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**Agricultural machinery — Safety —**  
**Part 9:**  
**Seed drills**

*Matériel agricole — Sécurité —*

*Partie 9: Semoirs*

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ISO 4254-9:2008

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Published in Switzerland

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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 4254-9 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 3, *Safety and comfort*.

This second edition cancels and replaces the first edition (ISO 4254-9:1992), which has been technically revised.

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

- *Part 1: General requirements*
- *Part 3: Tractors* <sup>1)</sup>
- *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 4, *Forestry winches*, has been revised and replaced by ISO 19472 <sup>2)</sup>.

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1) Under the general title *Tractors and machinery for agriculture and forestry — Technical means for ensuring safety*. To be replaced by ISO 26322 (all parts), *Tractors for agriculture and forestry — Safety*.

2) 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 standards) give basic concepts, principle for design, and general aspects that can be applied to machinery;
- b) Type-B standards (generic safety standards) dealing with one or more safety aspect(s) or one or more type(s) of safeguards that can be used across a wide range of machinery:
  - type-B1 standards on particular safety aspects (e.g. safety distances, surface temperature, noise);
  - type-B2 standards on safeguards (e.g. two-hand controls, 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 12100-1.

When provisions of this type-C standard are different from those which are stated in type-A or type-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.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this part of ISO 4254. These hazards are specific to seed drills.

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

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# Agricultural machinery — Safety —

## Part 9: Seed drills

### 1 Scope

This part of ISO 4254, used together with ISO 4254-1, specifies the safety requirements, and their verification for design and construction, of mounted, semi-mounted, trailed or self-propelled seed drills, including the seeding function of combined seed and fertilizer drills, 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 seed drills, used as intended and under the conditions foreseen by the manufacturer, excepting the hazards arising from:

- external influences on electrical equipment;
- failure of energy supply;
- failure, malfunction of control system;
- break-up of parts rotating at high speed;
- equipment for loading seeds (and fertilizer).

This part of ISO 4254 is not applicable to seed drills with integrated and inseparable powered soil-working tools (see 3.2),

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 International Standard.

This part of ISO 4254 is not applicable to seed drills 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 — 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 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, ISO 4254-1 and the following apply.

### 3.1

#### **seed drill**

machine for sowing seeds in a continuous manner

NOTE Cereals are an example of seed sown in this manner.

### 3.2

#### **seed drill with integrated and inseparable powered soil-working tools**

seed drill as a single machine including the functions of seeding and of soil-working powered tools of which neither the seed drill nor the powered soil-working tools can be used separately

### 3.3

#### **single seed drill**

machine for sowing one seed at a time with equal space between each seed

NOTE 1 Sugar beet is an example of seed sown in this manner.

NOTE 2 Examples of such machines are given in Annex B.

### 3.4

#### **combined seed and fertilizer drill**

machine that simultaneously applies seed and fertilizer

## 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 specified otherwise in this part of ISO 4254, the machine shall comply with the requirements of ISO 4254-1.

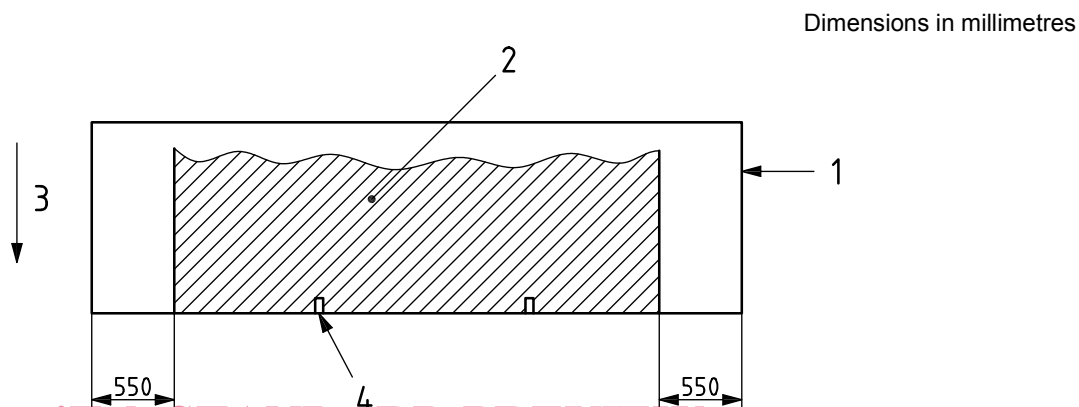
The compliance with the safety requirements and/or protective measures shall be verified in accordance with Clause 5 of this part of ISO 4254.



## 4.2 Controls

**4.2.1** Manual controls of seed drills which are intended to be mounted at the rear of soil working machines with powered tools shall meet the following requirements:

- a) adjustments shall be possible with the machine stopped;
- b) manual controls shall be located so that the operator does not need to be at the front of the machine to activate them. This requirement is met if manual controls are accessible to the operator standing on the ground and located outside the shaded area as shown in Figure 1. Markers are excluded from the outer limits of the seed drill. See also 6.1 a).



### Key

- 1 outer limits of the seed drill
- 2 area in which the manual controls for the adjustment shall not be located
- 3 forward direction
- 4 lower coupling points of the machine, if provided

**Figure 1 — Unacceptable location of manual controls for adjustments**

(machines which are intended to be mounted on the rear of soil-working machines with powered tools)

**4.2.2** In other cases, manual controls for the adjustments located on the machine shall meet the following requirements:

- a) adjustments shall be possible with the machine stopped;
- b) in cases where the direct view of a control(s) at the front of the machine is obscured from the (tractor-) operator station, the manual controls accessible to the operator standing on the ground or on a step provided for adjusting, maintenance or loading, shall be located outside the shaded area as shown in Figure 2. See also 6.1 a).

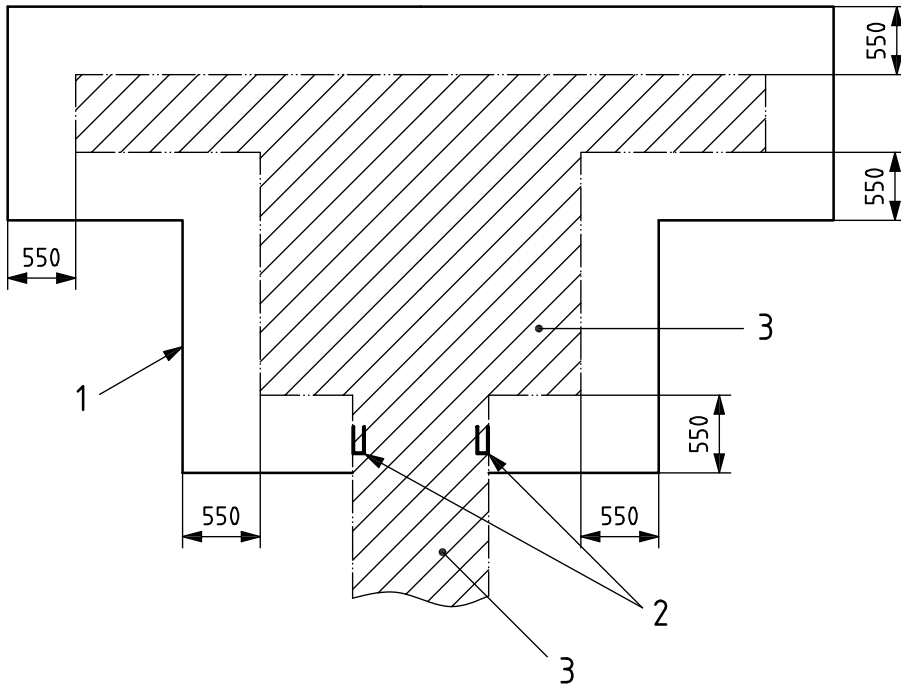
## 4.3 Swivelling and folding components

**4.3.1** In cases where the implement exceeds 4 m in elevation in either operation or transport 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 of the hazard of power-line entanglement.

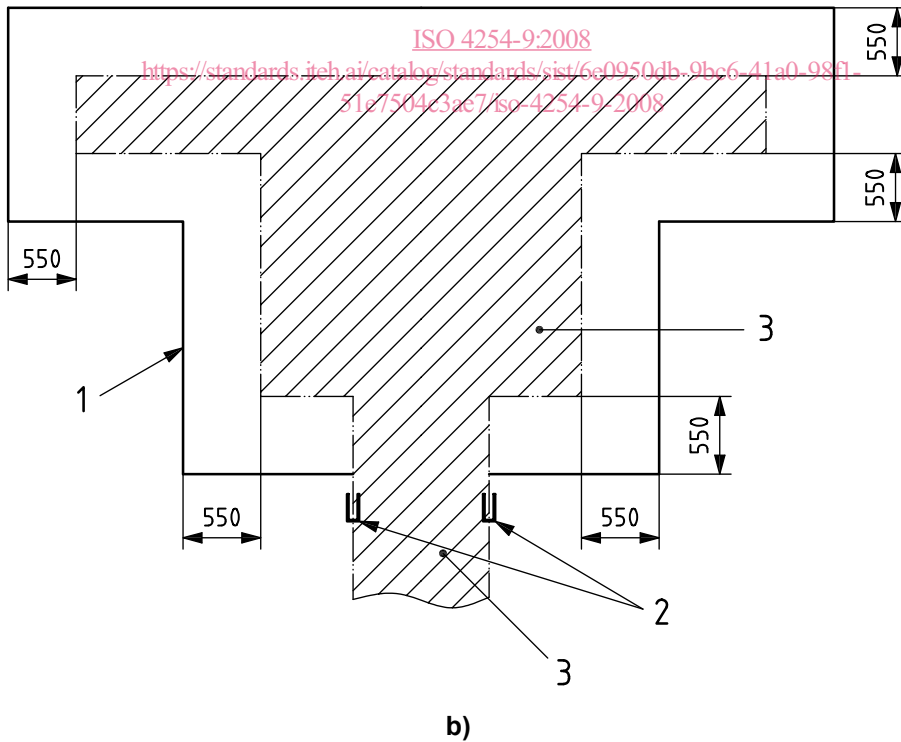
A suitable safety message warning of the hazard of contact with overhead power lines shall be included in the operator's manual.

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

Dimensions in millimetres



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**Key**

- 1 outer limits of the machine
- 2 lower coupling points
- 3 area where the manual controls for the adjustments shall not be located

**Figure 2 — Unacceptable location of manual controls for adjustments (other machines)**

**4.3.3** Elements folded or swiveled to reduce transport width and/or height shall have a device for retaining in the transport position. This may be achieved by a mechanical device, a hydraulic locking device, by gravity in folding over centre, or by other means.

**4.3.3.1** The device shall comply with ISO 4254-1:2008, 4.8. See also 6.1 l) of this part of ISO 4254.

**4.3.3.2** If the device is a hydraulic lock-out valve not directly fitted to the hydraulic cylinder, the burst pressure of the hoses or lines between the valve and the cylinder shall be at least 4 times the hydraulic system operating pressure.

**4.3.3.3** In the case of a mechanical device, the device shall be strong enough to withstand forces that can be applied on it during the maneuvering of the folded or drawn-in elements through actuation of the swiveling or folding control.

**4.3.3.4** The unlocking and the unfolding device of folded or swiveled elements shall be controlled by separate operator actions.

## 4.4 Hoppers

**4.4.1** A hopper cover shall be provided. If the mass of the cover is greater than 10 kg, a means shall be provided to retain the cover to the hopper and the cover shall be provided with a handle(s). The handle(s) may be an integral part(s) of the cover, provided it is suitably designed and clearly identified (e.g. by its shape or colour). Shearing and pinching hazards in case of unintentional closing (for example due to wind) shall be avoided.

**4.4.2** On hoppers where there are crushing and shearing points or moving components such as rotating agitators or feed augers:

- a) the safety distances given in Tables 1, 3, 4 and 6 of ISO 13852:1996 shall be met. This does not apply if the agitator or auger rotates only when the machine is in ground motion, or in cases where the agitator or auger can be placed in motion while the machine is stationary during diagnostic procedures specified and explained in the operator's manual;
- b) hoppers shall be designed to be self-emptying, or else one or more device(s) (for example a hand rake) shall be provided. A location on the machine in the filling area shall be provided for the storage of this (these) device(s).

See also 6.1 b), 6.1 i) and 6.1 j).

## 4.5 Loading

### 4.5.1 Access to loading location

**4.5.1.1** For hoppers that are intended for manual loading or loading with bulk seed bags or large bags, the vertical distance between the upper edge of the hopper at the loading location and the surface of the ground or a platform provided for loading shall not exceed 1 250 mm (see Figure 3) when the seed drill is in the loading position defined in the operator's manual. See also 6.1 d) and 6.1 o)

**4.5.1.2** If a platform is provided for manual loading and/or levelling the seed in the hopper, this platform shall be continuous, unless prevented by the construction of the seed drill. In this case, the platform may consist of several parts. In case the platform is narrower than the hopper, provisions to indicate the end of a platform to the operator shall be provided. These provisions shall not constitute an obstacle of access.

**4.5.1.3** In addition, the platform shall meet the following requirements:

- the minimum width of the platform shall be 450 mm, the minimum depth from back to front shall be 300 mm, and the minimum area shall be 0,18 m<sup>2</sup> except for single seed drills with a central hopper. For these machines, the minimum width shall be 240 mm and the minimum depth shall be 600 mm [see Figures 4 a), 4 b) and 4 c)]. For single seed drills with a central hopper [see Figure 4 c)], there shall be at least one central platform when the width of the hopper is ≤ 1 500 mm and at least two platforms when the width of the hopper is > 1 500 mm;