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Agricultural machinery — Safety —

Part 11: Pick-up balers

AMENDMENT 1

Matériel agricole — Sécurité —

Partie 11: Ramasseuses-presses

AMENDEMENT 1

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This document was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 7, *Equipment for harvesting and conservation*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 144, *Tractors and machinery for agriculture and forestry*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 4254 series can be found on the ISO website.

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Agricultural machinery — Safety —

Part 11: Pick-up balers

AMENDMENT 1

Scope, first paragraph

Replace the first sentence with the following.

> This document, intended to be used together with ISO 4254-1, specifies the safety requirements and their verification for the design and construction of self-propelled and trailed pick-up balers, including when combined with bale wrappers, used in agriculture for pressing of material (such as forage, feedstock, straw), independent of the shape or size of the bales formed.

Second paragraph

Move the second paragraph just after the NOTE as new fourth paragraph.

Third paragraph

Replace the present text with the following.

> This document, taken together with ISO 4254-1, deals with all the significant hazards (as listed in Table 1), hazardous situations and events relevant to self-propelled and trailed pick-up balers and for balers when combined with bale wrappers, when they are used as intended and under the conditions of misuse that are reasonably foreseeable by the manufacturer (see Clause 4).

NOTE

Number the current NOTE as NOTE 1 and add the following as NOTE 2:

> NOTE 2 Pick-up balers with integrated bale wrappers are covered in this document, with the exception of the wrapping functions, which are covered in ISO 4254-14. Bale wrappers and the wrapping function of bale wrappers combined with pick-up balers, are covered in ISO 4254-14.

Normative references

Add the following after ISO 4254-1:

> ISO 4254-14:2016, *Agricultural machinery — Safety — Part 14: Bale wrappers*
>
> ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

Terms and definitions

Replace the present text by the following.

For the purposes of this document, the terms and definitions given in ISO 12100, ISO 4254-1 and the following apply.

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

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

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

3.1
pick-up
device to lift up the material (for example, forage, feedstock, straw) from the ground and move it to the successive elements (for example, bale chamber, feeding elements)

Note 1 to entry It may include assisting elements.

Note 2 to entry See Figure 3a as an example.

3.2
feeding element

device between the pick-up and the bale chamber that transfers the material from the pick-up to the bale chamber (for example, stuffer, rotor)

Note 1 to entry It may convey the material towards the centre or the side of the machine (for example, auger).

5.1

Add the following text as 5.1.4:

5.1.4 The most effective way to avoid risks related to blockages is to remove the risk by introducing design requirements to ensure that no interruption in crop flow takes place. However, until such measures can be specified and demonstrated to be effective by practical experience and data, Clause 5 shall be complied with.

NOTE While deviation from Clause 5 is possible, the manufacturer becomes responsible for the associated risk assessment and the design specification which would be outside the scope of this document.

5.2.3

Replace the present text with the following:

5.2.3.1 Crushing and shearing points located at a distance of less than 550 mm from the outer limit of the machine shall be guarded against inadvertent contact in accordance with ISO 13857. For guarding of elements to convey the crop laterally see 5.2.3.2.

Add the following text as the new 5.2.3.2 and renumber the present 5.2.3.2 as a new 5.2.3.3:

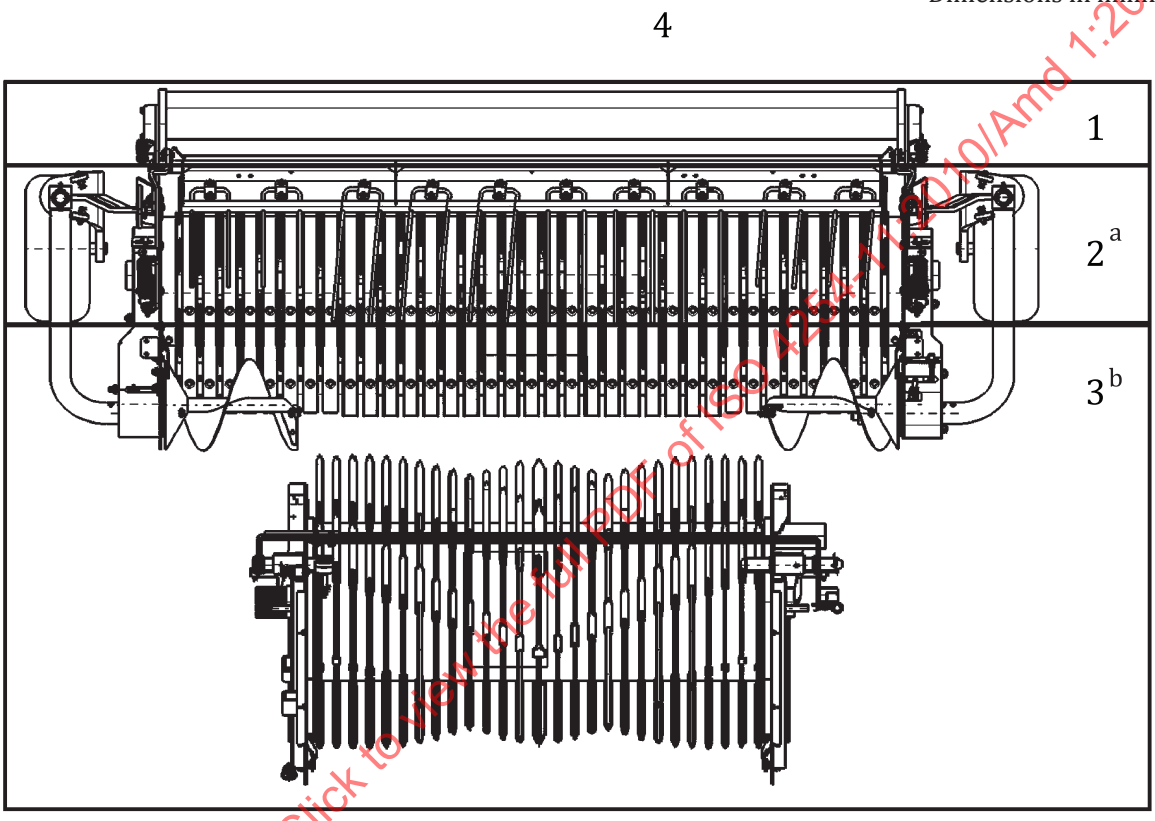
5.2.3.2 In case the elements to convey the crop laterally are designed as augers, the guard above the auger shall extend forward from the rear of the auger to at least the longitudinal axis of the auger as shown in Figure 3 c). Devices other than augers shall be guarded on top in a comparable manner to meet the requirements as specified in ISO 13857.

5.2.3.3 A lateral fixed guard partially covering the auger and a distance barrier, in combination with barriers as defined in 5.2.2.1, are deemed to meet the requirements of 5.2.3.2 when the dimensions of Figure 3 c) are respected.

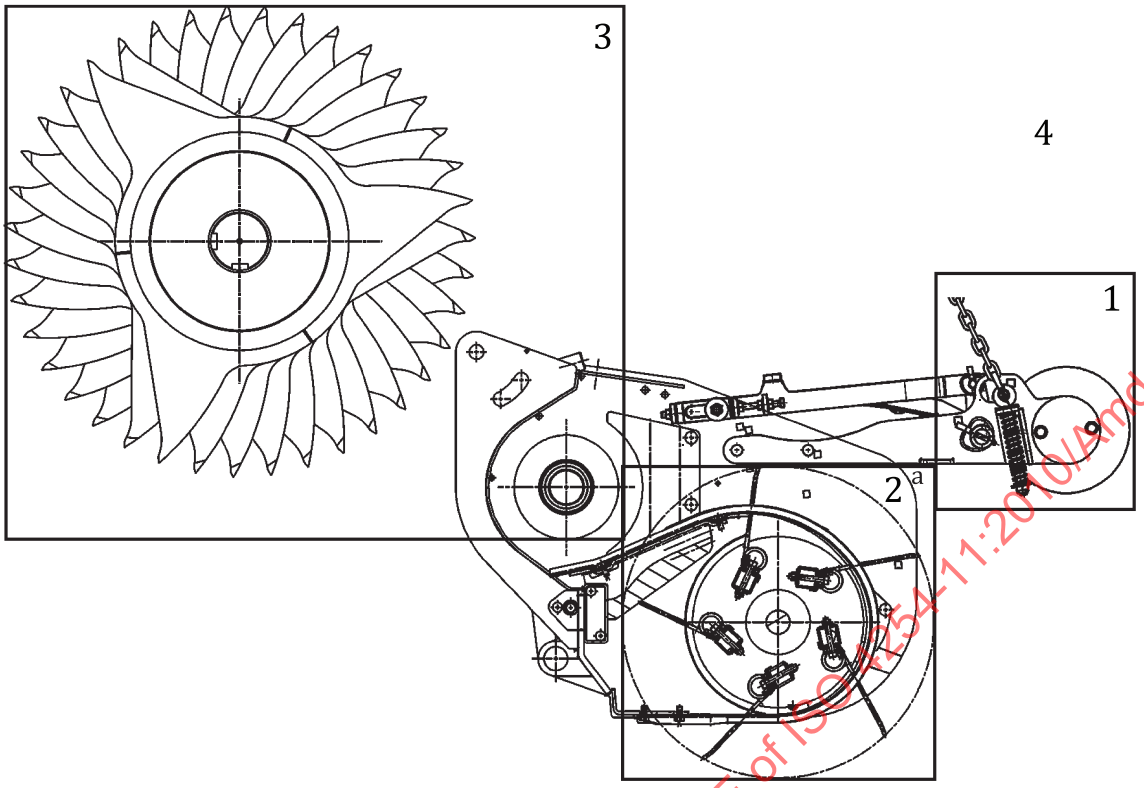
Figure 3

Replace current presentation and key of Figure 3 by the following.

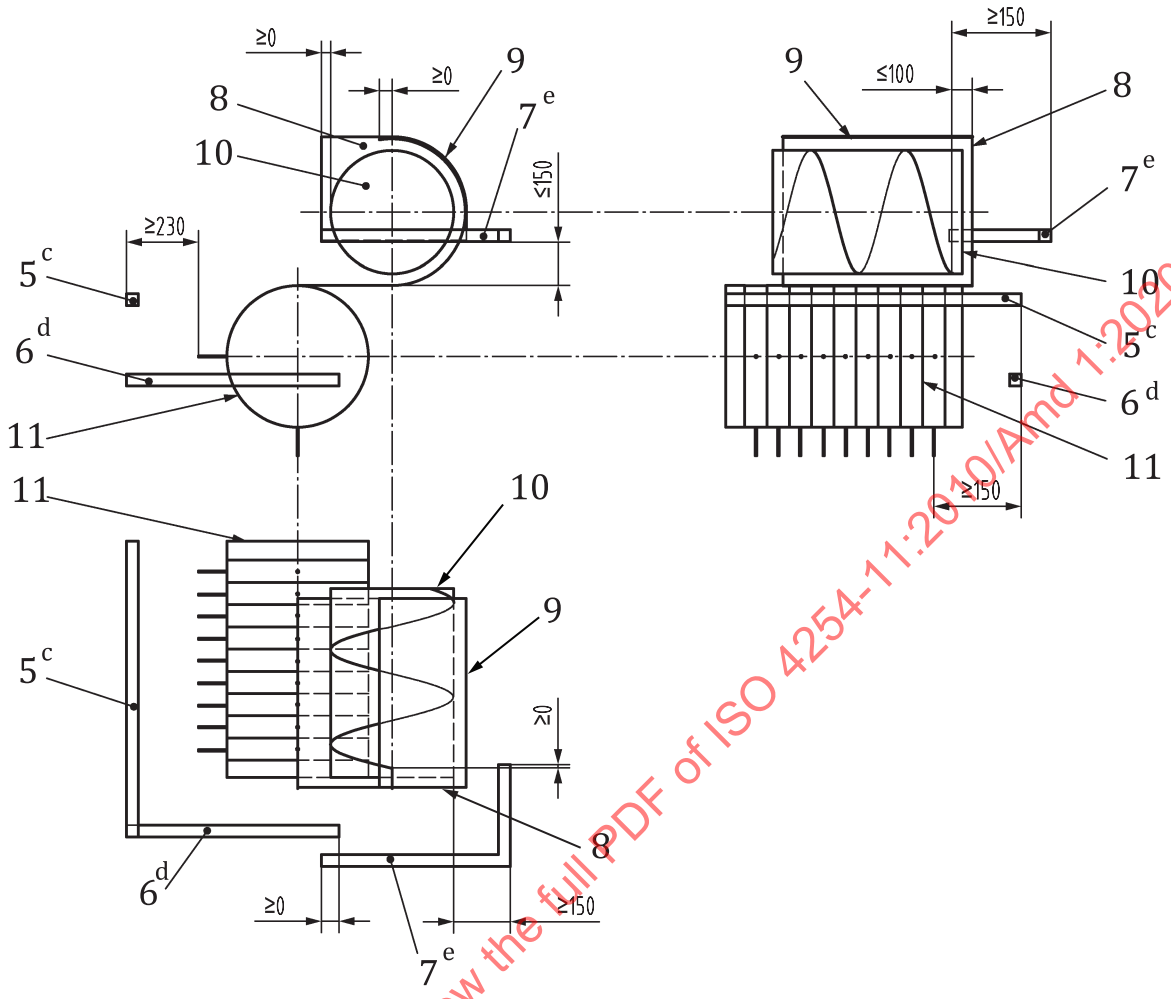
Dimensions in millimetres



a) Pick-up and feeding elements (Top view)



b) Pick-up and feeding elements (Side view)



c) Guarding of feeding elements

Key

1	area of assisted element of pick-up	9	rear covering above the auger
2	area of pick-up	10	feeding auger (part of feeding system)
3	area of feeding elements	11	pick-up
4	front of the machine	a	As defined in 3.1.
5	barrier in front of pick-up	b	As defined in 3.2 (as an example, rotor with knives is represented).
6	barrier at the side of pick-up	c	As defined in 5.2.2.1.
7	distance barrier at the side of auger	d	As defined in 5.2.2.1.
8	lateral rigid fixed guard	e	As defined in 5.2.3.3.

Figure 3 — Pick-up and feeding elements

5.2.7

Replace the present 5.2.7 with the following.

5.2.7 Pick-up balers with bale wrappers

5.2.7.1 Requirements for pick-up balers with integrated bale wrapper

5.2.7.1.1 For the pick-up baler, the provisions of this document apply.

5.2.7.1.2 For the bale wrapper, the provisions of ISO 4254-14 apply.

5.2.7.2 Requirements for pick-up balers combined with bale wrappers

If the pick-up baler is capable of being combined with a bale wrapper, it shall be equipped with the appropriate operational connections (for example, hitch, hydraulics, electrical) for the bale wrapper.

5.4

Replace the present 5.4 with the following.

5.4.1 General

Following the general principles for risk reduction, the most effective way to avoid risks related to blockages is to take measures to ensure that no interruption in crop flow takes place. If this is not possible in all working conditions, including reasonably foreseeable misuse, the requirements in Clause 5 are applicable.

Feeding elements other than augers shall be guarded in order to impede access (for example by fixed parts of the machine, barriers according to 5.4.2.1.3).

5.4.2 Protective measures in case of blockage of crop flow with mechanical elements moving

5.4.2.1 If blockage of the crop flow does not stop the movement of hazardous mechanical elements, this can lead to the potential for the operator to be exposed to hazards while intending to restore the crop flow by approaching the hazard zone without disengaging the drive to the moving elements.

Considering the general principles for risk reduction, the requirements of 5.4.2.1.1 to 5.4.2.1.3 shall be applied, in the given order, with respect to the function of the machine.

5.4.2.1.1 To avoid entering the hazard zone, means shall be provided to allow blockages to be cleared and crop flow restarted from the seat of the operator station [for example, a device to enlarge the section through which the material has to pass through, lifting/lowering the pick-up, reversing mechanism according to 5.4.4 a)].

5.4.2.1.2 If it cannot be ensured under normal operating conditions, taking into account also the reasonably foreseeable misuse, to clear the blockage from the seat of the operator station by the means specified in 5.4.2.1.1, then the safety of the operator when entering the hazardous zone after leaving the operator station shall be ensured by:

a) automatically stopping movement of the mechanical elements in the hazardous zone [pick-up, feeding elements, bale chamber (if applicable)] before the operator can reach these elements and preventing powered movement while the operator is in the hazardous zone. Examples of possible solutions fulfilling the requirement are:

   1) interlocking barrier, which interrupts the power to the machine if triggered; or

   2) automatic stop of the movement of the mechanical elements [as an example, OPC of the propelling machine (tractor) provided that the baler does not work if the OPC is not detected by the baler];

or

b) by ensuring the clearing of the blockage from outside the hazard zone, for example: reversing mechanism according to 5.4.4 b), etc.;

or

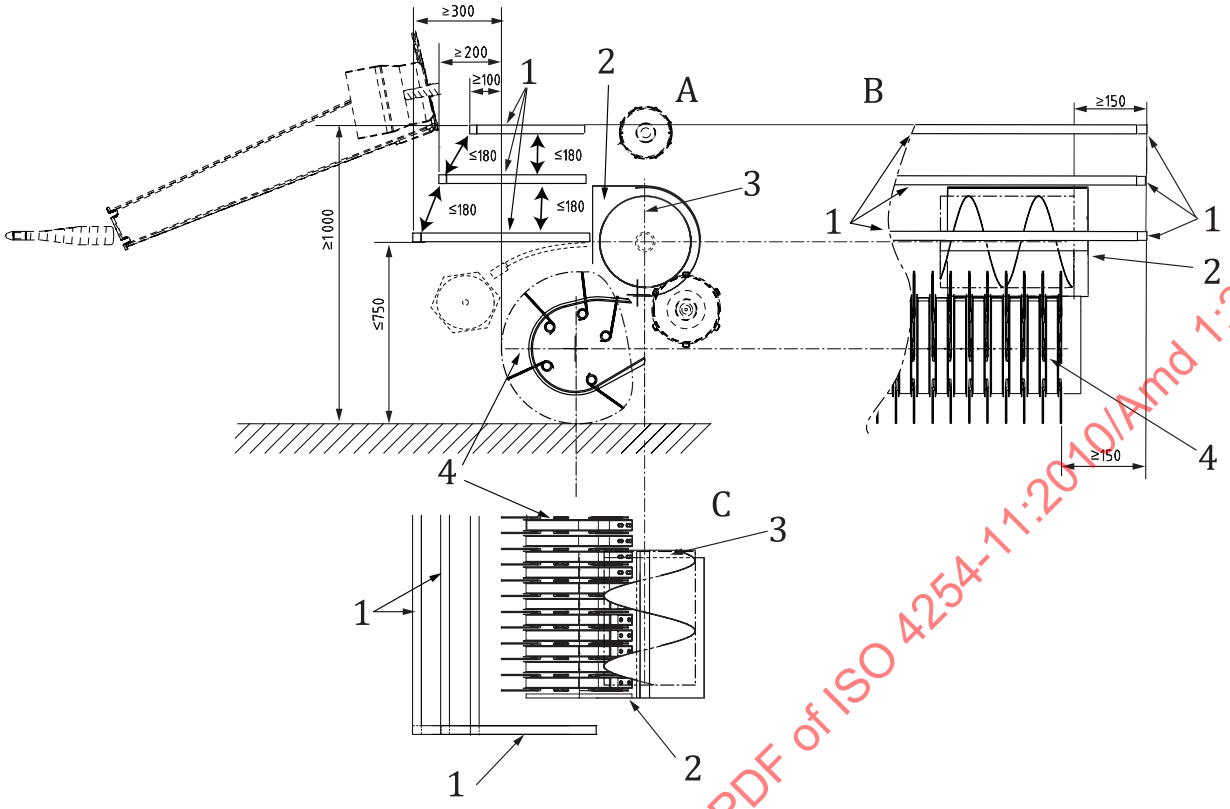
c) other solutions providing an equivalent level of protection.

5.4.2.1.3 If the solutions specified in 5.4.2.1.2 cannot be ensured under normal operating conditions, taking into account also the reasonably foreseeable misuse, then the following requirement applies.

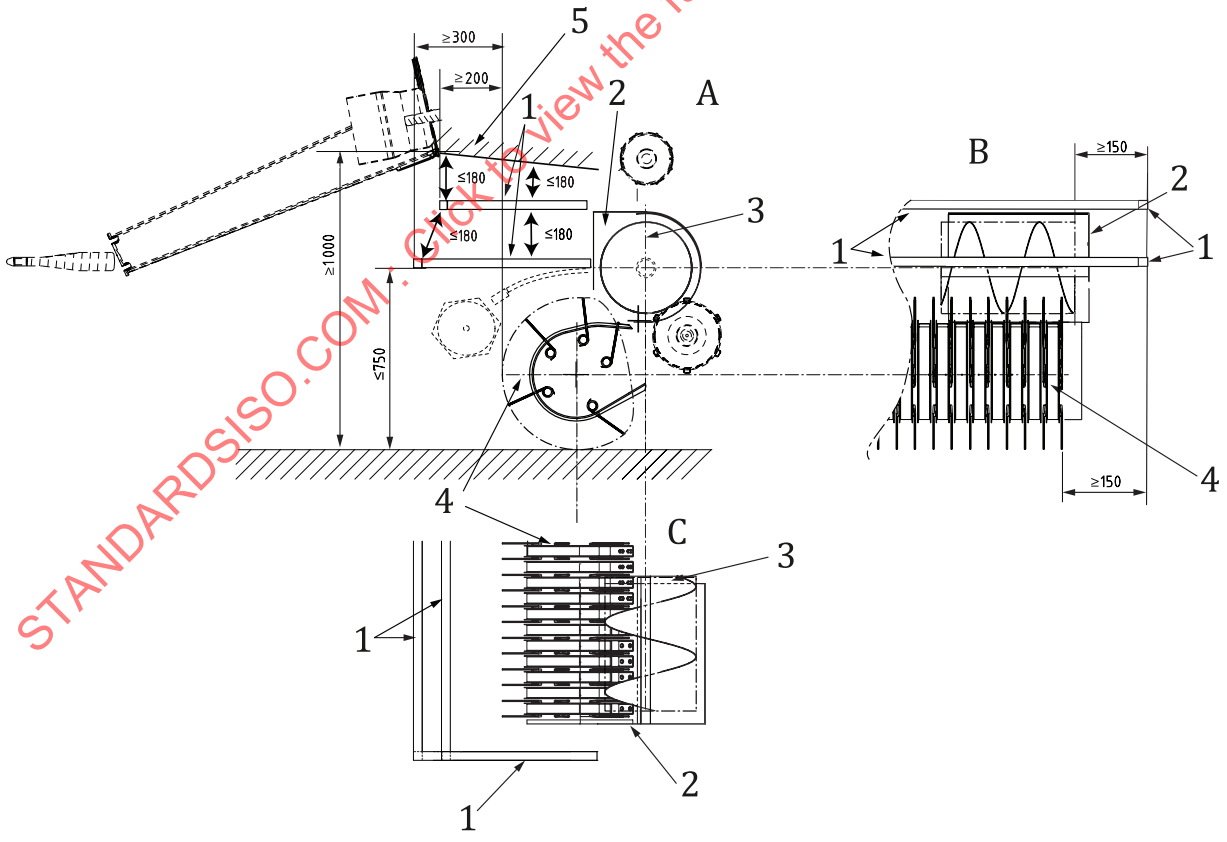
In order to impede intended access to the hazard zone, the area shall be guarded over the whole working width of the pick-up by barriers or parts of the machine. The lower edge of the guard shall be located at a maximum height of 750 mm from the ground and ≥300 mm horizontal in front of the tine path in the working position and the upper edge shall be located at a height of ≥1 000 mm from the ground. The distance between two barriers or between a barrier and parts of the machine shall be maximum 180 mm in case of slot openings or 240 mm in case of round or square openings. Some examples are shown in Figure 7.

For protection from the contact with the pick-up, see 5.2.3.3 and Figure 3 c).

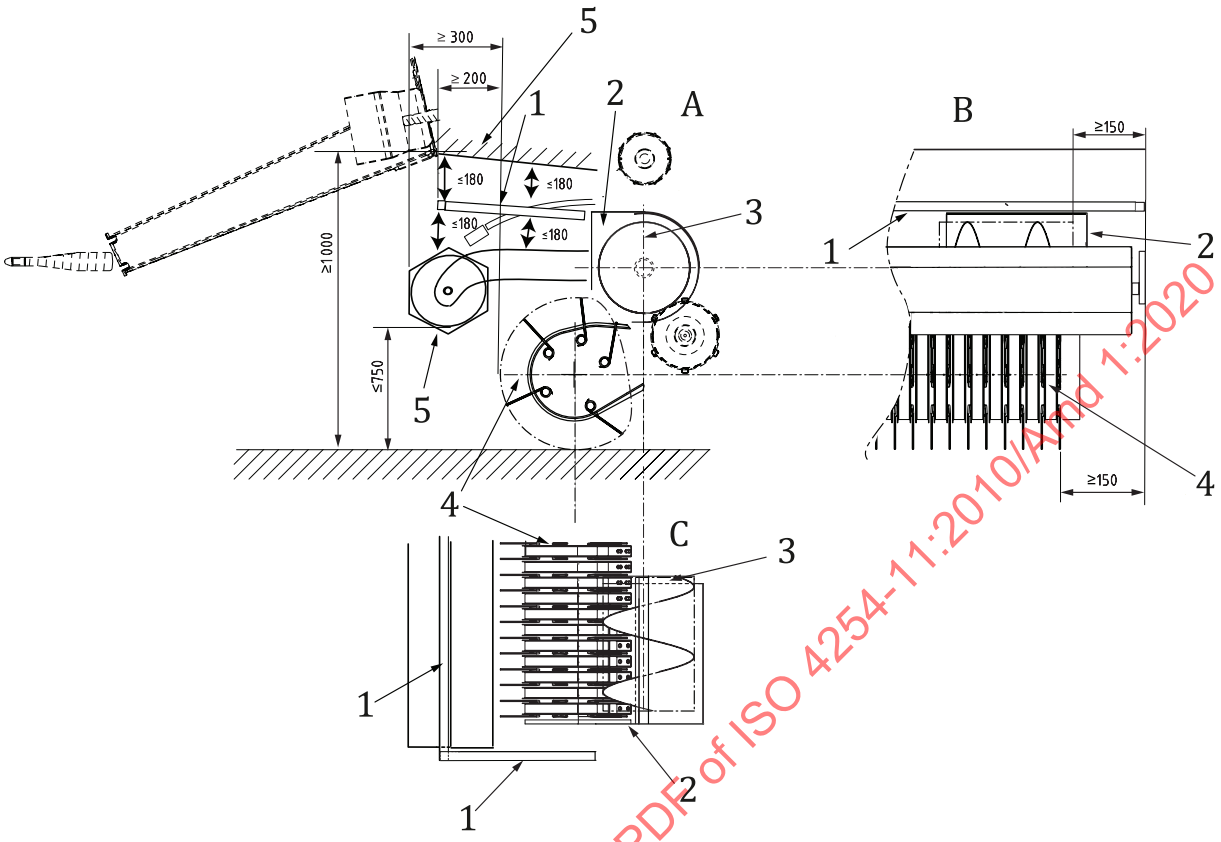
Dimensions in millimetres



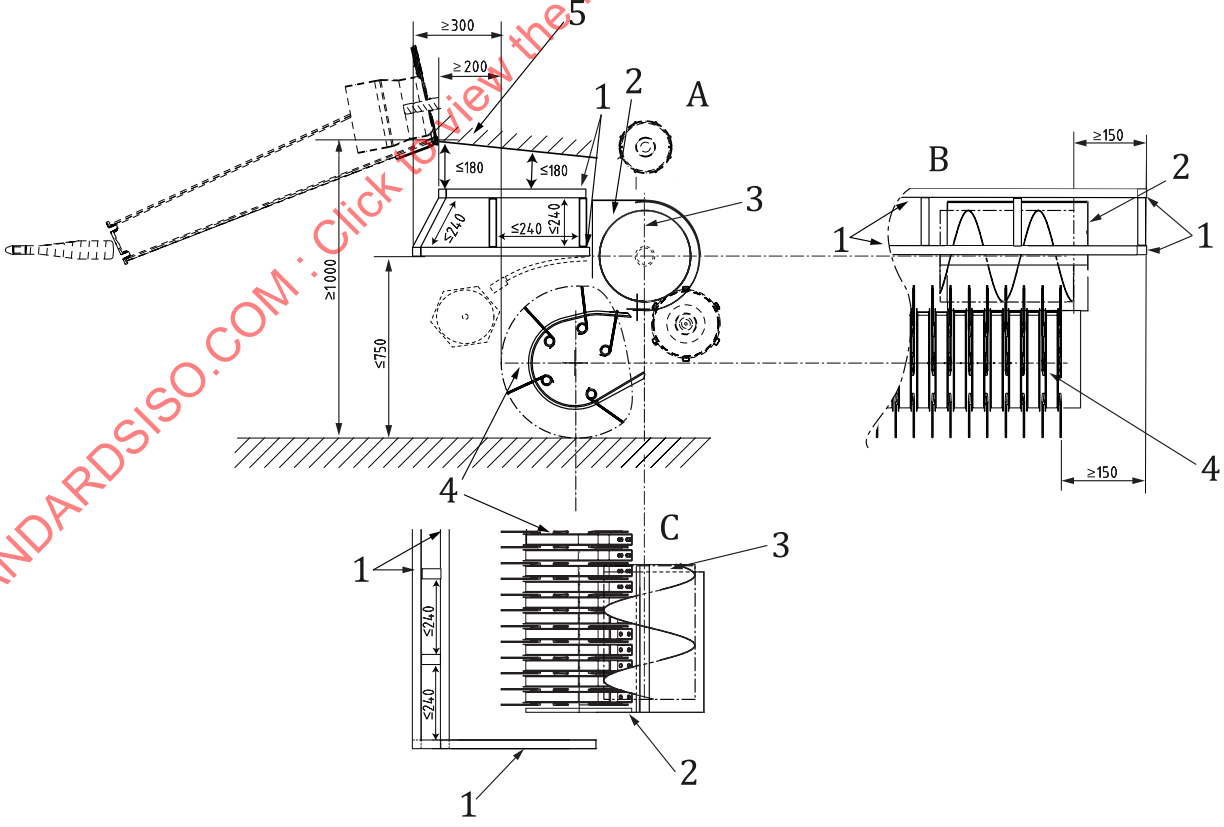
a)



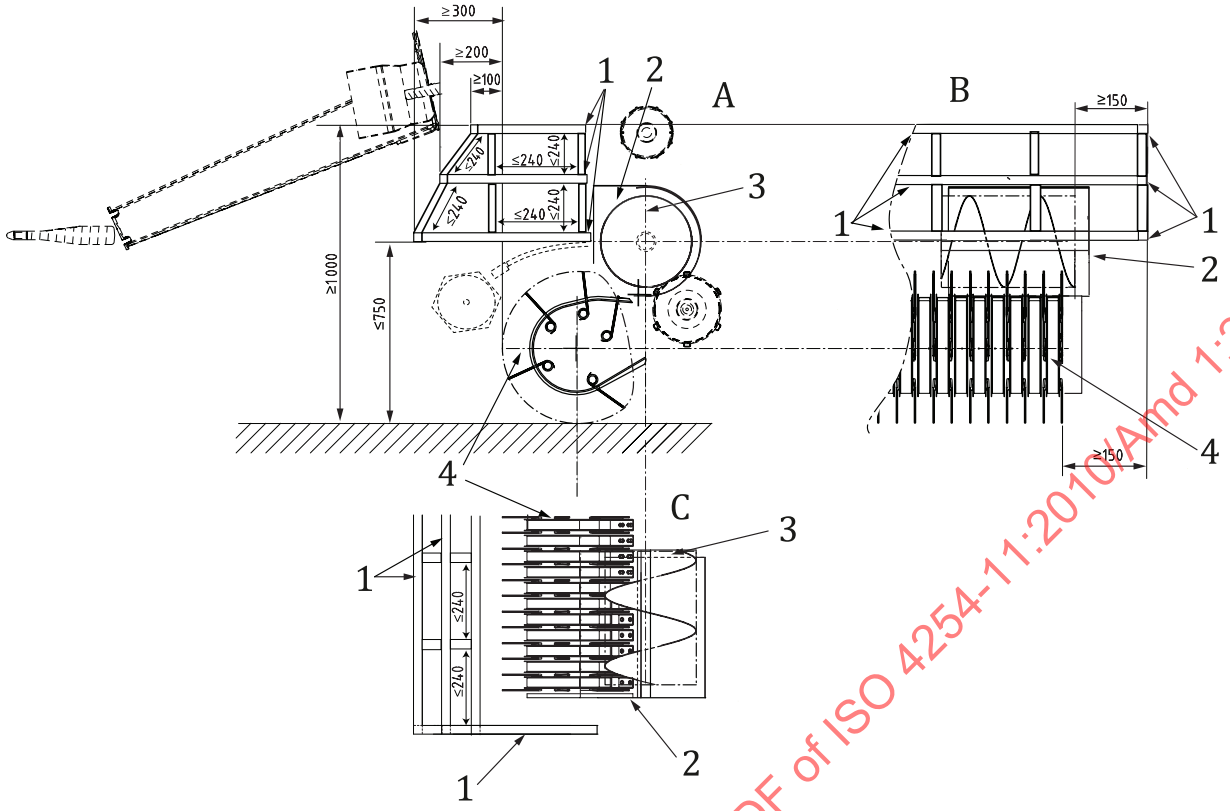
b)



c)



d)



e)

Key

1 barrier as defined in 5.2.2.1
2 lateral rigid fixed guard
3 feeding auger
4 pick-up
5 baler part
A side view
B front view
C top view

Figure 7 — Hazardous zone

5.4.2.2 Appropriate information on procedures related to clearing blockages in a safe way shall be provided in the operator's manual, for example, instruction to ensure that the PTO drive is disengaged before leaving operator station. Clear visible warnings shall be provided requiring disengagement of the baler power source before clearing blockages. These warnings shall be affixed to the baler in proximity to the potential hazardous zone.

5.4.3 Protective measures against inadvertent re-engagement in case of mechanical elements stopped by blockage

5.4.3.1 Devices fitted to avoid overloading the mechanical elements of the pick-up and feeding functions when stopped by an accumulation of crop shall not be considered as means of protection of the operator. Such devices can be located anywhere in the drive-line including the PTO drive shaft.

5.4.3.2 If blockage of the crop flow stops any of the mechanical elements, this may cause hazards of entanglement for the operator intending to restore the crop flow by approaching the hazardous zone without stopping the drive of the moving elements.