



SLOVENSKI STANDARD
SIST EN 13208:2004

01-junij-2004

Stroji za predelavo hrane – Lupilniki zelenjave – Varnostne in higienske zahteve

Food processing machinery - Vegetable peelers - Safety and hygiene requirements

Nahrungsmittelmaschinen - Gemüseschälmaschinen - Sicherheits- und Hygieneanforderungen

Machines pour les produits alimentaires - Eplucheuses à légumes - Prescriptions relatives à la sécurité et à l'hygiène

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Ta slovenski standard je istoveten z: EN 13208:2003

ICS:

67.260

Tovarne in oprema za
živilsko industrijo

Plants and equipment for the
food industry

SIST EN 13208:2004

en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 13208

May 2003

ICS 67.260

English version

Food processing machinery - Vegetable peelers - Safety and hygiene requirements

Machines pour les produits alimentaires - Eplucheuses à légumes - Prescriptions relatives à la sécurité et à l'hygiène

Nahrungsmittelmaschinen - Gemüseschälmaschinen - Sicherheits- und Hygieneanforderungen

This European Standard was approved by CEN on 9 January 2003.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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

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Foreword

This document (EN 13208:2003) 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of an identical text or by endorsement, at the latest by November 2003, and conflicting national standards shall be withdrawn at the latest by November 2003.

It is one of a series of standards on the design and construction of machines used in catering:

- vegetable cutting machines;
- catering attachments for machines having an auxiliary drive hub;
- food processors and blenders;
- hand-held blenders and whisks;
- beam mixers;
- salad dryers;
- vegetable peelers;
- cooking kettles equipped with stirrer and/or mixer;

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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 EC Directive(s).

For relationship with EC Directives, see informative annex ZA, which is an integral part of this document.

The annexes A and B are normative.

This document includes a Bibliography.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

EN 13208:2003 (E)**Introduction**

Use of vegetable peelers generates various mechanical and other hazards.

Their extensive use in numerous countries justifies the need of a standard covering both safety and the hazards to food hygiene arising from machine design complementary to EN 1672-2 which state common hygiene requirements for food processing machines.

This European standard has been prepared to be a harmonised standard to provide one means of conformity with the essential safety and hygiene requirements of the Machinery Directive and associated EFTA Regulations.

This European standard is a type C standard as stated in EN 1070.

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

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.

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1 Scope

1.1 This European standard specifies the safety and hygiene requirements for the design and manufacture of vegetable peelers used in the commercial and institutional catering industry, and in food shops.

The machines concerned by this standard are designed to peel different sorts of vegetables and tubers such as potatoes, carrots, salsify, turnips, celery and onions.

The standard is limited to machines where the maximum capacity is 50 kg.

The machines are not intended to be moved during operation.

The rotating plate mixes the product under appropriate conditions so that the desired operation is carried out on the entire load.

This operation can be:

- the abrading of the surface of the vegetable or tuber;
- the cutting of fine particles of skin if the fitting is of the blade-type;
- grating, an operation which is similar to abrading;
- scraping or cleaning with a brush, rubber coating or cast iron surface.

Machines subject to this standard use water circulation to carry waste to the waste outlet. The underside of the plate is sometimes designed with raised parts which speed up the discharge of the waste water.

This European standard applies when such machines are used to operate under the intended conditions of use as defined in 3.12 of EN 292-1:1991 and stated in the instruction handbook (see 7.1), including cleaning, removal of food blockages and loading, and installation, maintenance, and disposal of wastes.

Machines covered by this standard are not intended to be cleaned by high pressure water jets.

1.2 This European standard does not apply to domestic machines.

Vegetable peelers have nothing in common with meat derinding machines (which are dealt with in prEN 12355), both from their design and use standpoint.

1.3 This European standard covers significant hazards at such machines, as identified by risk assessment (see EN 1050), which are listed in clause 4 of this standard.

1.4 Noise is not considered to be a significant hazard for vegetable peelers. This does not mean that the manufacturer of the machine is absolved from reducing noise and making a noise declaration.

1.5 This European standard does not deal with the vibrations hazard.

1.6 This European standard applies primarily to machines which are manufactured after its date of issue.

1.7 It has been assumed in preparing this standard that the vegetables to be processed have no foreign bodies, e.g. stones.

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2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. 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 (including amendments).

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

EN 953, *Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards.*

EN 1070:1998, *Safety of machinery - Terminology.*

EN 1672-2:1997, *Food processing machinery - Basic concepts - Part 2: Hygiene requirements.*

EN 60204-1:1997, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:1997).*

EN 60529, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989).*

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EN 60947-2:1996, *Low-voltage switchgear and controlgear - Part 2: Circuit-breakers (IEC 60947-2:1995).*

EN 61000-6-1, *Electromagnetic compatibility (EMC) - Part 6-1: Generic standards; Immunity for residential, commercial and light-industrial environments (IEC 61000-6-1:1997, modified).*

EN 61000-6-2, *Electromagnetic compatibility (EMC) - Part 6-2: Generic standards; Immunity for industrial environments (IEC 61000-6-2:1999, modified).*

EN 61000-6-3, *Electromagnetic compatibility (EMC) - Part 6-3: Generic standards; Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3:1996, modified).*

EN 61000-6-4, *Electromagnetic compatibility (EMC) - Part 6-4: Generic standards; Emission standard for industrial environments (IEC 61000-6-4:1997, modified).*

EN ISO 4287, *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 11201:1995, *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).*

3 Terms and definitions - Description

3.1 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1070:1998 apply.

3.2 Description of vegetable peeling machines

3.2.1 Typical vegetable peeling machine

Depending on the design of the machine, the peeling chamber is fitted with either a feed hopper (see Figure 1) or a cover.

Key

- 1 Water inlet
- 2 Air gap
- 3 Peeling chamber
- 4 Walls
- 5 Rotating plate
- 6 Waste outlet
- 7 Waste outlet connection
- 8 Base
- 9 Delivery chute
- 10 Motor
- 11 Drive system
- 12 Feeding system
- 13 Outlet lid
- 14 Rim

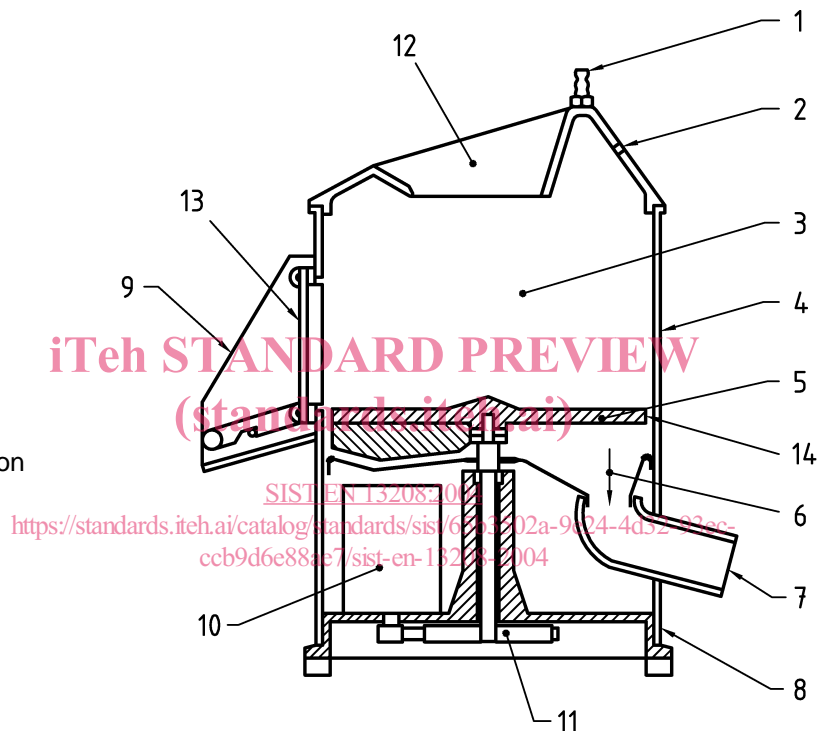


Figure 1 — Example of a typical vegetable peeler

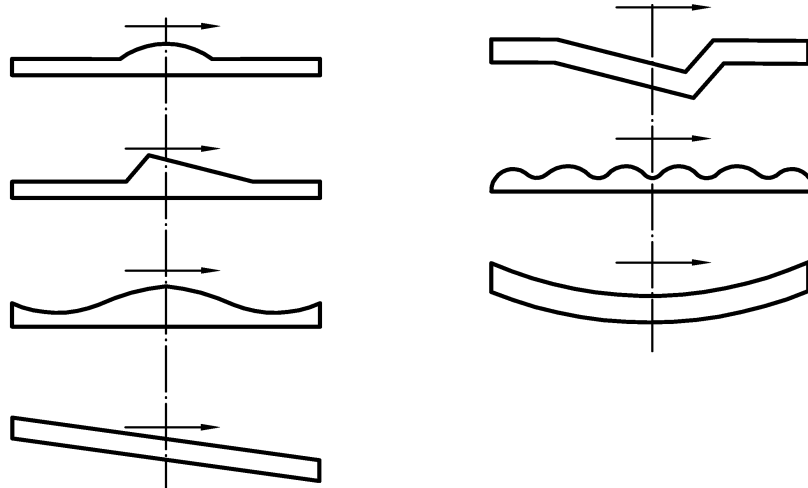


Figure 2 — Examples of different shapes of removable rotating plates

3.2.2 Elements of a vegetable peeling machine

In general, a vegetable peeler comprises (see Figure 1):

- a base containing the drive system and the motor and which supports the peeling chamber made up of:
 - removable or fixed vertical cylindrical walls which remain stationary during operation.
 - removable rotating plate having a shape appropriate to the product being processed and to the motion which one wishes to generate. This plate may be covered or fitted with:
 - an abrasive ; silicon carbide, carborundum, flint, etc;
 - blades;
 - a grater;
 - smooth or streaked cast iron or structured material;
 - a brush;
 - a rubber coating.
- a tray for collecting the waste and waste water below the plate;
- a delivery chute in the side of the peeling chamber;
- a water inlet at the top of the peeling chamber;
- a connecting opening for the disposal of waste water;
- a control panel, grouping together the operating controls.

4 List of significant hazards

4.1 General

This standard covers the significant hazards related to intended conditions of use.

NOTE If the machine is not to be used as described in clause 7 of this standard, the manufacturer should, when he is informed of such situation, check on the basis of a new risk analysis that the preventive measures remain valid and sufficient.

4.2 Mechanical hazards

For these machines, the mechanical hazards are low because the operating cycle does not require any manual operation inside the chamber during the peeling. The only manual operation when the plate rotates is the loading with food products which prevents interlocking of the cover.

4.2.1 Access to the danger zones

Mechanical hazards arise from the risk of contact with the rotating parts.

In the example in Figure 3, the hazard zones are:

- Zone 1: Access to the peeling chamber via the feeding opening for the product being processed:

Hazard of crushing of fingers.

- Zone 2: Access to the peeling chamber via the delivery chute:

Hazard of crushing of fingers and hands.

- Zone 3: Rotating plate: <https://standards.iteh.ai/catalog/standards/sist/65b3502a-9e24-4d32-93ec-c9d6e88ae7/sist-en-13208-2004>

Hazard of abrasion, cutting, trapping of fingers and hands.

- Zone 4: Drive system:

Hazard of crushing, trapping of fingers and hands.

- Zone 5: Waste outlet:

Hazard of crushing, trapping of fingers and hands.

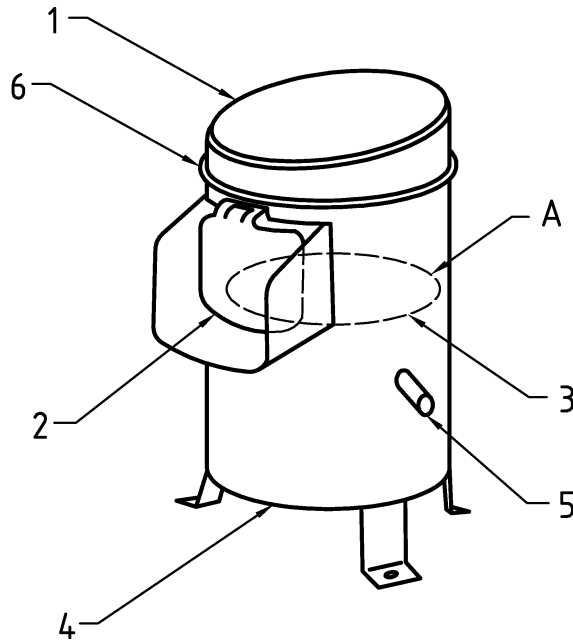
- Zone 6: Hinged lid:

Hazard of impact to fingers, hands and arms.

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Key

- 1 Access to zone 1
- 2 Access to zone 2
- 3 Access to zone 3
- 4 Access to zone 4
- 5 Access to zone 5
- 6 Access to zone 6
- A Rotating plate

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Figure 3 — Hazard zones

4.2.2 Loss of stability

Hazard of crushing and impact to the body.

4.2.3 Incorrect assembly of rotating plate

Hazard of crushing and impact to fingers and hands and cutting in presence of blades.

4.2.4 Handling, cleaning and storage

Hazard of crushing and body impact.

4.3 Electrical hazards

Hazard of electrical shock by direct or indirect contact with live parts and unexpected start up from restoration of energy supply after interruption.

Emission of EMC disturbances interfering with safety arrangements of other machines .

4.4 Hazards generated by neglecting hygiene principles in the design of the machine

4.4.1 Hazards to the operator

Hazards from the food being processed and from the cleaning agents used to disinfect the machine.

4.4.2 Hazards to the consumer

Inability to clean food and splash area effectively and thoroughly.

Contamination of the food by undesirable materials including residues of food, microbiological organisms as well as residues of cleaning and disinfecting fluids.

4.5 Hazards generated by neglecting ergonomic principles in machine design

Neglecting ergonomic principles can cause mistakes in operation of controls, or physical injury to the operator due to over-reaching, heavy loads, awkward posture, etc.

There is a severe risk of ergonomic problems caused by heavy loads when filling the machine and taking away the peeled product.

5 Safety and hygiene requirements and/or measures

5.1 General

Vegetable peelers conforming to this standard shall comply with the safety requirements and/or protective 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 document (e.g. sharp edges).

NOTE For hazards which are to be reduced by the application of another standard such as EN 1672-2, and EN 60204-1, the manufacturer should carry out a risk assessment to establish the requirements of the standard which are to be applied. This specific risk assessment is part of the general risk assessment of the machine.

Where the means of reducing the risk is by the physical arrangement or positioning of the installed machine, the manufacturer shall include in the Information for use a reference to the reduction means to be provided, and to any limiting value of the requirement, and, if appropriate, to the means of verification.

Where the means of reducing the risk is by a safe system of working the machinery, the manufacturer shall include in the Information for use details of the system and of the elements of training required by the operating personnel.

5.2 Mechanical hazards

The safety objective is to prevent access to the parts which would injure when they are in motion. This shall be achieved by compliance with the following.

5.2.1 Access to danger zones

5.2.1.1 Zone 1: Access to peeling chamber via feeding opening

The gap between the rotating plate and the walls of the peeling chamber shall not exceed 8 mm.

5.2.1.2 Zone 2: Access to the peeling chamber via the delivery chute

The shape of the plate shall be designed to prevent generation of a crushing zone between the plate and the edge of the opening e.g. a rim around the plate (see Figures 1 and 4).