



SLOVENSKI STANDARD
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Stroji za predelavo hrane - Dodajalni stroji za pekarstvo in pecivo - Varnostne in higienske zahteve

Food processing machinery - Craft bakery and pastry depositors - Safety and hygiene requirements

Nahrungsmittelmaschinen - Dressiermaschinen - Sicherheits- und Hygieneanforderungen

Machines pour les produits alimentaires - Doseuses de boulangerie et de pâtisserie - Prescriptions relatives à la sécurité et l'hygiène

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ICS:

67.260	Tovarne in oprema za živilsko industrijo	Plants and equipment for the food industry
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Food processing machinery - Craft bakery and pastry depositors - Safety and hygiene requirements

Machines pour les produits alimentaires - Dresseuses de pâtes pour boulangerie et pâtisserie - Prescriptions relatives à la sécurité et l'hygiène

Nahrungsmittelmaschinen - Dressiermaschinen - Sicherheits- und Hygieneanforderungen

This European Standard was approved by CEN on 23 September 2024.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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EN 17677:2024 (E)

European foreword

This document (EN 17677:2024) 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of an identical text or by endorsement, at the latest by May 2025, and conflicting national standards shall be withdrawn at the latest by May 2025.

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 has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

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 organisations 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.

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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 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).

The above-mentioned stakeholder groups have been given the possibility to participate in 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.

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1 Scope

1.1 This document specifies safety and hygiene requirements for the design and manufacture of craft bakery and pastry depositors as described in the normative Annex A and which:

- a) are intended to be:
 - only for professional use;
 - used by one operator at a time;
 - used to deposit only pasty food (i.e.: cream, dough, batter, etc.);
 - used to deposit only on trays;
 - used as standalone machines;
 - used with manual loading of the dough into the hopper;
 - used with manual loading and unloading of the tray/s on/from the tray conveyor.
- b) can carry out only the following movements and relevant directions (see Figure 1a)):
 - Z: vertical movement of the table and/or the deposit unit;
 - X: horizontal movement of the tray conveyor;
 - Y: possible horizontal component of the movement only of the spouts themselves inside the deposit unit;
- c) are fitted with one or more hoppers whose capacity is $\leq 60 \text{ dm}^3$ each;
- d) have a total length of the tray conveyor $\leq 1\,600 \text{ mm}$;
- e) have a vertical movement between spouts and tray conveyor (H) $\leq 200 \text{ mm}$ (see Figure 1c));
- f) have a deposit performance (see 3.5):
 - ≤ 60 cycles/minute with up/down movement of the table or the deposit unit;
 - ≤ 100 cycles/minute without up/down movement of the table or the deposit unit;
- g) have a trays performance (see 3.6) ≤ 4 trays/minute.

This document deals with all significant hazards, hazardous situations and events relevant to adjustment, operation and cleaning of craft bakery and pastry depositors, when they are used as intended or under conditions of misuse which are reasonably foreseeable by the manufacturer.

This document covers requirements for the safe operation of the machine, including loading, depositing, unloading and cleaning.

1.2 The following hazards are not covered by this document:

- hazards arising from the use of an automatic hopper loading system;
- hazards due to packaging, handling or transport;
- hazards arising from electromagnetic compatibility issues;
- hazards due to dismantling and disassembling;
- hazards due to operational stop;
- hazards due to selection of control or operating modes;
- hazards due to failure of the power supply;
- hazards due to surfaces, edges or angles;
- hazards due to uncontrolled movements;
- hazards due to machinery maintenance.

This standard does not deal with any specific requirements on noise emitted from craft bakery and pastry depositor as the generated noise does not cause a relevant hazard.

The significant hazards covered by this document are described in Annex B.

1.3 The following machines are excluded from the scope of this document:

- a) machines which deposit pasty food by means of needles (injection);
- b) machines where the trays are put onto and/or removed from the tray conveyor automatically;
- c) machines which require a blade for the cutting system;
- d) domestic appliances;
- e) machines for industrial production;
- f) machines to deposit other products than food for bakery and pastry products.

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

EN 17677:2024 (E)**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 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 ISO 7010:2020, *Graphical symbols — Safety colours and safety signs — Registered safety signs (ISO 7010:2019, Corrected version 2020-06)*

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

EN ISO 13849-1:2023, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2023)*

EN ISO 13855:2010, *Safety of machinery — Positioning of safeguards with respect to the approach speeds of parts of the human body (ISO 13855:2010)*

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 14118:2018, *Safety of machinery — Prevention of unexpected start-up (ISO 14118:2017)*

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 14122-3:2016, *Safety of machinery — Permanent means of access to machinery — Part 3: Stairs, stepladders and guard-rails (ISO 14122-3:2016)*

EN IEC 61496-2:2020, *Safety of machinery — Electro-sensitive protective equipment — Part 2: Particular requirements for equipment using active opto-electronic protective devices (AOPDs) (IEC 61496-2:2020)*

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 terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

deposit unit

device which consists of at least one hopper, apertures or shaped spouts, which can rotate around a vertical axis through which the dough passes for being deposited on the tray, and of counter-rotating grooved or shaped rollers (metering rollers; see 3.3) which press (compact dough) and/or let pass (fluid dough) the right amount of dough through the openings/spouts; the unit can be static or mobile according to the X-axis, Z-axis or both axes

Note 1 to entry: If only the metering rollers and/or the rotating spouts move, but their support parts and the hopper do not move, the deposit unit has to be considered as static.

3.2

spout

specifically shaped opening to allow creation of the shape of the product (e.g. cookies, sheets)

3.3

metering rollers

couple of counter-rotating shaped (for instance, grooved) rollers whose function is to press (compact dough) and/or to let pass (fluid dough) the desired quantity of dough through the openings/spouts

3.4

working cycle

sequence of the operational phases that are carried out by the machine between two subsequent dough deposits of products independent of the number of pieces which are produced, including the displacement of the tray

3.5

deposit performance

number of working cycles per minute

3.6

trays performance

number of trays per minute which can be loaded/unloaded in/from the machine

3.7

wire cutting system

system consisting of a thin steel wire fixed at the ends of a series of metal arms with a driven back-and-forth movement; the metal wire passing very close to the lower part of the outlet opening/spouts of the deposit unit cuts the dough and effects the portioning of the products

3.8

table

unit consisting of a table frame, a tray conveyor and, if provided, table extension (optional)

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3.9

table frame

structure supporting the tray conveyor; it can be static or driven moving according to the X-axis, Z-axis or both axes (see Figure 1 a))

3.10

tray conveyor

part of the table, which consists of one or more driven conveying device/s (belt, chain, etc.) which move the tray back and forth only in the X-direction (see Figure 1 b)) to prepare receiving the products made with the next work cycle

3.11

table extension

part of the table beyond the ends of the tray conveyor, which only serves to support the tray before it is taken and moved towards the deposit zone or after it has been left free by the tray conveyor (even if they can be pushed by the other trays advancing – see Figure 1 b))

3.12

length of the tray conveyor

L

horizontal dimension parallel to X of the part of the tray conveyor that acts directly on a tray to move it in X direction, without taking into account the table extension (optional) (see 3.11) and the table frame (see Figure 1 b))

3.13

interlocking removable guard

interlocking guard which can be taken away without the use of tools; the interlocking device actuates when it is moved from its resting position

3.14

interlocking movable guard

interlocking guard which can be opened, but not removed, without the use of tools (e.g. hinged); the interlocking device actuates when it is moved from its resting position

3.15

fixed guard

guard affixed in such a manner (for example, by screws, nuts, and welding) that it can only be opened or removed by the use of tools by which the guard is affixed

[SOURCE: ISO 12100:2010, 3.27.1, modified]

3.16

distance guard

guard which does not completely enclose a hazard zone, but which prevents or reduces access by virtue of its dimensions and its distance from the hazard zone, for example perimeter fence or tunnel guard

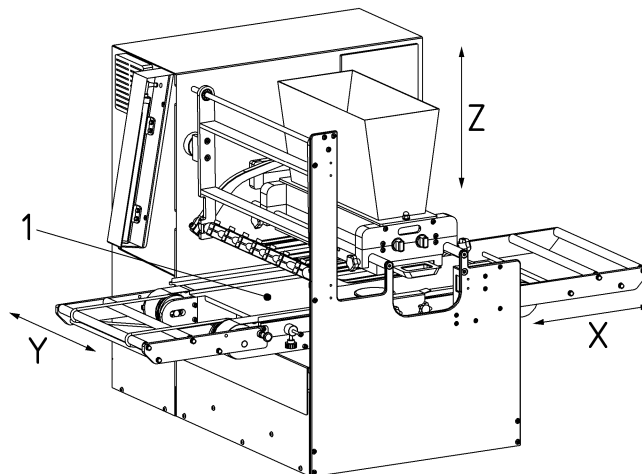
[SOURCE: EN ISO 14120:2015, 3.2.2, modified]

3.17

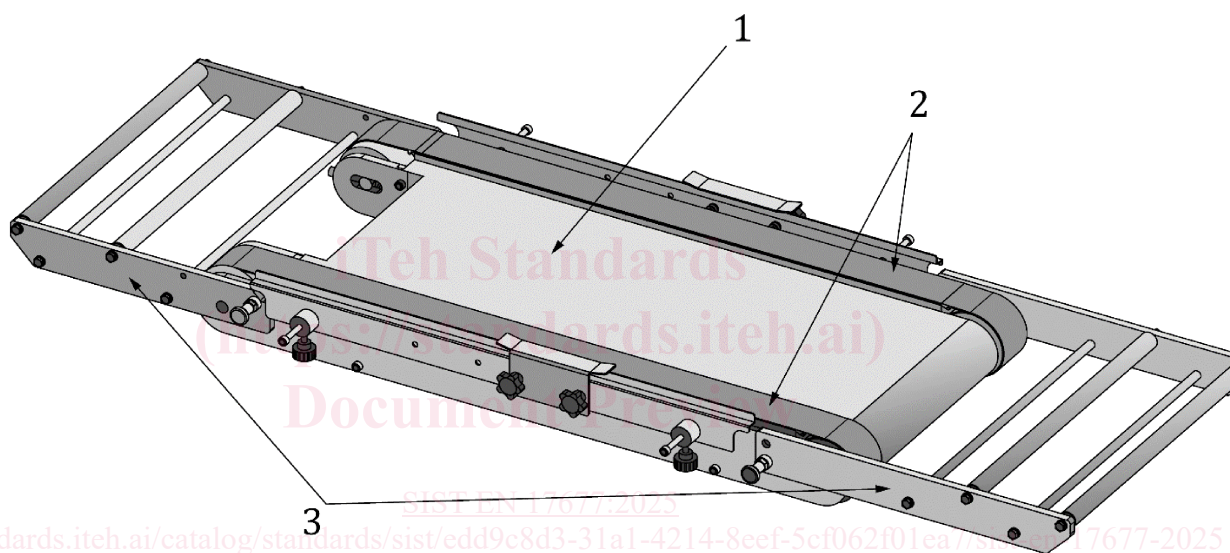
stopping time

time interval between the actuation of the device which controls the stop and the termination of the hazardous machine function

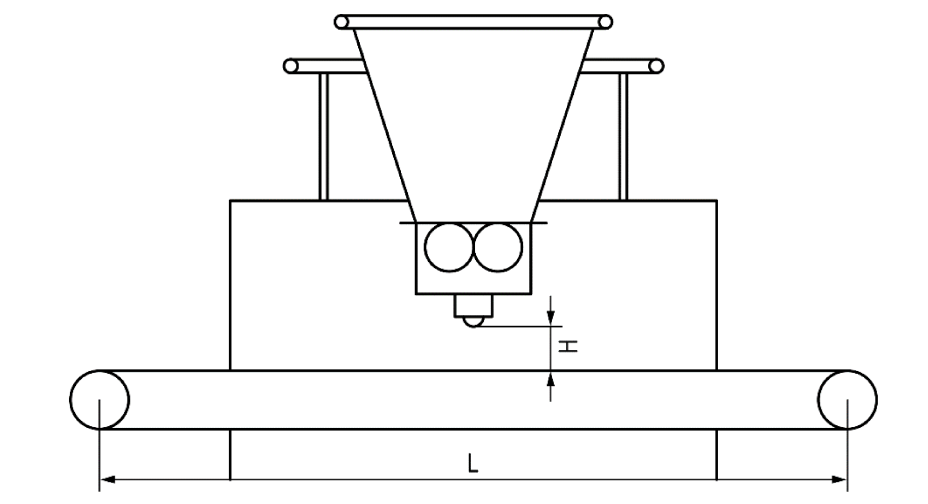
[SOURCE: EN ISO 13855:2010, 3.1.2, modified]



a) Three-dimensional axes



b) Table and tray conveyor with optional table extension



c) Schematic illustration

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- 1 table frame
- 2 tray conveyor
- 3 table extension (optional)
- H* vertical distance between the conveyor and the lowest part of the spouts
- L* length of the tray conveyor
- X* axis parallel to the direction of the horizontal movement back and forth of the tray conveyor
- Y* horizontal axis perpendicular to *X*
- Z* vertical axis perpendicular to *X* and *Y* and parallel to the direction of the table up and down movement, if provided

Figure 1 — Example of a craft bakery and pastry depositor**4 Safety requirements and/or protective/risk reduction measures****4.1 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 12100:2010 for relevant but not significant hazards, which are not dealt with by this document.

The safety-related parts of the control system and the combination of these parts which performs the safety functions shall meet at least a performance level “c” specified in accordance with EN ISO 13849-1:2023, unless otherwise indicated. When fixed guards, or parts of the machine acting as such, are not permanently fixed, e.g. by welding, their fixing systems shall remain attached to the guards or to the machinery when the guards are removed.

A normal stop control device shall be provided; it shall stop all moving parts of the machine. The stopping category shall be category 0 or 1 according to EN 60204-1:2018, 9.2.2. A stopping of category 1 according to EN 60204-1:2018, 9.2.2 is permitted only if the related stopping time is shorter than the one achieved with category 0.

One emergency stop shall be located both at inlet and outlet side of the tray conveyor. They shall be faced to the position normally occupied by the operator while operating the machine (see Figure 2). The distance between the emergency stop and the position normally occupied by the operator shall be ≤ 1 m. The stopping time after actuating the emergency stop control device shall be $\leq 0,5$ s.