SLOVENSKI STANDARD
SIST EN 12043:2015

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Nadomešča:
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Stroji za predelavo hrane - Komore za vmesno počivanje testa - Varnostne in higienske zahteve

Food processing machinery - Intermediate provers - Safety and hygiene requirements

Nahrungsmittelmaschinen - Zwischengärschrank - Sicherheits- und Hygieneanforderungen

Machines pour les produits alimentaires - Chambres de repos - Prescriptions relatives à la sécurité et à l'hygiène

Ta slovenski standard je istoveten z: **EN 12043:2014**

ICS:

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

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EUROPEAN STANDARD

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EN 12043

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Supersedes EN 12043:2000+A1:2010

English Version

Food processing machinery - Intermediate provers - Safety and hygiene requirements

Machines pour les produits alimentaires - Chambres de repos - Prescriptions relatives à la sécurité et à l'hygiène

Nahrungsmittelmaschinen - Zwischengärschrank - Sicherheits- und Hygieneanforderungen

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document (EN 12043:2014) 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of an identical text or by endorsement, at the latest by May 2015 and conflicting national standards shall be withdrawn at the latest by May 2015.

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 supersedes EN 12043:2000+A1:2010.

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 2006/42/EC.

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

Significant changes:

The significant changes with respect to the previous edition EN 12043:2000+A1:2010 are listed below:

— protective measures for the loading were modified;

— requirements for emergency stop were added;

— requirements for nip guards were stated more precisely;

— thermal hazards, lamps, and hazards generated by UV radiation were added;

— the table of verification of safety and hygiene requirements was completely revised.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This European Standard is a type C standard as stated in EN ISO 12100.

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

1 Scope

1.1 This European Standard specifies safety and hygiene requirements for the design and manufacture of intermediate provers with powered moving pocket carriers as described in Clause 3 and used in the food industry, pastry-making, bakeries, etc. for giving a resting time to dough between different phases of the process.

This European Standard deals with all significant hazards, hazardous situations and events relevant to the installation, adjustment, operation, cleaning, maintenance, dismantling, disabling and scrapping of intermediate provers with moving pocket carriers when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4).

Noise is not considered to be a significant hazard by intermediate provers. This does not mean that the manufacturer of the machine is absolved from reducing noise and making a noise declaration. Therefore a noise test code is proposed in Annex A.

1.2 The following machines are excluded:

— independent automatic loading system not integrated with the machine;

— experimental and testing machines under development by the manufacturer;

— retarder and final proofer.

1.3 This European Standard is not applicable to intermediate provers with moving pocket carriers which are manufactured before the date of its publication as EN.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 953, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

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, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

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

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

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

EN ISO 11201, *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)*

EN ISO 12001, *Acoustics — Noise emitted by machinery and equipment — Rules for the drafting and presentation of a noise test code (ISO 12001)*

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

EN ISO 13732-1, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces (ISO 13732-1)*

EN ISO 13849-1:2008, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2006)*

EN ISO 13850, *Safety of machinery — Emergency stop — Principles for design (ISO 13850)*

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

3 Terms, definitions and description

3.1 Terms and definitions

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

3.1.1
pocket
tilting/guided plate or tilting/guided basket or tilting/guided cup, inside the prover, on which the piece of dough is placed during the resting time

3.2 Description

As shown in Figure 1, an intermediate prover consists of:

— a variable number of pockets supported in a carrier into which dough pieces are placed. One pocket may hold more than one dough piece;

— a mechanical transfer system moving the pocket carrier along a defined path inside the machine;

— a housing supporting or containing the transmission machinery.

The following features may also be included:

— an automatic device to control the temperature and/or humidity inside the machine;

— a flour dusting device;

— other accessories, e.g. germicidal lamp (device to prevent the formation of mould – generally an ultraviolet lamp), pocket drier (device to dry the pockets – generally an infrared lamp or a ventilation system with or without heating);

— integrated system(s) to load/unload the pockets.

The resting time is the period of time from loading until unloading of a single pocket. This time can be fixed or variable.

There are openings in the frame where dough portions are introduced into the machine and where they are taken out.

The position of loading and unloading depends on the frame shape and the path of movement of the pockets.

Some machines may have more than one unloading position. These machines may provide different resting times depending on which of the unloading positions is being used.

The movement of the pockets may be continuous or intermittent.

In some cases (e.g. cleaning, lubrication…) access to the path of movement of the pockets – in addition to the loading and unloading openings – is provided.

4 List of significant hazards

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

Table 1 – List of significant hazards

Hazards, hazardous situations and hazardous events	Location or cause	Clause/subclause in this European Standard
Mechanical hazards (see Figure 1):		5.2
— shearing; — trapping; — drawing-in; — crushing	Zone 1 – zone of loading and unloading of the dough portions Zone 3 – carrier transfer system (except Zone 1) Zone 6 – between chain and sprockets Zone 4 – zone covered by moving parts of the flour duster (if fitted)	
— cutting;	Zone 2 – drive mechanisms Zone 5 – fan with or without heating device	
— loss of stability	Complete machine	
Electrical hazards	Electric shock from direct or indirect contact with live components External influences on electrical equipment (e.g. cleaning with water) Unexpected start-up Electromagnetic disturbance	5.3
Hazards generated by materials and substances (inhalation of dust)	Flour dusters	5.4
Thermal hazards	Fan with or without heating device	5.5
Material/substance hazards	Breakage of the lamps (e.g. germicidal lamps, lights, etc.)	5.6
Hazard generated by neglecting hygienic design principles	e.g. contamination by microbial growth or foreign materials	5.7
Hazard generated by neglecting ergonomic principles	During operation, cleaning and maintenance	5.8
Hazard generated by UV radiation	UV lamps	5.9

The examples in Figure 1 illustrate the danger zones associated with these hazards:

— Zone 1: zone of loading of the dough portions, hazards of shearing, trapping;

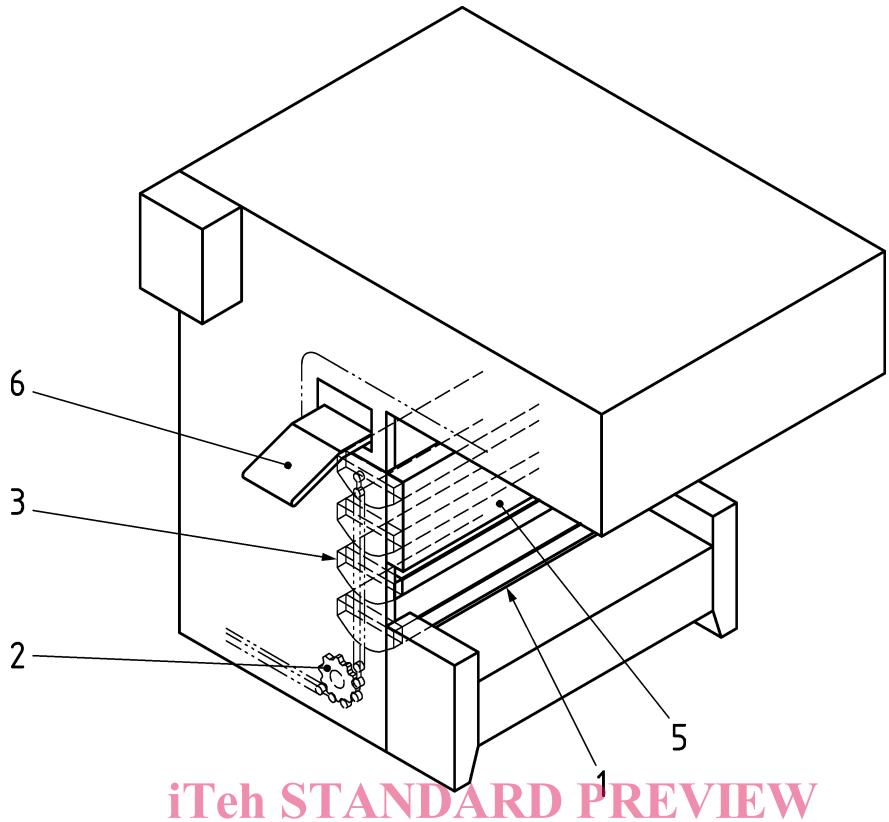
— Zone 2: drive mechanisms, hazards of shearing, trapping, cutting;

— Zone 3: carrier transfer system (except zone 1), hazards of shearing, trapping;

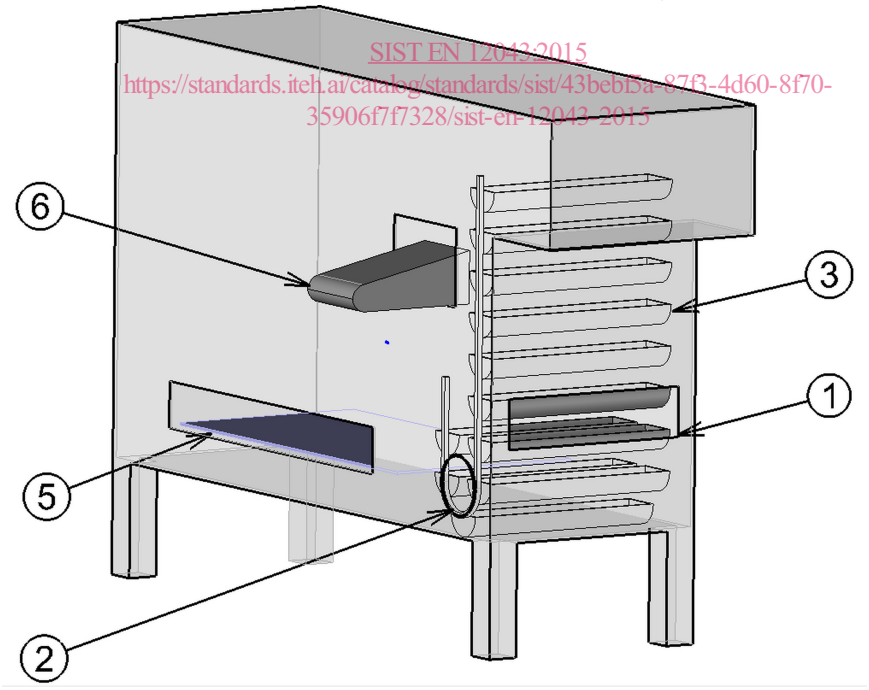
— Zone 4: zone covered by moving parts of the flour duster (optional), hazards of shearing, trapping; (not shown in Figure 1b)

— Zone 5: fan with or without heating device, hazards of cutting, burns;

— Zone 6: zone of unloading of the dough portions, hazards of shearing, trapping.



a) Example of a small intermediate prover



b) Example of an automatically loaded intermediate prover

c) Example of an automatic feeding intermediate prover

Figure 1 — Danger zones for various types of intermediate provers

5 Safety and hygiene requirements and/or protective measures

5.1 General

Machinery 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 ISO 12100 for relevant but not significant hazards, which are not dealt with by this document.

Fixing systems of fixed guards or of parts of the machine acting as such shall remain attached to the guards or to the machinery when the guards are removed.

5.2 Mechanical hazards

5.2.1 General

Where reference is made to interlocking devices, they shall comply with EN ISO 14119.

Where the interlocking mechanism has movable parts, e.g. position switches, these shall not be affected by contamination with dough or dry ingredients.

Where safety related parts may be exposed to water, e.g. during cleaning, they shall be protected to an appropriate IP rating at least IPX4 (see EN 60529).

The safety related parts of the control systems shall present at least a performance level “c” defined in accordance with EN ISO 13849-1:2008.