Draft for Public Comment

Form 36

DPC: 22/30451278 DC

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Date: 24 November 2022
Origin: European

Latest date for receipt of comments: 17 January 2023

Project No. 2022/00192

Responsible committee: AGE/6 Agricultural tractors and forestry machinery

Interested committees:

Title: Draft BS EN 17923 Equipment for vine cultivation and wine making - Safety - Must and grape harvest pumps.

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx

1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex **(e.g. 3.1)**	Paragraph/ Figure/Table/Note	**Type of comment**	**Commend (justification for change) by the MB**	**Proposed change by the MB**	**Secretariat observations on each comment submitted**
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 17923

November 2022

ICS 65.060.60

English Version

Equipment for vine cultivation and wine making - Safety - Must and grape harvest pumps

Matériel viti-vinicole - Sécurité - Pompes à vendange

Geräte für den Weinbau und die Weinherstellung - Sicherheit - Maische-, Most- und Wein-Pumpen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 144.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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European foreword

This document (prEN 17923:2022) has been prepared by Technical Committee CEN/TC 144 “Tractors and machinery for agriculture and forestry”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

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Introduction

This document is a type-C standard as stated in EN ISO 12100:2010.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

— machine manufacturers (small, medium and large enterprises);

— health and safety bodies (regulators, accident prevention organizations, market surveillance etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

— machine users/employers (small, medium and large enterprises);

— machine users/employees (e.g. trade unions, organizations for people with special needs);

— service providers, e.g. for maintenance (small, medium and large enterprises);

— consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate in the drafting process of this document.

The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the Scope of this document. These hazards are specific to must and grape harvest pumps.

When requirements of this type-C standard are different from those which are stated in type-A or type-B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

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1 Scope

This document specifies the safety requirements for the design of must and grape harvest pumps and the means for verifying these requirements and gives information for the safe use of the machines covered.

This document applies to must and grape harvest pumps, as defined in 3.1, intended for the transfer of fresh, de-stemmed grapes and pomace.

This document deals with all significant hazards, hazardous situations or hazardous events relevant to grape harvest pumps, when it is used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer, specified in Annex B.

This document does not deal with hazardous phenomena associated with the integration of grape harvest pumps with other machinery.

This document does not give additional requirements for operations subject to special rules (e.g. explosive atmosphere, power supply from electrical networks where the voltage, frequency and tolerance differ from those of the public network).

This document is not applicable to:

— adaptations intended for other fruit harvests;

— pumps for building materials (covered by EN 12001 [1]);

— pumps on grape harvesters;

— reception conquests;

— machines upstream or downstream of the pump.

This document is not applicable to grape harvest pumps manufactured before the date of its publication.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 614-1:2006+A1:2009, *Safety of machinery - Ergonomic design principles - Part 1: Terminology and general principles*

EN 620:2021, *Continuous handling equipment and systems - Safety requirements for fixed belt conveyors for bulk materials*

EN 894-1:1997+A1:2008, *Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 1: General principles for human interactions with displays and control actuators*

EN 894-2:1997+A1:2008, *Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 2: Displays*

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EN 894-3:2000+A1:2008, *Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 3: Control actuators*

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

EN ISO 13732-1:2008, *Ergonomics of the thermal environment - Methods for the assessment of human responses to contact with surfaces - Part 1: Hot surfaces (ISO 13732-1:2006)*

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

EN ISO 13850:2015, *Safety of machinery - Emergency stop function - Principles for design (ISO 13850:2015)*

EN ISO 13856-2:2013, *Safety of machinery - Pressure-sensitive protective devices - Part 2: General principles for design and testing of pressure-sensitive edges and pressure-sensitive bars (ISO 13856-2:2013)*

EN ISO 13857:2019, *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2019)*

EN ISO 14118:2018, *Safety of machinery - Prevention of unexpected start-up (ISO 14118:2017)*

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

EN ISO 14120:2015, *Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards (ISO 14120:2015)*

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 4254-1:2015, *Agricultural machinery - Safety - Part 1: General requirements (ISO 4254-1:2013)*

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

EN ISO 7010:2012/A6:2016, *Graphical symbols - Safety colours and safety signs - Registered safety signs - Amendment 6 (ISO 7010:2011/Amd 6:2014)*

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IEC 60204-1:2016+AMD1:2021, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements*

IEC 60529:1989+AMD1:1999+AMD2:2013,[1] *Degrees of protection provided by enclosures (IP Code)*

ISO 11684:1995, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Safety signs and hazard pictorials — General principles*

ISO 15077:2020, *Tractors and self-propelled machinery for agriculture — Operator controls — Actuating forces, displacement, location and method of operation*

ISO 22883:2004, *Castors and wheels — Requirements for applications up to 1,1 m/s (4 km/h)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

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

3.1
must and grape harvest
grape harvest
product resulting from the harvesting of grapes intended for wine production, which may be heated for oenological purposes and is presented in one of the following forms: - full ; - pressed and / or scratched;- drained;solid fermented (pomace for 3.5)

3.2
must and grape harvest pump
grape harvest pump
movable, stationary machine designed to transfer the *must and grape harvest* (3.1) by piping and consisting of transfer/feeding elements (e.g. an auger driven by a motor and a volumetric pump)

Note 1 to entry: Figure A.1 illustrates an example of a must and grape harvest pump.

Note 2 to entry: If the harvest is fermented solid (devatting marc), the machine is generally called a “marc pump”.

Note 3 to entry: Feeding can be manual, by an upstream machine or by an integrated belt conveyor.

Note 4 to entry: Examples of the use of grape harvest pumps are illustrated in Annex A.

[1] As impacted by IEC 60529:1989/COR2:2015.

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3.3
reception
operation consisting in pouring the entire must and grape harvest directly into the hopper of the *must and grape harvest pump (3.2)*

Note 1 to entry: An illustration of the reception application is shown in Figure A.2.

3.4
grape harvest transfer
operation consisting in moving the must and grape harvest (3.1) between two stages of vinification

EXAMPLE transfer between the *destemmer* (3.6) and the press or between the *destemmer* (3.6) and the vat.

Note 1 to entry: An illustration of the transfer application is shown in Figure A.3.

3.5
devatting
removal of the grape pomace from the fermentation tanks

Note 1 to entry: An illustration of the devatting application is shown in Figure A.4.

3.6
destemmer
machine that removes the berries from the bunch of grapes

4 Safety requirements and/or protective/risk reduction measures

4.1 General

Machinery shall comply with the safety requirements and/or protective/risk reduction measures of this clause. In addition, the machine shall be designed according to the principles of EN ISO 12100:2010 for relevant but not significant hazards which are not dealt with by this document.

The design shall take account of the internal oscillations which may cause damage to control devices and protective devices and the need to provide devices to immobilise the machinery (brakes or chocks).

4.2 Requirements common to all machines

4.2.1 Hazardous electrical phenomena

Electrical installations shall comply with IEC 60204-1:2016+AMD1:2021.

The degree of protection of electrical installations shall be at least IP 55 according to IEC 60529:1989+AMD1:1999+AMD2:2013[2].

[2] As impacted by IEC 60529:1989/COR2:2015.

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4.2.2 Switching on

4.2.2.1 Service bodies

The design and spacing of the controls shall allow unimpeded operation and unintentional actuation of other controls in accordance with ISO 15077:2020. The expected results/effects of actions on the activation controls shall be specified (see ISO 15077:2020, 4.1.1), e.g. through the use of markings near the controls.

Where a control device is designed and constructed to allow several different actions, i.e. its action may be ambiguous, the action ordered shall be displayed in clear text and, if necessary, confirmed.

The location of the operating elements shall be such that the operator has a direct view of the working parts of the machine.

A power-on indicator light shall be provided on the control panel and, if applicable, on the remote control box.

4.2.2.2 Protection against unintentional operation

The switch-on control shall be designed to prevent unintentional operation, e.g. several movements required to operate the control, a screen on the control, a button with collar.

4.2.2.3 Protection against unintentional switching on (lockout)

Control devices shall comply with EN ISO 14118:2018.

Restarting under operating conditions can be achieved by the voluntary actuation of a device other than the normal starting device, placed so that the hopper is visible from the control station.

4.2.3 Emergency stop device

Each control station of the machine shall be equipped with an emergency stop device. Emergency stop devices shall comply with EN ISO 13850:2015.

The emergency stop device shall be of category 0.

4.2.4 Remote control

If a remote control box is supplied with the machine, it shall be wired and its design shall be such that the operator has a direct view of the working parts of the machine.

The remote control units shall be regarded as control stations of the machine and comply with the requirements of 4.2.1.

If there are several control units on the machine, a function (e.g. start, stop, opening) shall only be operated from one control unit at a time. It shall be possible to change the priority from one control unit to another.

The control system shall comply with EN ISO 13849-1:2015, performance level c.

4.2.5 Ergonomics

The general principles and requirements of EN 614-1:2006+A1:2009, EN 894-1:1997+A1:2008, EN 894-2:1997+A1:2008 and EN 894-3:2000+A1:2008 shall be used for ergonomic aspects.

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Gripping handles shall be provided on the machine to facilitate movement while limiting postural constraints. These handles shall be positioned at a height of between 0,75 m and 1,10 m from the ground.

When moving, the structure shall not hinder the movements of the operator's lower limbs.

The handling of the guards shall be taken into account during the design, in particular by limiting the mass of the parts to be handled to 25 kg and by equipping them with gripping means.

4.2.6 Stability in use and storage

The machinery shall be designed to be stable as specified in EN ISO 4254-1:2015, 6.2.1.1 and 6.2.1.3.

Functional test shall be carried out in accordance with F.2.

Machinery fitted with wheels for manual displacement/travelling shall be designed in such a way as to prevent overturning.

Functional test shall be carried out in accordance with F.3.

The wheel set shall support the maximum working load of the machine. Wheels shall be selected and tested in accordance with ISO 22883:2004.

A locking system shall be able to keep the machine stationary when in use or when travelling on an 8,5° slope.

4.2.7 Moving the machine

The pump shall be able to be moved and positioned by one person.

If the machine is to be lifted by lifting gear, then means shall be provided to ensure that the machine is held in place and to prevent it from tipping over (e.g. sleeves).

If the machine stands on wheels, it shall pass the displacement test described in F3.

4.2.8 Prevention of contact of lower limbs with moving parts involved in the working process

4.2.8.1 General

The machine shall be equipped with a guard allowing a fluid circulation of the harvest avoiding blockages.

Fixed and movable guards shall comply with EN ISO 14120:2015, except Annexes B and C, which are not relevant.

Interlocking guard with or without guard locking shall comply with EN ISO 14119:2013.

For the hopper, a special tool supplied with the machine shall be required to disassemble the fixed guard.

If the guard can be dismantled or moved, it shall be combined with a locking device. The rotation of the worm screw shall be controlled by the guard locking device, so that opening the guard stops the screw movement within 0,5 s. The control system performing the stop function in connection with the locking device shall meet Performance Level *c*, in accordance with EN ISO 13849-1:2015.

Closing the removable or moveable guard shall not cause the grape harvest pump to be restarted.

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For removable or movable guards, a device shall prevent the operation of the machine when the configuration is not that intended for the guard, e.g. by means of a key transfer system as described in EN ISO 14119:2013, B.2.

For machines intended for devatting, the guard shall comply with 4.2.8.2.

For machines intended for use under an upstream machine (e.g. a grape harvesting skip, de-stemmer, rammer or de-stemmer-rammer), the guard shall comply with 4.2.8.3.

For machines intended for use in manual grape harvest reception, the guard shall comply with 4.2.8.4.

4.2.8.2 Special case of machines for devatting

4.2.8.2.1 Machines for feeding at height < 500 mm

In order to feed the hopper of the grape harvest pump below 500 mm from the ground, an additional device, either integrated or independent (see Figure 1), is required to transport the product to the hopper.

When the additional device is integrated in the pump, if this device is a belt conveyor, it shall comply with EN 620:2021. See example in Figure 1.

The openings and safety distances of the grape harvest pump guards shall comply with EN ISO 13857:2019, Table 7.

If there is a conveyor belt, the pump shall be provided with points for connection to the water system for routine cleaning of the conveyor belt. The drain holes can fulfil this function.

For machines fed by an independent conveyor, 4.2.8.3 shall be complied with.

In addition to EN 620:2021, the conveyors shall be designed for quick (less than 1 min) and easy (without tools) dismantling for easy cleaning. Splashes and liquid leaks shall be prevented by means of extensions or drains.

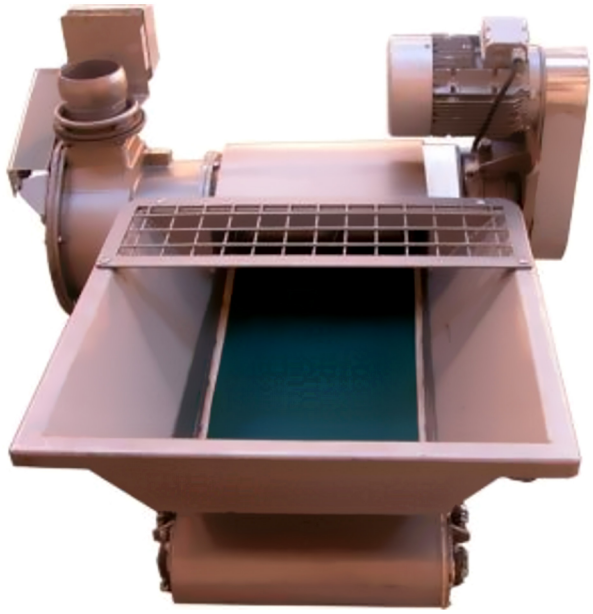

Figure 1 — Example of a pump in devatting application with conveyor belt

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4.2.8.2.2 Machines for feeding at height ≥ 500 mm

The machinery shall be designed to prevent contact with the moving parts involved in the working process, without preventing the passage of material. This requirement is considered to be satisfied if:

— 4.2.8.1 is complied with, or

— the entire filling opening of the hopper is equipped with a multi-part, multi-level guard with:

  — an opening (*x*) for the passage of the product, which shall be greater than 120 mm, and

  — a direct-access guard with openings (*y*) not less than the dimensions shown in Table 1, and

  — an overlap (*z)* between the two parts so as to prevent direct access to the danger zone, for example, by a baffle guard, as shown in Figure 2, or

  — any other preventive or protective measure which provides at least equivalent protection.

NOTE When devatting, it is possible that an overhang constitutes an obstacle to access to the vat.

In addition, it is permitted that the machine is equipped with equipment to facilitate the flow of material, e.g. vibrator.

Table 1 — Dimensions of guard openings

Guard (bars), unidirectional type	
a	*h*
mm	*mm*
= 60	≥ 180
a = bars spacing, in mm (see Figure 2) *h* = minimum permissible distance between the outer path of the movable transfer elements (screw) and the guard, in mm (see Figure 2)	
These spacings between bars or mesh widths are the best compromise between safety and the performance required for the passage of the harvest (smaller spacing can retain large materials).	

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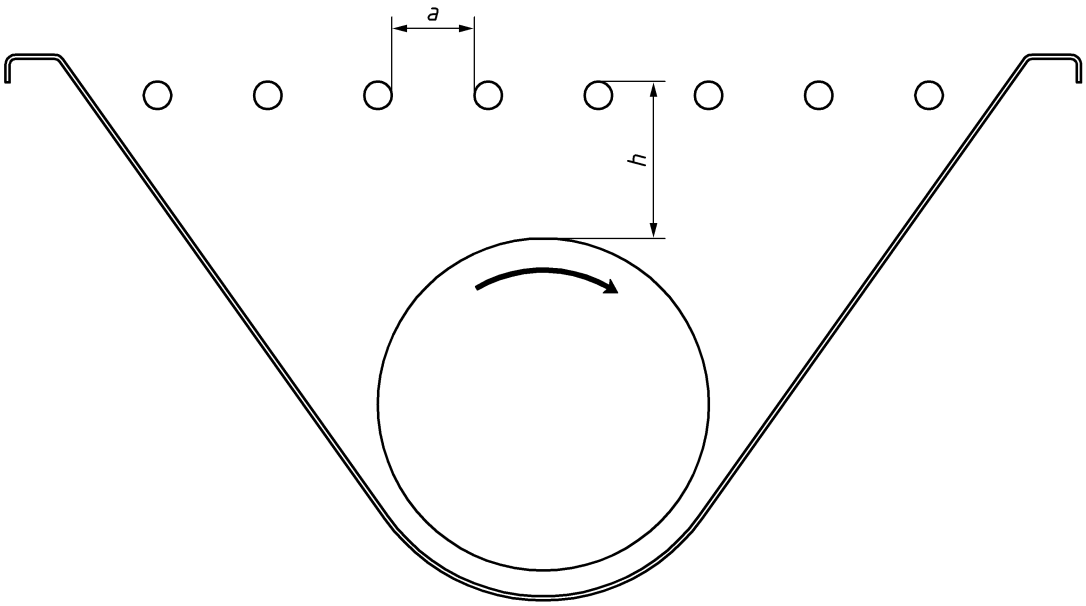

Key

a maximum permissible bar spacing

h minimum permissible spacing between the external path of the moving transfer elements (worm gear) and the safety guard

Figure 2 — Guard (bars), unidirectional type

For manually fed machines, the openings and safety clearances of guards with indirect access as shown in Figure 3 shall be tested with the foot probe as described in Annex E.

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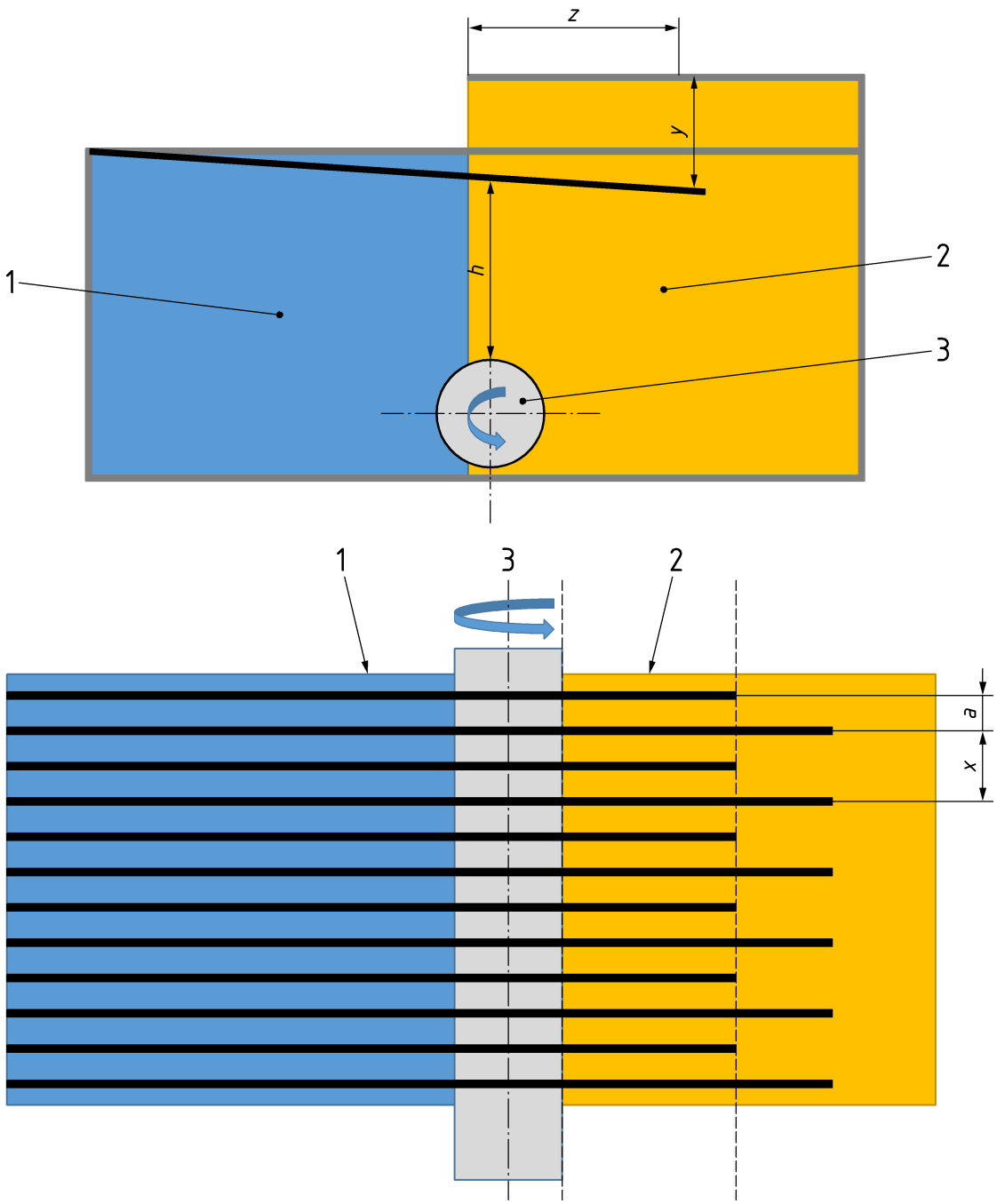

Key

1 area of the direct access guard (blue zone)

2 area of the baffle (yellow zone)

3 worm screw

a maximum permissible bar spacing

h minimum permissible spacing between the external path of the moving transfer elements (worm gear) and the safety guard

x opening for the passage of the product

y opening of the direct-access guard

z overlap area of the baffle

Figure 3 — Example of baffle protection

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