



**SLOVENSKI STANDARD**  
**SIST EN 13289:2002+A1:2013**

**01-april-2013**

**Nadomešča:**  
**SIST EN 13289:2002**

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**Stroji za izdelavo testenin - Sušilniki in ohlajevalniki - Varnostne in higienske zahteve (vključno z dopolnilom A1)**

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

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

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

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**Ta slovenski standard je istoveten z: EN 13289:2001+A1:2013**

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**ICS:**

67.260

Tovarne in oprema za  
živilsko industrijo

Plants and equipment for the  
food industry

**SIST EN 13289:2002+A1:2013**

**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 13289:2001+A1**

January 2013

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English Version

## Pasta processing plants - Dryers and coolers - Safety and hygiene requirements

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

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

This European Standard was approved by CEN on 10 February 2001 and includes Amendment 1 approved by CEN on 20 October 2012.

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 CEN-CENELEC Management Centre or to any CEN member.

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

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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## EN 13289:2001+A1:2013 (E)

## Foreword

<sup>A1</sup> This document (EN 13289:2001+A1:2013) 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. <sup>A1</sup>

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 July 2013, and conflicting national standards shall be withdrawn at the latest by July 2013.

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 includes Amendment 1, approved by CEN on 2012-10-20.

This document supersedes EN 13289:2001.

The start and finish of text introduced or altered by amendment is indicated in the text by tags <sup>A1</sup> <sup>A1</sup>.

It is one of a series of safety standards for machines used in continuous pasta processing plants.

<sup>A1</sup> 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(s).

For relationship with EU Directive(s), see informative Annex ZA which is an integral part of this standard. <sup>A1</sup>

<sup>A1</sup> *deleted text* <sup>A1</sup>

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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, 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

**A1** 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 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. **A1**

## 1 Scope

This 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 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 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 to 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 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 European Standard.

**A1** This European Standard is not applicable to machines in its scope which are manufactured before the date of its publication as EN. **A1**

## 2 Normative references

**A1** 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. **A1**

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

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EN 1088:1995+A2:2008, *Safety of machinery – Interlocking devices associated with guards – Principles for design and selection*

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 60332-1-1:2004, *Tests on electric and optical fibre cables under fire conditions – Part 1-1: Test for vertical flame propagation for a single insulated wire or cable – Apparatus (IEC 60332-1-1:2004)*

EN 60332-1-2:2004, *Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame (IEC 60332-1-2:2004)*

EN 60332-1-3:2004, *Tests on electric and optical fibre cables under fire conditions – Part 1-3: Test for vertical flame propagation for a single insulated wire or cable – Procedure for determination of flaming droplets/particles (IEC 60332-1-3:2004)*

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

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 3746:2010, *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 3746:2010)*

EN ISO 4413:2010, *Hydraulic fluid power – General rules and safety requirements for systems and their components (ISO 4413:2010)*

EN ISO 4414:2010, *Pneumatic fluid power – General rules and safety requirements for systems and their components (ISO 4414:2010)*

EN ISO 4871:2009, *Acoustics – Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*

EN ISO 7731:2008, *Ergonomics – Danger signals for public and work areas – Auditory danger signals (ISO 7731:2003)*

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 9614-2:1996, *Acoustics – Determination of sound power levels of noise sources using sound intensity – Part 2: Measurement by scanning (ISO 9614-2:1996)*

EN ISO 11204:2010, *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 11204:2010)*

EN ISO 11688-1:2009, *Acoustics – Recommended practice for the design of low-noise machinery and equipment – Part 1: Planning (ISO/TR 11688-1:1995)*

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

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 13850:2008, *Safety of machinery – Emergency stop – Principles for design (ISO 13850:2006)*

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 14122-1:2001, *Safety of machinery – Permanent means of access to machinery – Part 1: Choice of fixed means of access between two levels (ISO 14122-1:2001)*

EN ISO 14122-2:2001, *Safety of machinery – Permanent means of access to machinery – Part 2: Working platforms and walkways (ISO 14122-2:2001)*

EN ISO 14122-3:2001, *Safety of machinery – Permanent means of access to machinery – Part 3: Stairs, stepladders and guard-rails (ISO 14122-3:2001)*

EN ISO 14122-4:2004, *Safety of machinery – Permanent means of access to machinery – Part 4: Fixed ladders (ISO 14122-4:2004)*

ISO 468:1982, *Surface roughness – Parameters, their values and general rules for specifying requirements*

ISO 1940-1:2003, *Mechanical vibration – Balance quality requirements for rotors in a constant (rigid) state – Part 1: Specification and verification of balance tolerances*

ISO 2631-1:1997, *Mechanical vibration and shock – Evaluation of human exposure to whole body vibration – Part 1: General requirements* <sup>(A1)</sup>

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### 3 Terms and definitions (standards.iteh.ai)

For the purposes of this standard the terms and definitions given in <sup>(A1)</sup> EN ISO 12100:2010 <sup>(A1)</sup> apply.

Additional terms and definitions specifically needed for this European Standard are added below:

#### 3.1

##### **dryer**

assembly where the pasta is dried

#### 3.2

##### **shaker pre-dryer**

assembly of metal mesh tables (usually in stainless steel) made to vibrate by different types of systems causing the product to advance towards the outlet. It 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, conveying the pasta. It 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. 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

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**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**  
**cabinet**  
enclosure where the drying/cooling is carried out

**3.9**  
**insulating booth**  
interface between the cabinet and the exterior

## **4 List of significant hazards**

**A1**

### **4.1 General **A1****

This clause covers all the hazards, as far as they are considered in this 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**

[SIST EN 13289:2002+A1:2013  
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**A1**

#### **4.2.1 General **A1****

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.

## 4.2.2 Protruding parts

Parts jutting out of the basic outline of the machine (e.g. motors or gearbox, valves and pipes of the heating, cooling and humidifying plants) may cause hazards of cutting or severing of body parts, head impact, slipping, tripping and falling with consequent broken bones, see zone 1 figures 2 and 3.

## 4.2.3 Moving parts

**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.

**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 Mobile parts

Panels of insulation booth may cause hazard of crushing of fingers, arms, or other parts of the body, and ejection of hot air or fluid, 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

[SIST EN 13289:2002+A1:2013  
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**4.2.5.1** Openings like entrance doors for cleaning and maintenance operations may cause hazards of crushing, cutting or severing of fingers, arms and other parts of the body, trapping of the operator in the booth and hot air and fluid ejection; see zone 5 figures 2 and 3.

**4.2.5.2** Openings for drawing samples may allow contact with moving parts inside the insulation booth with hazard of entanglement, cutting of fingers and hands; hot air or fluid ejection, may cause injury to hands, arms and face. See zone 5 figures 2 and 3.

**4.2.5.3** Openings for air inlet and outlet may cause hazard of hot air ejection with consequent injury to hands, arms and other parts of the body.

## 4.2.6 Fluid ejection hazards

Failure of heating pipes under hydraulic pressure and failure of power, hydraulic and pneumatic systems may cause hazard of ejection of fluid which may cause injury.

## 4.2.7 Hazards due to unexpected start or failure of emergency device

Unexpected start up or failure of emergency device may cause hazard of contact with dangerous moving parts, with the consequences listed in [A1](#) 4.2 [A1](#), [A1](#) 4.3 [A1](#), [A1](#) 4.4 [A1](#).

## 4.3 Electrical hazards

Hazards of electric shock from direct or indirect contact with live components. This hazard is present in control consoles, driving boards, motor connectors, electrical resistances, etc.

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Hazard of external influence on electrical components. This hazard is present in running operation of the dryer (e.g. caused by interference to control signals or by cleaning water or steam).

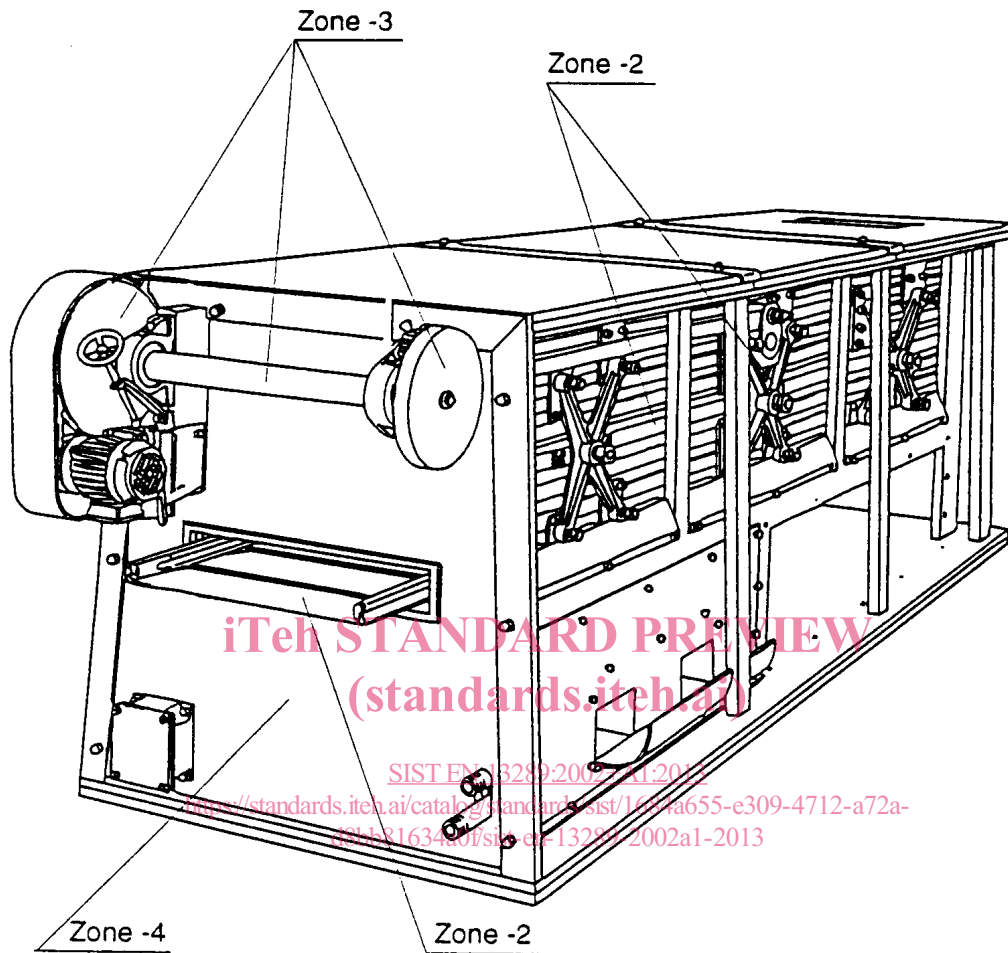
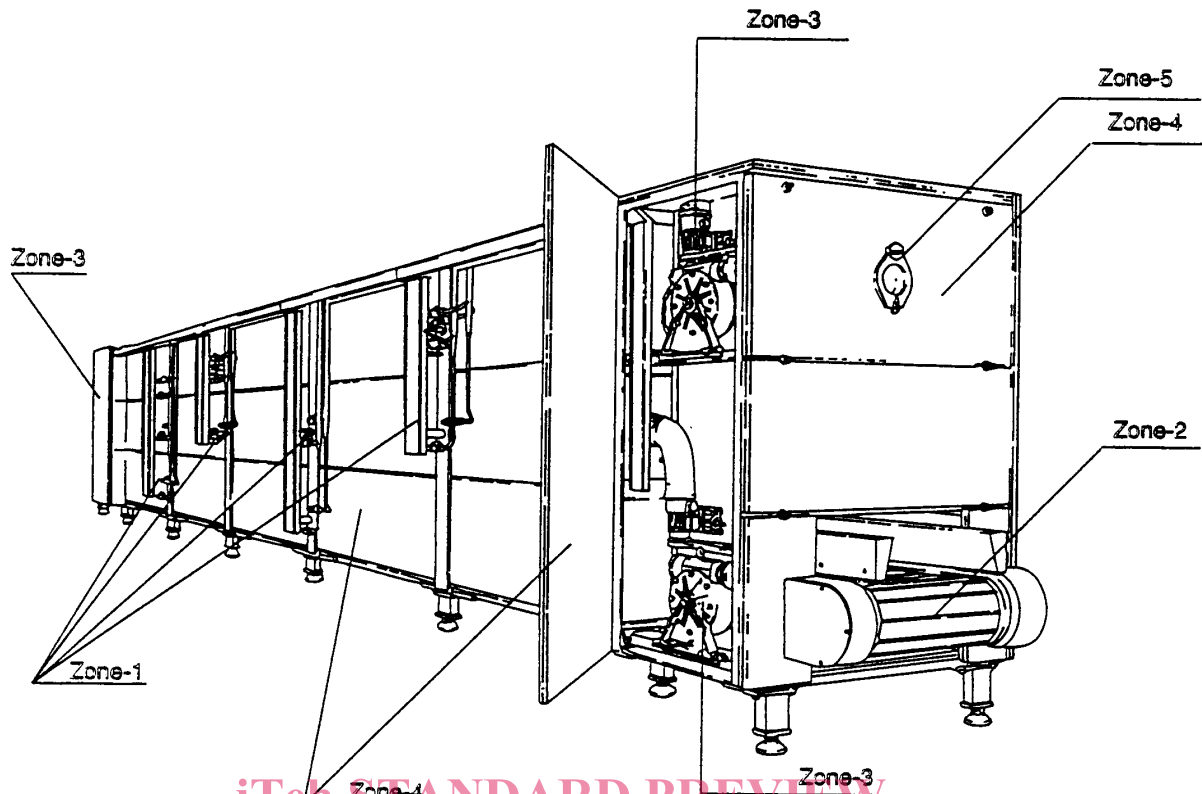


Figure 1 — Shaker pre-dryer



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Figure 2 — Belt dryer

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