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Food processing machinery - Automatic industrial slicing machines - Safety and hygiene requirements

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

Food processing machinery - Automatic industrial slicing machines - Safety and hygiene requirements

Machines pour les produits alimentaires - Trancheurs automatiques industriels - Prescriptions relatives à la sécurité et l'hygiène

Nahrungsmittelmaschinen - Automatische Schneidemaschinen für den industriellen Einsatz - Sicherheits- und Hygieneanforderungen

This European Standard was approved by CEN on 1 November 2015.

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

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European foreword

This document (EN 16743:2016) 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of an identical text or by endorsement, at the latest by July 2016, and conflicting national standards shall be withdrawn at the latest by July 2016.

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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 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 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.

1 Scope

1.1 General

This European Standard specifies requirements relating to the design and construction of automatic industrial slicing machines and auxiliary components.

The automatic industrial slicing machines covered by this standard are used for the cutting of meat and sausage products, cheese or other sliceable food products that can be cut using one or more blades. Automatic industrial slicing machines are designed to cut slices.

A sickle blade or an eccentrically moving blade is used for cutting. As a rule, the product only moves along one axis during the cutting process.

The auxiliary components covered by this standard are used for conveying slices from the cutting zone, for weighing or for sorting.

This European Standard covers all the significant hazards, hazardous situations and hazardous events identified by means of risk assessment associated with automatic industrial slicing machines and auxiliary components if they are used in accordance with regulations and under the conditions of reasonably foreseeable misuse defined by the manufacturer (see Clause 4).

This standard covers hazards which can arise during the commissioning, operation, cleaning, servicing and decommissioning of the machine.

This standard only applies to automatic industrial slicing machines and auxiliary components that were manufactured after the date of publication of this standard.

This standard applies to automatic industrial slicing machines and auxiliary components designed for industrial use. These are machines which are usually used in food processing facilities. The machines are normally permanently installed in one place.

This standard does not apply to cutting machines with moving infeed slides, slicing machines that are used in for example shops, restaurants, supermarkets, canteens etc. and are already covered in EN 1974.

This standard does not apply to portion cutting machines which are manufactured and put on the market in accordance with the requirements specified in EN 13870.

1.2 Machine description

This standard covers the following designs (see Figure 1 to Figure 7):

Design variations in the feed area:

— automatic industrial slicing machine with manual feed;

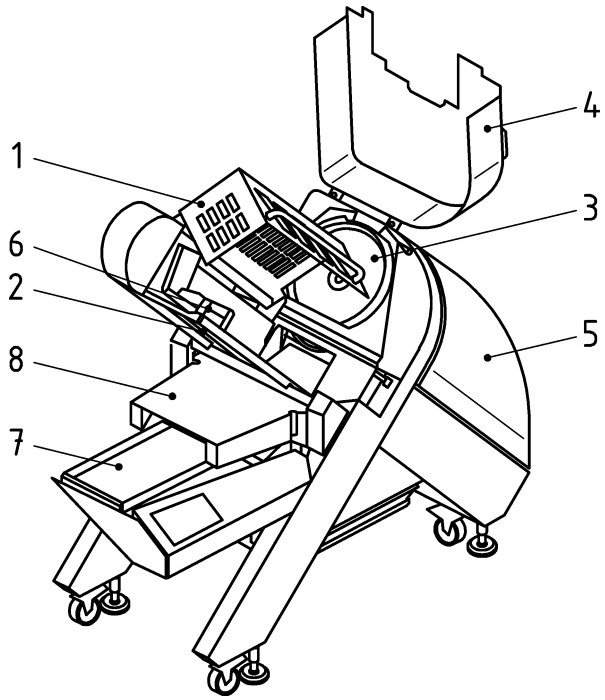
— automatic industrial slicing machine with automatic feed;

— automatic industrial slicing machine with continuous feed.

Design variations in the outfeed area:

— automatic industrial slicing machine with outfeed conveyor, without depositing unit and without subsequent auxiliary components;

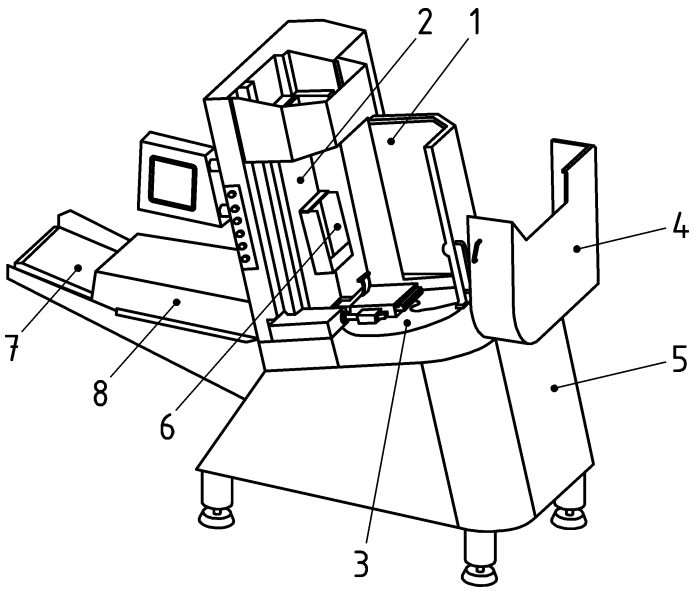
— automatic industrial slicing machine with depositing unit and if necessary with subsequent auxiliary components.



Key

1 feed guard
2 product support
3 blade
4 blade guard
5 machine housing
6 gripper
7 outfeed conveyor
8 protective outfeed guard

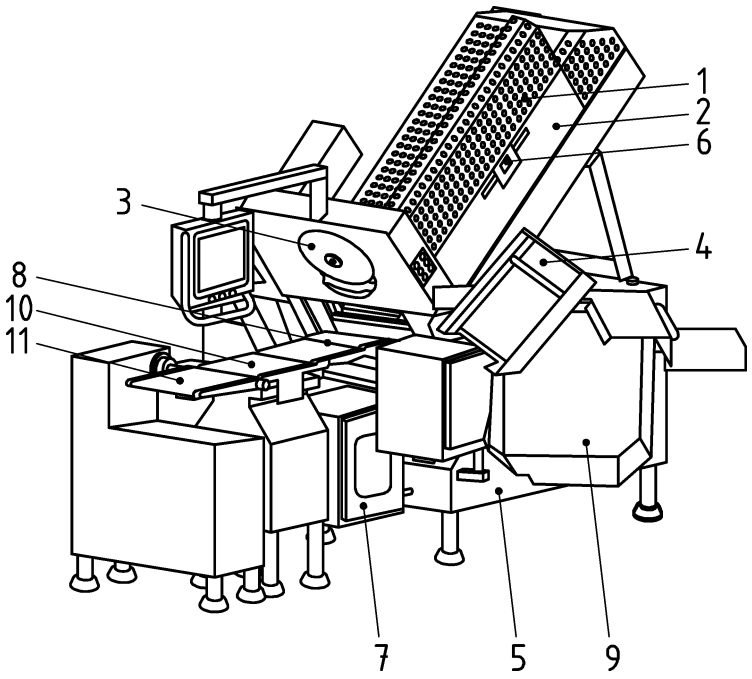
Figure 1 — Machine with manual feed and outfeed conveyor and without depositing unit



Key

1 feed guard
2 product support
3 blade
4 blade guard
5 machine housing
6 gripper
7 outfeed conveyor
8 protective outfeed guard

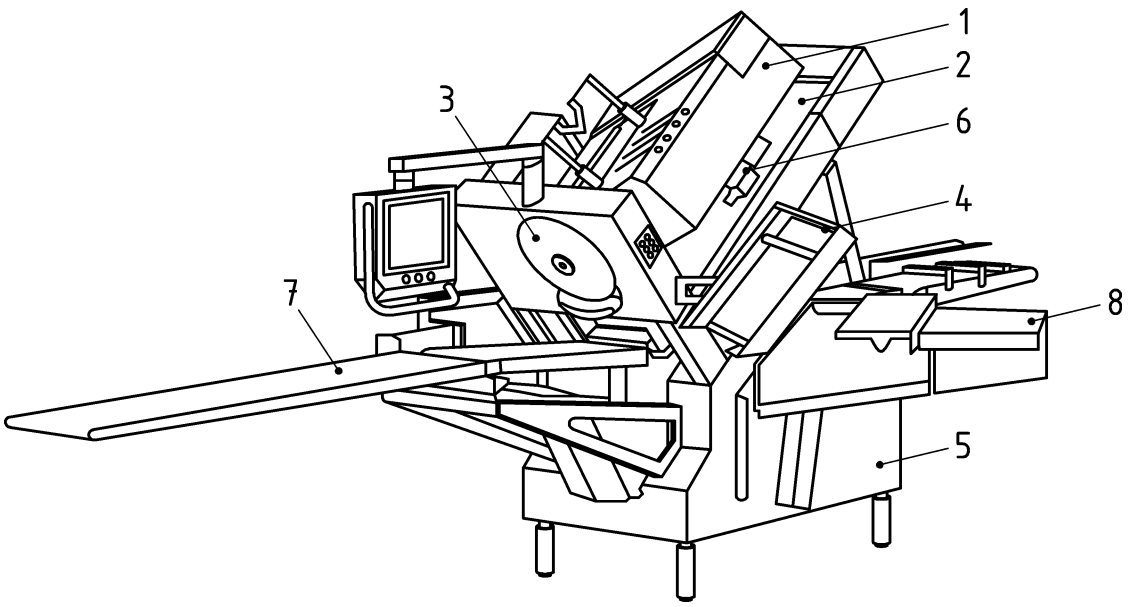
Figure 2 — Machine with manual feed and outfeed conveyor and without depositing unit



Key

1 feed guard
2 product support
3 blade
4 blade guard
5 machine housing
6 gripper
7 interleaver
8 depositing unit
9 outfeed guard
10 weigher
11 rocker

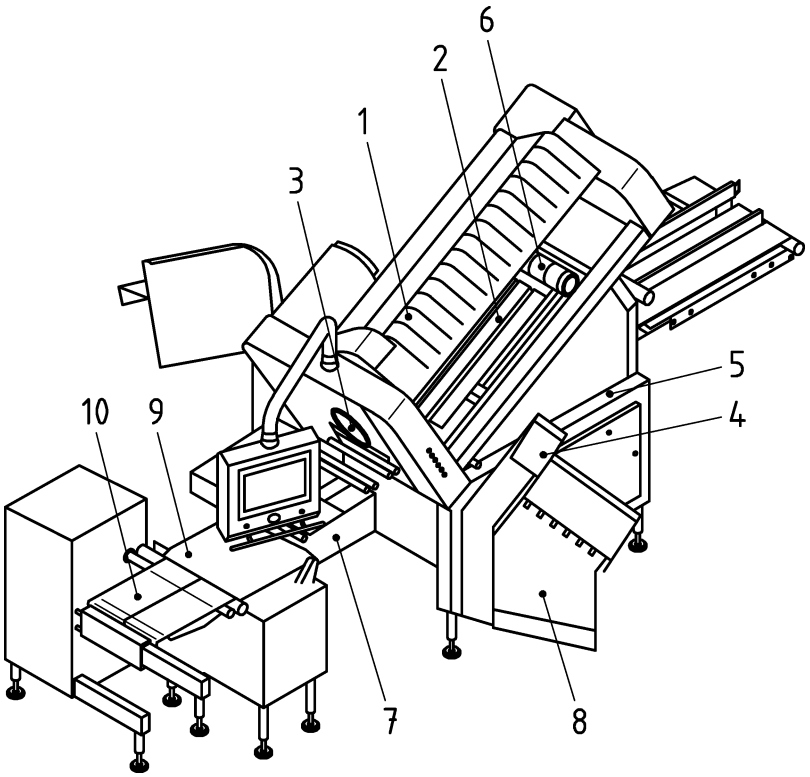
Figure 3 — Machine with manual feed, depositing unit and auxiliary components



Key

1 feed guard
2 product support
3 blade
4 blade guard
5 machine housing
6 gripper
7 outfeed conveyor
8 protective outfeed guard

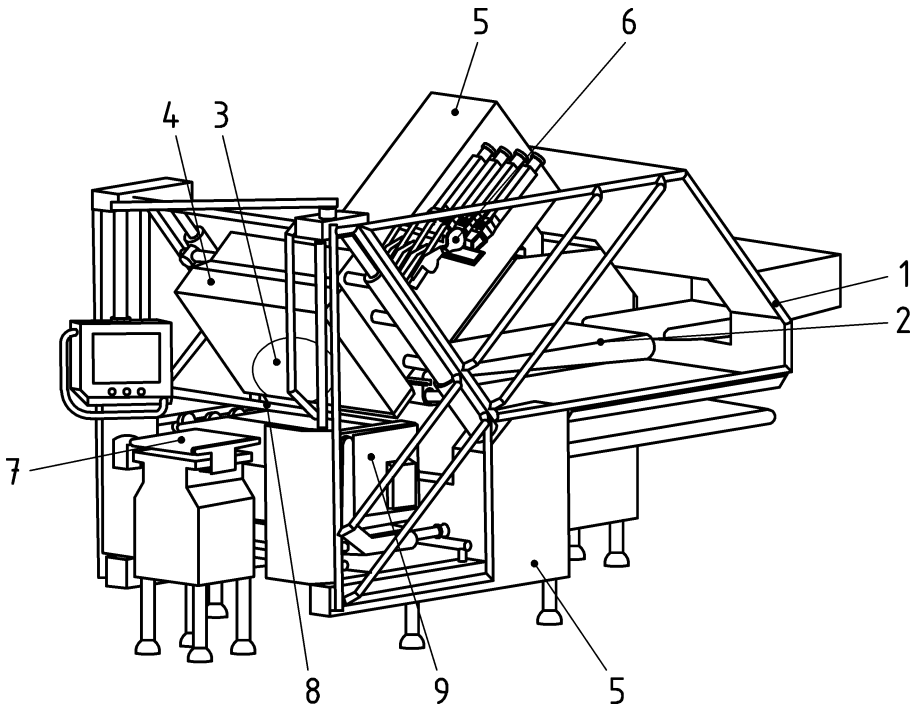
Figure 4 — Machine with automatic feed and outfeed conveyor and without depositing unit



Key

1 feed guard
2 product support
3 blade
4 blade guard
5 machine housing
6 gripper
7 depositing unit
8 protective outfeed guard
9 check weigher
10 rocker

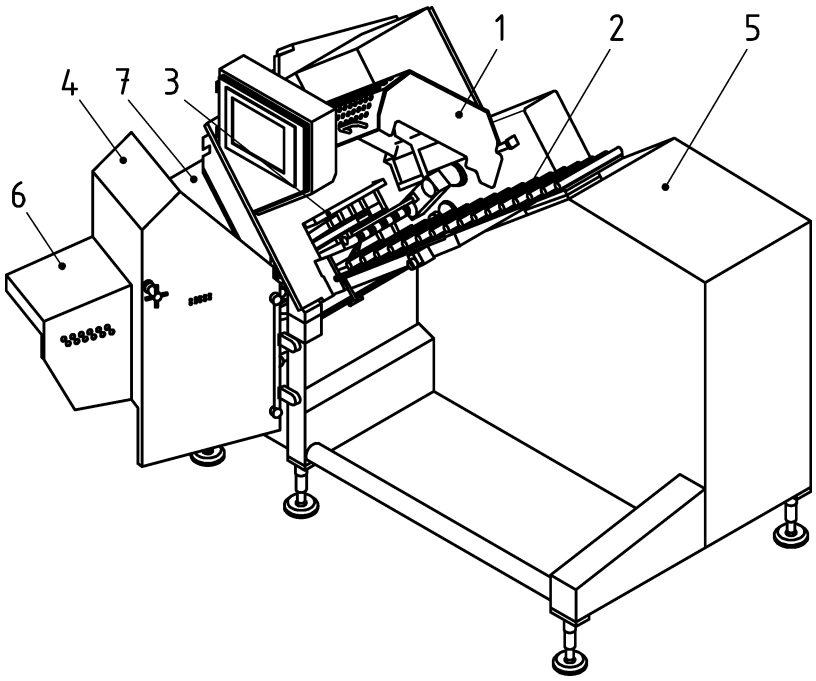
Figure 5 — Machine with automatic feed and depositing unit and auxiliary components



Key

1 feed guard
2 product support
3 blade
4 blade guard
5 machine housing
6 gripper
7 check weigher
8 protective outfeed guard
9 depositing unit

Figure 6 — Machine with automatic feed with depositing unit and auxiliary components



Key

1 feed guard

2 product support

3 blade (covered)

4 blade guard

5 machine housing

6 protective outfeed guard

7 depositing unit / outfeed conveyor

Figure 7 — Machine with continuous feed

1.3 Machine design

Automatic industrial slicing machines mainly consist of machine housing, product support with automatic or manually operated grippers, downholder, blade housing, blade, outfeed device, associated drives and electrical, hydraulic or pneumatic components. Furthermore optional features can be added.

Automatic industrial slicing machines in the scope of this standard may be equipped with the following auxiliary components:

— feeder;

— interleaver;

— outfeed conveyor;

— depositing unit;

— check weigher;

— sorting components (e.g. rocker);

— positioning devices (e.g. wheels).

1.4 Intended use

The intended use of automatic industrial slicing machines and auxiliary components, in accordance with this document, in accordance with regulations (as defined in EN ISO 12100:2010, 3.23) is described in 1.1.

The product is manually placed on the product base or automatically fed to the product base with a loading device. The product is supplied to the blade by automatic or manually operated grippers or conveyor slide or belt and the cutting process begins. The slices fall onto an outfeed conveyor or a depositing unit where they are arranged into formations, followed by the transport out of the cutting area.

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 614-1, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

EN 953, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

EN 1005-1, *Safety of machinery — Human physical performance — Part 1: Terms and definitions*

EN 1005-2, *Safety of machinery — Human physical performance — Part 2: Manual handling of machinery and component parts of machinery*

EN 1005-3, *Safety of machinery — Human physical performance — Part 3: Recommended force limits for machinery operation*

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 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

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 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 11201:2010, *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 11201:2010)*

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

EN ISO 13849-2, *Safety of machinery - Safety-related parts of control systems - Part 2: Validation (ISO 13849-2)*

EN ISO 13855:2010, *Safety of machinery - Positioning of safeguards with respect to the approach speeds of parts of the human body (ISO 13855:2010)*

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 14119:2013, *Safety of machinery - Interlocking devices associated with guards - Principles for design and selection (ISO 14119:2013*