

**Mullatöömashinad. Ohutus. Osa 5: Hüdraulilistele
ekskavaatoritele esitatavad nõuded**

**Earth-moving machinery - Safety - Part 5: Requirements
for hydraulic excavators**

EESTI STANDARDI EESSÕNA

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See Eesti standard EVS-EN 474-5:2007+A3:2013 sisaldab Euroopa standardi EN 474-5:2006+A3:2013 ingliskeelset teksti.	This Estonian standard EVS-EN 474-5:2007+A3:2013 consists of the English text of the European standard EN 474-5:2006+A3:2013.
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English Version

Earth-moving machinery - Safety - Part 5: Requirements for hydraulic excavators

Engins de terrassement - Sécurité - Partie 5: Prescriptions applicables aux pelles hydrauliques

Erdbaumaschinen - Sicherheit - Teil 5: Anforderungen für Hydraulikbagger

This European Standard was approved by CEN on 17 April 2006 and includes Amendment 1 approved by CEN on 20 December 2008, Amendment 2 approved by CEN on 22 November 2011 and Amendment 3 approved by CEN on 23 May 2013.

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Foreword

This document (EN 474-5:2006+A3:2013) 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of an identical text or by endorsement, at the latest by January 2014, and conflicting national standards shall be withdrawn at the latest by January 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document includes Amendment 1, approved by CEN on 2008-12-20, Amendment 2, approved by CEN on 2011-11-22 and Amendment 3 approved by CEN on 2013-05-23.

This document supersedes A_3 EN 474-5:2006+A2:2012 A_3 .

The start and finish of text introduced or altered by amendment is indicated in the text by tags A_1 , A_2 , A_3 and A_3 .

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.

A_2 For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document. A_2

For bibliographic references, see A_3 EN 474-1:2006+A3:2013 A_3 .

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 organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece,

Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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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.

1 Scope

This part of EN 474 deals with all specific significant hazards, hazardous situations and events relevant to hydraulic excavators 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 object handling application, shovel application and log application.

The requirements of this part are complementary to the common requirements formulated in ^{A3} EN 474-1:2006+A3:2013 ^{A3}.

This part does not repeat the requirements from ^{A3} EN 474-1:2006+A3:2013 ^{A3}, but adds or replaces the requirements for application for hydraulic excavators.

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 hydraulic excavators.

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

2 Normative references

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

^{A3} EN 474-1:2006+A3:2013 ^{A3}, *Earth-moving machinery — Safety — Part 1: General requirements*

EN 12643:1997, *Earth-moving machinery — Rubber-tyred machines — Steering requirements (ISO 5010:1992, modified)*

^{A1} *deleted text* ^{A1}

^{A3} EN 13531:2001+A1:2008 ^{A3}, *Earth-moving machinery — Tip-over protection structure (TOPS) for compact excavators — Laboratory tests and performance requirements (ISO 12117:1997 modified)*

^{A1} EN ISO 2867:2008 ^{A1}, *Earth-moving machinery — Access systems* ^{A1} (ISO 2867:2006, including Cor 1:2008) ^{A1}

^{A1} EN ISO 3449:2008 ^{A1}, *Earth-moving machinery - Falling-object protective structures - Laboratory tests and performance requirements (ISO 3449:2005)*

^{A1} EN ISO 3471:2008, *Earth-moving machinery - Roll-over protective structures - Laboratory tests and performance requirements (ISO 3471:2008)* ^{A1}

EN ISO 6165:2006, *Earth-moving machinery — Basic types —* ^{A1} *deleted text* ^{A1} *Identification and terms and definitions (ISO 6165:2006)*

^{A1} EN ISO 6682:2008 ^{A1}, *Earth-moving machinery — Zones of comfort and reach for controls (ISO 6682:1986 including Amendment 1:1989)*

^{A1} EN ISO 6683:2008 ^{A1}, *Earth-moving machinery — Seat belts and seat belt anchorages — Performance requirements and tests (ISO 6683:2005)*

EN ISO 7096:2008 ^{A1}, *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)*

ISO 6014:1986, *Earth-moving machinery — Determination of ground speed*

EN ISO 7451:2007 ^{A1}, *Earth-moving machinery — Volumetric ratings for hydraulic excavator buckets and backhoe loader buckets*

ISO 7546:1983, *Earth-moving machinery — Loader and front loading excavator buckets — Volumetric ratings*

ISO 8643:1997, *Earth-moving machinery — Hydraulic excavator and backhoe loader boom-lowering control device — Requirements and tests*

ISO 10262:1998, *Earth-moving machinery — Hydraulic excavators — Laboratory tests and performance requirements for operator protective guards*

EN ISO 10567:2007 ^{A1}, *Earth-moving machinery — Hydraulic excavators — Lift capacity*

EN ISO 12117-2:2008, *Earth-moving machinery — Laboratory tests and performance requirements for protective structures of excavators — Part 2: Roll-over protective structures (ROPS) for excavators of over 6 t* ^{A3}

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 474-1:2006+A3:2013 ^{A3}, EN ISO 12100-1:2003 and the following apply.

NOTE 1 Terminology for hydraulic excavators are specified in ISO 7135:1993 and illustrated in Annex D (Figures D.1 to D.5) 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 hydraulic excavator

self-propelled machine on crawler, wheels or legs, having an upper structure normally capable of 360° swing with mounted equipment, primarily designed for excavating with bucket, without moving the undercarriage during the work cycle

NOTE 1 An excavator work cycle normally comprises excavating, elevating, swinging and discharging material (see EN ISO 6165:2006).

NOTE 2 Hydraulic excavators may also be used for material handling/transportation.

3.1.1 minimal swing radius excavator (MSRX)

excavator for operation in confined space having an upper structure with a short swing radius (equipment and attachment swing within 120 % of the width of the undercarriage)

3.1.2 compact excavator

excavator and minimal swing radius excavator with an operating mass (see EN ISO 6016:2008 ^{A1}) of less than or equal to 6 000 kg