



SLOVENSKI STANDARD

SIST EN 13378:2002+A1:2013

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Stroji za izdelavo testenin - Iztiskovalniki testenin - Varnostne in higienske zahteve (vključno z dopolnilom A1)

Pasta processing plants - Pasta presses - Safety and hygiene requirements

Maschinen zur Teigwarenherstellung - Pressen zur Teigherstellung - Sicherheits- und Hygieneanforderungen

Machines pour pâtes alimentaires - Presses pour pâtes alimentaires - Prescriptions de sécurité et d'hygiène

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67.260

Tovarne in oprema za
živilsko industrijo

Plants and equipment for the
food industry

SIST EN 13378:2002+A1:2013

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EUROPEAN STANDARD
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Pasta processing plants - Pasta presses - Safety and hygiene requirements

Machines pour pâtes alimentaires - Presses pour pâtes alimentaires - Prescriptions de sécurité et d'hygiène

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

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

A1 This document (EN 13378:2001+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. **A1**

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of an identical text or by endorsement, at the latest by July 2013, and conflicting national standards shall be withdrawn at the latest by July 2013.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 13378:2001.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

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

A1 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. **A1**

A1 ~~deleted text~~ **A1** <https://standards.iteh.ai/catalog/standards/sist/16a54930-25a1-433d-b88a-863e873d8372/sist-en-13378-2002a1-2013>

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.

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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 specifies the safety requirements for the design, manufacture and information for safe use of pasta presses (see clause 3) used in continuous automatic 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 presses, classified as stationary units which cannot be moved when in operation.

The pasta press begins with the dosing unit and ends with the die. The press includes the following processes:

- dosing solid and liquid ingredients,
- mixing the ingredients,
- extruding the dough,
- forming the dough.

Cutting unit is excluded.

This European Standard does not apply to:

- household machines,
- batch machines.

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 press (e.g. hoppers, conveyors, 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 349:1993+A1:2008, *Safety of machinery – Minimum gaps to avoid crushing of parts of the human body*

EN 982:1996+A1:2008, *Safety of machinery – Safety requirements for fluid power systems and their components – Hydraulics*

EN 1005-2:2003+A1:2008, *Safety of machinery – Human physical performance – Part 2: Manual handling of machinery and component parts of machinery*

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 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)*

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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*



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3 Terms and definitions

For the purposes of this European Standard the terms and definitions given in  EN ISO 12100:2010  apply.

Additional terms and definitions specifically needed for this European Standard are listed below (see figure 1).

3.1

continuous working machine

machine with non stop product cycle. The raw materials are fed automatically into the machine and the end product is extruded without a break

3.2

batch machine

machine where the raw materials are pressed in separate units. The raw materials are fed into the machine under manual control and the machine is emptied before another cycle is started

3.3

dosing unit

assembly where solid and liquid ingredients are measured and transferred into the mixing unit by means of volumetric or gravimetric devices

3.4**mixing unit**

assembly where ingredients, coming from dosing unit, are mixed until becoming a homogeneous dough which is transferred into the compression unit. This unit can be equipped with one or more mixing tanks or similar devices

3.5**compression unit**

assembly where the dough is pressed and transferred to the forming units. This unit can be equipped with one or more compression screws, rotating into barrels. Each barrel can be equipped with screw extractor

3.6**forming unit**

assembly where the dough pushed through by the compression unit is shaped. It is composed of one or more heads, containing a die. Heads are normally equipped with devices against overpressure. Big machines, due to the big size of their dies, are equipped with automatic devices to extract and insert dies

4 List of hazards**4.1 General**

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

4.2 Mechanical hazards

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**4.2.1 General**

The significant mechanical hazards are:

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

The examples shown in figure 1 illustrate the danger zones associated with these hazards.

4.2.2 Moving transmission parts

Zone 1 includes transmission parts, e.g. belts, chains, shafts, which may cause hazards like shearing, crushing, and entanglement of fingers, hands and arms.

EN 13378:2001+A1:2013 (E)**4.2.3 Moving parts contributing to the work**

Zone 2 includes moving parts contributing to the work, e.g. paddles of the mixing and pre-mixing units, rotating chambers, compression and feeding screws which may cause hazards like entanglement, shearing, cutting or severing of fingers, hands, arms or the whole body.

4.2.4 Mobile parts

Zone 3 includes mobile parts which need to be handled due to cleaning, maintenance or changing production, e.g. shafts, screws, dies, pre-dies, covers. These parts may cause hazards like crushing and cutting of parts of the body.

4.2.5 Ejection of parts

Zone 4 includes parts which may be ejected due to overpressure in the compression and forming units, e.g. bolts, nuts and screws. This may cause impact hazards to the body.

4.2.6 Ejection of fluids

Hydraulic and pneumatic systems used i.e. extract or insert dough, opening cover, etc. may cause ejection of hydraulic oil or high pressure air which cause impact when whipped from flexible pipes.

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](#) and [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.

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

4.4 Thermal hazard

Risks of burns exist by touching pipes when machines operate with hot fluids for dough or for barrel/head conditioning. Electrical motors and gearboxes can reach dangerous temperatures on their external surface.

4.5 Noise hazard

Noise generated by presses can lead to

- permanent loss of hearing,
- ringing in the ears,
- fatigue, stress,
- interference with speech communication, acoustic signals.

4.6 Hazards due to slip, trip and fall

Walkways, stairs and gangways may cause hazards like slip, trip and fall.

4.7 Hazard due to neglecting hygienic principles

Neglecting hygienic principles may create a risk to human health and unacceptable modifications to foodstuff i.e. contamination by microbial growth or foreign materials.

4.8 Harmful substance

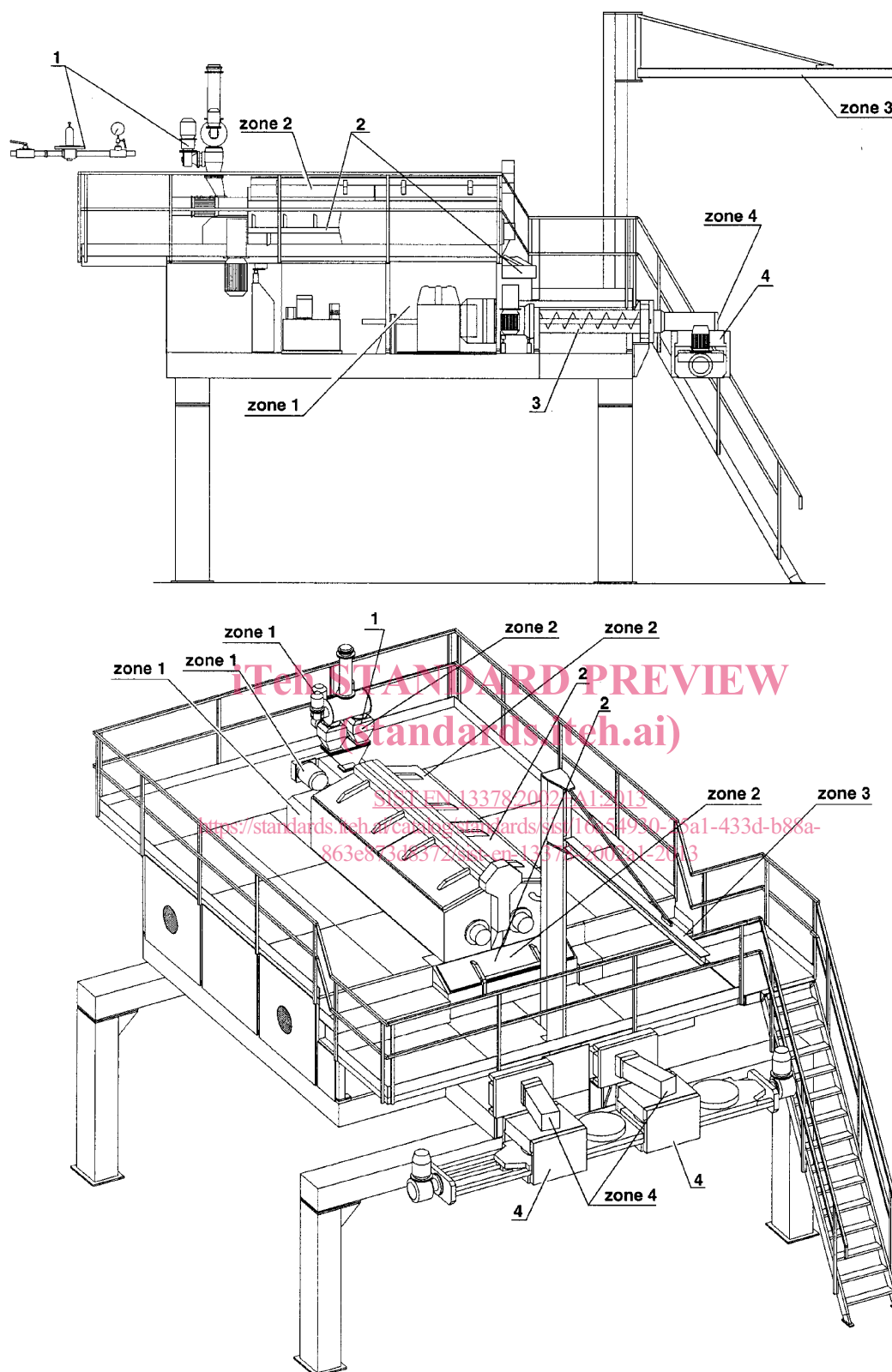
The use of a cleaning agent may cause harm to the skin, eyes and respiratory system by direct contact or by ingestion.

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Key

1 Dosing units

2 Mixing units

3 Compression units

4 Forming units

Figure 1 — Pasta press