BS EN 15180:2014

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Food processing machinery — Food depositors — Safety and hygiene requirements

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee MCE/3/5, Food industry machines.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Nahrungsmittelmaschinen - Nahrungsmittelportioniermaschinen - Sicherheits- und Hygieneanforderungen

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Foreword

This document (EN 15180:2014) 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of an identical text or by endorsement, at the latest by May 2015 and conflicting national standards shall be withdrawn at the latest by May 2015.

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 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.

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, 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

Food depositors are used extensively in Europe, in commercial and industrial food preparation applications. They present some health and safety hazards that have the potential to cause serious injury.

This document 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 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.

1 Scope

1.1 General

This European Standard deals with all significant hazards, hazardous situations and events relevant to food depositors as defined in 1.2.2 to 1.2.6 and the equipment typically integrated into them, i.e. product pumps, product elevators, conveyors and indexing mechanisms, when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4).

This European Standard deals with the significant hazards, hazardous situations and events during transport, assembly and installation, commissioning, use and decommissioning as defined in EN ISO 12100.

NOTE 1 According to the clause which is referred to, “use” includes “setting, teaching/programming or process changeover, operation, cleaning, fault finding and maintenance”.

NOTE 2 Although this standard is intended to apply to depositors used in the food industry, many of its requirements can also be used for similar machines used in other industries.

This European Standard is not applicable to the following machines:

— auger depositors or auger fillers and gravimetric filling machines, safety requirements for these machines are contained in EN 415-3;

— automatic dough dividers, safety requirements for these machines are contained in EN 12042;

— filling machines for sausages, safety requirements for these machines are contained in EN 12463;

— mincing machines, safety requirements for these machines are contained in EN 12331;

— food depositors that are powered exclusively by manual effort.

This document does not deal with the hazards related to the use of food depositors in a potentially explosive atmosphere.

This European Standard is not applicable to food depositors that were manufactured before the date of its publication as a European Standard.

1.2 Types of food depositors

1.2.1 General

This European Standard deals with five different types of food depositors. These machines can be free standing machines or be assemblies incorporated into other machines e.g. pie and tart machines. Food depositors may work fully automatically integrated with a product conveyor or product indexing mechanism or semi-automatically discharging a deposit when required by an operator.

1.2.2 Piston depositor

A piston depositor typically comprises a hopper, a rotary valve, a product measuring chamber in the form of a piston and a product dispensing valve. Some piston depositors incorporate several product measuring chambers and dispensing valves. Some designs dispense the product directly from the rotary valve without the use of a separate product dispensing valve. The volume of product dispensed is varied by altering the stroke of the product measuring chamber piston. Piston depositors are used to fill liquids, liquids containing solids in suspension and pastes. The product dispensing valve may be attached rigidly to the depositor or

using a flexible pipe and in some cases is held by the operator. Figure 1 shows the typical cross section of a piston depositor.

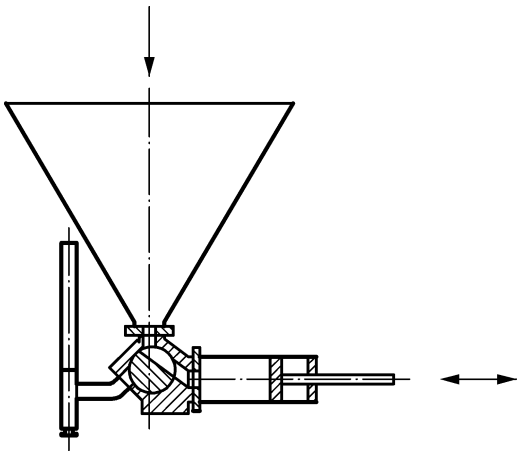


Figure 1 — Piston depositor

1.2.3 Chamber depositor

A chamber depositor comprises a hopper feeding one or more product measuring chambers that are filled under gravity from the top. When the chamber has been filled with product the flow of product is stopped either by moving the chamber or using a product cutting device. The chamber is then discharged through the bottom of the chamber either by moving the chamber or by moving a plate in the base of the chamber. The volume of product dispensed is varied by altering the volume of the chamber. Chamber depositors are typically used to deposit free-flowing products like cooked rice or pasta. Figure 2 shows the typical cross section of a chamber depositor.

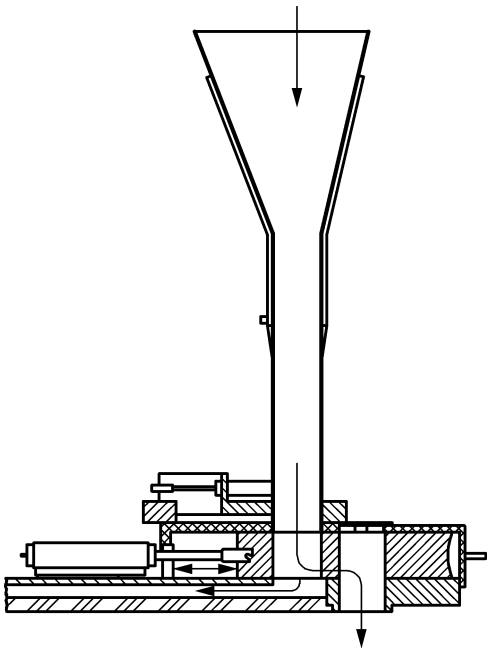


Figure 2 — Chamber depositor

1.2.4 Roller depositor

A roller depositor typically comprises a hopper that feeds product to two or more fluted contra-rotating rollers. These rollers force the product through one or more dies that shape the product. The product is then separated using a product cutting device like a wire cut mechanism. On some designs of the machine the dies are moved while the product is dispensed to produce a shaped product. The volume of product dispensed is varied by altering the timing of the product cut-off device. Roller depositors are typically used to deposit dough or confectionery products. Figure 3 shows the typical cross section of a roller depositor.

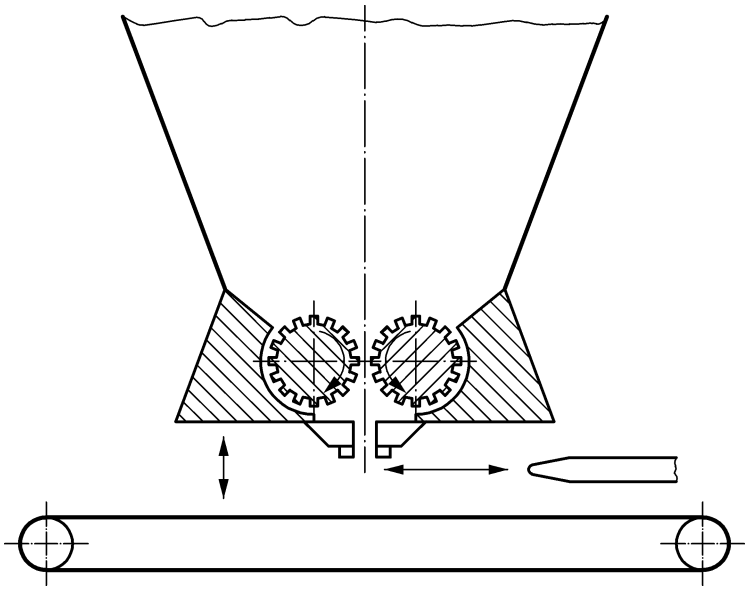


Figure 3 — Roller depositor

1.2.5 Pump depositor

A pump depositor comprises a hopper that feeds a pump which in turn feeds pipe-work on which are mounted one or more product dispensing valves. The dispensing valves may remain fixed, move up and down or from side to side in synchronization with a product conveyor. The volume of product dispensed is varied by altering the length of time that the dispensing valves are open. Pump depositors are typically used to deposit liquids or liquids containing finely divided solids Figure 4 shows the typical cross section of a pump depositor.

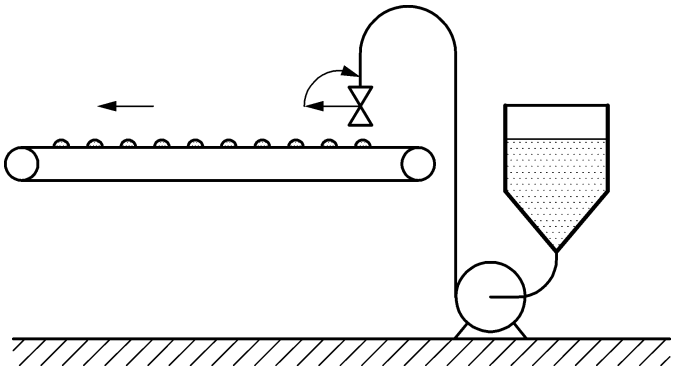


Figure 4 —Pump depositor

1.2.6 Screw depositor

A screw depositor comprises a hopper in which a screw is mounted. When the screw rotates it draws product from the hopper into a pipe. The hopper may be equipped with stirrers to move the product towards the screw and a product measuring chamber or product dispensing valve may be fitted to the discharge of the screw. The volume of product can be varied by increasing or decreasing the speed of the screw, by varying the volume of the measuring chamber or by controlling the actuation of the product dispensing valve. Screw depositors are typically used to deposit dough, pastes or creams. Figure 5 shows the typical cross section of a screw depositor.

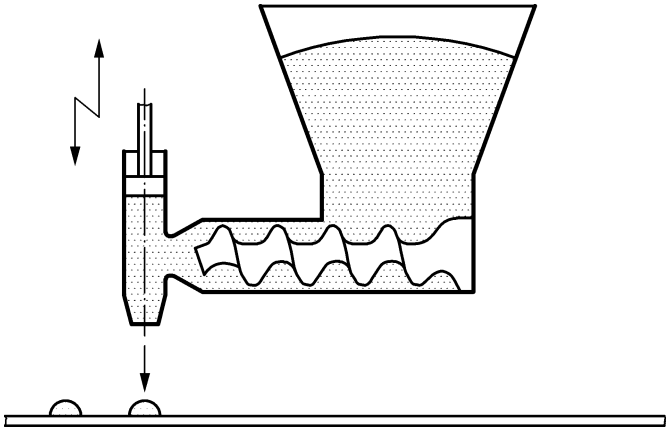


Figure 5 — Screw depositor

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 349, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*

EN 574:1996+A1:2008, *Safety of machinery — Two-hand control devices — Functional aspects — Principles for design*

EN 614 (all parts), *Safety of machinery — Ergonomic design principles*

EN 618, *Continuous handling equipment and systems — Safety and EMC requirements for equipment for mechanical handling of bulk materials except fixed belt conveyors*

EN 619, *Continuous handling equipment and systems — Safety and EMC requirements for equipment for mechanical handling of unit loads*

EN 620, *Continuous handling equipment and systems — Safety and EMC requirements for fixed belt conveyors for bulk materials*

EN 894-1, *Safety of machinery — Ergonomics requirements for the design of displays and control — Part 1: General principles for human interactions with displays and control actuators*

EN 894-2, *Safety of machinery — Ergonomics requirements for the design of displays and control — Part 2: Displays*

EN 894-3, *Safety of machinery — Ergonomics requirements for the design of displays and control — Part 3: Control actuators*

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

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

EN 1037, *Safety of machinery — Prevention of unexpected start-up*

EN 1672-2, *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 61310-1:2008, *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, acoustic and tactile signals (IEC 61310-1:2007)*

EN 61310-3, *Safety of machinery — Indication, marking and actuation — Part 3: Requirements for the location and operation of actuators (IEC 61310-3)*

EN 61496-1:2004, *Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and tests (IEC 61496-1:2002, modified)*

EN ISO 3744, *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)*

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

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 11202:2010, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections (ISO 11202:2010)*

EN ISO 11204, *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)*

EN ISO 12001:2009, *Acoustics — Noise emitted by machinery and equipment — Rules for the drafting and presentation of a noise test code (ISO 12001:1996)*

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

EN ISO 13732-1, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces (ISO 13732-1)*

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, *Safety of machinery —Emergency stop — Principles for design (ISO 13850)*

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

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)*

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

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

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

3 Terms and definitions

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

3.1
product
material processed in a food depositor which may be a liquid, e.g. sauce, liquid containing suspended solids, e.g. batter, paste, e.g. biscuit dough or solids, e.g. cooked rice

3.2
food depositor
machine that dispenses a food product in a predetermined volume or shape

3.3
product cutting device
mechanism that separates portions of food from a bulk supply of product

Note 1 to entry: Typical devices include rotary valves, wire-cut mechanisms, shear blades and iris valves.

3.4
product dispensing valve
mechanism that controls the flow of product at the point of product delivery

Note 1 to entry: Typical devices include rotary valves, seating valves and slide valves.

3.5
product measuring chamber
chamber that is filled with product to measure out a predetermined volume of product and that will typically incorporate a mechanism that allows the volume of the chamber to be varied so that the volume of product dispensed can be changed

3.6
rise and fall mechanism
mechanism which is used to raise and lower a product dispensing valve to suit a particular container or dispensing requirement

3.7
D-valve
rotary valve with a rotating element, which has a D-shaped cross-section (see Figure 1), used in a piston depositor to move product from the hopper to the product measuring chamber and from the product measuring chamber to the product dispensing valve

4 List of significant hazards

4.1 General

This clause contains all the significant hazards, hazardous situations and events, identified by risk assessment as significant for this type of machinery and which require action to eliminate or reduce the risk (see Table 1) in Annex B.

The hazards that can occur on all food depositors are listed in 4.2, and the hazards that are specific to particular types of food depositor are listed in 4.3 to 4.7.

4.2 General food depositor hazards

4.2.1 Introduction

The following hazards can occur on all food depositors.

4.2.2 Mechanical hazards

4.2.2.1 Moving parts

Food depositors incorporate moving parts which present a variety of mechanical hazards including crushing, shearing, cutting, entanglement, friction, drawing-in. Some of these hazards may persist after the power supply has been cut off, due to stored energy.

4.2.2.2 Risks that may arise from hygienic design features

4.2.2.2.1 Use of quick release fixings

Food depositors are frequently fitted with quick release fixings that can be undone without the use of tools, so that machines can be dismantled quickly for cleaning. A risk can arise if undoing these quick release fixings allows access to danger zones.

4.2.2.2.2 Cleaning under machines

There is a risk from danger zones on food depositors, when operators reach under guards to clean the machine or the floor under the machine when it is in motion.

4.2.2.2.3 Spillage trays

Food depositors may be fitted with trays to collect spillages of food from the machine. It is good hygienic design practice for spillage trays to be easily removable so that product can be emptied frequently; however, when the trays are removed, the operator may be exposed to danger zones on the machine.

4.2.2.3 High pressure fluid injection or ejection hazards

Where food depositors contain pressurized product there is a risk of this product ejecting in an uncontrolled way during troubleshooting or cleaning.

If compressed air or pressurized hydraulic fluid comes into contact with the skin, it can enter the skin or blood stream and result in a variety of health damaging effects.

4.2.3 Electrical hazards

4.2.3.1 Electrical equipment

Electrical equipment on the machine generates a potential electric shock and burn hazard.

In the presence of combustible materials there is a potential fire hazard. Electrical systems may act as an ignition source. In the presence of flammable substances or products that may create explosive atmospheres, this could give rise to an explosion hazard.

If liquids, e.g. product spillage or cleaning substances like water, come into contact with the electrical conductors, there is a risk of electric shock.

4.2.3.2 Electrostatic phenomena

Electrostatic discharges can be a source of ignition for flammable substances or explosive atmospheres, e.g. flour dust.

4.2.4 Thermal hazards

Some food products are deposited while hot. Scalding hazards may be caused by direct contact with the product, and burning hazards may be caused by contact with hot surfaces on the machine.

4.2.5 Noise

The main sources of noise on food depositors are drive mechanisms and compressed air exhaust.

Food depositors may generate noise which can result in hearing damage, in accidents due to interference with speech communication and interference with the perception of acoustic signals.

4.2.6 Hazards generated by materials and substances

4.2.6.1 Hazards from products

Food depositors are used to deposit a wide range of products, some of which may be potentially hazardous to people operating or in the vicinity of the machine.

Hazards generated by the product can include:

a) inhalation of harmful substances, e.g. wheat flour, spices;

b) burning or scalding hazards, e.g. from hot products.

4.2.6.2 Hazards from cleaning media

The chemicals used to clean and disinfect food depositors can be hazardous, particularly in their concentrated form. Hazards can arise if the chemicals:

a) come into contact with the skin;

b) are swallowed;

c) are inhaled in the form of an aerosol, e.g. if used in conjunction with a high-pressure hose or compressed air.

Where high pressure water is used to clean machines there is a risk of cutting hazards if the water contacts the skin and electric shock if the water enters electrical enclosures.

4.2.7 Hazards due to neglecting ergonomic principles in machinery design

Hazards to safety and health can occur when people are carrying out the following activities on food depositors:

a) operating the depositor e.g. assuming a poor posture;

b) loading product into the hopper e.g. assuming a bad posture, using excessive effort, fatigue;

c) cleaning the machine e.g. assuming a bad posture, using excessive effort;

d) maintenance e.g. assuming a bad posture, using excessive effort;

e) moving the machine e.g. using excessive effort, fatigue.

4.2.8 Unexpected start-up or unexpected overrun

4.2.8.1 Failure of control system

Unexpected start-up can occur if components in safety-related parts of control systems fail. These failures may occur due to mechanical damage, contact failure, or electronic component failure.

On electronic drive systems where the power supply to a drive motor is not disconnected while the guards are open, there is a risk of unexpected start-up with consequential mechanical hazards if the control system fails or responds to an external disturbance such as electromagnetic interference.

4.2.8.2 Restoration of energy after an interruption

The restoration of energy to a machine after a power supply interruption can cause unexpected movement of assemblies.

4.2.8.3 External influences on electrical equipment

Radiated or conducted electromagnetic interference can cause electronic control devices to initiate an unexpected start-up.

4.2.8.4 Inability to stop movement

Hazards can arise particularly on semi-automatic machines if operators cannot stop movement once a depositing cycle has been initiated. Hazards that result include crushing, shearing and scalding if the product is hot.

4.2.9 Impossibility of stopping machine in the best possible conditions for routine interventions

There is a potential hazard during cleaning or troubleshooting if it is not possible to stop the machine in the optimum position for cleaning, e.g. with the product dispensing valve open.

Where product dispensing valves are controlled by a spring return solenoid valve, it may be necessary to clean the valve with the power on to ensure that the valve is open. If the power is then turned off during this cleaning operation the valve will close and if the operator has his finger in the valve at this moment there is the risk of amputating the finger.

4.2.10 Failure of power supplies

The failure of a power supply can cause uncontrolled lowering or falling of machine assemblies, e.g. rise and fall mechanisms.

4.2.11 Hazards during significant interventions

Hazards can arise during significant interventions when the machine has not been brought into a completely safe state. For example due to inadequate power supply disconnecting devices or power supply disconnecting devices not being easy to identify or due to stored energy.

Failure of safety-related parts of control systems can lead to various hazardous situations including not being able to stop the machine.

4.2.12 Errors of fitting

If a food depositor is not assembled correctly, e.g. after cleaning, there is the risk of parts separating from the machine, e.g. due to the pressure of the product.

4.2.13 Loss of stability

The design of some machines, like the one shown in Figure 6, makes them top heavy, particularly with machines equipped with wheels when the hopper is full of product. Loss of stability can occur in the following circumstances:

a) While the machine is in operation for example:

   1) if someone rests a container full of product on the edge of the feed hopper;

   2) if someone stands on the machine;

b) While the machine is being moved, for example:

   1) if the instructions of the manufacturer for lifting machine parts or to move the machine are not observed;

   2) on machines fitted with wheels if the machine is moved on a slope or uneven surface.

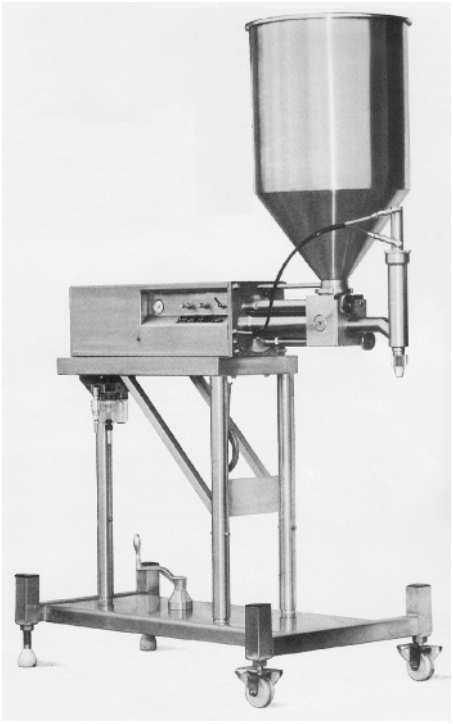


Figure 6 — Food depositor equipped with wheels

4.2.14 Slip, trip and fall hazards resulting from the design of the machine

Slip accidents can occur if the product being deposited or cleaning media is spilt on the floor.

Trip accidents may occur if power cables or compressed air pipes powering the food depositor are left on the floor.

Falls may occur if people stand on parts of the depositor e.g. for hopper loading, size changing, maintenance or cleaning.

4.2.15 Hygienic design hazards

The product being deposited can become contaminated, e.g. by the following causes:

— incorrect choice of contact materials;

— inappropriate construction methods;

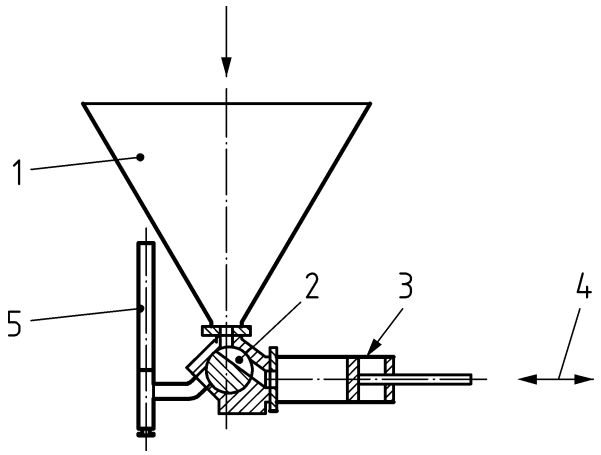
— non-food grade lubricants which are allowed to come into contact with the product, e.g. from gearboxes or compressed air exhausts.

4.3 Hazards associated with a piston depositor

4.3.1 General

The hazards described in 4.2 and those detailed below are specifically associated with a piston depositor.

Figure 7 illustrates the components that typically present hazards on piston depositors.



Key

1 hopper

2 D-valve

3 product measuring chamber

4 measuring chamber drive mechanism

5 product dispensing valve

Figure 7 — Typical components on a piston depositor

4.3.2 Hopper

The product hopper will usually be mounted over product feeding devices that present crushing, shearing and drawing-in hazards and may be equipped with stirring devices that present entanglement hazards.

On some machines the hopper is removed for cleaning and excessive effort may be required to remove or replace the hopper.

Excessive effort and a risk of falling may occur if the hopper cannot easily be loaded with product from floor level.

4.3.3 D-valve

The D-valve presents a shearing hazard if it can be reached when operating under power either during normal operation, trouble-shooting or cleaning, e.g. by partly dismantling the machine.

4.3.4 Product measuring chamber

The product measuring chamber presents crushing and shearing hazards if it can be reached when operating under power either during normal operation, trouble-shooting or cleaning, e.g. by partly dismantling the machine.

4.3.5 Measuring chamber drive mechanism

Measuring chamber drive mechanisms are typically pneumatic cylinders that can present crushing and shearing hazards. Other drive mechanisms, e.g. electric motors, driving rack and pinion mechanisms will present crushing and drawing-in hazards.

4.3.6 Product dispensing valve

Typically the product dispensing valve will be a rotary valve, a seating valve or a slide valve, all of which present shearing hazards when the valve closes. The product dispensing valve may be attached to a rise and fall mechanism. The rise and fall mechanism will typically present a crushing hazard when it moves the valve down and may also present crushing hazards when it moves the valve up at the end of the depositing cycle.

On some machines the operator holds the dispensing valve and initiates the depositor by squeezing a trigger device. Muscular skeletal injuries can occur if the valve is too heavy or the trigger is poorly designed or requires too much force to actuate.

4.3.7 Container or materials handling mechanisms

4.3.7.1 Conveyors

Food depositors will frequently be supplied with or mounted over belt conveyors or slat band conveyors. Drawing-in or trapping hazards can be generated by in-running nips where belts or slat bands pass over rollers or fixed parts of the conveyor frame and where the conveyor passes under the product dispensing valve of the depositor. These hazards are increased if flights are attached to the belt or slat band.

4.3.7.2 Indexing mechanisms

Food depositors may be supplied with or mounted over belt in-line or rotary indexing mechanisms. Drawing-in or trapping hazards can be generated by the moving parts of these mechanisms and where these mechanisms pass under the product dispensing valve of the depositor.

4.3.8 Product pump

A pump connected to a hopper positioned at floor level may be used as a means of elevating product to the hopper of the depositor. The hazards presented by the pump will vary depending on the type of pump used. However, most designs of pump present shearing or drawing-in hazards if the moving parts can be reached, e.g. by reaching into the hopper or by partly disassembling the pump.

4.3.9 Product elevator

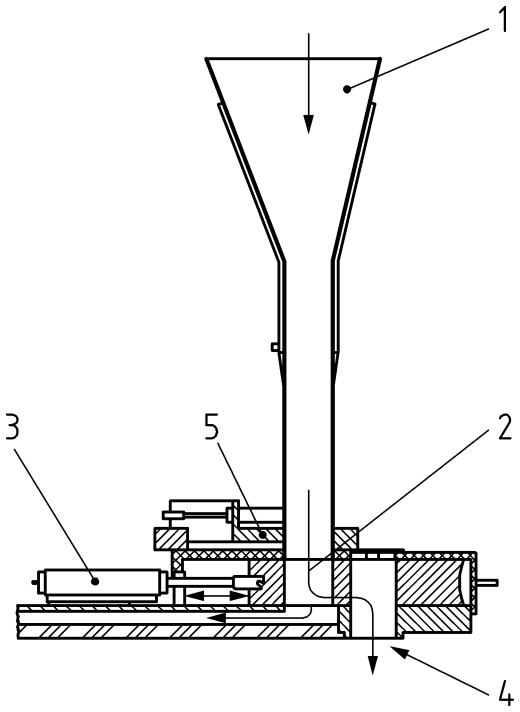
Food depositors may be supplied with an elevating conveyor, which could be a flighted belt conveyor, bucket conveyor, trough belt conveyor, flat belt conveyor or a combination of these types of conveyor. Drawing-in or trapping hazards can be generated by in-running nips where belt and flights pass over rollers or fixed parts of the conveyor frame.

4.4 Hazards associated with a chamber depositor

4.4.1 General

The hazards described in 4.2 and those detailed below are specifically associated with a chamber depositor.

Figure 8 illustrates the components that typically present hazards on a chamber depositor.



Key

1 hopper

2 product measuring chamber

3 chamber drive mechanism

4 product discharge

5 product cutting device

Figure 8 — Typical components on a chamber depositor

4.4.2 Hopper

See 4.3.2.

4.4.3 Product feeding mechanism

Chamber depositors may be fitted with a variety of product feeding mechanisms including vibrating trays, rotating brushes or rotating fingers. These mechanisms present crushing and entanglement hazards. On some machines the flow of product into the chamber may be regulated by a product cutting device in the form of a brush or shear blade. These mechanisms present crushing and shearing hazards.

4.4.4 Product measuring chamber

Product measuring chambers will typically incorporate a mechanism to vary the volume of the chamber and a discharging flap. These mechanisms present crushing and shearing hazards. On machines where the product measuring chamber moves there is a shearing hazard between the measuring chamber and fixed assemblies on the machine.

4.4.5 Container or materials handling mechanisms

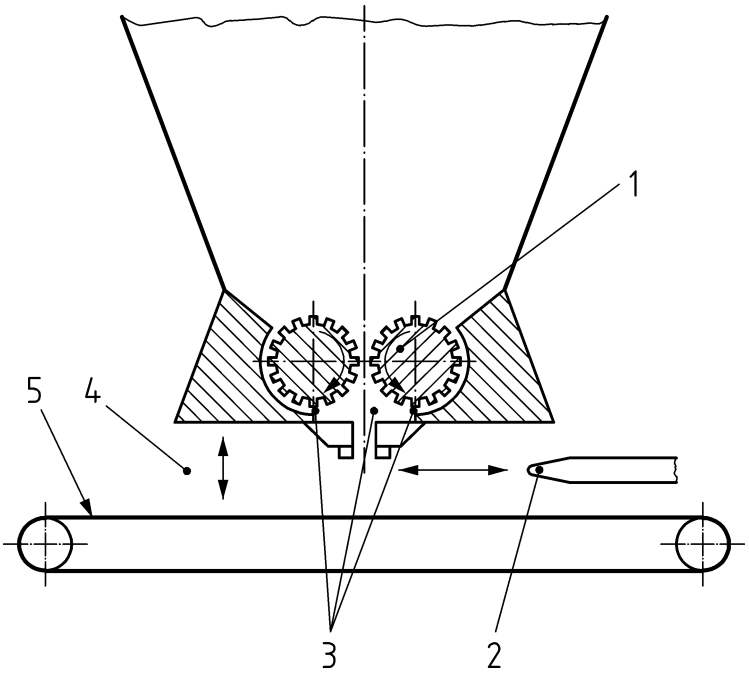
See 4.3.7.

4.5 Hazards associated with a roller depositor

4.5.1 General

The hazards described in 4.2 and those detailed below are specifically associated with a roller depositor.

Figure 9 illustrates the components that typically present hazards on roller depositors.



Key

1 rollers
2 product cutting mechanism
3 extruding die
4 rise and fall mechanism
5 conveyor

Figure 9 — Typical components on a roller depositor

4.5.2 Hopper

See 4.3.2.

4.5.3 Roller product feeder

The roller product feeder normally comprises a pair of contra rotating fluted rollers that are a significant drawing-in hazard. The drive mechanism powering the rollers is also a drawing in hazard. The hopper and roller assembly may move backwards and forwards causing a crushing hazard between the assembly and the supporting frame.

4.5.4 Product extruding die

Product extruding dies may be equipped with mechanisms to rotate the die as the product is extruded. These mechanisms can present crushing and drawing-in hazards. It is typical for the die assembly to be withdrawn

from the machine for cleaning and when the die is changed to run a new product. Injuries resulting from excessive effort may occur if the die assembly has a high mass.

4.5.5 Product cutting device

Machines may be fitted with a variety of product cutting devices in particular wire cut mechanisms. These mechanisms present crushing and shearing hazards.

4.5.6 Rise and fall mechanism

Typically there will be crushing hazards between the depositor and the conveyor when the depositor is lowered and the depositor and the support frame when the depositor is raised. The rise and fall mechanism itself can present both crushing and drawing-in hazards depending on its construction.

4.5.7 Tray feeding equipment

Machines may be fitted with mechanisms to feed baking trays under the extruding die. These mechanisms can present crushing, shearing and drawing-in hazards.

4.5.8 Conveyors

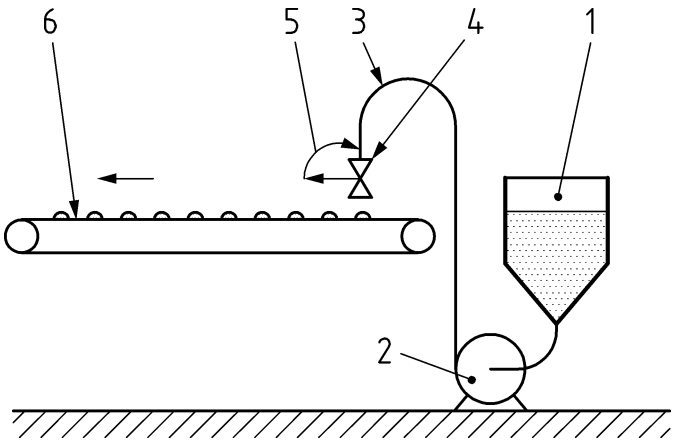
See 4.3.7.1.

4.6 Hazards associated with a pump depositor

4.6.1 General

The hazards described in 4.2 and those detailed below are specifically associated with a pump depositor.

Figure 10 illustrates the components that typically present hazards on pump depositors.



Key

1 hopper

2 pump

3 product pipe

4 product dispensing valve

5 rise and fall mechanism

6 conveyor

Figure 10 — Typical components on a pump depositor

4.6.2 Product pump

The hazards presented by the pump will vary depending on the type of pump used. However, most designs of pump present shearing or drawing-in hazards if the moving parts can be reached, e.g. by reaching into the hopper or by partly disassembling the pump.

4.6.3 Manifold

Some pump depositors incorporate a manifold that supports several dispensing valves. The manifold may be fixed or attached to a mechanism that moves the manifold forwards and backwards and up and down in synchronization with the product conveyor. These mechanisms will normally present crushing hazards when they lower the valves and may also present crushing and shearing hazards when the mechanism moves up, forwards or backwards.

If the product being filled is hot the manifold can become a burning hazard.

4.6.4 Product dispensing valves

See 4.3.6.

4.6.5 Rise and fall mechanism

See 4.5.6.

4.6.6 Container and materials handling equipment

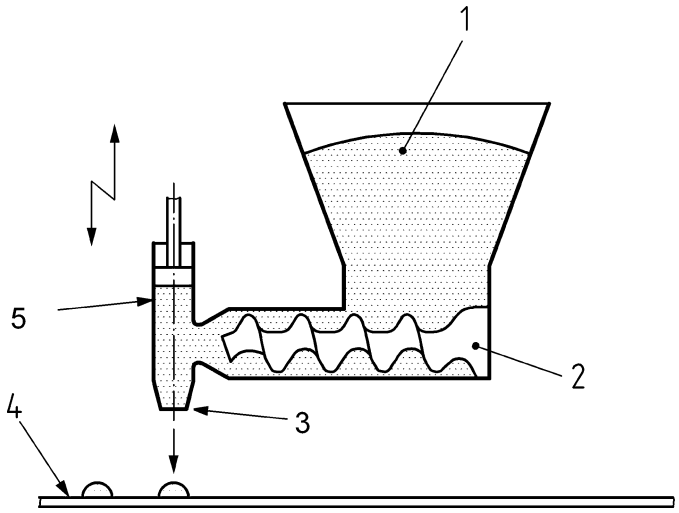
See 4.3.7.1.

4.7 Hazards associated with a screw depositor

4.7.1 General

The hazards described in 4.2 and those detailed in this clause are specifically associated with a screw depositor.

Figure 11 illustrates the components that typically present hazards on screw depositors.



Key

1 hopper

2 screw

3 product dispensing valve

4 conveyor

5 product measuring chamber

Figure 11 — Typical components on a screw depositor

4.7.2 Hopper

See 4.3.2.

4.7.3 Screw

The screw presents a drawing-in hazard if it can be reached when operating under power either during normal operation, troubleshooting or cleaning.

4.7.4 Product measuring chamber

Screw depositors may be fitted with one or a number of product measuring chambers. The product measuring chamber presents a crushing hazard if it can be reached when operating under power either during normal operation, troubleshooting or cleaning, e.g. by partly dismantling the machine.

4.7.5 Measuring chamber drive mechanism

See 4.3.5.

4.7.6 Product dispensing valve

See 4.3.6.

4.7.7 Container and materials handling equipment

See 4.3.7.1.

5 Safety requirements and/protective measures

5.1 General

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 for relevant but not significant hazards which are not dealt with by this document.

General requirements for food depositors are formulated in 5.2. These general requirements are adapted and/or completed with specific requirements for the different types of food depositor in 5.3 to 5.7.

5.2 General requirements for food depositors

5.2.1 Introduction

The following requirements apply to all food depositors where the equivalent hazard exists.

5.2.2 Requirements to eliminate mechanical hazards

5.2.2.1 Safeguarding of moving parts

5.2.2.1.1 Safety by design

Moving parts can be considered to be safe by design provided the force exerted by the moving parts does not exceed 75 N, the pressure they exert against an object is less than 25 N/cm^2 and their energy is less than 4 J. If the hazardous movement is automatically reversed within 1 s when resistance is detected, the movement can be considered as safe provided the force does not exceed 150 N, the pressure does not exceed 50 N/cm^2 and the energy is less than 10 J.

Some crushing hazards from moving parts can also be made safe by design by ensuring sufficient distance between moving and fixed parts and between one moving part and another one using the dimensions indicated in EN 349.

5.2.2.1.2 Fixed and interlocked guards

Moving parts which cannot be made safe by design shall be safeguarded by fixed or interlocked enclosing guards complying with EN 953 and dimensioned using EN ISO 13857:2008, Table 4, Table 6 and Table 7. Where distance guards are used they shall be dimensioned and positioned in accordance with EN ISO 13857:2008, Table 2, but shall be at least 1 600 mm high. Where it is foreseeable that someone will try to put their feet into a machine, e.g. because it is next to an access platform, guards shall be dimensioned and positioned in accordance with all relevant tables of EN ISO 13857.

The design of the guards and the number, size and position of access doors shall ensure that the machine can be operated, cleaned, size changed and maintained easily and safely.

5.2.2.1.3 Openings in guards

Openings in guards shall be positioned or dimensioned to prevent access to danger zones within the machine when standing on the floor or access level and reaching into the opening.

The minimum reach distance to the nearest danger zone through the opening shall comply with EN ISO 13857:2008, Table 3, Table 4 and Table 6.

5.2.2.1.4 Interlocking devices associated with guards

Moveable guards shall be interlocked with devices that comply with EN ISO 14119:2013, 4.2 and 4.3. The requirements of EN ISO 14119:2013, Clause 5, Clause 7 and Clause 8, shall be satisfied.

The design of the control system shall ensure that hazardous movements stop as quickly as possible and moving parts directly involved in the process shall be stopped within 1,0 s of an interlocking guard without guard locking being opened.

If the hazardous moving parts directly involved in the process cannot be stopped within 1,0 s, the relevant interlocking guards shall be equipped with guard locking as defined in EN ISO 14119:2013, 3.4, and complying with EN ISO 14119:2013, 4.3 and 5.7.

5.2.2.2 Safety requirements for hygienic design features

5.2.2.2.1 Quick release fixings

Where quick release fixings, which can be undone without the use of tools, are used to secure parts of machines or guards that prevent access to danger zones, an interlocking device complying with 5.2.2.1.4 shall be fitted which ensures that moving parts which could cause an injury do not move when the fixings are removed. As far as technically possible these parts or guards shall comply with the relevant requirements of 5.2.2.1.

5.2.2.2.2 Guarding under machines

Where the distance between the bottom of machine frame and the floor is 120 mm or less the distances to the nearest danger zones when reaching under the machine shall comply with of EN ISO 13857:2008, Table 3, Table 4 or Table 6.

Where the distance between the bottom of machine frame and the floor is greater than 120 mm, the safety distances to the nearest danger zones shall be taken from EN ISO 13857:2008, Table 1 or Table 2, and from EN ISO 13857:2008, Table 3, Table 4 and Table 6, if the underside of the machine is fitted with guards, e.g. mesh guards which reduce the size of openings to less than 120 mm.

5.2.2.2.3 Spillage trays

Where the removal of spillage trays gives access to danger zones, the tray shall either be secured with fixings that can only be undone with tools or – if access is required once a day or more often – shall be fitted with an interlocking device complying with 5.2.2.1.4.

5.2.2.3 High pressure fluids

The manufacturer shall provide a means to safely discharge pressurized product from the food depositor.

All pneumatic systems, components and piping shall conform to the requirements of EN ISO 4414. All hydraulic systems, components and piping shall conform to the requirements of EN ISO 4413.

5.2.3 Requirements to prevent electrical hazards

5.2.3.1 Electrical equipment

5.2.3.1.1 General

The electrical equipment of food depositors shall comply with EN 60204-1 and the following.

5.2.3.1.2 Supply disconnecting device

The machine shall be equipped with a readily identifiable and accessible supply disconnection device. This device shall be selected from those listed in EN 60204-1:2006, 5.3.2, and comply with EN 60204-1:2006, 5.3.3 and 5.3.4. At least one such device shall be attached to the machine.

5.2.3.1.3 Protection against electric shock

Electric shock by direct contact shall be prevented by choosing one of the methods described in EN 60204-1:2006, 6.2. Electric shock by indirect contact shall be prevented by choosing one of the methods described in EN 60204-1:2006, 6.3.

5.2.3.1.4 Degree of protection

The protection level for electrical enclosures, as defined by EN 60529, shall be selected for the machine and its environment, in accordance with EN 60204-1:2006, 11.3, and with Table 1 and Table 2.

The manufacturer shall state in the instructions for use any restrictions on cleaning techniques, e.g. “The electrical enclosures are protected to IP65 and so the machine should only be cleaned using low pressure water.”

Table 1 — Degree of protection for dusty environments

Dusty Environment	**Required degree of protection (**EN 60529**)**
Non-conducting dusts	IP 5X
Conducting dusts	IP 6X

Table 2 — Degree of protection for different cleaning methods using water

Method of cleaning	**Required degree of protection** (EN 60529**)**
Cleaning without water	IP X3
Cleaning with damp cloth	IP X4
Cleaning with low pressure water (12,5 l/min maximum)	IP X5
Cleaning with medium pressure water (100 l/min maximum)	IP X6
Cleaning with high pressure water	IP X8

The tests for electrical enclosures stipulated by EN 60529 use water. Therefore, if fluids other than water are used for cleaning or the water contains a detergent, it may be necessary to use a higher IP rating than indicated by EN 60529 and Table 2.

5.2.3.2 Electrostatic phenomena

On food depositors where there is a risk of a build-up of static electricity, the manufacturer shall provide the necessary earth bonding or static elimination equipment to ensure that no hazardous build-ups occur.

5.2.4 Requirements to eliminate thermal hazards

The temperature of touchable surfaces of food depositors shall not exceed the burn thresholds defined in EN ISO 13732-1. If this is technically impossible the manufacturer shall eliminate the risk by insulation or shall prevent access, for example by fitting a distance guard. If these measures are not sufficient a hot surface warning pictogram as illustrated in Figure 13 in Clause 7 shall be fitted either on or adjacent to the hot surface.

5.2.5 Noise reduction

Noise reduction of food depositors shall be an integral part of the design process and shall be achieved particularly by applying measures to control noise at source.

Noise can be reduced or eliminated at source using measures that include the following:

a) drive mechanisms can be fitted with acoustic attenuation materials;

b) mechanisms should be designed so that they do not hit against each other;

c) air exhausts should be fitted with silencers.

Additional design measures can be found in EN ISO 11688-1.

This list is not exhaustive, alternative technical measures for noise reduction with identical or greater efficiency can be used.

The success of the noise reduction measures which have been applied is assessed by comparing the actual noise emission values with other machines with similar non-acoustical technical specifications.

5.2.6 Requirements to prevent hazards caused by materials and substances

5.2.6.1 Products

If the intended use of the food depositor is for depositing of products that present hazards due to the emission of substances, or internal fire and explosion hazards, the manufacturer can use the following standards for advice on how to control these risks:

— for hazards due to the emission of hazardous substances, including harmful biological substances, EN 626-1 and EN 626-2;

— for fire hazards, EN 13478;

— for explosion hazards, EN 1127-1.

5.2.6.2 Cleaning media

When selecting the method for cleaning the machine, the manufacturer shall give preference to cleaning methods that minimize the hazards to the operator and minimize the risk of contaminating the product, i.e. methods that do not use hazardous chemicals.

If the cleaning method adopted recommends the use of hazardous chemicals, the manufacturer shall design the machine and the operating procedures to minimize the risk to operators by providing:

— an automated handling, dilution, use and recovery system for the chemical (in-place cleaning system);

— detailed instructions on the correct method of handling the chemical and cleaning the machine and the appropriate personal protection equipment in the instructions for use.

Where the manufacturer recommends the use of steam or pressurized water for cleaning the manufacturer shall ensure that electrical equipment on the machine has the appropriate degree of protection, see 5.2.3.1.4.

5.2.7 Ergonomic design principles

5.2.7.1 Operating the machine

Controls and control devices shall comply with EN 60204-1:2006, Clause 10. The principles of EN 614-1 apply. In addition, the indicators and actuators shall comply with EN 894-1, EN 894-2, EN 894-3, EN 61310-1 and EN 61310-3. Indication lights fitted to the machine shall comply with the requirements in EN 60204-1:2006, 10.3.2 and 10.3.3.

5.2.7.2 Loading product into the hopper

On machines where the hopper cannot be loaded without ergonomic risk from floor level, the manufacturer shall either provide a mechanism to load product into the hopper or a permanent means of access e.g. stairs and a platform complying with the requirements of EN ISO 14122-1, EN ISO 14122-2 and EN ISO 14122-3.

5.2.7.3 Feeding and removing containers

On machines where containers are fed to and/or removed from the depositor by hand, the design of the hand feeding area shall use the ergonomic design principles indicated in EN 1005-3 to minimize the risk of muscular skeletal injuries.

5.2.7.4 Product changes

Where change parts are used, their mass and location shall be carefully considered with reference to the EN 614 series. Where change parts have a mass greater than 25 kg provision shall be made for change parts to be lifted and positioned with lifting equipment. Where the mass of change parts is greater than 40 kg the manufacturer shall supply the necessary lifting equipment to move these parts with the machine.

The change parts that will be moved by lifting equipment shall be legibly, indelibly and unambiguously marked with their mass.

5.2.7.5 Cleaning the machine

The machine shall be designed so that the operator can reach all parts of the machine that need to be cleaned without risk. This may involve designing the machine so that it can be indexed to a position where cleaning can be carried out without the risk of injury or supplying permanent means of access where parts cannot be accessed from floor level.

5.2.7.6 Maintenance

The design of the machine shall minimize the risk of physical strain to maintenance personnel, e.g. by positioning heavy assemblies like drive motors in positions where they can be moved with standard lifting equipment.

5.2.7.7 Moving the machine

The manufacturer shall provide instructions in the instruction handbook on how to move the machine safely.

Where a machine is equipped with wheels and is intended to be moved by an operator, the manufacturer shall ensure that the machine can be moved without the need for a force greater than 250 N.

5.2.8 Requirements to prevent unexpected start-up or over-run

5.2.8.1 Control system

The control system shall be designed so that it does not start unexpectedly using the principles described in EN 1037. In particular the design of the control system shall prevent unexpected start-up under the following conditions:

5.2.8.1.1 Short-term interventions in machines with electronic drive systems

Where hazardous movement of machinery is controlled by servo, rectifier, inverter or similar electronic drive systems, the design of the safety related parts of the control system shall prevent unexpected start up during short-term interventions, e.g. the removal of damaged packs or materials during normal operation.

Where the safety related pulse blocking, monitoring or control functions are achieved with electrical or electronic control systems, they shall comply with performance level “d” of EN ISO 13849-1:2008.

The manufacturer shall ensure that the instruction handbook emphasizes that these methods of preventing the unexpected start-up of drives are only suitable for short duration machine interventions and are not a substitute for safe isolation procedures. The instructions shall state how these drives shall be isolated for other interventions, e.g. maintenance or cleaning.

5.2.8.1.2 Electromagnetic immunity

The control system shall have sufficient immunity from electromagnetic interference to enable the food depositor to operate safely in an industrial environment and not to fail to danger when exposed to both conducted and radiated electromagnetic interference.

NOTE Guidance on electromagnetic immunity can be found in EN 61000–6-2.

5.2.8.2 Dissipation of stored energy

5.2.8.2.1 General

Power supply isolation devices shall comply with and be labelled according to 5.2.8.3.

Parts of food depositors that contain fluids under pressure shall be designed to minimize the risk of releasing this pressure accidentally when stripping the machine during troubleshooting, cleaning or maintenance.

5.2.8.2.2 Stop controls

The normal stops and emergency stops shall be stops of category 0 or 1 as defined in EN 60204-1:2006, 9.2.2, or their equivalent where the controls are pneumatic or hydraulic.

Workstations of food depositors shall be equipped with a normal stop device in accordance with the requirements above, which can be accessed easily from the operating position which can stop all of the moving parts of the depositor and its container feeding system.

Food depositors shall be provided with an emergency stop button located on each control station. The emergency stop function and devices shall comply with EN ISO 13850.

5.2.8.3 Means of isolation of energy supplies

All food depositors shall be equipped with a readily identifiable and accessible means of isolation of all energy supplies which can be locked in the off position.

Compressed air isolation valves shall be clearly labelled to indicate their function and the method of operation of the valve.

5.2.9 Ability to stop machine in the best position

The machine shall be designed so that it can be stopped and isolated in a position where it is possible to clean the machine effectively without power being supplied to the machine.

5.2.10 Power supplies

The control system shall comply with EN 60204-1:2006, 7.5.

5.2.11 Safety related parts of control systems

Unless stated otherwise in this standard the following minimum requirements shall apply:

— Safety-related parts of control systems shall comply with at least performance level “c” of EN ISO 13849-1:2008.

— Electro-sensitive protective equipment (ESPE) shall conform with type 4 of EN 61496-1:2004 and shall be positioned in accordance with EN ISO 13855 to ensure that any hazardous movement has been stopped before the operator reaches the danger zone.

— Hydraulic and pneumatic two-hand controls shall comply with type III A, and electric/electronic two-hand controls shall comply with type III B of EN 574:1996+A1:2008. Two-hand-controls shall be positioned in accordance with EN ISO 13855.

5.2.12 Design to avoid fitting errors

The design of the machine shall minimize the risk of failures due to fitting errors by the operator, e.g. by designing parts that need to be dismantled for cleaning so that they can only be assembled in the correct orientation.

5.2.13 Stability of machines

5.2.13.1 Stability during operation

The machine shall be designed and constructed so that it is stable during normal use and foreseeable abnormal situations.

The manufacturer shall state in the instruction handbook if the machine shall be anchored to the floor or to another machine before use and give detailed information about the methods and means of anchorage.

On machines fitted with wheels, at least two wheels shall be fitted with locking devices to ensure that the machine does not move unexpectedly when it is in use. This requirement does not apply where the stability of the machine is achieved in another way, e.g. if the machine is fixed to the floor or another machine.

If it is foreseeable that someone will stand on the machine, the manufacturer shall design the machine or its fixings to ensure stability in this situation or design the machine in such a way that people are discouraged from standing on the machine, e.g. using curved rather than flat surfaces.

5.2.13.2 Stability while being moved

The manufacturer shall provide information in the instruction handbook on how to move the machine without the risk of it falling over.

Machines fitted with wheels shall be designed so that they are stable when they are placed on a 10° slope in any orientation with two wheels locked.

5.2.14 Requirements to prevent slipping, tripping and falling

The design of the machine shall minimize the risk of product spilling onto the floor or working platforms around the machine.

The machine design shall avoid assemblies that could be a tripping hazard.

Where reasonably practicable the design of the machine shall allow it to be operated, cleaned and maintained from floor level. If this is not reasonably practicable the manufacturer shall act as follows:

a) where a means of access is required for normal operation, cleaning or frequent maintenance of the machine the manufacturer shall provide a means for safe access with the machine;

b) where a means of access is required for infrequent tasks like the exchange of a drive motor or gearbox, the manufacturer shall specify the appropriate means of access in the instructions for use.

Permanent means of access to another level shall be selected in accordance with EN ISO 14122-1. Stairs, ladders or platforms that form this permanent means of access shall conform to EN ISO 14122-2 and EN ISO 14122-3.

5.2.15 Hygienic design requirements

5.2.15.1 General

Food depositors shall be designed in accordance with the requirements of EN 1672-2.

5.2.15.2 Food Area

The food area is as follows:

— the inside of the hopper and all other components containing or supporting the product, e.g. measuring chambers, dispensing valves, pipe work, conveyor belts;

— the interlocking guard safeguarding the hopper;

— the outside surfaces of the dispensing valve(s); and the product pipes which supply them where they are positioned above the product dispensing area;

— the outside surfaces of any components mounted over the area where the product is deposited;

— the outside surfaces of supporting frames mounted over the area where the product is deposited.

5.2.15.3 Splash Area

The splash area is as follows:

— the outside surface of the product hopper unless it is mounted over the area where the product is deposited (see above);

— supporting frames likely to be splashed by the product, but not in the food area.

5.2.15.4 Non-Food Area

The non-food area is any area not defined as either a food or splash area.

5.3 Safety requirements for a piston depositor

5.3.1 General

Piston depositors shall comply with the requirements of 5.2 as adapted and/or completed in this clause.

5.3.2 Hopper

Hoppers that give access to moving parts like stirrers or D-valves shall be equipped with interlocked guards that conform to the requirements of 5.2.2.1 as relevant.

On machines where the hopper can be dismantled for cleaning, the hopper fixings shall either be designed so that they can only be undone with tools or, if it is dismantled once a day or more often, interlocked so that moving parts cannot operate until the hopper is fixed correctly in place. The interlocking devices shall comply with 5.2.2.1.4.

On machines where the hopper cannot be loaded conveniently from floor level, the manufacturer shall either provide a mechanism to load product into the hopper, e.g. a product pump or elevator or a permanent means of access, e.g. stairs, and a platform complying with the requirements of EN ISO 14122-2 and EN ISO 14122-3.

5.3.3 D-valve

Access to the moving parts of the D-valve when it is moving under power shall be prevented in the following ways:

a) the valve actuator shall be fitted with fixed guards complying with 5.2.2.1.2 or be designed to eliminate crushing hazards using the methods in 5.2.2.1.1;

b) the connections to the hopper, product measuring chamber and product dispensing valve shall either be designed so that they can only be undone with tools, or be interlocked, so that moving parts cannot operate until the relevant parts are fixed correctly in place;

c) on machines that do not have a separate product dispensing valve, the rotary valve shall either operate with a two-hand control device complying with EN 574:1996+A1:2008, type II positioned in accordance with EN ISO 13855 or be fitted with interlocking guards complying with 5.2.2.1.

5.3.4 Product measuring chamber

The product measuring chamber shall be designed in accordance with 5.2.2.1.1 or guarded in accordance with 5.2.2.1 so that it is not possible to reach danger zones while the machine is in operation.

The connection between the product measuring chamber and the D-valve shall either be designed so that it can only be undone with tools, or be interlocked, so that moving parts cannot operate until the measuring chamber is connected to the D-valve.

5.3.5 Measuring chamber drive mechanism

The measuring chamber drive mechanism shall be fitted with fixed or interlocked guards complying with 5.2.2.1 or be designed to eliminate crushing hazards using 5.2.2.1.1.

5.3.6 Product dispensing valve

5.3.6.1 General

Where possible the product dispensing valve shall be designed so that the risk of injury either from the valve operating mechanism or from the valve when it closes is eliminated using the methods described in 5.2.2.1.1.

Where it is not possible to eliminate the risks from the product dispensing valve fully by design, the following hierarchy of measures shall be applied:

a) interlocked guards complying to 5.2.2.1 shall be fitted;

b) two hand controls conforming to EN 574:1996+A1:2008, type II shall be fitted and positioned in accordance with EN ISO 13855.

On machines where the product dispensing valve is attached to a rise and fall mechanism, the following hierarchy of measures shall apply:

c) the rise and fall mechanism shall be designed to eliminate hazards using the principles in 5.2.2.1.1;

d) interlocked guards complying to 5.2.2.1 shall be fitted to ensure that no hazardous movement takes place until the guards are closed;

e) two-hand controls conforming to EN 574:1996+A1:2008, type II positioned in accordance with EN ISO 13855 shall be fitted integrated into the control circuit in such a manner that hazardous movement can only take place when the two hand controls are both being actuated.

5.3.6.2 Cleaning mode

To ensure safety during cleaning or trouble shooting the machine shall be designed in such a way that the dispensing valve can be moved to the open position without the need to connect power to the machine.

5.3.6.3 Hand-held product dispensing valves

Where the product dispensing valve is held by the operator, the mass of the valve and its pipe work that shall be supported by the operator shall be minimized. In addition the design of the trigger and the forces needed to initiate the deposit shall minimize the risk of muscular skeletal injuries.

5.3.7 Container or product handling mechanisms

5.3.7.1 Conveyors

Conveyors shall comply with the relevant safety requirements of EN 619. Where fixed or interlocked guards are used to safeguard danger zones on conveyors they shall comply with 5.2.2.1.

5.3.7.2 Indexing mechanisms

Where indexing mechanisms cannot be made safe by design according to 5.2.2.1.1, they shall be safeguarded using fixed and interlocked guards complying with 5.2.2.1.

5.3.8 Product pump

Drive mechanisms of product pumps shall be protected with fixed or interlocking guards complying with 5.2.2.1.

Where quick release fixings, which can be undone without the use of tools, give access to danger zones like the pump impeller, an interlocking device as described in 5.2.2.1.4 shall be fitted which ensures that no hazardous movement can occur when the fixings are removed.

5.3.9 Product elevator

Product elevators shall be designed in accordance with relevant standards, e.g. EN 618 for screw conveyors and bucket conveyors, EN 619 for flat belt conveyors and EN 620 for trough belt conveyors.

5.4 Safety requirements for a chamber depositor

5.4.1 General

Chamber depositors shall comply with the requirements of 5.2 as adapted and/or completed in this clause.

5.4.2 Hopper

5.3.2 applies.

5.4.3 Product feeding mechanism

5.3.9 applies.

5.4.4 Product measuring chamber

The product measuring chamber shall be designed or guarded so that it is not possible to reach danger zones while the machine is in operation.

The discharge of the product measuring chamber shall be protected with interlocked guards complying with 5.2.2.1 that prevent access to the danger zones in the product measuring chamber using the reach distances indicated in EN ISO 13857:2008, Tables 3, 4 and 6.

5.4.5 Container or materials handling mechanisms

5.3.7 applies.

5.5 Safety requirements for a roller depositor

5.5.1 General

Roller depositors shall comply with the requirements of 5.2 as adapted and/or completed in this clause.

5.5.2 Hopper

5.3.2 applies.

5.5.3 Roller product feeder

The drive mechanism for the rollers shall be protected with fixed guards dimensioned according to 5.2.2.1.2. The roller mechanism shall be guarded with fixed and/or interlocked guards complying with 5.2.2.1.2.

5.5.4 Product extruding die

The product extruding die shall be designed so that it can be withdrawn, handled, cleaned and replaced without the risk of injury from excessive effort using the force limits in EN 1005-3.

Where removal of the product extruding die gives access to danger zones, the die shall either be interlocked with a device complying with 5.2.2.1.4 or fixed in place with fixings that can only be undone with tools.

On machines where there is a mechanism to move the die during extrusion, the following hierarchy of measures shall apply:

a) the mechanisms shall be designed to eliminate hazards as described in 5.2.2.1.1;

b) interlocked guards complying with 5.2.2.1 shall be fitted to ensure that no hazardous movement takes place until the guards are closed.

5.5.5 Product cutting device

On machines where there is a product cut-off mechanism, the following hierarchy of measures shall apply:

a) the mechanisms shall be designed to eliminate hazards according to 5.2.2.1.1;

b) interlocked guards complying with 5.2.2.1 shall be fitted to ensure that no hazardous movement takes place until the guards are closed.

5.5.6 Rise and fall mechanism

Where rise and fall mechanisms cannot be designed according to 5.2.2.1.1, they shall be safeguarded with interlocked guards complying with 5.2.2.1.

5.5.7 Tray feeding equipment

5.3.7 applies.

5.5.8 Conveyors

5.3.7 applies.

5.6 Safety requirements for a pump depositor

5.6.1 General

Pump depositors shall comply with the requirements of 5.2 as adapted and/or completed in this clause.

5.6.2 Hopper

5.3.2 applies.

5.6.3 Product pump

5.3.8 applies.

5.6.4 Manifold

5.2.4 applies where the external temperature of exposed parts of the manifold exceeds the burn thresholds described in EN ISO 13732-1.

5.6.5 Product dispensing valves

5.3.6 applies.

5.6.6 Rise and fall mechanism

Where mechanisms moving the manifold cannot be designed according to 5.2.2.1.1, they shall be safeguarded with interlocked guards complying with 5.2.2.1.

5.6.7 Container and materials handling equipment

5.3.7 applies.

5.7 Safety requirements for a screw depositor

5.7.1 General

Screw depositors shall comply with the requirements of 5.2 as adapted and/or completed in this clause.

5.7.2 Hopper

5.3.2 applies.

5.7.3 Screw

Access to the screw when it is moving under power shall be prevented in the following ways:

a) the screw drive mechanism shall be fitted with fixed or interlocked guards that comply with 5.2.2.1;

b) the connections to the hopper, product measuring chamber and product dispensing valve shall either be designed so that they can only be undone with tools, or be interlocked, so that moving parts cannot operate until all components are fixed correctly in place;

c) access to the screw via the hopper or the discharge of the screw shall be prevented with interlocking guards complying with 5.2.2.1.

5.7.4 Product measuring chamber

5.3.4 applies.

5.7.5 Product measuring chamber drive mechanism

5.3.5 applies.

5.7.6 Product dispensing valve

5.3.6 applies.

5.7.7 Container and materials handling mechanisms

5.3.7 applies.

6 Verification of the safety requirements and/or protective measures

6.1 Introduction

Compliance with the requirements of Clause 5 (and Clause 7) shall be verified with use of the methods contained in this clause. As far as the criteria for acceptance are not self-evident, they can be found in Clause 5 (and Clause 7) or are indicated in this clause.

Table 3 — Verification procedures for safety requirements identified in 5.2

Safety requirement	Visual inspection	Function test	Measurement	Design Verification
Requirements for all food depositors				
5.2.2.1.1	✓	✓	✓	✓
5.2.2.1.2	✓	✓	✓	✓
5.2.2.1.3			✓	✓
5.2.2.1.4	✓	✓		✓
5.2.2.2.1	✓	✓		✓
5.2.2.2.2	✓		✓	
5.2.2.2.3	✓	✓	✓	
5.2.2.3	✓	✓		✓
5.2.3.1.2	✓			✓
5.2.3.1.3	✓			✓
5.2.3.1.4	✓			✓
5.2.3.2		✓		✓
5.2.4		✓	✓	
5.2.5		✓	✓	
5.2.6.1	✓	✓	✓	✓
5.2.6.2	✓	✓		✓
5.2.7	✓	✓	✓	✓
5.2.8	✓	✓	✓	✓
5.2.9	✓	✓		
5.2.10	✓	✓		✓
5.2.11	✓	✓		✓
5.2.12	✓	✓		
5.2.13	✓	✓		
5.2.14	✓		✓	✓
5.2.15	✓	✓		✓

Table 4 — Verification procedures for safety requirements identified in 5.3–5.7

Safety requirement	Visual inspection	Function test	Measurement	Design Verification
Piston depositor				
5.3.2	✓	✓	✓	
5.3.3	✓	✓	✓	
5.3.4	✓	✓	✓	
5.3.5	✓	✓	✓	
5.3.6	✓	✓	✓	
5.3.7	✓		✓	✓
5.3.8	✓		✓	
5.3.9	✓		✓	✓
Chamber depositor				
5.4.2	✓	✓	✓	
5.4.3	✓		✓	
5.4.4	✓		✓	
5.4.5	✓		✓	
Roller depositor				
5.5.2	✓	✓	✓	
5.5.3	✓		✓	
5.5.4	✓			
5.5.5	✓		✓	
5.5.6	✓		✓	✓
5.5.7	✓		✓	✓
5.5.8	✓		✓	✓
Pump depositor				
5.6.2	✓	✓	✓	
5.6.3	✓		✓	
5.6.4	✓	✓	✓	✓
5.6.5	✓		✓	
5.6.6	✓		✓	
Screw depositor				
5.7.2	✓	✓	✓	
5.7.3	✓		✓	
5.7.4	✓		✓	
5.7.5	✓	✓	✓	

Safety requirement	Visual inspection	Function test	Measurement	Design Verification
5.7.6	✓	✓	✓	
5.7.7	✓		✓	

6.2 Visual inspections

6.2.1 Mechanical parts

Check that all mechanical components are securely fixed and all unnecessary sharp edges have been removed.

6.2.2 Guards

Check that all guards are in place and securely fixed.

6.3 Function tests

6.3.1 Interlocking and protection devices

Check the function of all interlocking and protection devices. Check that following the operation of a device, that all hazardous movements cease and that the machine does not restart without resetting the device and without an intentional start command.

6.3.2 Stopping functions

Check the functioning of all stop and emergency stop devices. Check that following the operation of an emergency stop that all hazardous movements cease and that the machine does not restart without resetting the emergency stop device and without an intentional start command.

6.4 Measurements

6.4.1 Measurements with machine stopped

6.4.1.1 Guards

Check the relationship between the size of any openings in the guards and their distance from the nearest danger zones conform to 5.2.2.1.2, 5.2.2.1.3 and 5.2.2.2.2.

6.4.1.2 Electrical testing

Electrical testing shall be carried out in accordance with EN 60204-1:2006, Clause 18.

The following tests shall always be performed for each individual machine when assembled and finished:

— continuity of the protective bonding circuit;

— insulation resistance test;

— voltage test;

— function test.

In addition, for the type of machine, protection against residual voltages shall – where applicable – be tested and it shall be verified that the electrical equipment is in compliance with the technical documentation.

6.4.2 Measurements with machine running

6.4.2.1 Noise emission

The measurement and declaration of noise emissions shall be carried out according to Annex A.

6.4.2.2 Temperature

With the machine fully warmed up, measure the temperature of touchable surfaces and follow the requirements of 5.2.4.

6.5 Design Verification

6.5.1 Guards

Check with the machine running that the guards conform to the safety requirements in Clause 5, e.g. prevent access to danger zones, contain emissions of hazardous substances and ejected products.

6.5.2 Pneumatic systems

Check all pneumatic components and pipe-work conform to safety requirements of EN ISO 4414 and are correctly installed.

6.5.3 Hydraulic systems

Check all hydraulic components and pipe-work conform to the safety requirements of EN ISO 4413 and are correctly installed.

6.5.4 Electrical equipment

Check that the electrical equipment and installation is in compliance with 5.2.3.

6.6 Hazardous product and cleaning material related requirements

Check that the design requirements for handling the products or cleaning materials in question have been followed.

7 Information for use

7.1 General

In addition to the requirements of EN ISO 12100:2010, Clause 6, the following information for use shall be provided by the manufacturer:

7.2 Signal and warning devices

Safety signs used on the machine shall comply with the principles of EN 61310-1:2008, Clause 7.

The prohibition sign “Do not reach in”, illustrated in Figure 12, shall be used in the circumstances described in 5.3.6.

Figure 12 — Prohibition symbol “Do not reach in”

The pictogram “Caution, hot surface”, illustrated in Figure 13, shall be used in the circumstances described in 5.2.4.

Figure 13 — Warning sign “Caution, hot surface”

7.3 Accompanying documents (in particular the instruction handbook)

In addition to the requirements of EN ISO 12100, the instruction handbook shall contain the following information.

a) an explanation of how the machine can be moved safely;

b) an indication of any special installation requirements to ensure that the machine is stable during operation, e.g. locking wheels or bolting feet to the floor;

c) explicit instructions on the adjustment of guards or fitting of change part guards so that the machine is safe to use following a product change;

d) a statement of all parts of the machine which are likely to be hot enough (as defined by EN ISO 13732-1) to cause burn injuries;

e) instructions for safe size changing and dismantling for cleaning including details of the mass of machine parts which shall regularly be removed for size changing or cleaning;

f) where the machine is designed for low risk food products, but could be used in error for high risk food products, a statement of this limitation of use, e.g. “This machine has been designed to process low-risk food products and may not be suitable for use with high-risk food products.”;

g) where there is a residual risk of products or liquids spilling onto the floor around the machine, a statement of the importance of removing these spills to avoid slip hazards;

h) an indication of how the machine should be cleaned and disinfected and the cleaning media to be used;

i) where the recommended cleaning medium is hazardous, the precautions to be taken by operators when handling this medium and the personal protection equipment that shall be worn;

j) a statement of any restrictions on cleaning techniques, e.g. “The electrical enclosures are protected to IP65 and so the machine should only be cleaned using low pressure water.”;

k) where infrequent access is required to parts of the machine (see 5.2.14) an explanation of how this can be done safely without the risk of slipping, tripping and falling;

l) a noise emission declaration providing:

   1) the A-weighted emission sound pressure level at the operator position as measured according to Annex A, where this exceeds 70 dB(A); where this level does not exceed 70 dB(A), this fact shall be indicated;

   2) additionally give the A-weighted sound power level emitted by the machinery as determined according to Annex A, where the A-weighted emission sound pressure level at the operator position exceeds 80 dB(A);

m) instructions for making the machine safe for interventions including disconnection of all power supplies, methods of preventing reconnection to power supplies, neutralizing stored energy and testing methods to verify that the machine is in a safe state;

n) the operating method to be followed to enable the equipment to be safely unblocked after a product blockage;

o) the specifications of the spare parts to be used, when these affect the health and safety of operators.

7.4 Marking

Machines shall be marked visibly, legibly and indelibly with the following information:

a) the business name and full address of the manufacturer and where applicable his authorized representative;

b) designation of the machinery;

c) the mandatory marking[1)];

d) designation of series or type;

e) serial number (if any);

f) the year of construction, that is the year in which the manufacturing process is completed;

g) rating information;

h) electrical markings as indicated in EN 60204-1:2006, Clause 16.

The machine parts that are intended to be moved by lifting equipment shall be legibly, indelibly and unambiguously marked with their mass.

1) For machines and their related products intended to be put on the market in the EEA, CE-marking as defined in the applicable European Directive(s), e.g. Machinery.

Annex A
(normative)

Noise test code

A.1 Scope

These rules for the noise determination and declaration of noise emission values are applicable to food depositors in the scope of this standard.

A.2 Terms and definitions

See EN ISO 12001:2009, Clause 3, for terms and definitions.

A.2.1

work cycle

single cycle of the measuring chamber of the dispensing valve

A.3 Determination of emission sound pressure level

The A-weighted emission sound pressure level at the workstation shall preferably be determined according to EN ISO 11201:2010 grade 2 or EN ISO 11202:2010 grade 2. Only in cases where it is not possible to comply with the requirements of a grade 2 measurement method EN ISO 11202:2010 grade 3 may be applied, explicitly explaining the reasons why it was not possible to apply a grade 2-method.

The measuring time for determination of the emission sound pressure level shall be 30 s and during a minimum of 5 cycles.

For food depositors with fixed operator positions, the measurement shall be carried out at the usual position of the operator without the operator being present. The microphone shall be positioned at a height of 1,55 m ± 0,075m above the reflecting floor if the machine is operated standing up and at a height of 0,80 m ± 0,05 m above the middle of the seat plane if the machine is operated sitting down.

The manufacturer shall define the work station of the machine with a drawing showing a plan view of the machine, the position of the microphone during the noise emission measurement and normal position for the machine operator.

A.4 Sound power level determination

The A-weighted sound power level shall be determined according to EN ISO 3744 by using the parallelepiped measurement surface with a distance of 1 m from the reference box.

In cases where it is not possible to comply with the requirements of a grade 2-measurement method EN ISO 3746 may be applied, explicitly explaining the reasons why it was not possible to apply a grade 2-method.

The measurement time for measuring at each measurement position shall be the same as for the determination of the emission sound pressure level.

A.5 Installation and mounting conditions

The installation and mounting conditions shall be identical for the determination of both sound power level and emission sound pressure level at specified positions and for declaration purposes.

Care shall be taken to ensure that any electrical conduits, piping or air ducts which are connected to the machine do not radiate significant amounts of sound energy.

For the purpose of measurements, the machine shall be installed on a sound reflecting plane either outside (e.g. a parking space) or in a room providing for the necessary free field above the reflecting plane.

The test environment shall meet the requirements specified in the measurement methods indicated either in A.3 or in A.4, whichever is applicable.

A.6 Operating conditions

The operating conditions shall be the same for the determination of the sound power level and of the emission sound pressure level at specified positions.

Measurements shall be taken while idling (running empty) and running under full load with the product for which the machine has been specified. In situations where this is not possible, e.g. because the product is frozen, the machine shall be tested with a representative product that is likely to produce similar noise emission to the specified product.

The specification of product used in the noise test shall to be described.

The machine shall run with maximum speed or number of revolutions.

A.7 Measurement uncertainties

The total measurement uncertainty of the emission sound pressure level determined according to this standard is depending on the standard deviation σ_{R0} given by the applied noise emission measurement method and the uncertainty associated with the instability of the operating and mounting conditions σ_{omc}. The resulting total uncertainty is then calculated from

$$\sigma_{tot} = \sqrt{\sigma_{R0}^2 + \sigma_{omc}^2}$$

The upper bound value of σ_{R0} is about 1,5 dB for grade 2-measurement methods and 3 dB for grade 3-ones, respectively.

NOTE 1 For food depositors with a rather stable noise emission a value of 0,5 dB is expected for σ_{omc} for the proposed operating condition for measurement. In case of a unstable operation 2 dB or even 4 dB can be expected.

NOTE 2 σ_{tot} is referred to as σ_R in EN ISO 4871:2009.

The expanded measurement uncertainty U, in decibels, shall be calculated from $U = k \cdot \sigma_{tot}$, with k the coverage factor.

The expanded measurement uncertainty U depends on the degree of confidence that is desired. For the purpose of comparing the result with a limit value, it is appropriate to apply the coverage factor for a one-sided normal distribution. In that case, the coverage factor k = 1,6 corresponds to a 95 % confidence level. Further information is given in EN ISO 4871. Please note that the expanded measurement uncertainty U is referred to as K in EN ISO 4871:2009.

A.8 Information to be recorded

The information to be recorded includes all the technical requirements laid down in this noise test code and shall comply with the requirements either the standards mentioned in A.3 or A.4, whichever is applicable. The information to be included in the test report is at least that which the manufacturer requires to prepare a noise declaration or the user requires to verify the declared values.

A.9 Information to be reported

The information given in the noise declaration shall refer to the requirements of the manufacturer for noise declaration or of the user for verifying the declared values.

The following minimum of information shall be given:

a) identification of the manufacturer, machine type, machine model, serial number and year of manufacture;

b) reference to the basic noise emission standards applied;

c) description of installation and operating conditions; the type of product used during noise measurement;

d) description of microphone positions;

e) determined emission values;

f) location of work stations and other specified positions;

g) confirmation that all requirements of this noise test code have been fulfilled, or, if this is not the case, any unfulfilled requirements shall be identified. All unfulfilled requirements shall be specified; deviations from requirements shall be stated and technical reasons shall be given.

A.10 Declaration and verification of noise emission values

The declaration of the noise emission values shall be made as a dual number noise emission declaration according to EN ISO 4871. It shall declare the emissions sound pressure level L_{pA} and if additionally required the sound power level L_{WA} and the respective uncertainties K_{pA} and K_{WA}.

The noise emission value shall be rounded to the nearest decibel.

The noise emission declaration shall explicitly state that the emission values have been measured according to the specification of this noise test code as well as to the applied basic standards mentioned in A.3 or A.4, respectively. If this statement is not true, the noise declaration shall indicate clearly what the deviations are from this noise test code and/or from the basic standards.

If undertaken, verification shall be done according to EN ISO 4871 by using the same mounting, installation and operating conditions as those used for the initial determination of noise emission values.

The above information shall be given in the instructions of use as well as in the sales documentation.

The noise emission declaration according to EN ISO 4871:2009, Annex B.2, can be given as a table as follows:

Table A.1 — Noise emission declaration (the values in this table are examples)

Food depositor		
Identification of the manufacturer, machine type, machine model, serial number and year of manufacture		
Description of installation and operating conditions; the type of product used during noise measurement		
Description of microphone positions		
Location of work stations and other specified positions		
Confirmation that all requirements of this noise test code have been fulfilled, or, if this is not the case, any unfulfilled requirements shall be identified. All unfulfilled requirements shall be specified; deviations from requirements shall be stated and technical reasons shall be given.		
Declared dual number noise emission values in accordance with EN ISO 4871		
	load	idling
Measured A-weighted emission sound pressure level L_{pA} (ref. 20 µPa) at the operator's position in dB	92	89
Uncertainty K_{pA} in dB	3	3
Measured A-weighted sound power level L_{WA} (ref. 1 pW) in dB	97	95
Uncertainty K_{WA} in dB	3	3
Values determined according to EN ISO 11204 and EN ISO 3744		
NOTE The sum of a measured noise emission value and its associated uncertainty represents an upper boundary of the range of values which is likely to occur in measurements.		

NOTE Additional noise emission values can be given in the declaration.

Annex B
(informative)

Correlation between Clauses 4, 5 and 7

Table B.1 — Correlation between Clauses 4, 5 and 7

Clause 4 Reference	Hazard	Safety Requirement (Clause 5)	Information for Use (Clause 7)
General Food Depositor Hazards			
4.2.2	Mechanical hazards	5.2.2	7.3
4.2.2.1	Moving parts	5.2.2.1	7.2 and 7.3
4.2.2.2	Risks that may arise from hygienic design features	5.2.2.2	7.3
4.2.2.2.1	Use of quick release fixings	5.2.2.2.1	7.3
4.2.2.2.2	Cleaning under machines	5.2.2.2.2	7.3
4.2.2.2.3	Spillage trays	5.2.2.2.3	7.3
4.2.2.3	High pressure fluid injection or ejection hazards	5.2.2.3	7.3
4.2.3	Electrical hazards	5.2.3	7.3 and 7.4
4.2.4	Thermal hazards	5.2.4	7.2 and 7.3
4.2.5	Noise	5.2.5	7.3 and 7.4
4.2.6	Hazards generated by materials and substances	5.2.6	7.3
4.2.7	Hazards due to neglecting ergonomic principles in machinery design	5.2.7	7.3
4.2.8	Unexpected start-up or unexpected overrun	5.2.8	7.3
4.2.9	Impossibility of stopping machine in the best possible conditions	5.2.9	7.3
4.2.10	Failure of power supplies	5.2.10	7.3
4.2.11	Hazards during significant interventions	5.2.11	7.2 and 7.3
4.2.12	Errors of fitting	5.2.12	7.3 and 7.4
4.2.13	Loss of stability	5.2.13	7.3 and 7.4
4.2.14	Slip, trip and fall hazards resulting from the design of the machine	5.2.14	7.3
4.2.15	Hygienic design hazards	5.2.15	7.3
Piston Depositor Hazards			
4.3.2	Hopper	5.3.2	7.3

Clause 4 Reference	Hazard	Safety Requirement (Clause 5)	Information for Use (Clause 7)
4.3.3	D-Valve	5.3.3	7.3
4.3.4	Product measuring chamber	5.3.4	7.3
4.3.5	Measuring chamber drive mechanism	5.3.5	7.3
4.3.6	Product dispensing valve	5.3.6	7.2 and 7.3
4.3.7.1	Conveyors	5.3.7.1	7.3
4.3.7.2	Indexing mechanisms	5.3.7.2	7.3
4.3.8	Product pump	5.3.8	7.3
4.3.9	Product elevator	5.3.9	7.3
Chamber Depositor Hazards			
4.4.2	Hopper	5.3.2	7.3
4.4.3	Product feeding mechanism	5.3.9	7.3
4.4.4	Product measuring chamber	5.4.4	7.2 and 7.3
4.4.5	Container handling mechanisms	5.3.7	7.3
Roller Depositor Hazards			
4.5.2	Hopper	5.3.2	7.3
4.5.3	Roller product feeder	5.5.3	7.3
4.5.4	Product extruding die	5.5.4	7.3 and 7.4
4.5.5	Product cutting device	5.5.5	7.3 and 7.4
4.5.6	Rise and fall mechanism	5.5.6	7.3
4.5.7	Tray feeding equipment	5.3.7	7.3
4.5.8	Conveyors	5.3.7	7.3
Pump Depositor Hazards			
4.6.2	Hopper	5.3.2	7.3
4.6.3	Product pump	5.3.8	7.3
4.6.4	Manifold	5.6.4	7.2 and 7.3
4.6.4	Product dispensing valves	5.3.6	7.2 and 7.3
4.6.5	Rise and fall mechanism	5.6.5	7.3
4.6.6	Container and materials handling equipment	5.3.7	7.3
Screw Depositor Hazards			
4.7.2	Hopper	5.3.2	7.3
4.7.3	Screw	5.7.3	7.3
4.7.4	Product measuring chamber	5.3.4	7.3
4.7.5	Measuring chamber drive mechanism	5.3.5	7.3
4.7.6	Product dispensing valve	5.3.6	7.2 and 7.3

Clause 4 Reference	Hazard	Safety Requirement (Clause 5)	Information for Use (Clause 7)
4.7.7	Container and materials handling equipment	5.3.7	7.3

Annex ZA
(informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC on Machinery

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 2006/42/EC on machinery.

Once this standard is cited in the Official Journal of the European Union under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with the relevant Essential Requirements of that Directive and associated EFTA regulations.

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

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