SLOVENSKI STANDARD
SIST EN 13621:2004

01-november-2004

Stroji za predelavo hrane - Odcejalniki za solato - Varnostne in higienske zahteve

Food processing machinery - Salad dryers - Safety and hygiene requirements

Nahrungsmittelmaschinen - Salatschleudern - Sicherheits- und Hygieneanforderungen

Machines pour les produits alimentaires - Essoreuses a salade - Prescriptions relatives a la sécurité et a l'hygiene

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67.260	Tovarne in oprema za živilsko industrijo	Plants and equipment for the food industry
97.040.50	Majhni gospodinjski aparati	Small kitchen appliances

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English version

Food processing machinery - Salad dryers - Safety and hygiene requirements

Machines pour les produits alimentaires - Essoreuses à salade - Prescriptions relatives à la sécurité et à l'hygiène

Nahrungsmittelmaschinen - Salatschleudern - Sicherheits- und Hygieneanforderungen

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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 Central Secretariat has the same status as the official versions.

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Contents

Foreword

This document (EN 13621:2004) 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of an identical text or by endorsement, at the latest by February 2005, and conflicting national standards shall be withdrawn at the latest by February 2005.

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

- 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.

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 Directives.

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

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard : Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

The use of salad dryers involves various mechanical and other hazards.

Their extensive use 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 states hygiene requirements for food processing machines.

This document 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 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.

1 Scope

1.1 This document specifies the safety and hygiene requirements for the design and manufacture of salad dryers taking account of installation, cleaning, removal of jammed food, feeding, maintenance and decommissioning. The spinning function is obtained by the rotation of a perforated basket in which the product being processed is placed.

It applies to machines:

— which are intended for use in the commercial and institutional catering industry;

— having a rotation speed between 300 rpm and 900 rpm;

— having a nominal output below 2 kW;

— having a nominal volume of the basket less than 100 l.

These machines can be stationary or movable.

The machines concerned by this document are those appliances which are intended for eliminating by spinning the water present on salad after washing. These machines can also be used for spinning other vegetables such as spinach, watercress, radish, French beans, etc.

The machines covered by this document are not intended to be cleaned with water jet.

This document deals with all significant hazards, hazardous situations and events relevant to salad dryers, when they are used as intended and under the conditions foreseen by the manufacturer (see Clause 4).

NOTE If the machine is not used under above conditions, the manufacturer should verify, when he is informed of such situation, if the preventive measures remain valid (see 3.22 of EN ISO 12100-1:2003).

The feeding principle of the machine can be notably:

— manual loading into the basket left in position in the machine;

— placing in and withdrawal from the machine of the loaded basket.

1.2 Noise is not considered to be a significant hazard with salad dryers. This does not mean that the manufacturer of these machines is absolved from reducing noise and making a noise declaration. Therefore a noise test code is proposed in Annex A.

1.3 Vibrations are not considered as a hazard with these machines.

1.4 This document is not applicable to the machines which are manufactured before the date of publication of this document by CEN.

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 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 954-1:1996, *Safety of machinery — Safety related parts of control systems — Part 1: General principles for design.*

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

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

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 60529:1991, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989).*

EN ISO 3744:1995, *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, *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 the work station and at other specified positions — Engineering method in an essentially free field over a reflecting plane (ISO 11201:1995).*

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 (ISO 12100-2:2003).*

3 Terms and definitions – Description

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1070:1998 and in EN 1672-2:1997 and the following apply.

3.1.1
nominal load
mass of unsoaked lettuce, in kilograms, intended by the manufacturer to be processed

3.2 Description

3.2.1 Classes of machines

For those machines, two classes are defined:

— class 1: machines having a rotation speed up to 500 rpm;

— class 2: machines having a rotation speed above 500 rpm up to 900 rpm.

3.2.2 Principal elements of a salad dryer:

Salad dryers are made up as show in Figure 1 of:

— tank (1) for receiving the spinning water;

— perforated basket (generally removable) (2) in which the product to be spun is placed;

— basket drive device (3);

— rotation generating device (4);

— electrical equipment (5);

— water evacuation device (6);

— if necessary: a cover (7) intended to prevent from splashes. This cover is not a safeguard against mechanical hazards, excepted for class 2.

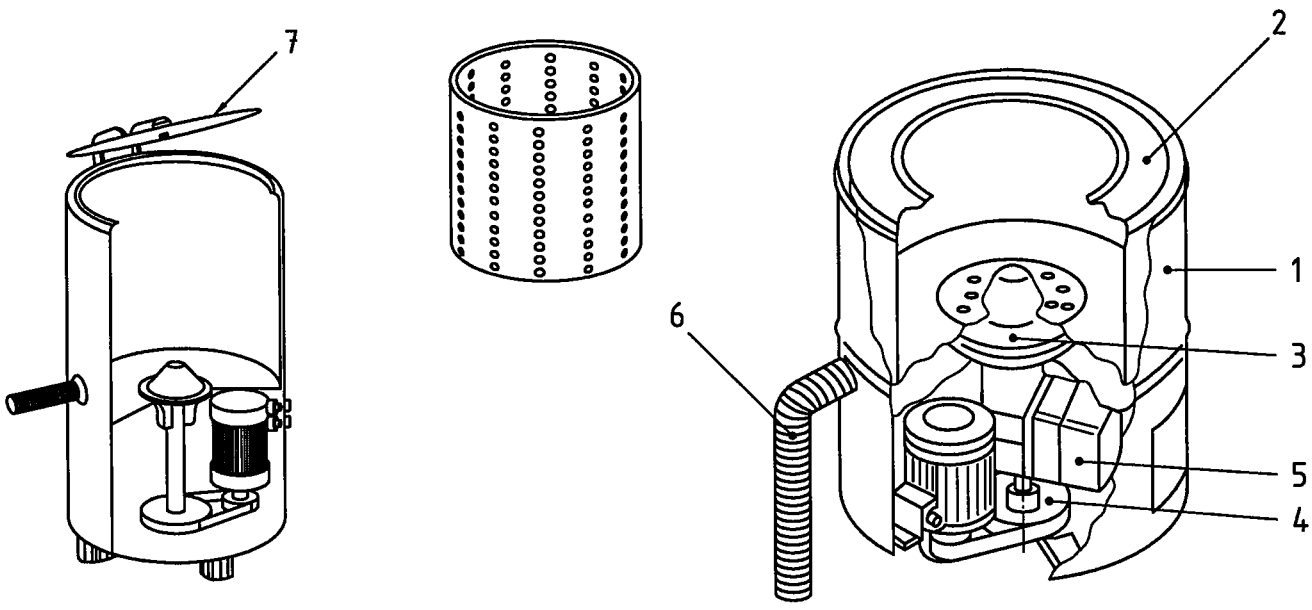


Figure 1.a – Dryer with a cover

Figure 1.b – Dryer without a cover

Figure 1 — Example of a dryer

4 List of significant hazards

4.1 General

This Clause contains all the significant hazards, hazardous situations and events, as far as they are dealt with in this document, identified by a risk assessment based upon EN 1050 as significant for salad dryers, and which require action to eliminate or reduce the risk.

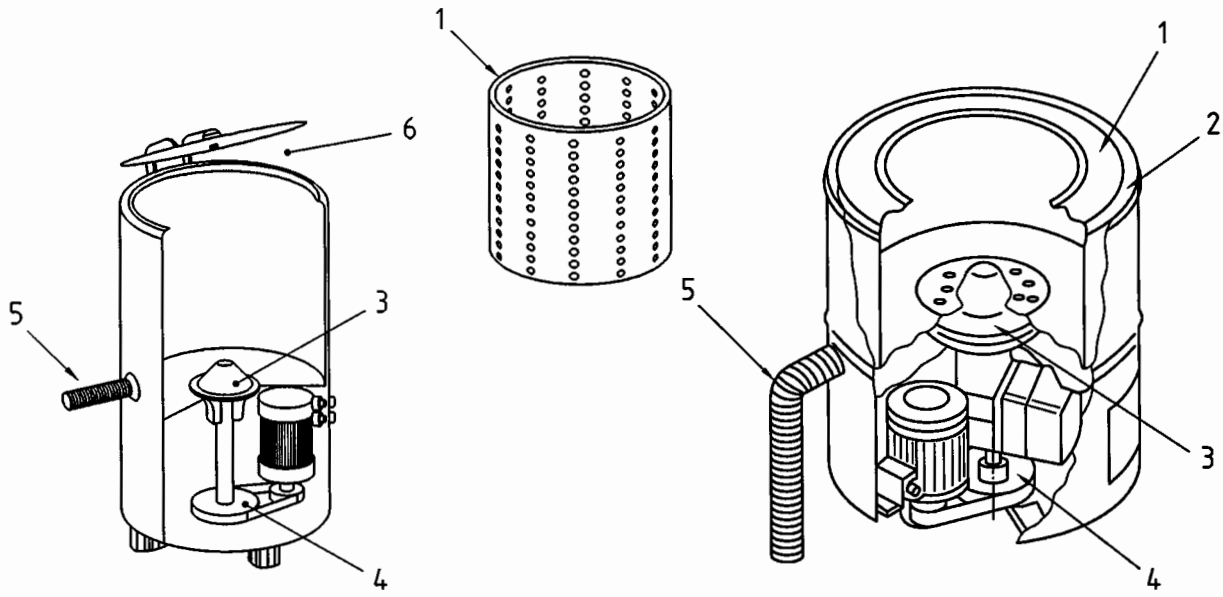
Before using this document, it is important to carry out a risk assessment of the lifting and tilting machine to check that its significant hazards are identified in this Clause.

NOTE If the machine is not to be used as described in Clause 7 of this document, 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

4.2.1 Access to the danger zones

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



Key

1 Zone 1
2 Zone 2
3 Zone 3
4 Zone 4
5 Zone 5
6 Zone 6

Figure 2.a — Dryer with a cover

Figure 2.b — Dryer without a cover

Figure 2 — Hazard zones

In the example in Figure 2, the hazard zones are:

— Zone 1: basket

Hazard of impact or abrasion to fingers;

— Zone 2: space between the tank and the rotating basket

Hazard of drawing in fingers;

— Zone 3: basket drive device

Hazard of impact or entanglement of fingers;

— Zone 4: rotation generating device

Hazard of crushing or drawing in fingers;

— Zone 5: access to the rotation zone of the basket through the water evacuation device

Hazard of impact and abrasion to fingers;

— Zone 6: space between the lid of the tank and the cover in case of falling down of the cover

Hazard of crushing fingers.

4.2.2 Loss of stability

Hazard of crushing and impact.

4.2.3 Incorrect assembly and fitting

Hazard of impact for fingers and hands.

4.2.4 Inadequacy of mechanical strength

Hazard of breakage and ejection of parts especially when processing other vegetables than salad.

4.3 Electrical hazards

Hazard of shock by direct or indirect contact with live parts.

4.4 Hazards generated by neglecting hygiene in machine design

Inability to clean food contact and splash areas effectively and thoroughly.

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

NOTE See also EN 1672-2 which deals with hygiene risks to the operator.

4.5 Hazards generated by neglecting ergonomic principles in machine design

Lack of applying ergonomic principles can be anything that causes wrong operation of controls, physical damage due to over-reaching, heavy loads, awkward posture, etc.

5 Safety and hygiene requirements and/or measures

5.1 General

Salad dryers shall comply with the safety requirements and/or protective measures of this Clause. In addition, they shall be designed according to the principles of EN ISO 12100 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 294, EN 1672-2 and EN 60204-1, the manufacturer should carry out a risk assessment to establish the requirements of that standard which are to be applied. This specific risk assessment is part of general risk assessment of the dryer.

Where the means of reducing the risk is by the physical arrangement or positioning of the installed dryer 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 dryer, 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

5.2.1 General

For the machines covered by this document, the safety shall be in the first place intrinsically ensured by the design, the shape and the choice of materials, according to the requirements given below.

5.2.2 Access to the danger zones

5.2.2.1 Machines of class 1

5.2.2.1.1 Zone 1: basket

The inside and outside of the basket shall not present any sharp parts, roughness or raised parts likely to create a hazard of impact or abrasion.

If the impact or abrasion hazards is not withdrawn by design, the rotating basket shall disconnect itself immediately, as soon as its rotation becomes blocked, e.g. by using a frictional drive.

5.2.2.1.2 Zone 2: space between the tank and the basket

In any case the space between the tank and the basket shall be less than 8 mm or greater than 20 mm.

5.2.2.1.3 Zone 3: basket drive device

By design, the drive device shall not present any sharp parts, nor create impact or entanglement.

5.2.2.1.4 Zone 4: rotation generating device

Access to the danger zone shall be prevented by fixed guards complying with EN 953.

5.2.2.1.5 Zone 5: access to the rotation zone of the basket through the water evacuation device

The spinning water evacuation device shall be designed in such a manner that the introduction of a finger or of the hand into the pipe opening does not cause any jamming of the operator's fingers between the basket and the bottom of the tank (Table 4 of EN 294:1992 shall apply). In addition, this device shall be unable to be dismantled without the use of tools.

5.2.2.1.6 Zone 6: space between the tank and the cover

The cover shall be stable in full opening position (e.g. at least 10° over the limit of stability).

5.2.2.2 Machines of class 2

The requirements of 5.2.2.1.1 to 5.2.2.1.6 apply with the following additional requirements for zones 1, 2 and 3.

These machines shall have a stopping time less than 4 s or be equipped with an interlocked cover with guard locking.

All the interlocking devices associated with guards shall comply with EN 1088. The interlocking devices and their interface with the control systems shall meet at least category 1 of 6.2.2 of EN 954-1:1996.

These guards shall comply with EN 953 and Table 4 of EN 294:1992.

Instructions about the use and the maintenance of these devices shall be provided in the instruction handbook.