SLOVENSKI STANDARD
SIST EN 14018:2006+A1:2010

01-februar-2010

Kmetijski in gozdarski stroji - Sejalnice - Varnost

Agricultural and forestry machinery - Seed drills - Safety

Land- und Forstmaschinen - Sämaschinen - Sicherheit

Matériel agricole et forestier - Semoirs - Sécurité

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Ta slovenski standard je istoveten z: **EN 14018:2005+A1:2009**

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ICS:

65.060.30	Sejalna in sadilna oprema	Sowing and planting equipment

SIST EN 14018:2006+A1:2010 **en,fr,de**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14018:2005+A1

October 2009

ICS 65.060.30

Supersedes EN 14018:2005

English Version

Agricultural and forestry machinery - Seed drills - Safety

Matériel agricole et forestier - Semoirs - Sécurité

Land- und Forstmaschinen - Sämaschinen - Sicherheit

This European Standard was approved by CEN on 26 August 2005 and includes Amendment 1 approved by CEN on 17 August 2009.

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Foreword

This document (EN 14018:2005+A1:2009) 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 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of an identical text or by endorsement, at the latest by April 2010, and conflicting national standards shall be withdrawn at the latest by April 2010.

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 includes Amendment 1, approved by CEN on 2009-08-17.

This document supersedes EN 14018:2005.

The start and finish of text introduced or altered by amendment is indicated in the text by tags [A1] [A1].

This European Standard 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(s).

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[A1] For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. [A1]

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Introduction

This European Standard is a type C standard as stated in EN ISO 12100-1.

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

Significant hazards that are common to all agricultural machines (self-propelled, mounted, semi-mounted and trailed) are dealt with in EN 1553:1999.

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.

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1 Scope

This European Standard, applied together with EN 1553:1999, 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 in forestry. In addition, this European Standard specifies the type of information on safe working practices (including residual risks) to be provided by the manufacturer.

When requirements of this European Standard are different from those which are stated in EN 1553:1999 the requirements of this European Standard take precedence over the requirements of EN 1553:1999 for machines that have been designed and built according to the provisions of this European Standard.

It does not apply to:

— fertilizer distributors designed only for solid fertilizer application (dealt with in EN 14017);

— seed drills with integrated and inseparable powered soil working tools (see 3.2).

NOTE Powered soil working tools are dealt with in EN 708:1996 and EN 708:1996/A1:2000.

This European Standard deals with all the significant hazards, hazardous situations and events relevant to seed drills, when they are used as intended and under the conditions foreseen by the manufacturer (see Clause 4), excepting the hazards arising from:

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— electrostatic phenomena;

— external influences on electrical equipment;

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— failure of energy supply;

— failure, malfunction of control system;

— inadequate visibility from drivers/operators position;

— travelling functions (drive, braking etc.);

— break-up of parts rotating at high speed;

— equipment for loading seeds (and fertilizer).

It is not applicable to electromagnetic compatibility (EMC) nor to environmental hazards (except noise). These aspects are covered by EN 13740-1:2003 and EN 13740-2:2003 for combined seed and solid fertilizer drills.

This European Standard is not applicable to seed drills which are manufactured before the date of its publication as EN.

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2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 294:1992, *Safety of machinery — Safety distances to prevent danger zones being reached by the upper limbs*

EN 1553:1999, *Agricultural machinery — Agricultural self-propelled, mounted, semi-mounted and trailed machines – Common safety requirements*

EN ISO 11688-1:1998, *Acoustics — Recommended practice for the design of low-noise machinery and equipment – Part 1: Planning (ISO/TR 11688-1:1995)*

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

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

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN ISO 12100-1:2003 and the following apply.

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3.1
seed drill
machine for sowing seeds (e.g. cereals) in a continuous manner

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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 (e.g. sugar beet) with equal space between each seed

NOTE Examples of such machines are given in Annex A.

3.4
combined seed and fertilizer drill
machine which simultaneously applies seed and fertilizer

NOTE Adapted from EN 13740-1:2003.

3.5
application rate
mass applied in the band of seeds applied per unit area, in kg/ha

NOTE Adapted from EN 13740-1:2003.

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4 List of significant hazards

For the purposes of this European Standard, Table 1 gives, for defined danger zones, all the significant hazards, the significant hazardous situations and the significant hazardous events, covered by this European Standard, that have been identified by risk assessment as being significant for this type of machine, and which require specific action to eliminate or to reduce the risk.

Table 1 — List of significant hazards associated with seed drills

Nr	Hazard	Location or event	Clause/subclause of EN 1553:1999	Clause/subclause of this European Standard
1.1	Crushing hazard	Folding and unfolding of swivelling and movable components, closing of the cover of the hopper, calibration, insufficient clearance zone when hitching	4.1.7.1, 4.2.2.2, 4.2.6.1, 4.3.2.3, 4.3.4.1	5.1, 5.3.2, 5.3.3, 5.3.4, 5.3.5, 5.4, 5.8, 5.9, 7.1
1.2	Shearing hazard	Folding and unfolding of swivelling and movable components, closing of the cover of the hopper	4.1.7.3, 4.2.2.2	5.1, 5.3.2, 5.3.3, 5.3.4, 5.3.5, 5.4, 7.1
1.3	Cutting or severing hazard	Folding and unfolding of swivelling and movable components, closing of the cover of the hopper	4.1.1, 4.1.7.1, 4.2.6.1, 4.3.2.3, 4.3.4.1	5.1, 5.3.2, 5.3.3, 5.3.4, 5.3.5, 5.4
1.4	Entanglement hazard	Closing of the cover of the hopper, contact with a drive part or the blower	4.1.1, 4.1.7.1, 4.2.6.1, 4.3.2.3, 4.3.4.1	5.1, 5.4, 5.5, 5.6, 5.7
1.5	Drawing-in or trapping hazard	Contact with a drive part or the blower		5.1, 5.4, 5.6, 5.7, 5.9, 7.1
1.6	Impact hazard	Closing of the cover of the hopper, insufficient clearance zone when hitching	4.1.1, 4.1.7.1, 4.1.7.3, 4.2.6.1, 4.3.2.3, 4.3.4.1	5.1, 5.4, 5.9
1.9	High pressure fluid injection or ejection hazard	Rupture of pressurised hoses	4.2.8.2	5.1
2.2	Contact of persons with parts which have become live under faulty conditions (direct and indirect contact)	Contact of the swivelling and movable components with overhead power line	-	5.3.1, 7.1
4.1	Hearing loss (deafness), other physiological disorders (e.g. loss of balance, loss of awareness)	Hearing damage due to the working of the machine	4.1.2, Annex D	5.10, 7.1
5.2	Whole body vibration, particularly when combined with non-ergonomic postures	Platform transmitting the vibration of the blower and of the uneven ground	4.1.3	-
7.1	Hazards from contact with or inhalation of harmful fluids, gases, mists, fumes, and dusts	Leakage of fuel, contact with operating fluid, contact with seeds	4.2.5.2, 4.2.6.2, 4.3.4.2, 5.1	7.1

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Table 1 — List of significant hazards associated with seed drills (*concluded*)

Nr	Hazard	Location or event	Clause/subclause of EN 1553:1999	Clause/subclause of this European Standard
8.1	Unhealthy postures or excessive efforts	Controls so located that the operator has to enter a dangerous zone to actuate them, non-ergonomic access to loading, hopper contents inadequately located, insufficient clearance zone when hitching	4.1.4, 4.1.5.1, 4.1.6, 4.2.6.1, 4.3.4.1	5.2, 5.3, 5.5, 5.9
8.2	Inadequate consideration of hand-arm or foot-leg anatomy	Controls so located that the operator has to enter a dangerous zone to actuate them and inappropriate dimensioning of accesses for loading, insufficient clearance zone when hitching	4.1.5.1, 4.1.5.2, 4.1.6, 4.2.2.2, 4.2.2.3.1, 4.2.3	5.2, 5.5, 5.9
8.7	Inadequate design, location or identification of manual controls	Controls so located that the operator has to enter a dangerous zone	4.2.1, 4.3.1	5.2
15	Errors of fitting	Fitting of seeding units without covered power transmission parts on the outside	-	5.6, 7.1
17	Ejected objects	Discharge of foreign matter through the blower	4.1.8.2	5.7
18	Loss of stability/overturning of machinery	Lack of stability when parked	4.2.4.1, 4.3.2.1	-
19	Slip, trip and fall of persons from machinery or during access to (or at/from) the work position	Falling off the access of loading because of slipping surface	4.1.5.1, 4.1.5.2, 4.1.5.3, 4.1.6, 4.2.5.2, 4.2.6.2, 4.3.4.2	5.5, 7.1, 7.2
20.1	Movement when starting the engine	Movement of the swivelling and movable components when the machine starts	4.2.2.5	-
20.3	Movement without all parts in a safe position	Movement of the swivelling and movable components when the machine starts	-	5.3.3, 5.3.4, 5.3.5, 7.1
22.1	Inadequate location and mode of operation of manual controls	Controls so located that the operator has to enter a dangerous zone to actuate them, contact with swivelling and movable components	4.2.1, 4.3.1	5.2, 5.3.2, 5.3.3, 5.3.4, 5.3.5
24.2	Hazards from transmission of power	Contact with the drive	4.1.7.1, 4.3.2.3	-
24.3	Hazards from hitching	Insufficient clearance zone when hitching	4.2.4.1.1, 4.3.2.2	5.9, 7.1

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5 Safety requirements and/or 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 European Standard.

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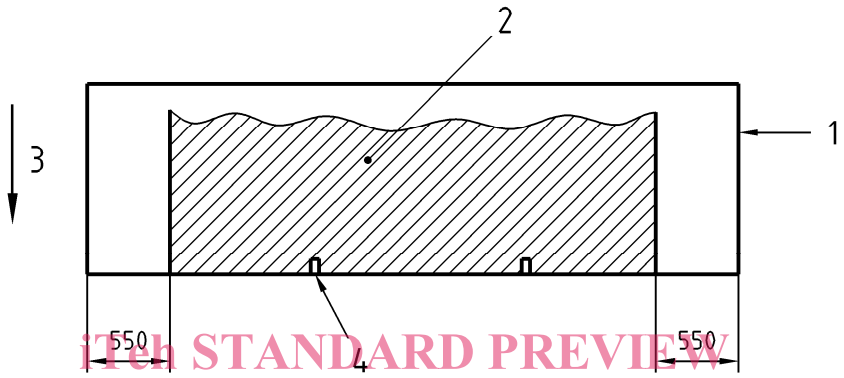
5.2 Controls

5.2.1 Manual controls for the adjustments located on the machines which are intended to be mounted at the rear of soil working machines with powered tools shall meet the following requirements:

a) the adjustments shall be possible with the machine stopped;

b) the 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 not located in the shaded area as shown in Figure 1. This shall be verified by measurement and inspection. Markers are excluded from the outer limits of the seed drill. See also 7.1 a).

Dimensions in millimetres



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Key

1 Outer limits of the seed drill
2 Area in which the manual controls for the adjustments shall not be located
3 Forward direction
4 Lower coupling points of the machine, if provided

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Figure 1 — Area where the manual controls for the adjustments shall not be located (case of machines which are intended to be mounted on the rear of soil working machines with powered tools)

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

a) the adjustments shall be possible with the machine stopped;

b) the manual controls accessible to the operator standing on the ground shall not be located in the shaded area as shown in Figure 2. See also 7.1 a).

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Dimensions in millimetres

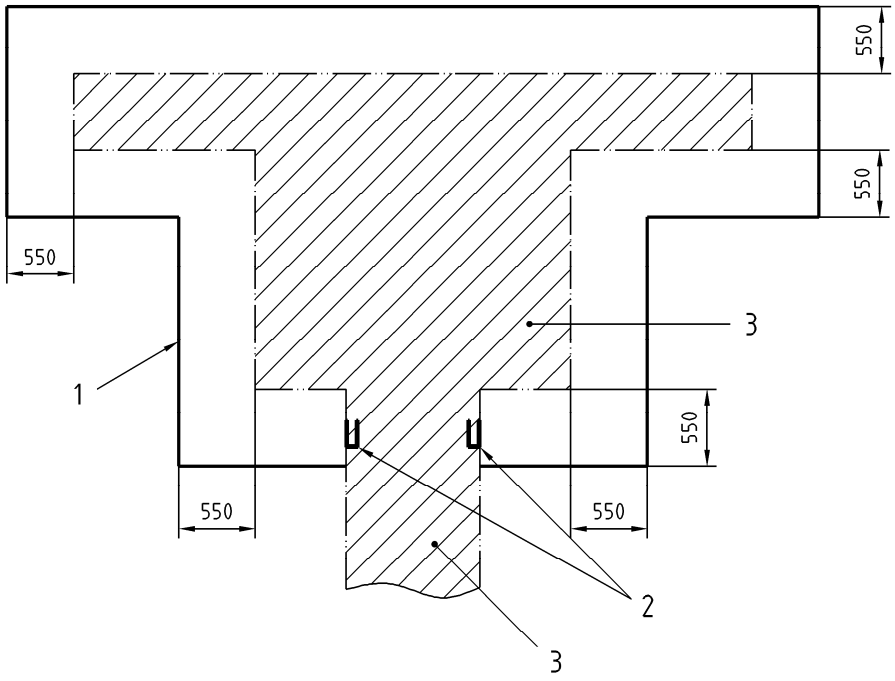

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Figure 2a

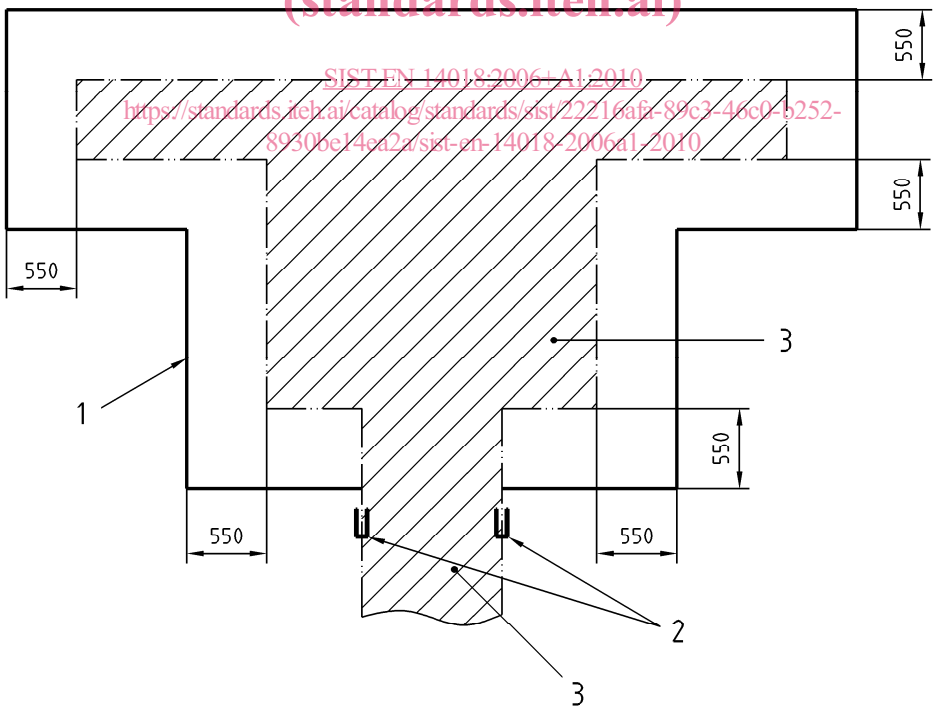

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Figure 2b

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 — Area where the manual controls for the adjustments shall not be located