



SLOVENSKI STANDARD
SIST EN 12854:2004+A1:2010
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**Stroji za predelavo hrane - Palični mešalniki - Varnostne in higienske zahteve
(vključno z dopnilom A1)**

Food processing machinery - Beam mixers - Safety and hygiene requirements

Nahrungsmittelmaschine - Rüsselmixer mit flexibler Welle - Sicherheits- und
Hygieneanforderungen

Machines pour les produits alimentaires - Broyeurs verticaux à moteur montés sur
chariot - Prescriptions relatives à la sécurité et à 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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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12854:2003+A1

March 2010

ICS 67.260

Supersedes EN 12854:2003

English Version

Food processing machinery - Beam mixers - Safety and hygiene requirements

Machines pour les produits alimentaires - Broyeurs
verticaux à moteur montés sur chariot - Prescriptions
relatives à la sécurité et à l'hygiène

Nahrungsmittelmaschinen - Rüsselmixer - Sicherheits- und
Hygieneanforderungen

This European Standard was approved by CEN on 17 January 2003 and includes Amendment 1 approved by CEN on 17 January 2010.

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Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 12854:2002+A1:2010) 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of an identical text or by endorsement, at the latest by September 2010, and conflicting national standards shall be withdrawn at the latest by September 2010.

This document includes Amendment 1, approved by CEN on 2010-01-17.

This document supersedes EN 12854:2003.

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.

The start and finish of text introduced or altered by amendment is indicated in the text by tags $\boxed{A_1}$ $\boxed{A_1}$.

It is one of a series of standards on the design and construction of machines used in catering:

- vegetable cutting machines;
- catering attachments for machines having an auxiliary drive hub;
- food processors and blenders; [SIST EN 12854:2004+A1:2010](https://standards.iteh.ai/catalog/standards/sist/c63856bd-1ac4-481c-92ca-17ba7d9ffb87/sist-en-12854-2004a1-2010)
- hand-held blenders and whisks; <https://standards.iteh.ai/catalog/standards/sist/c63856bd-1ac4-481c-92ca-17ba7d9ffb87/sist-en-12854-2004a1-2010>
- beam mixers;
- salad dryers;
- vegetable peelers;
- cooking kettles equipped with stirrer and/or mixer.

$\boxed{A_1}$ 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 Annexes ZA and ZB, which are integral parts of this document. $\boxed{A_1}$

$\boxed{A_1}$ *deleted text* $\boxed{A_1}$

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

The use of beam mixers generates various mechanical and other hazards.

A1 Their extensive use justifies the need of a standard covering both safety and the hazards of food hygiene. A1

A1 *deleted text* A1

A1 This European Standard is a type C standard as stated in EN ISO 12100. A1

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

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1 Scope

1.1 This European standard specifies the safety and hygiene requirements for the design and manufacture of beam mixers.

Beam mixers are used in the catering industry for the preparation of mixture or emulsion, directly in the cooking pan, such as for: puree, mayonnaise, sauces, soups, compotes.

A1 This European Standard deals with the hazards which can arise during commissioning, operation, cleaning, removal of food blockages, feeding, changing the tools, maintenance and decommissioning of the machine. **A1**

1.2 This European standard does not apply to:

- domestic machines;
- portable hand-held blenders and whisks which are covered by a specific standard **A1** (see EN 12853) **A1**.

1.3 **A1** This European Standard deals with all significant hazards, hazardous situations and events relevant to beam mixers, when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4). **A1**

1.4 This European standard does not deal with the vibration hazard.

1.5 **A1** This European Standard is not applicable to beam mixers which are manufactured before the date of its publication as EN. **A1**

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EN 12854:2003+A1:2010 (E)**2 Normative references**

[A1] The following referenced documents are indispensable for the application 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 614-1:2006, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

EN 1088:1995, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

EN 1672-2:2005, *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 60204:2005, modified)*

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

EN ISO 3744:1995, *Acoustics — Determination of sound power levels of noise sources — Engineering method employing an enveloping measurement surface in an essentially free field over a reflecting plane (ISO 3744:1994)*

EN ISO 4287:1998, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Terms, definitions and surface texture parameters (ISO 4287:1997)*

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

EN ISO 11201:1995, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at the workstation and at other specified positions — Engineering method in an essentially free field over a reflecting plane (ISO 11201:1995)*

EN ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)*

EN ISO 12100-2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles and specifications (ISO 12100-2:2003)*

EN ISO 13849-1:2008, *Safety of machinery — Safety related parts of control systems — Part 1: General principles for design (ISO 13849-1:2006) **[A1]***

3 Terms and definitions - Description**3.1 Terms and definitions**

[A1] For the purposes of this document, the terms and definitions given in EN ISO 12100-1:2003 and the following apply. **[A1]**

3.1.1**mobile trolley**

part of the machine allowing the appliance to be moved around, generally equipped with castors

3.1.2**head carrier**

tube containing the components which transmit the motor's power to the work head

3.1.3**work head**

set of parts which process the products

3.1.4**operating handle**

bar allowing the work head to be moved to all parts of the interior of the pan

3.1.5**clamping handle**

device which locks the head carrier

3.1.6**stator**

fixed part of the work head sometimes fitted with a sieve, the latter being perforated in a manner appropriate for the processing of the intended product

3.1.7**tool**

rotor with blades or paddles inside the stator

3.1.8**head protecting device**

fixed guard protecting the rotating tool

3.1.9**beam**

assembly of the head carrier, the work head, the motor and the operating handle

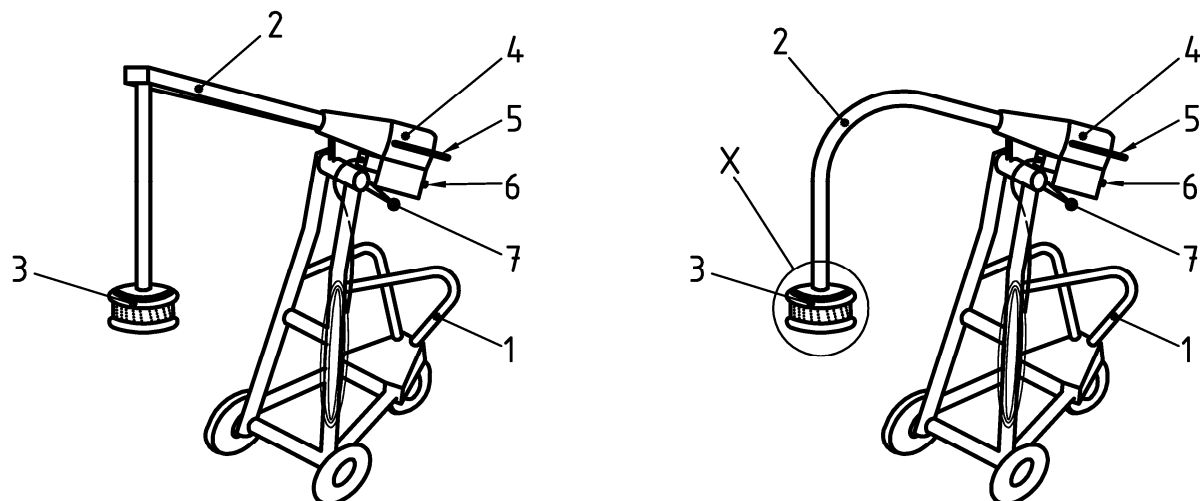
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3.2 Description of beam mixers

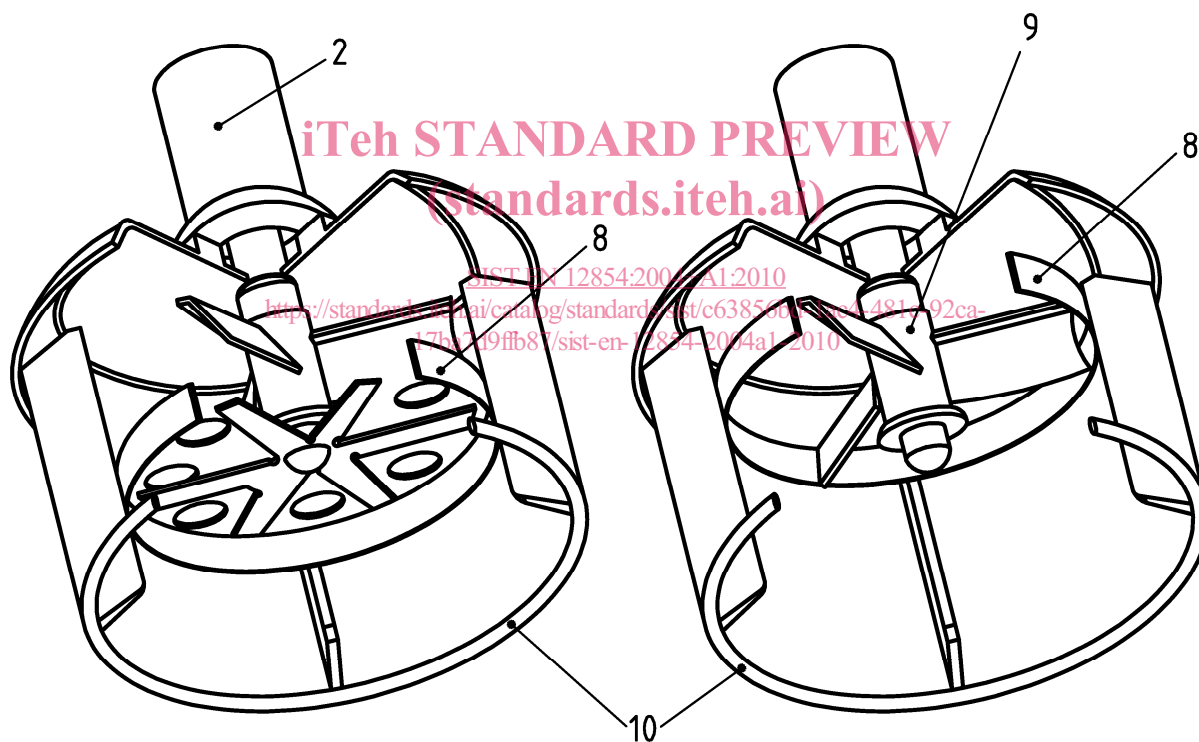
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Beam mixers usually consist of the following parts as shown in Figure 1



X

**Key**

- 1 Mobile trolley
- 2 Head carrier
- 3 Work head
- 4 Motor
- 5 Operating handle

- 6 Start/stop devices
- 7 Clamping handle
- 8 Stator
- 9 Tool
- 10 Head protecting device

Figure 1 — Example of a typical beam mixer

4 List of significant hazards

4.1 General

A1) This clause contains all the significant hazards, hazardous situations and events, as far as they are dealt with in this European Standard, identified by risk assessment as significant to this type of machinery, and which require action to eliminate or reduce the risk. **A1)**

4.2 Mechanical hazards

4.2.1 Access to the danger zones

Mechanical hazards arise from contact with the rotating tool (see Figure 1, item 9 and 3.1.7).

The hazards may arise in (Figure 2):

— Zone 1: working zone

Hazard of cutting fingers

— Zone 2: motor and drive mechanism

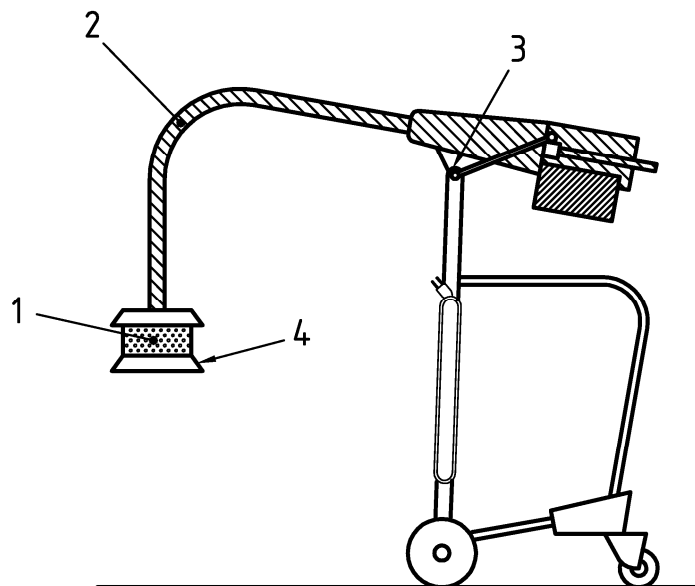
Hazard of crushing or trapping hands.

— Zone 3: hinge area of the beam

Hazards of crushing and entanglement of hands and fingers.

— Zone 4: ejection of the tool in the event of breakage

Hazard of cutting or penetration to body



- 1 Zone 1
- 2 Zone 2
- 3 Zone 3
- 4 Zone 4

Figure 2 — Hazard zones

EN 12854:2003+A1:2010 (E)**4.2.2 Loss of stability**

Hazards of crushing and impact to the body.

4.2.3 Incorrect assembly and fitting of tool

Hazards of cutting and impact to fingers and hands.

4.3 Electrical hazards

Hazards of shock by direct or indirect contact with live parts and unexpected start up from restoration of energy supply after interruption.

Emission of EMC disturbances interfering with safety arrangements of other machines.

4.4 Hazards generated by neglecting hygiene in machine design**4.4.1 Hazards to the operator**

Hazards from the food being processed, e.g. inhalation of flour, sugar, ... and from the cleaning agents used to disinfect the machine.

4.4.2 Hazards to the consumer

Inability to clean food and splash areas effectively and thoroughly.

Contamination of the food by undesirable materials including residues of food, microbiological organisms as well as residues of cleaning and disinfecting fluids.

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4.5 Hazards generated by neglecting ergonomic principles in machine design

Neglecting ergonomic principles can cause mistake in operation of controls and physical injury to the operator due to over-reaching, heavy loads, awkward posture, etc.

4.6 Noise

Noise can be a hazard resulting in:

- permanent loss of hearing;
- tinnitus;
- tiredness, stress, etc.

5 Safety and hygiene requirements and/or measures**5.1 General**

A₁ 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 12100-2 for relevant but not significant hazards, which are not dealt with by this European Standard.

For hazards which are to be reduced by the application of the type B-standards such as EN 614-1, EN 1088, EN 60204-1, EN 60529, EN ISO 12100 and EN ISO 13849-1, the manufacturer shall carry out a risk assessment to establish the requirements of the type B-standard. This specific risk assessment shall be part of the general risk assessment of the machine. **A₁**

5.2 Mechanical hazards

5.2.1 A1 General

All the interlocking devices associated with guards shall comply with EN 1088.

The safety related parts of the control systems shall meet at least performance level c and at least category 1 in accordance with EN ISO 13849-1:2008. A1

5.2.2 Access to the danger zones

5.2.2.1 Zone 1

Access to the lower part of the work head shall be prevented by complying with the following measures specified in A1 5.2.2.1.1 A1 and A1 5.2.2.1.2 A1 depending on the operating stage.

5.2.2.1.1 During the work

The lower part of the work head shall be configured in such a manner that the distance between the head protecting device and the point nearest to the rotating part is over 90 mm, measured in accordance with Figure 3. The vertical height (x), between the rotating part and the head protecting device shall be greater than 50 mm.

A1 Dimensions in millimetres A1

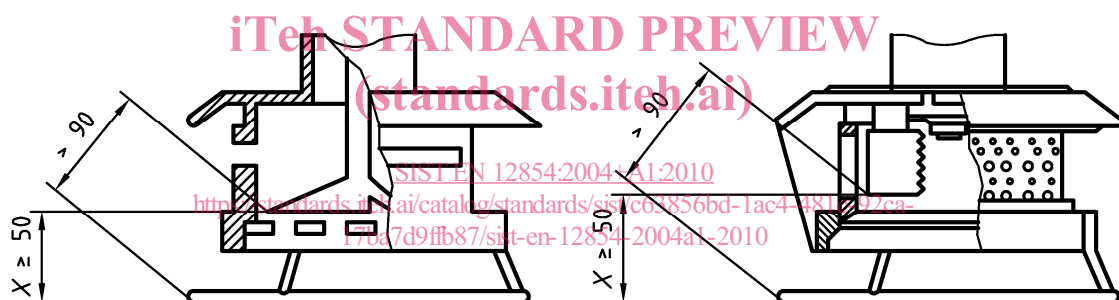


Figure 3 — Safety dimensions of the head protecting device

5.2.2.1.2 During transport or removal of the tool

One of the following two measures shall be adopted:

- an interlocking device which prohibits the operation of the work head outside the working zone between 300 mm and 900 mm inclusive (see Figure 4a) from the level of access (ground for example). Out of this zone, operation by means of a hold-to-run control is permitted in order e.g. to finish a process;
- a hold-to-run control device located on the control panel in such a manner that the operator has a clear view of the work head in all positions, see Figure 4a A1 (see 3.26.3 of EN ISO 12100-1:2003) A1.

In the instruction handbook there shall be an explicit requirement for instructions to be given on tool change. For transport, the instructions shall state that the machine shall be locked in a safe position outside the operational area (see Figure 4b).