



SLOVENSKI STANDARD
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Stroji za izdelavo testenin - Sušilniki in ohlajevalniki - Varnostne in higienske zahteve

Pasta processing plant - Dryers and coolers - Safety and hygiene requirements

Maschinen zur Teigwarenherstellung - Trockner und Kühler - Sicherheits- und Hygieneanforderungen

Installations de production de pâtes - Séchoirs et refroidisseurs - Prescriptions relatives à la sécurité et à l'hygiène

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Tovarne in oprema za
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Plants and equipment for the
food industry

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Pasta processing plant - Dryers and coolers - Safety and hygiene requirements

Maschinen zur Teigwarenherstellung - Trockner und Kühler - Sicherheits- und Hygieneanforderungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 153.

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (prEN 13289:2015) 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 document is currently submitted to the CEN Enquiry.

This document will supersede EN 13289:2001+A1:2013.

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.

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Introduction

This draft 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 hazardous 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.

Complementary to the hygiene requirements common to all food processing machines, specific requirements for cleanability and sanitation of the machines in the scope are formulated.

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1 Scope

This draft European Standard applies to shaker pre-dryers, belt dryers, rotary dryers, nest pasta dryers, long pasta dryers and coolers (see Clause 3), used in continuous pasta processing plants able to produce more than 100 kg/h.

This draft European Standard specifies the safety requirements for the design, manufacture and information for use for the machines mentioned above, known with the name of dryers and coolers, classified as stationary units which cannot be moved when in operation.

This draft European Standard is not applicable to dryers and coolers, static or semiautomatic requiring manual loading as well as those for special application (i.e. experimental dryers).

Dryers in a pasta plant are machines which reduce moisture by means of warm air ventilation. In the drying process the use of a cooler might be necessary in order to reduce the temperature, maintaining constant the correct moisture of the pasta. The cooling can be obtained in the dryer or in a separate similar machine.

The significant hazards covered by this standard are listed in Clause 4.

These hazards, as well as the measures for their reduction, are described in the present draft European Standard

Ancillary equipment which is not an integral part of the machinery (e.g. hoppers, conveyors, equipment used to produce hot or cold fluids, etc.) is not covered by this draft European Standard.

This draft European Standard is not applicable to machines in its scope which are manufactured before the date of its publication as EN.

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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 953:1997+A1:2009, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

EN 1037:1995+A1:2008, *Safety of machinery — Prevention of unexpected start-up*

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)*

EN 60332-1 (all parts), *Tests on electric and optical fibre cables under fire conditions — Part 1: Test for vertical flame propagation for a single insulated wire or cable (IEC 60332-1, all parts)*

EN 60529:1991¹⁾, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*

EN 60947-5-5, *Low-voltage switchgear and controlgear — Part 5-5: Control circuit devices and switching elements — Electrical emergency stop device with mechanical latching function (IEC 60947-5-5)*

EN 61310-1, *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, acoustic and tactile signals (IEC 61310-1)*

1) This document is currently impacted by the two amendments EN 60529:1991/A1:2000 and EN 60529:1991/A2:2013.

EN ISO 3744, *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)*

EN ISO 3746, *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)*

EN ISO 3747, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering/survey methods for use in situ in a reverberant environment (ISO 3747)*

EN ISO 4413, *Hydraulic fluid power — General rules and safety requirements for systems and their components (ISO 4413)*

EN ISO 4414, *Pneumatic fluid power — General rules and safety requirements for systems and their components (ISO 4414)*

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

EN ISO 7731, *Ergonomics — Danger signals for public and work areas - Auditory danger signals (ISO 7731)*

EN ISO 9614-1:2009, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 1: Measurement at discrete points (ISO 9614-1:1993)*

EN ISO 9614-2, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 2: Measurement by scanning (ISO 9614-2)*

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

EN ISO 11204, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying accurate environmental corrections (ISO 11204)*

EN ISO 11688-1, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO/TR 11688-1)*

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

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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)*

EN ISO 14122 (all parts), *Safety of machinery — Permanent means of access to machinery (ISO 14122, all parts)*

IEC 60417, *Graphical symbols for use on equipment*

ISO 447, *Machine tools — Direction of operation of controls*

ISO 468, *Surface roughness — Parameters, their values and general rules for specifying requirements*

ISO 3864-1, *Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs and safety markings*

ISO 3864-2, *Graphical symbols — Safety colours and safety signs — Part 2: Design principles for product safety labels*

ISO 3864-3, *Graphical symbols — Safety colours and safety signs — Part 3: Design principles for graphical symbols for use in safety signs*

ISO 7001, *Graphical symbols — Public information symbols*

3 Terms and definitions

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

3.1**dryer**

assembly where the pasta is dried

3.2**shaker pre-dryer**

assembly of metal mesh tables (usually in stainless steel) which is made to vibrate by different types of systems causing the product to advance towards the outlet and which is used for drying short cut pasta (e.g. macaroni), in the first stages of the process, when the pasta advances in thin layers to allow the evaporation of great quantities of water (see Figure 1)

3.3**belt dryer**

assembly of belts which conveys the pasta and which is used for drying short cut pasta and placed just after the shaker pre-dryers in the drying line (see Figure 2)

3.4**rotary dryer**

assembly of a rotating drum which consists of conveying channels placed along the periphery of the drum and which, as a rule it is used for small dimension short cut pasta and for pastina (e.g. soup pasta, see Figure 3)

3.5

nest pasta dryer

assembly of special containers in which the nest-shaped pasta is conveyed through the dryer frame

3.6

long pasta dryer

assembly in which long cut pasta (e.g. spaghetti) is hung out on sticks which are conveyed through the dryer

3.7

cooler

final part of the process having the same handling system as the dryer described in 3.1 to 3.6, but with low inside air temperature in order to reduce the temperature of the pasta; it may be separate from the dryer

3.8

insulating booth

interface between the process area and the exterior

3.9

movable part

elements other than guards which can be opened or removed

4 List of significant hazards

4.1 General

This clause covers all the hazards, as far as they are considered in this draft European Standard, identified by risk assessment to be significant for this type of machinery and requiring an action to eliminate or reduce the risk.

4.2 Mechanical hazards

4.2.1 General

The significant mechanical hazards are:

- crushing hazard;
- cutting or severing hazard;
- entanglement hazard;
- shearing hazard;
- fluid ejection hazard;
- impact hazard;
- trapping hazard.

The examples shown in Figures 1 to 3 illustrate the danger zones associated with these hazards.

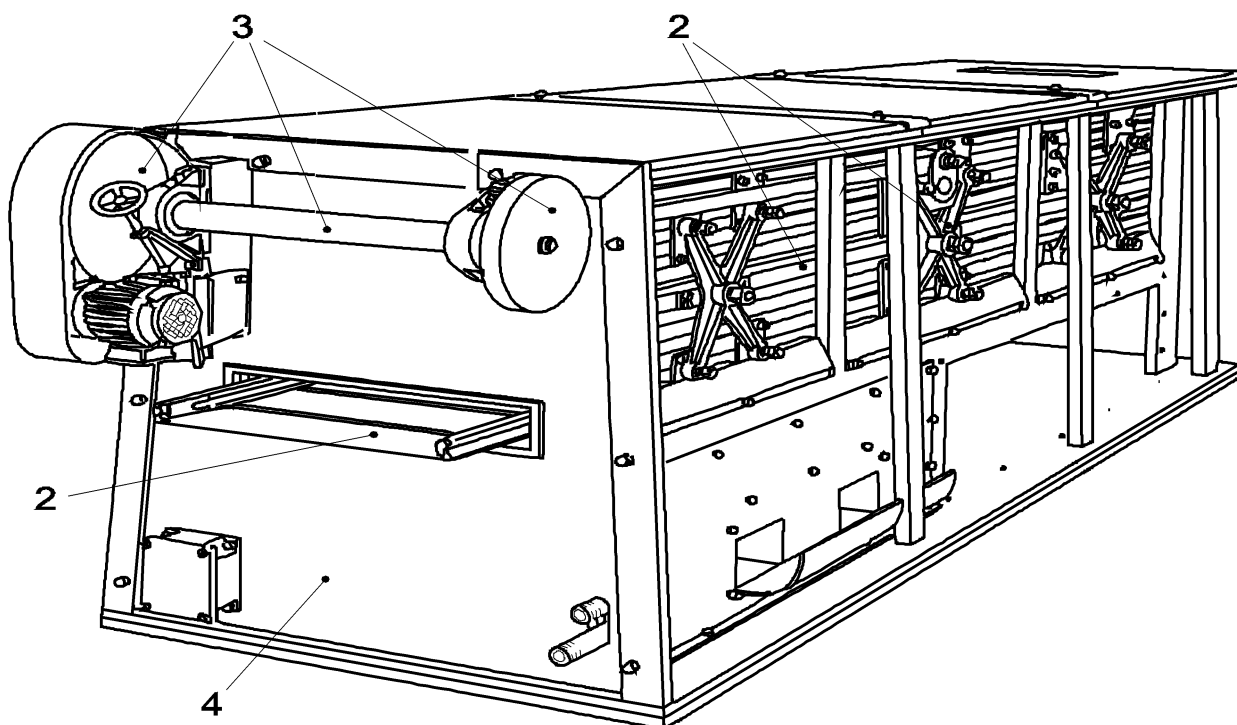


Figure 1 — Shaker pre-dryer
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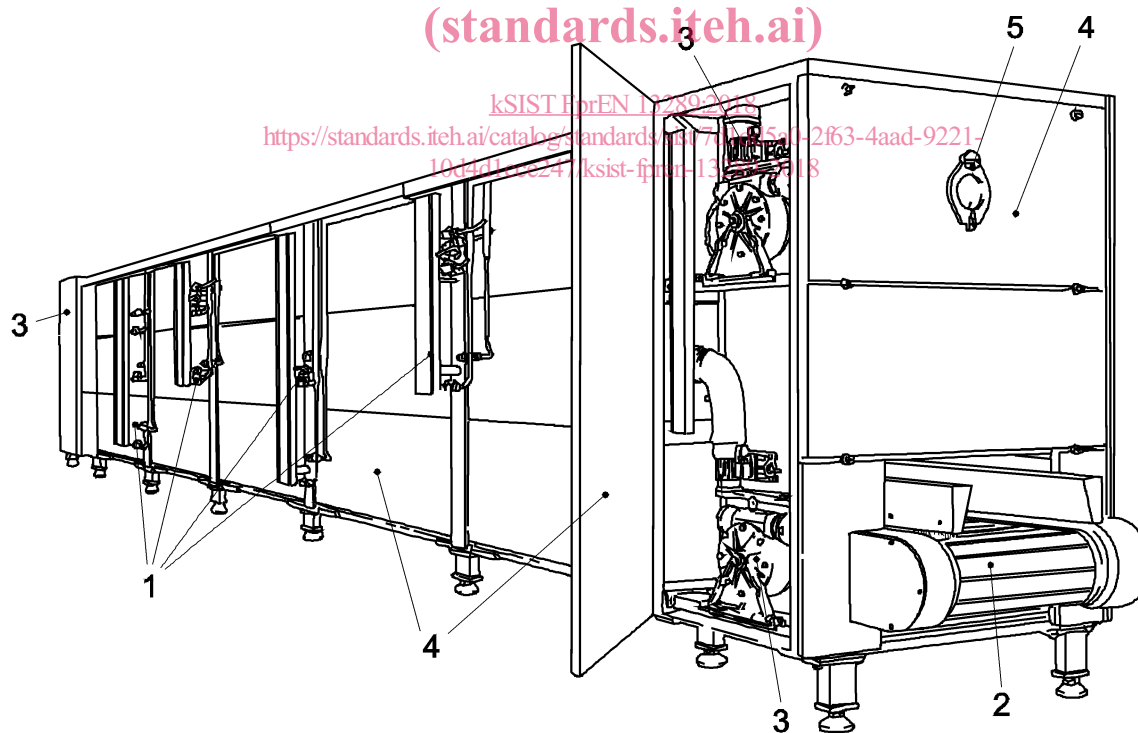


Figure 2 — Belt dryer

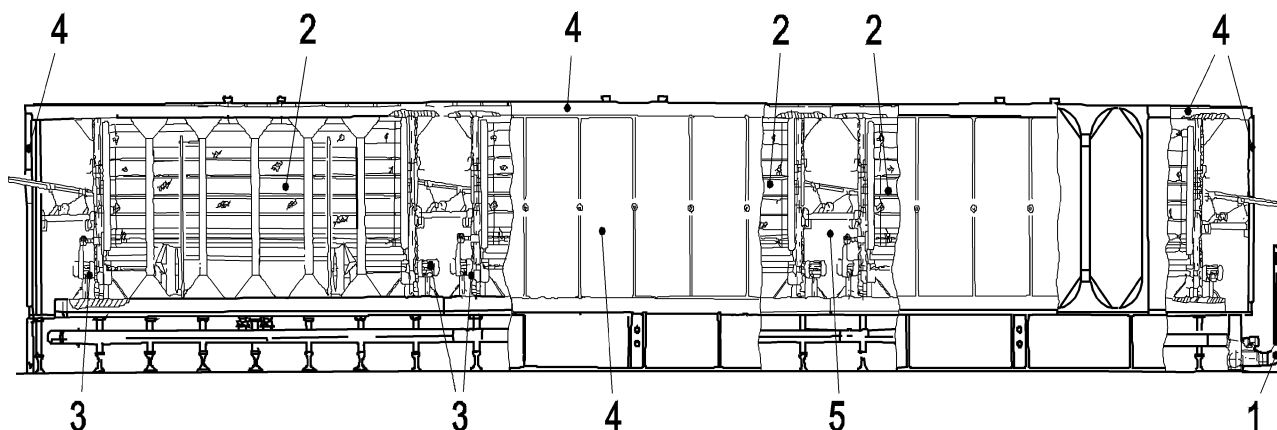


Figure 3 — Rotary dryer

4.2.2 Protruding parts

Parts jutting out of the basic outline beyond the machine frame at low level (e.g. valves and pipes of the heating, cooling and humidifying plant or cables) may cause a trip hazards with the consequence of broken bones, see zone 1, Figures 2 and 3. Parts jutting out of the basic outline beside the machine frame at a middle to high level (e.g. motors or gearbox, valves and pipes of the heating, cooling and humidifying plant) may cause an impact hazard for body parts and the head with the consequence of manifold injuries, see zone 1 Figures 2 and 3.

4.2.3 Moving parts

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4.2.3.1 Moving parts for pasta conveyance systems, such as sticks, belts, drums, frames, and other containers, may cause hazards of entanglement, cutting, severing and shearing of fingers, hands, arms and the body; see zone 2, Figures 1, 2 and 3.

4.2.3.2 Moving parts for driving systems such as chains, gears, shafts etc. may cause hazards of entanglement, cutting, severing and shearing of fingers or hands; see zone 3, Figures 1, 2 and 3.

4.2.3.3 Fan blades may cause hazards of cutting of fingers, hands, arms or other parts of body.

4.2.3.4 Rotating drums may cause hazards of crushing of the body when falling from supports and hazards of crushing of the fingers and the hands between driving wheels and the rims.

4.2.3.5 Moving parts of air inlet and outlet gates may cause hazards of cutting or severing of fingers and hands.

4.2.4 Movable parts

When movable parts, e.g. panels of the insulation booth or guiding plates, are handled they may cause the hazard of crushing of fingers, arms, feet or other parts of the body and the ejection of hot air, which may cause injury to the head or other parts of the body; see zone 4 Figures 1, 2 and 3.

4.2.5 Openings in the insulating booth

For the operation of the machine, openings are provided for different purposes:

- inlet and outlet for the product;
- inlets and outlets for fluids, e.g. hot air;