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**Agricultural machinery — Safety —  
Part 8:  
Solid fertilizer distributors**

*Matériel agricole — Sécurité —*

*Partie 8: Distributeurs d'engrais solides*

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 4254-8 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 3, *Safety and comfort*.

ISO 4254 consists of the following parts, under the general title *Agricultural machinery — Safety*:

- *Part 1: General requirements*
- *Part 5: Power-driven soil-working machines*
- *Part 6: Sprayers and liquid fertilizer distributors*
- *Part 7: Combine harvesters, forage harvesters and cotton harvesters*
- *Part 8: Solid fertilizer distributors*
- *Part 9: Seed drills*
- *Part 10: Rotary tedders and rakes*
- *Part 11: Pick-up balers*
- *Part 12: Rotary disc and drum mowers and flail mowers*

Part 2, *Anhydrous ammonia applicators*, has been withdrawn, Part 3, *Tractors*, has been cancelled and is to be replaced by ISO 26322 (all parts), *Tractors for agriculture and forestry — Safety*, and Part 4, *Forestry winches*, has been cancelled and replaced by ISO 19472, *Machinery for forestry — Winches — Dimensions, performance and safety*.

## Introduction

The structure of safety standards in the field of machinery is as follows:

- a) type-A standards (basic safety standards) giving basic concepts, principles for design, and general aspects that can be applied to all machinery;
- b) type-B standards (generic safety standards) dealing with one safety aspect or one type of safeguard that can be used across a wide range of machinery:
  - type-B 1 standards on particular safety aspects (e.g. safety distances, surface temperature, noise);
  - type-B 2 standards on safeguards (e.g. two-hand control devices, interlocking devices, pressure-sensitive devices, guards);
- c) type-C standards (machinery safety standards) dealing with detailed safety requirements for a particular machine or group of machines.

This part of ISO 4254 is a type-C standard as stated in ISO 12100.

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 solid fertilizer distributors.

Significant hazards that are common to all the agricultural machines (self-propelled, mounted, semi-mounted and trailed) are dealt with in ISO 4254-1. [ISO 4254-8:2009](#)

When requirements of this type-C standard are different from those which are stated in type-A or 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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# Agricultural machinery — Safety —

## Part 8: Solid fertilizer distributors

### 1 Scope

This part of ISO 4254, used together with ISO 4254-1, specifies safety requirements and their verification for the design and construction of mounted, semi-mounted, trailed or self-propelled solid fertilizer distributors for solid fertilizer application, i.e. full-width solid fertilizer distributors, solid fertilizer broadcasters, distributors with oscillating tube and line-distributors, as well as solid fertilizer distributors driven by an auxiliary engine with one operator only, used in agriculture and horticulture. In addition, it specifies the type of information on safe working practices (including residual risks) to be provided by the manufacturer.

When requirements of this part of ISO 4254 are different from those which are stated in ISO 4254-1, the requirements of this part of ISO 4254 take precedence over the requirements of ISO 4254-1.

This part of ISO 4254 deals with all the significant hazards (as listed in Annex A), hazardous situations and events relevant to solid fertilizer distributors used as intended and under the conditions foreseen by the manufacturer, except the hazards arising from:

- equipment for loading fertilizer into the machine, if fitted;
- an auxiliary engine, if fitted.

This part of ISO 4254 is not applicable to the following:

- combined seed and fertilizer drills;
- machines for distributing granulated pesticides;
- pedestrian-controlled distributors;
- knapsack distributors.

This part of ISO 4254 is not applicable to environmental hazards or electromagnetic compatibility; neither is it applicable to hazards related to maintenance or repairs carried out by professional service personnel.

NOTE Specific requirements related to road traffic regulations are not taken into account in this part of ISO 4254.

This part of ISO 4254 is not applicable to solid fertilizer distributors which are manufactured before the date of its publication.

### 2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 4254-1:2008, *Agricultural machinery — Safety — Part 1: General requirements*

ISO/TR 11688-1:1995, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning*

ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology*

ISO 12100-2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles*

ISO 13852:1996, *Safety of machinery — Safety distances to prevent danger zones being reached by the upper limbs*

### 3 Terms and definitions

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

**3.1 solid fertilizer distributor**  
machine which spreads fertilizer in a continuous way on the soil surface and in the crop

**3.2 full-width solid fertilizer distributor**  
solid fertilizer distributor which spreads fertilizer over the surface corresponding to a working width that is roughly the same as the machine width

**3.3 solid fertilizer broadcaster**  
solid fertilizer distributor which spreads fertilizer over the surface corresponding to a working width that is essentially wider than the machine width

**3.4 solid fertilizer line-distributor**  
solid fertilizer distributor which spreads fertilizer in bands separated by bands without fertilizer and which has a working width that is roughly the same as the machine width

### 4 Safety requirements and/or protective measures

**4.1 General**  
Machinery shall comply with the safety requirements and/or protective measures of this clause. Unless otherwise specified in this part of ISO 4254, the machine shall comply with the requirements of ISO 4254-1.

In addition, the machine shall be designed according to the principles of ISO 12100 for relevant but not significant hazards which are not dealt with by this document.

The compliance with the safety requirements and/or measures shall be verified in accordance with Clause 5.

#### 4.2 Stability when parked and for manual handling

**4.2.1 General**  
The machine shall be designed to be stable in accordance with ISO 4254-1:2008, 6.2.1. This shall be verified according to 5.1.1. See also 6.1 k) and 6.1 q).



#### 4.2.2 Mounted machines fitted with rollers for manual handling when demounted

Machines equipped with transport rollers for manual handling shall be designed to minimize the risk of rollover. This shall be verified according to 5.1.2.

#### 4.2.3 Machines with adjustable supporting devices

It shall be possible to adjust supporting devices, if provided, without going beneath the machine.

This shall be verified by inspection.

### 4.3 Distributing components

#### 4.3.1 Swivelling and movable components

**4.3.1.1** In order to limit the risk associated with overhead power lines, in cases where the implement exceeds 4 m in elevation either during operation or transportation, or at any time when folded elements are being raised to, or lowered from, the transport position, a safety sign shall be provided to inform and warn of the hazard of power line entanglement.

**4.3.1.2** A suitable safety message warning of the hazard of contact with overhead power lines shall be included in the operator's manual.

See 4.3.1.5 for verification.

**4.3.1.3** In the case of powered operation, the control shall be of the hold-to-run type and the manual control shall be located outside of the swivelling and/or folding zones.

**4.3.1.4** A device shall be provided to prevent swivelling or folding elements from moving when they are in transport position. If this locking device is a hydraulic valve not directly fitted to the cylinder, the bursting pressure of the circuit's components from the valve to the cylinder shall be four times its maximum working pressure. Retaining in the transport position may also be achieved by a mechanical device, by gravity in folding/swivelling over centre or by other suitable means.

The unlocking and the unfolding of the elements shall be controlled by separate actions on the part of the operator.

**4.3.1.5** The device shall be in accordance with ISO 4254-1:2008, 4.8.

This shall be verified by inspection. See also 6.1 l).

#### 4.3.2 Spreading plates and oscillating tubes

##### 4.3.2.1 Protection against unintentional contact with distributing components

Machines shall be designed or guarded in such a way that any unintentional contact with the distributing components at the front, rear and sides is avoided (e.g. a barrier or a part of the machine). This shall not apply to solid fertilizer distributors with ground-wheel-driven distributing components.

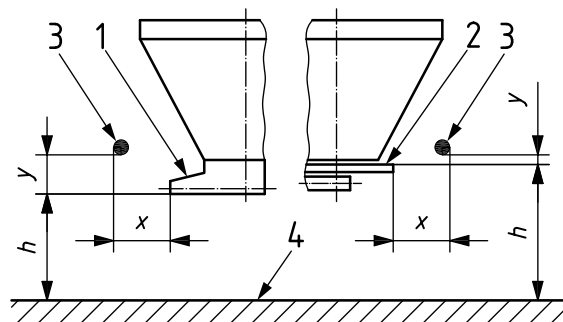
This shall be verified by inspection. See also 6.1 e) and 6.1 m).

**4.3.2.1.1** For machines where working heights,  $h$ , according to the operator's manual are less than 1 500 mm from the ground, the guarding shall be achieved by the following:

- a) a barrier located above the distributing components so that the dimensions shown in Figure 1 and given in Table 1 are respected;

- b) when there is a horizontal overlap, at a height of 1 500 mm, between the side of the hopper or structural framework of the machine and the path of motion of the tip of the distributing components (see Figure 2), of
- 200 mm minimum in the case of rotary distributors, or
  - 50 mm minimum in the case of oscillating distributors,
- a barrier located above the distributing components so that the dimensions given in Figure 2 and Table 2 are respected.

In the case where the barrier is located at least 100 mm inside the external contour of the hopper, then this barrier shall withstand a vertical and a horizontal load of 600 N.



**Key**

- X horizontal distance between tip of distributing components and barrier
- Y vertical distance between tip of distributing components and barrier

- 1 distributing component (oscillating distributor)
  - 2 distributing component (rotary distributor)
  - 3 barrier
  - 4 ground
- h* maximum working height

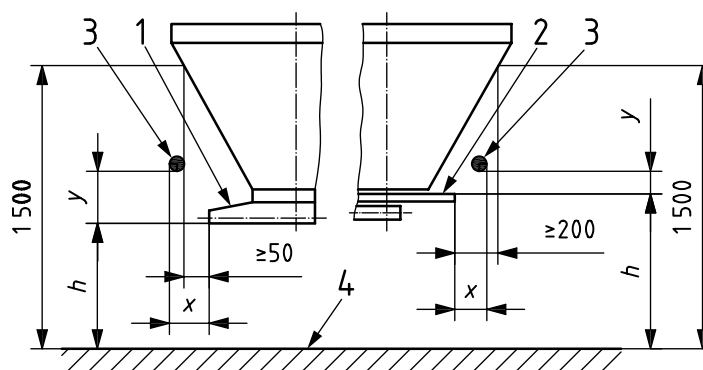
NOTE *h*, as shown, is given here only as an example.

**Figure 1 — Guarding by use of barrier for machines where working height < 1 500 mm — Without horizontal overlap**

**Table 1 — Distance between tip of distribution components and barrier — Without horizontal overlap**

Horizontal distance mm	Vertical distance mm
$100 \leq X < 200$	$Y \leq 200$
$X \geq 200$	$Y \leq 300$

Dimensions in millimetres



**Key**

- X horizontal distance between tip of distributing components and barrier
- Y vertical distance between tip of distributing components and barrier

- 1 distributing component (oscillating distributor)
- 2 distributing component (rotary distributor)
- 3 barrier
- 4 ground

*h* maximum working height

NOTE *h*, as shown, is given here only as an example.

**Figure 2 — Guarding by use of barrier for machines where working height < 1 500 mm — With horizontal overlap**

**Table 2 — Distance between tip of distributing components and barrier — With horizontal overlap**

Horizontal distance mm	Vertical distance mm
$50 \leq X < 100$	$Y \leq 100$
$X \geq 100$	$Y \leq 150$

In either case a) or b) above, the dimension ( $h + y$ ) shall not exceed 1 500 mm.

This shall be verified by measurement and inspection.

**4.3.2.1.2** For machines where the minimum working heights, *h*, according to the operator's manual are greater than or equal to 1 500 mm, but less than or equal to 2 500 mm, from the ground, the guarding shall be achieved by a barrier located below the distributing components so that the dimensions shown in Figure 3 and given in Table 1 are respected.

This shall be verified by measurement and inspection.

**4.3.2.1.3** For machines where working heights, *h*, according to the operator's manual can be less or greater than 1 500 mm from the ground, the dimensions given in 4.3.2.1.1 and 4.3.2.1.2 apply.

This shall be verified by measurement and inspection.