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SIST EN 17537:2020

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
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English Version

## Food processing machinery - Tenderizing machines - Safety and hygiene requirements

Machine pour les produits alimentaires - Appareils  
attendrisseurs - Prescriptions relatives à la sécurité et  
à l'hygiène

Nahrungsmittelmaschinen - Tenderizer - 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.

If this draft becomes a European Standard, 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.

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## prEN 17537:2020 (E)

### European foreword

This document (prEN 17537:2020) 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 has been prepared under a standardization request 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 document is a type-C standard as stated in EN ISO 12100:2010.

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.

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**prEN 17537:2020 (E)****1 Scope**

This document applies to tenderizing machines that are designed as table-top machines and are manually fed (hereinafter referred to as machine).

Usually these machines are used for unfrozen foodstuffs (hereinafter referred to as product), e.g. boneless meat, meat products, fish, cheese or vegetables.

These machines are not intended to be used with deep frozen foodstuffs.

This document is not applicable to:

- machines intended for domestic use;
- machines with automatic loading.

This document deals with all significant hazards, hazardous situations or hazardous events on tenderizing machines, when it is used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer.

This document deals with the hazards which can arise during all the lifetime of the machine, including the phases of transport, assembly, commissioning, operation, cleaning, use, maintenance, decommissioning, dismantling, disabling and scrapping of the machine.

This document is not applicable to machines which are manufactured before its date of publication as EN.

**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 1672-2:2005+A1:2009, *Food processing machinery — Basic concepts — Part 2: Hygiene requirements*

EN 60204-1:2018, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2016, modified)*

EN 60529:1991,<sup>1</sup> *Degrees of protection provided by housings (IP Code) (IEC 60529:1989)*

EN ISO 4287:1998,<sup>2</sup> *Geometrical product specifications (GPS) — Surface texture: Profile method — Terms, definitions and surface texture parameters (ISO 4287:1997)*

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

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)*

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<sup>1</sup> As impacted by EN 60529:1991/AC:2006-12, EN 60529:1991/A1:2000, EN 60529:1991/A2:2013 and EN 60529:1991/A2:2013/AC:2019-02.

<sup>2</sup> As impacted by EN ISO 4287/AC:2008 and EN ISO 4287:1998/A1:2009.



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 13849-1:2015, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2015)*

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 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)*

### 3 Terms and definitions

#### 3.1 Terms

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

— IEC Electropedia: available at <http://www.electropedia.org/>

##### 3.1.1

##### **tenderizing**

mechanical treatment of the structure of the product

Note 1 to entry: E.g. with pins, teeth or blades.

##### 3.1.2

##### **product**

unfrozen foodstuffs

Note 1 to entry: E.g. boneless meat, meat products, fish, cheese or vegetables.

##### 3.1.3

##### **roller**

cylindric device equipped with means to tenderize

Note 1 to entry: These means can be e.g. pins, teeth or blades.

##### 3.1.4

##### **roller set**

exchangeable inset unit with at least two parallel rollers

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## 3.1.5

**pusher**

device used to push the product further in the machine

## 3.1.6

**infeed chute**

device to ensure that fingers cannot reach the cutting area of the rollers

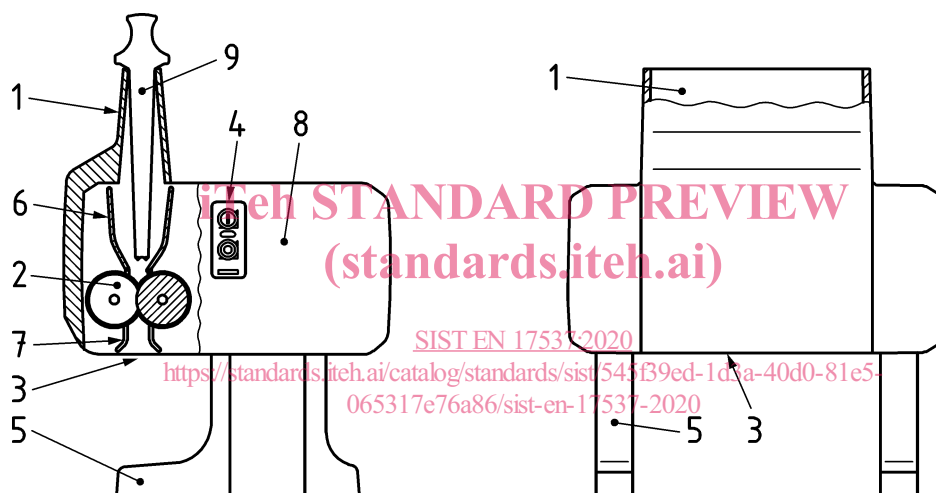
## 3.1.7

**easily cleanable**

designed and constructed to be cleanable by a simple cleaning method, when necessary after removing easily dismantled parts

## 3.2 Description

The machines described in this standard consist mainly of a machine frame and rollers, depending on the different functions. An example of a machine is shown in Figure 1.

**Key**

1	infeed chute	6	product guide
2	roller	7	discharge comb
3	discharge	8	machine housing
4	ON/OFF switch	9	pusher
5	foot		

Figure 1 — Example of a tenderizing machine

## 4 Safety requirements and/or measures

## 4.1 General

Machines shall comply with the safety requirements and/or protective measures of this clause.

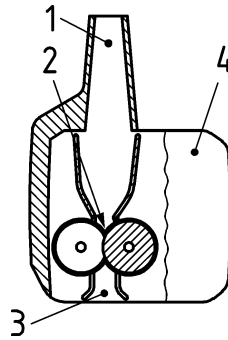
In addition, the machine shall be designed according to the principles of EN ISO 12100:2010 for the hazards relevant but not significant, which are not covered in this document.

Where the means of reducing the risk is by the physical arrangement or positioning of the installed machines the manufacturer shall include in the Information for use a reference to the reduction means

to be provided, and to any limiting value of the requirement, and, if appropriate, to the means of verification.

The safety related parts of the control system shall present at least a performance level “c” in accordance with EN ISO 13849-1:2015.

Figure 2 shows the significant danger zones of a machine.



#### Key

- 1 zone 1 = infeed area
- 2 zone 2 = processing area
- 3 zone 3 = outlet area
- 4 zone 4 = drive system area

## iTeh STANDARD PREVIEW Figure 2 — Danger zones (standards.iteh.ai)

### 4.2 Mechanical hazards

[SIST EN 17537:2020](#)

#### 4.2.1 General <https://standards.iteh.ai/catalog/standards/sist/545f39ed-1d3a-40d0-81e5-065317e76a86/sist-en-17537-2020>

Machines shall be designed and constructed in accordance with the requirements mentioned below.

The sensor part of interlocking devices shall comply with EN ISO 14119:2013 and be integrated into the machine housing in order to:

- fulfil hygiene requirements;
- be protected against mechanical damages;
- be protected against the effects of cleaning and disinfection materials;
- be protected against the effects of cleaning liquids (water);
- be protected against evading or tampering by simple methods.

In the information for use the manufacturer shall give information on the verification of the interlocking device.

#### 4.2.2 Infeed area – Zone 1

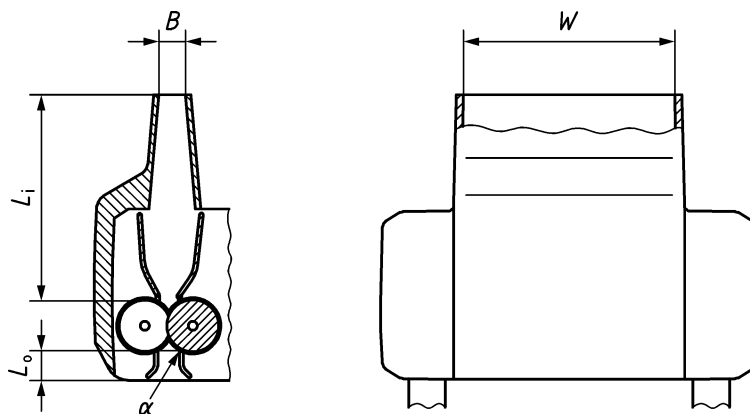
The infeed chute shall be removable and interlocked. When the infeed chute is not in place an interlocking device shall prevent the machine to start or the transmission elements between the drive unit and the rollers shall be disconnected.

After the interlocking device has been activated, the stopping time of the rollers (without product loading) shall be  $\leq 4$  s.

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The infeed hood shall meet the following dimensions (see Figure 3):

- the breadth of the infeed opening shall be  $B \leq 30$  mm, and the design of the infeed chute shall be stiff to avoid the enlargement of the breadth of  $\Delta B \leq 2$  mm during normal operation;
- the distance from the point of smallest width  $B$  to the trapping point between the roller shall be  $L_i \geq 200$  mm.

**Key**

- $B$  breadth of the infeed opening
- $W$  width of the infeed opening
- $L_i$  distance from the point of smallest width  $B$  to the trapping point between the roller
- $L_o$  distance from the point where the discharge comb reaches the roller to the outlet opening
- $\alpha$  In the outlet area the angle between discharge comb and roller

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**Figure 3 — Measures of a tenderizing machine**  
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During manual feeding, a pusher (see Figure 4) may be provided to assist in pushing the product against the roller.

The pusher shall meet the following dimensions (see Figure 4):

- the breadth shall be  $B_p > 32$  mm;
- the length shall be  $L_p < L_i$ ;
- the width  $W_p$  shall be  $B_p < W_p < W$ .