooves
circumferential grooves in the roller for guiding the stripper comb

4 Safety requirements and/or protective/risk reduction measures

4.1 General

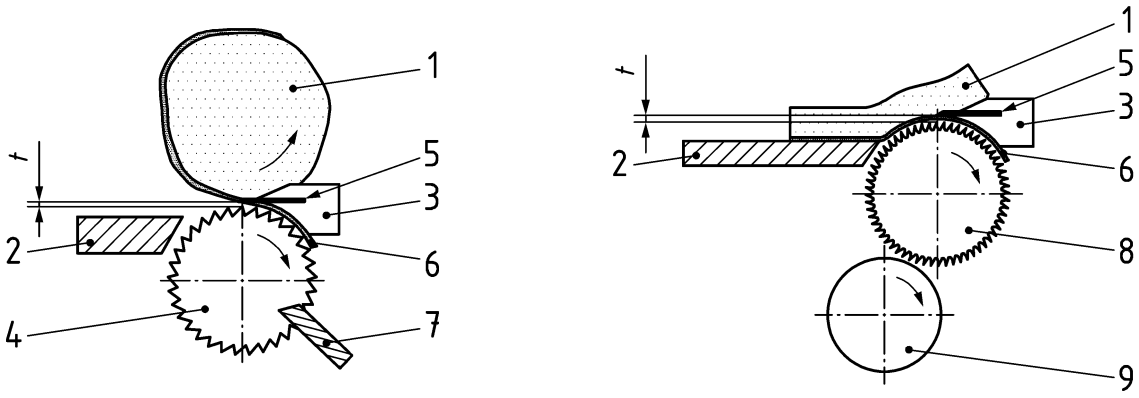
Derinding, skinning and membrane removal machines (see Figure 1, Figure 2, Figure 3, Figure 4 and Figure 5) shall comply with the safety requirements and/or protective/risk reduction measures of this clause. In addition, the machine shall be designed according to the principles of EN ISO 12100:2010 for the hazards relevant but not significant, which are not dealt with by this document.



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

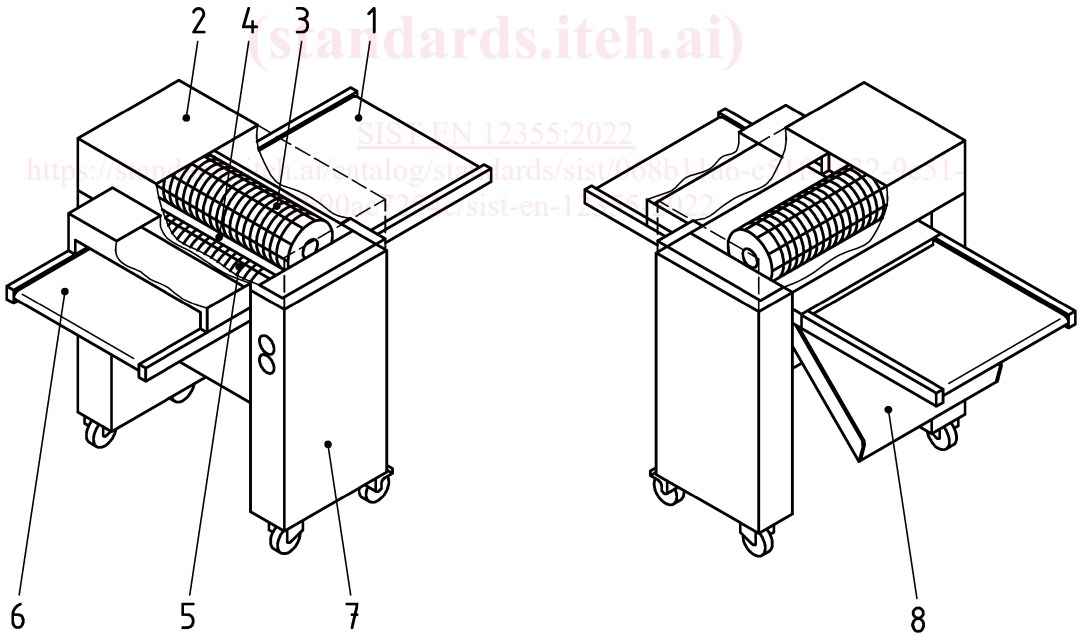


a) open derinding machine **b) open membrane removal machine**

Key

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

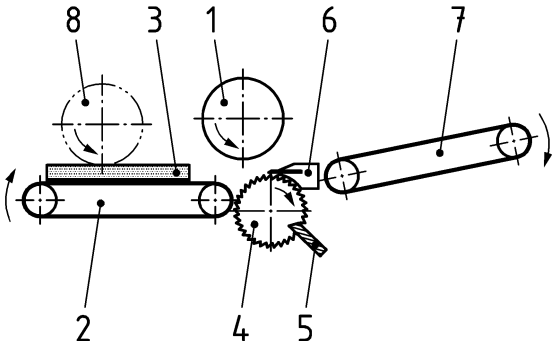
Figure 2 — System of open machines



Key

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

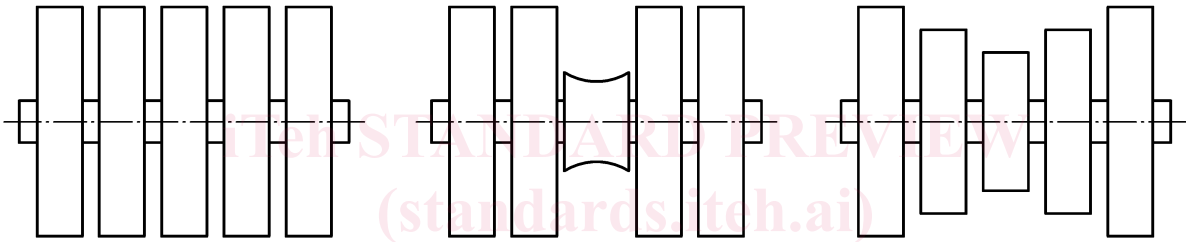
Figure 3 — Automatic machine



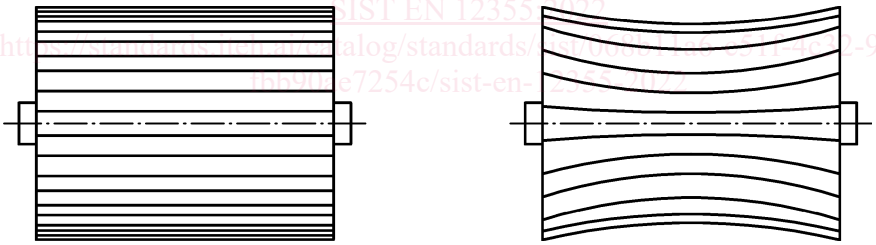
Key

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 4 — System of an automatic machine



a) hold-down roller (divided)



b) hold-down roller (undivided)

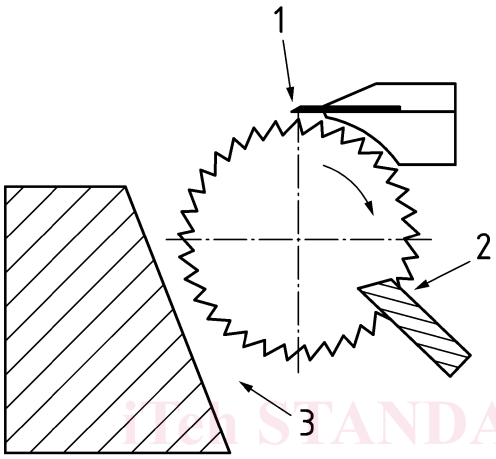
c) blade roller (divided) d) combined roller (divided)

Figure 5 — Examples of rollers

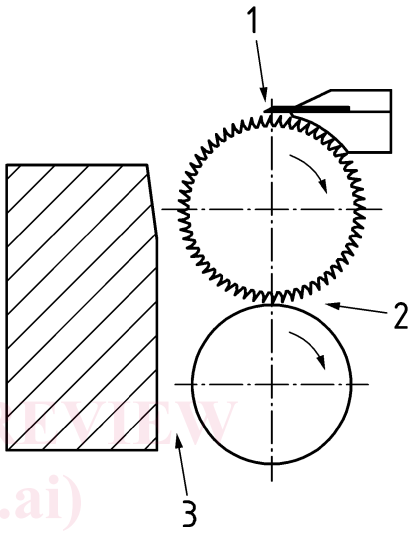
On derinding, skinning and membrane removal machines, a normal stop device shall be provided on each workstation to stop the machine. The normal stop device requires a performance level PL_r of at least "c" in accordance with EN ISO 13849-1:2015. The stopping function of the normal stop device shall be in accordance with EN 60204-1:2018, 9.2.2, Category 0. In the instruction handbook the manufacturer shall indicate that the normal stop device shall be operated immediately after each use of open derinding, skinning and membrane removal machines (see 6.2 d)).

When power is recovered or when the power supply is switched on, restarting of the machine shall be prevented.

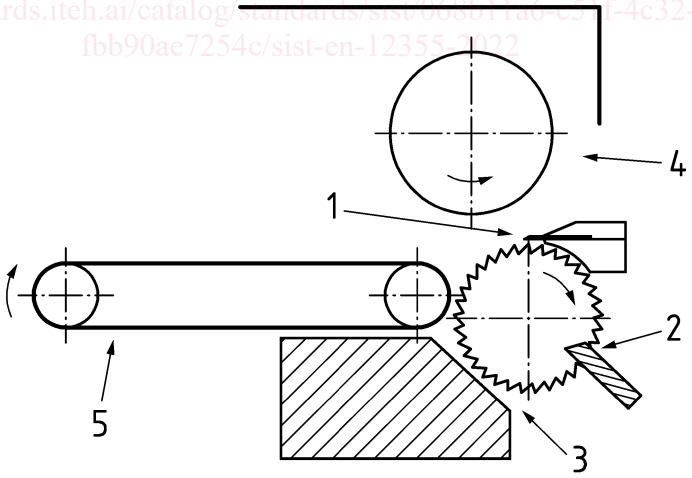
Figure 6 is showing the significant danger zones of the different machine types.



a) Derinding machine



b) Skinning and membrane removal machine



c) Automatic machines

Key

1 zone 1
2 zone 2
3 zone 3
4 zone 4
5 zone 5

Figure 6 — Danger zones on machines