



SLOVENSKI STANDARD
oSIST prEN 474-8:2017
01-junij-2017

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

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

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

Ta slovenski standard je istoveten z: prEN 474-8

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ICS:

53.100 Stroji za zemeljska dela Earth-moving machinery

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EUROPEAN STANDARD
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English Version

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

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

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 151.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (prEN 474-8:2017) 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 document is currently submitted to the CEN Enquiry.

This document will supersede EN 474-8:2006+A1:2009.

This document 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).

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

For bibliographic references, see prEN 474-1:2017.

prEN 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
- Part 13: Requirements for rollers

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

prEN 474-8:2017 (E)**Introduction**

This part of prEN 474 is a type C standard as stated in EN ISO 12100:2010.

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 document, together with part 1, deals with all significant hazards for earth-moving machinery – graders when they are used as intended and under the conditions of misuse which are reasonably foreseeable by the manufacturer associated with the whole life time of the machine (see Clause 4).

The requirements of this part are complementary to the common requirements formulated in prEN 474-1. This document does not repeat the requirements from prEN 474-1, but adds or replaces the requirements for application for earth moving machinery – graders.

This part also deals with graders equipped with attached snowplough.

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

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

prEN 474-1:2017, *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 12100:2010, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100:2010)*

EN 13021:2003+A1:2008, *Winter service machines — Safety requirements*
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3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in prEN 474-1:2017, EN ISO 12100:2010 and the following apply.

Note 1 to entry: Terminology for graders is specified in ISO 7134:2013 and illustrated in Annex B of this European Standard.

Note 2 to entry: 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 to entry: The grader can be equipped with a front-mounted blade or scarifier that can also be located between the axles.

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

Note 3 to entry: The grader can be equipped with a rear-mounted ripper.

prEN 474-8:2017 (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 prEN 474-1:2017, as far as not modified or replaced by the requirements of this part.

When graders are intended for use in winter service (e.g. snow plough), EN 13021:2003+A1:2008 applies.

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

prEN 474-1:2017, 5.4.1 shall apply with the addition that the seat shall meet the requirements of EN ISO 7096:2008, tested with the input spectral class of EM4.

5.2.2 Rear window(s)

prEN 474-1:2017, 5.3.2.9 shall 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

prEN 474-1:2017, 5.14.7 shall apply with the exception that front wheels do not require fenders.

5.4 Steering system**5.4.1 General**

prEN 474-1:2017, 5.6.1 and 5.6.2 shall 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

prEN 474-1:2017, 5.6.2 shall apply 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

prEN 474-1:2017, 7.2 shall apply with addition of instruction on how to use the grader steering on public roads.

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Annex A (normative)

List of additional significant hazards – Graders

The list of hazards in prEN 474-1:2017, Annex A, applies with the following additions:

Table A.1 — List of additional significant hazards

No. ^a	Hazard	Relevant clauses of this European Standard
	Hazards, hazardous situations and hazardous events	
1	Mechanical hazards due to: — machine parts or working tools, e.g. mass and stability, mechanical strength.	5.4
	Additional hazards, hazardous situations and hazardous events due to mobility	
18	Relating to travelling functions	
18.4	Travelling functions	5.4.2
19	Linked to operator's station on the machine	
19.4	Mechanical hazards at the operator's station(s): a) contact with the wheels	5.3
19.5	Insufficient visibility from the operator's station(s)	5.2.2
19.7	Inadequate seating	5.2.1
20	Due to the control system	
20.3	Inadequate design of manual controls and their mode of operation	5.4.3
24	Insufficient instructions for the operator (operation manual, signs, warnings and markings)	6
^a Number refers to Annex A of prEN 474-1:2017.		