



SLOVENSKI STANDARD
SIST EN 474-8:2007+A1:2009
01-maj-2009

Stroji za zemeljska dela - Varnost - 8. del: Zahteve za grederje

Earth-moving machinery - Safety - Part 8: Requirements for graders

Erdbaumaschinen - Sicherheit - Teil 8: Anforderungen für Grader

Engins de terrassement - Sécurité - Partie 8 : Prescriptions applicables aux niveleuses

Ta slovenski standard je istoveten z: EN 474-8:2006+A1:2009

[SIST EN 474-8:2007+A1:2009](https://standards.iteh.ai/catalog/standards/sist/a7e0249d-5ed2-4374-b84d-f25d88ff0d5/sist-en-474-8-2007a1-2009)

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ICS:

53.100 Stroji za zemeljska dela Earth-moving machinery

SIST EN 474-8:2007+A1:2009 en,fr

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EUROPEAN STANDARD

EN 474-8:2006+A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2009

ICS 53.100

Supersedes EN 474-8:2006

English Version

Earth-moving machinery - Safety - Part 8: Requirements for graders

Engins de terrassement - Sécurité - Partie 8: Prescriptions applicables aux niveleuses

Erdbaumaschinen - Sicherheit - Teil 8: Anforderungen für Grader

This European Standard was approved by CEN on 17 April 2006 and includes Amendment 1 approved by CEN on 20 December 2008.

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 CEN 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 CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 474-8:2006+A1:2009) has been prepared by Technical Committee CEN/TC 151 "Construction equipment and building material machines — Safety", the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by August 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

This document includes Amendment 1, approved by CEN on 2008-12-20.

This document supersedes A1 EN 474-8:2006 A1.

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

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

For bibliographic references, see A1 EN 474-1:2006+A1:2009 A1.

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 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 cable excavators.

This European Standard is intended for use in combination with Part 1 of the series.

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

EN 474-8:2006+A1:2009 (E)**Introduction**

This part of EN 474 is a type C standard as stated in EN ISO 12100-1:2003.

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

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 part of EN 474 deals with all significant hazards, hazardous situations and events relevant to graders as defined in EN ISO 6165:2006, when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4).

This part also deals with graders equipped with attached snowplough.

The requirements of this part are complementary to the common requirements formulated in [EN 474-1:2006+A1:2009](#), but adds or replaces the requirements for application for graders.

This part does not repeat the requirements from [EN 474-1:2006+A1:2009](#), but adds or replaces the requirements for application for graders.

This part specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards, hazardous situations and events during commissioning, operation and maintenance of graders.

This European Standard is not applicable to graders manufactured before the date of publication of this European Standard by CEN.

NOTE When graders are intended for use in winter service, see EN 13021:2003 "Winter service machines — Safety requirements"

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.

<https://standards.iteh.ai/catalog/standards/sist/a7e0249d-5ed2-4374-b84d-4e3300000000/en-474-8:2007+A1:2009>, [EN 474-1:2006+A1:2009](#), *Earth-moving machinery — Safety — Part 1: General requirements*

[EN ISO 7096:2008](#), *Earth-moving machinery — Laboratory evaluation of operator seat vibration (ISO 7096:2000)*

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

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in [EN 474-1:2006+A1:2009](#), [EN ISO 12100-1:2003](#) and the following apply.

NOTE 1 Terminology for graders is specified in ISO 7134:1993 and illustrated in Annex B of this European Standard.

NOTE 2 Definitions used in EN and ISO standards referred to in this European Standard are also valid for this document.

3.1

grader

self-propelled, wheeled machine which has an adjustable blade positioned between the front and rear axles

NOTE 1 The grader can be equipped with a front-mounted blade or scarifier that can also be located between the axles.

NOTE 2 The grader is primarily designed for grading, sloping, ditching and scarifying of materials through its forward motion.

NOTE 3 The grader can be equipped with a rear-mounted ripper.

EN 474-8:2006+A1:2009 (E)**4 List of additional significant hazards**

See Annex A.

NOTE Annex A (normative) contains all the significant hazards, hazardous situations and events, as far as they are dealt with in this European Standard, identified by risk assessment as significant for this type of machinery and which require action to eliminate or reduce the risk.

5 Safety requirements and/or measures**5.1 General**

Graders shall comply with the requirements of A_1 EN 474-1:2006+A1:2009 A_1 , as far as not modified or replaced by the requirements of this part.

5.2 Operator's position**5.2.1 Operator's seat**

A_1 EN 474-1:2006+A1:2009 A_1 , 5.4.1 applies with the addition that the seat shall meet the requirements of A_1 EN ISO 7096:2008 A_1 , tested with the input spectral class of EM4.

5.2.2 Rear window(s)

A_1 EN 474-1:2006+A1:2009 A_1 , 5.3.2.7 and 5.3.2.9 apply also for rear window(s) with the following provisions:

- arrangement to defrost the rear window(s) shall be made;
- the rear window(s) shall be fitted with a motorised wiper(s) and washer.

5.3 Fenders

A_1 EN 474-1:2006+A1:2009 A_1 , 5.14.7 applies with the exception that front wheels do not require fenders.

5.4 Steering system**5.4.1 General**

A_1 EN 474-1:2006+A1:2009 A_1 , 5.6.1 and 5.6.2 apply with the additions in 5.4.2 and 5.4.3.

5.4.2 Controls

Wheel, articulated and bogie steering shall be actuated by separate controls.

5.4.3 Steering performance test

A_1 EN 474-1:2006+A1:2009 A_1 , 5.6.2 applies with the following additions:

- the steering performance test shall be conducted with the front steering system (Ackermann steering system) only;
- during testing, leaning front wheels and articulated or bogie steering systems shall be kept in the vertical and straight ahead positions respectively.

5.4.4 Safety requirements for travelling mode

For travelling on public roads or long distance travelling off road the following is required:

- the leaning front wheel system shall be in the vertical position and the corresponding controls shall be mechanically locked;
- all blades and equipment shall be in their transport-position and so positioned that they are within the defined transport-width of the machine.

6 Information for use

^{A1} EN 474-1:2006+A1:2009 ^{A1}, 7.2 applies with addition of instruction on how to use the grader steering on public roads.

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