



**SLOVENSKI STANDARD**  
**SIST EN 474-2:2000**

**01-april-2000**

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**Earth-moving machinery - Safety - Part 2: Requirements for tractor-dozers**

Earth-moving machinery - Safety - Part 2: Requirements for tractor-dozers

Erdbaumaschinen - Sicherheit - Teil 2: Anforderungen für Planiermaschinen

Engins de terrassement - Sécurité - Partie 2: Exigences applicables aux boteurs

**Ta slovenski standard je istoveten z: EN 474-2:1996**

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English version

## Earth-moving machinery - Safety - Part 2: Requirements for tractor-dozers

Engins de terrassement - Sécurité - Partie 2:  
Exigences applicables aux bouteurs

Erdbaumaschinen - Sicherheit - Teil 2:  
Anforderungen für Planiermaschinen

This European Standard was approved by CEN on 1995-11-03. 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 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 has been prepared by CEN/TC 151 "Construction equipment and building material machines - Safety" of which the secretariat is held by DIN.

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).

The Annex A is normative and contains "List of additional hazards" and Annex B is informative and contains "Illustrations".

EN 474 "Earth-moving machinery - Safety" comprises the following parts:

Part 1	General requirements
Part 2	Requirements for tractor-dozers
Part 3	Requirements for loaders
Part 4	Requirements for backhoe loaders
Part 5	Requirements for hydraulic excavators
Part 6	Requirements for dumpers
Part 7	Requirements for tractor-scrapers
Part 8	Requirements for graders
Part 9	Requirements for pipelayers
Part 10	Requirements for trenchers
Part 11	Requirements for earth- and landfill compactors
Part 12	Requirements for rope excavators.

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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom

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## 0 Introduction

This European Standard is a Type C-standard in the structure of A-/B-/C-standards as defined in EN 292-1:1991.

The machinery concerned and the extent to which hazards are covered is indicated in the scope of this standard.

## 1 Scope

This standard specifies additional requirements to and/or exceptions from EN 474-1:1994 "Earth-moving machinery - Safety - Part 1: General requirements".

This standard applies to wheel and crawler tractor-dozers defined in ISO/DIS 6165:1994, and gives additional requirements for attachments and for derivated machinery.

This standard deals with the significant hazards pertinent to tractor-dozers when they are used as intended and under the conditions foreseen by the manufacturer (see Annex A of this standard and Annex C of EN 474-1:1994).

## 2 Normative references

This European Standard incorporates by dated or undated references, 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
EN 474-1:1994	Earth-moving machinery - Safety - Part 1: General requirements
ENV 1070:1993	Safety of machinery - Terminology
EN 25353:1988	Earth-moving machinery, and tractors and machinery for agriculture and forestry - Seat index point
EN 60204-1:1992	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 3457:1986	Earth-moving machinery - Guards and shields - Definitions and specifications
ISO 4250-2:1991	Narrow and wide base off-road tyres and rims - Part 2: Loads and inflation pressures
ISO/DIS 4250-3:1993	Earth-mover tyres and rims - Part 3: Rims

ISO 4254-4:1990	Tractors and machinery for agriculture and forestry - Technical means for ensuring safety - Part 4: Forestry winches
ISO 5006-1:1991	Earth-moving machinery - Operator's field of view - Part 1: Test method
ISO 6014:1986	Earth-moving machinery - Determination of ground speed
ISO 6016:1982	Earth-moving machinery - Methods of measuring the masses of whole machines, their equipment and components
ISO/DIS 6165:1994	Earth-moving machinery - Basic types - Vocabulary
ISO 6393:1985	Acoustics - Measurement of airborne noise emitted by earth-moving machinery - Method for determining compliance with limits for exterior noise - Stationary test condition
ISO 6682:1986	Earth-moving machinery - Zones of comfort and reach for controls
ISO 6747:1988	Earth-moving machinery - Tractors - Terminology and commercial specifications
ISO 9244:1995	Earth-moving machinery - General principles for safety signs and hazard pictorials
ISO/DIS 9249:1995	Earth-moving machinery - Engine test code - Net power
ISO 10263-2:1994	Earth-moving machinery - Operator enclosure environment - Part 2: Air filter test
ISO 10263-4:1994	Earth-moving machinery - Operator enclosure environment - Part 4: Operator enclosure ventilation, heating and/or air-conditioning test method
ISO/DIS 10968:1993	Earth-moving machinery - Operator's controls
ISO 12509:1995	Earth-moving machinery - Lighting, signalling and marking lights, and reflex-reflector devices

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**3 Definitions**

For the purposes of this standard the definitions stated in ENV 1070:1993 apply.

Additional definitions specifically needed for this standard are added below:  
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**3.1 Common definitions**

Terminology and commercial specifications for tractor-dozers are specified in ISO 6747:1988 and illustrated in Annex B of this standard.

Definitions used in EN and ISO standards referred to in this standard are also valid for this standard.



## 3.2 Additional definitions

**3.2.1 Tractor-dozer:** self-propelled crawler or wheeled machine, having either a dozing attachment which cuts, moves, and grades material through a forward motion of the machine, or mounted equipment used to exert a push or a pull force.

NOTE: A ripper may be connected to the rear part of the machine.

**3.2.2 Attachment:** removable device (working tool) mounted either directly to the linkage or on an attachment bracket to fulfil the primary function of the machine or for a specific use.

EXAMPLE: winch, blade, ripper.

## 4 Safety requirements

### 4.1 Access to crawler machines

EN 474-1:1994, clause 4.1 applies with the following exceptions. An access step integrated in the track frame can be retracted up to 30 mm from the outer edge of the track shoe.

### 4.2 Operator's station

#### 4.2.1 Heating and ventilation system

If a heating and ventilation system according to EN 474-1:1994, clause 4.2.2.6, is required the following applies. The heating and ventilation system shall:

- either comply with ISO 10263-4:1994
- or have the capacity of increasing the temperature of the air inside the cab and maintain a temperature of + 18 °C at prevailing ambient temperature. The minimum capacity of the heating system shall have a  $\Delta T$  of 25°C measured at - 10°C ambient temperature.

Measurement of the system capacity shall be made at three points. The three points shall be located in a vertical plane through the SIP and parallel to the longitudinal axis of the machine as follows (see figure 1):

- at filament position centre-point as defined in ISO 5006-1:1991;
- at the SIP as defined in EN 25353:1988;
- 100 mm above floor plate and 600 mm in front of the SIP.

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