



SLOVENSKI STANDARD
SIST EN 13448:2002

01-november-2002

Kmetijski in gozdarski stroji - Medvrstne zastiralne kosilnice - Varnost

Agricultural and forestry machinery - Inter-row mowing units - Safety

Land- und forstwirtschaftliche Maschinen - Zwischenreihenmäher - Sicherheit

Matériel agricole et forestier - Faucheuses interlignes - Sécurité

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Ta slovenski standard je istoveten z: EN 13448:2001

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ICS:

65.060.50 Oprema za spravilo pridelkov Harvesting equipment

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en

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EUROPEAN STANDARD

EN 13448

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2001

ICS 65.060.50

English version

**Agricultural and forestry machinery - Inter-row mowing units -
Safety**Matériel agricole et forestier - Faucheuses interlignes -
SécuritéLand- und forstwirtschaftliche Maschinen -
Zwischenreihenmäher - Sicherheit

This European Standard was approved by CEN on 3 October 2001.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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Foreword

This European Standard 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of an identical text or by endorsement, at the latest by June 2002, and conflicting national standards shall be withdrawn at the latest by June 2002.

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 EC Directive(s).

For relationship with EC Directive(s), see informative annex ZA, which is an integral part of this document.

Annex A is normative and contains the "List of hazards".

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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EN 13448:2001 (E)**Introduction**

This document is a type C standard as stated in EN 1070.

The machinery concerned and the extent to which hazards are covered is indicated in the scope of this standard. These hazards are specific to inter-row mowing units.

The hazards that are common to all agriculture 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.

1 Scope

This European Standard specifies the safety requirements and test methods for the design and construction of inter-row mowing units with vertical spindles mounted on grass cutting machines such as flail mowers, used in agriculture, forestry and landscaping to cut the grass in the area between two successive obstruction.

It describes methods for elimination or reduction of risks arising from their use.

In addition, it specifies the type of information on safe working practices to be provided by the manufacturer.

This standard is not applicable to rotary mowers and flail-mowers which are covered by EN 745.

Environmental aspects have not been considered in this standard.

This European Standard is not applicable to inter-row mowing units which are manufactured before the date of publication of this document by CEN.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 292-1:1991, *Safety of machinery – Basic concepts, general principles for design – Part 1: Basic terminology, methodology.*

EN 292-2:1991, *Safety of machinery – Basic concepts, general principles for design – Part 2: Technical principles and specifications (including amendment A1:1995).*

EN 294:1994, *Safety of machinery – Safety distances to prevent danger zones being reached by the upper limbs.*

EN 745, *Agricultural machinery – Rotary mowers and flail mowers – Safety.*

EN 1070, *Safety of machinery – Terminology.*

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

EN ISO 3457:1995, *Earth-moving machinery – Guards and shields – Definitions and specifications.*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1070 apply together with the following:

3.1

inter-row mowing unit

rotary mower with vertical spindles equipped with pivoting boom, which allows grass cutting in the area between two successive obstructions (e.g. trees, posts, etc.) (see Figure 1)

3.2

pivoting boom

device which allows the inter-row mowing unit to perform lateral translation movements parallel to the ground, thus allowing cutting within the area between two successive obstructions which would not be possible using fixed mowing machines (see Figure 1)

3.3

sensor

device controlling boom movement, mounted forward of the inter-row mowing unit

NOTE The device may be formed of a metal rod which, when pushed backwards on encountering an obstruction, sends a command causing the boom to retract. Immediately after the obstacle has been passed, the sensor returns to its original position, and the boom returns to the working position.

3.4

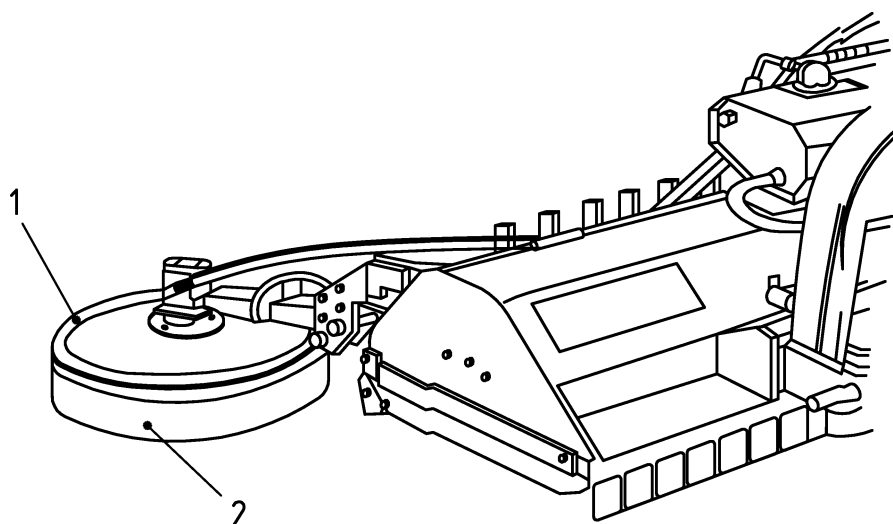
target

device which registers the number of impacts of objects propelled by the mowing unit

3.5

danger zone

area surrounding the machine with a radius of 50 m as measured from the centre of the unit



Key

- 1 Blade enclosure
- 2 Lateral protection

Figure 1 — Inter-row mowing unit

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4 List of hazards

The hazards, among those which appear in EN 292-1 and EN 292-2 and are considered applicable to machines covered by the standard are listed in annex A.

Annex A also indicates the hazards which have not been dealt with.

5 Safety requirements and/or 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 292 for hazards which are not dealt with by this standard and especially with annex A of EN 292-2:1991/A1:1995 when EN 292 does not give precise requirements.

Unless otherwise specified in this standard, the machine shall comply with the requirements of EN 1553:1999 and EN 745 and with Tables 1, 3, 4 and 6 of EN 294:1992.

5.2 Protection of cutting elements

The machine shall be equipped with an imperforate blade enclosure which fully covers the cutting elements, capable of ensuring a safety distance of at least 50 mm beyond the external trajectory of the cutting elements and which extend at least 3 mm below the plane of the blade tip circle (see Figure 2).

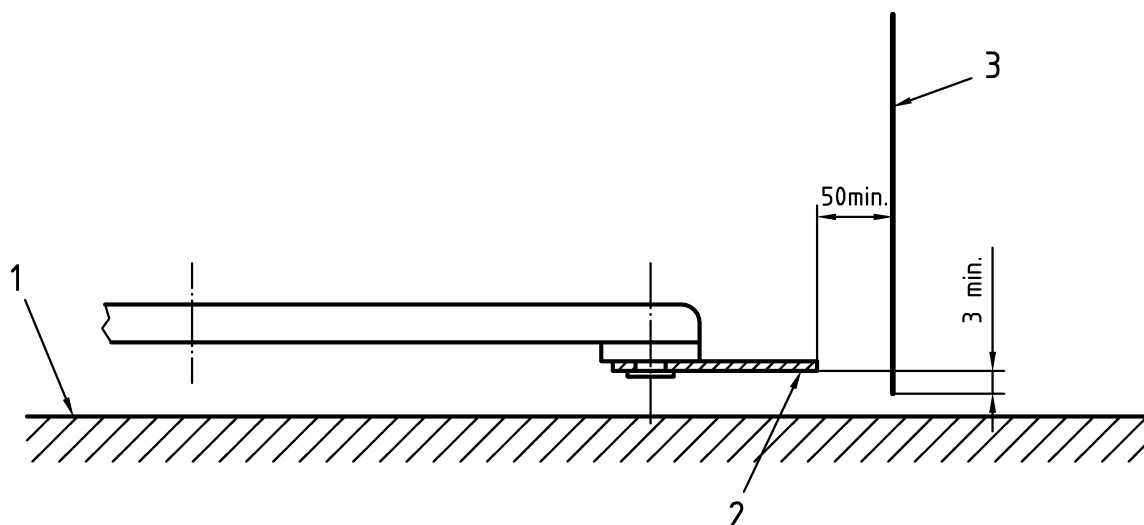
The blade enclosure shall be free of protrusions and sharp edges and, in the case of a mechanical pivoting boom, the device which allows the unit to rotate idly when it encounters an obstruction shall be designed, so that the rotary movement of the cutting elements is not imparted to the blade enclosure itself.

The blade enclosure and the parts of the machine ensuring the guarding shall withstand a vertical downwards load of 1200 N, and, in order to resist to the forces generated when the blade enclosure hits an obstruction, shall additionally withstand the following horizontal loads:

- 600 N for machines intended to be used with a tractor whose maximum power as given in the instruction handbook is less or equal to 37 kW;
- 1 000 N for the other machines.

These requirements shall be checked by the test procedure and the test acceptance defined in EN 1553:1999, annex B.

Dimensions in millimetres

**Key**

- 1 Ground
- 2 Blade tip circle
- 3 Blade enclosure

Figure 2
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5.3 Hose protection

In the case of hydraulically or pneumatically operated inter-row mowing units, pipes and hoses shall be fitted, assembled and if necessary retained to minimise contact with hot surfaces, friction and other unintentional exterior damage. Visual inspection of hoses and fittings shall be possible except those located inside frames.

Hydraulic hoses containing fluid with a pressure of more than 5 MPa (50 bar) and/or having a temperature over 50 °C, and which are located within 1 m of the operator, shall be guarded in accordance with EN ISO 3457:1995, 4.9.

Any part or component which may divert a possible jet of fluid can be considered as a sufficient protection device.

5.4 Thrown objects

The possibility that objects propelled by the rapid rotary action of the cutting elements during operation, which may constitute a hazard and risk of injury to the operator, shall be prevented.

Tests shall be performed in accordance with the indications given in clause 6.

5.5 Requirements for pivoting booms

Requirements for the pivoting boom including its strength, mounting, control system and control devices will be added at a future revision of the standard.

5.6 Noise

Noise emission from inter-row mowing units shall be measured according to EN 1553:1999, annex D.

Noise will be fully dealt with at a future revision of the standard.