



SLOVENSKI STANDARD
SIST EN 708:1996

01-junij-1996

Kmetijski stroji - Stroji za obdelavo tal z gnanimi delovnimi elementi - Varnost

Agricultural machinery - Soil working machines with powered tools - Safety

Landmaschinen - Bodenbearbeitungsgeräte mit kraftbetriebenen Werkzeugen - Sicherheit

Matériel agricole - Machines de travail du sol à outils animés - Sécurité

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ICS:

65.060.20 Oprema za obdelovanje tal Soil-working equipment

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EUROPEAN STANDARD

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English version

Agricultural machinery - Soil working machines with powered tools - Safety

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Matériel agricole - Machines de travail du sol
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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard was prepared by the Technical Committee CEN/TC 144 "Tractors and machinery for agricultural and forestry", of which the secretariat is held by AFNOR.

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).

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of an identical text or by endorsement, at the latest by August 1996, and conflicting national standards shall be withdrawn at the latest by August 1996.

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

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0 Introduction

The extent to which hazards are covered is indicated in the scope of this standard. These hazards are specific to soil working machines with powered tools. The hazards that are common to all the agricultural and forestry machines will be dealt with in a "Common requirements" standard currently in preparation.

Machines shall also comply as appropriate with EN 292 for hazards which are not dealt with and especially with annex A of EN 292-2:1991/A1:1995 when EN 292 does not give precise requirements.

1 Scope

This standard specifies safety requirements and their verification for the design and construction of soil working machines, mounted or trailed, with tools powered by the engine of the tractor or by an auxiliary motor. It is applicable regardless of the type of movement of the tools.

This standard is not applicable to :

- spading machines,
- pedestrian controlled soil working machines,
- machines where the tools are driven by movement of the machine over the ground,
- machines fitted with a retractable device, making them capable of working between two successive plants in the same row.

It describes methods for elimination or reduction of risks which need specific requirements for soil working machines with powered tools. It does not deal with general hazards particularly general hazards related to the mobility. These aspects will be dealt with in an other standard produced by CEN/TC 144 (see introduction).

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

The list of significant hazards dealt with in this standard is given in annex A. Annex A also indicates the hazards which have not been dealt with.

NOTE : The measures for safeguarding for the PTO shaft are dealt with in the "Common requirements" standard being prepared by CEN/TC 144.

Environmental aspects have not been considered in this standard.

This standard applies primarily to machines which are manufactured after the date of issue of the standard.

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.

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 (and amendment A1:1995)
EN 294 : 1992	Safety of machinery - Safety distances to prevent danger zones being reached by the upper limbs

3 Definitions

For the purpose of this standard, the following definition applies:

soil working machine with powered tools : Machine with powered tools designed for modifying soil structure or profile and/or for incorporating plants, crop residues or animal manure during tillage.

NOTE : Non-restrictive examples of such machines are given in annex B

4 Safety requirements and/or measures

4.1 General

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

4.2 Protection against hazards related to moving parts

4.2.1 Protection against hazards related to moving power transmission parts

To ensure the protection against hazards related to accessible moving power transmission parts, the machine shall be fitted with fixed guards (according to 3.22.1 of EN 292-1:1991).

When frequent access is foreseen, the machine shall be fitted with guards needing a tool for their opening. These guards shall remain attached to the machine when opened (for example by means of hinges) and automatically lock in closed position without the use of a tool.

If this type of guards is not used, the machine shall be fitted with :

- interlocking movable guards (according to 3.22.4 of EN 292-1:1991) ; or
- movable guards fitted with a device which prevents their opening so long as the parts are moving.

4.2.2 Protection against an unintentional contact with the tools

4.2.2.1 Machines shall be designed or guarded in such a way that any unintentional contact with the tools at the front, at the rear, at the sides and on the top is avoided :

- On the top, an imperforate guard shall cover the tools at least up to the outer points of their path. This guard shall be capable of resisting, without permanent deformation, a vertical force of 1 200 N.

- At the front, at the sides and at the rear of the accessible zone, a barrier shall be placed at a maximum height of 400 mm from the lower tools path and at a minimum horizontal distance a of 200 mm from the tools path (see figures 1 and 2).

NOTE : This 200 mm distance is the result of a compromise between the distances that were required in the CEN countries up till now : It was noted that these distances have not been scientifically validated.

At present time this 200 mm distance leads to an improvement of the safety level in many CEN countries and consequently of the general safety level in Europe.

This value will be reviewed by the next revision of the standard on the basis of the result of relevant studies to be carried out.

On the sides, when in the working position a guard covers the parts of the tools above the ground, then the distance a may be less than 200 mm (see figure 3)

At the rear when the guard is hinged, its lower edge shall, whatever its position, be at a minimum distance d in accordance with figure 4.

4.2.2.2 The guard at the rear may be retractable or removable, in order to permit the fitting of tools in accordance with the instructions of the manufacturer. This protection at the rear may also be assured by other parts (e.g. the frame) or by associated or combined equipment (e.g. seed drills, rollers, harrows), providing they are not power driven.

4.2.2.3 When a soil working machine with powered tools can be used without associated or combined equipment normally serving as a guard, in accordance with the instructions of the manufacturer, the machine shall be designed in such a way that the alternative guard (supplied by the manufacturer) can be fitted.

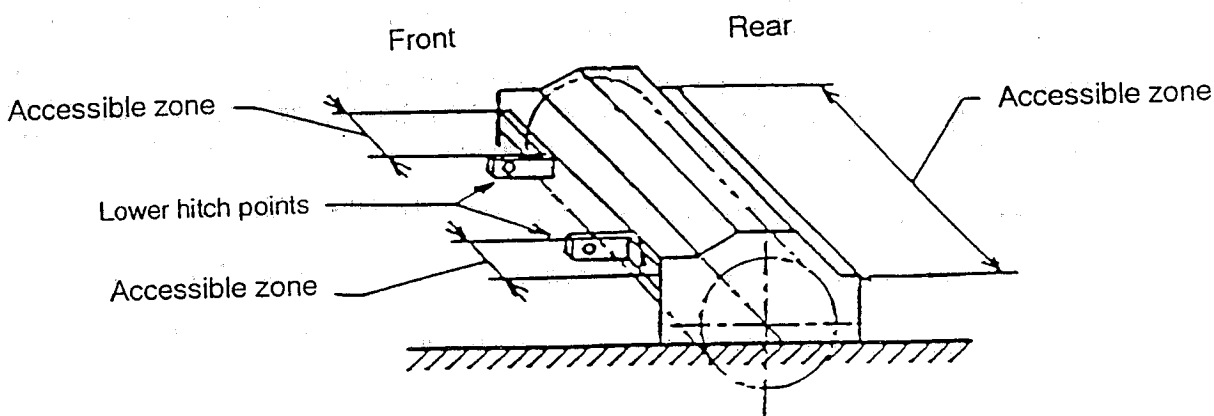


Figure 1 : Accessible zones

Dimensions in millimetres

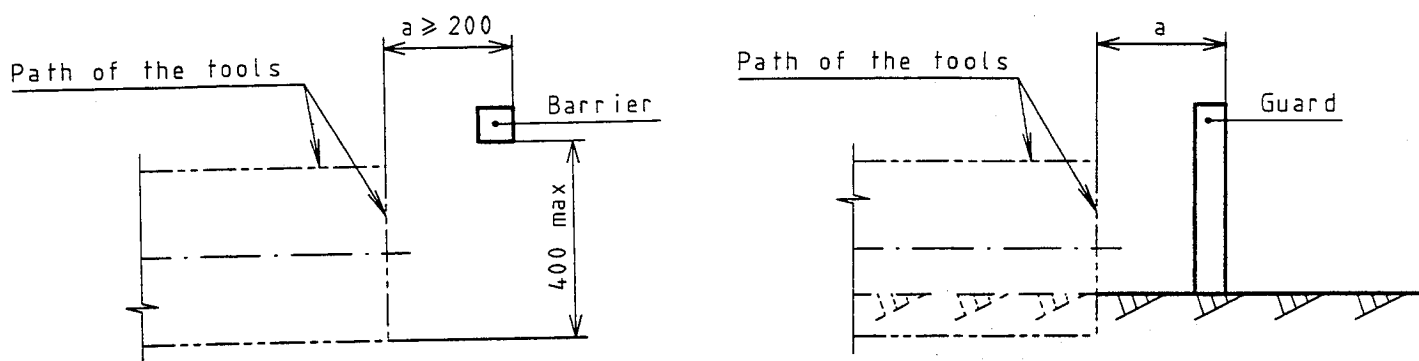


Figure 2
Barrier at the front, the rear and the sides

Figure 3 : Lateral guard

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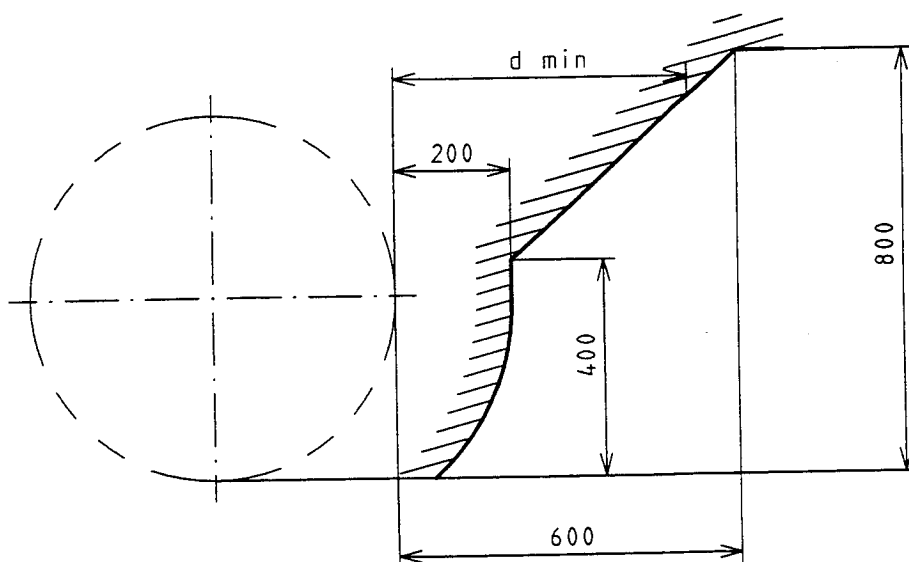


Figure 4 : Rear protection-Hinged guard