

**Mullatöömashinad. Ohutus. Osa 4: Ületõstelaaduritele
esitatavad nõuded KONSOLIDEERITUD TEKST**

**Earth-moving machinery - Safety - Part 4: Requirements
for backhoe loaders CONSOLIDATED TEXT**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 474-4:2007+A2:2012 sisaldab Euroopa standardi EN 474-4:2006+A2:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 474-4:2007+A2:2012 consists of the English text of the European standard EN 474-4:2006+A2:2012.
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English Version

**Earth-moving machinery - Safety - Part 4: Requirements for
backhoe loaders**

Engins de terrassement - Sécurité - Partie 4: Prescriptions
applicables aux chargeuses-pelleteuses

Erdbaumaschinen - Sicherheit - Teil 4: Anforderungen für
Baggerlader

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

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Foreword

This document (EN 474-4:2006+A2:2012) 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of an identical text or by endorsement, at the latest by July 2012, and conflicting national standards shall be withdrawn at the latest by July 2012.

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

This document supersedes A2 EN 474-4:2006+A1:2009 A2.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1 and A2 A2.

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.

A2 For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document. A2

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, Croatia, 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, Turkey and the United Kingdom.

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 significant hazards, hazardous situations and events relevant to wheel and crawler backhoe loaders 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 fork application, object handling application and log handling.

The requirements of this part are complementary to the common requirements formulated in **EN 474-1:2006+A1:2009**.

This does not repeat the requirements from **EN 474-1:2006+A1:2009**, but adds or replaces the requirements for application for backhoe loaders.

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 backhoe loaders.

This European Standard is not applicable to machinery 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 European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 474-1:2006+A1:2009, *Earth-moving machinery — Safety — Part 1: General requirements*

EN ISO 3164:2008, *Earth-moving machinery — Laboratory evaluations of protective structures — Specifications for deflection-limiting volume (ISO 3164:1995)*

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

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

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)*

ISO 2330:2002, *Fork-lift trucks — Fork arms — Technical characteristics and testing*

ISO 6016:2008, *Earth-moving machinery — Methods of measuring the masses of whole machines, their equipment and components*

ISO 7451:2007, *Earth-moving machinery — Volumetric ratings for hoe-type and grab-type buckets of hydraulic excavators and backhoe loaders*

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 9248:1992, *Earth-moving machinery — Units for dimensions, performance and capacities, and their measurement accuracies*

ISO 14397-1:2007 ^{A1}, *Earth-moving machinery — Loaders and backhoe loaders — Part 1: Calculation of rated operating capacity and test method for verifying calculated tipping load*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in ^{A1} EN 474-1:2006+A1:2009 ^{A1}, EN ISO 12100-1:2003 and the following apply.

NOTE 1 Terminology for backhoe loaders is specified in ISO 8812:1999 and most common backhoe loaders are illustrated in Annex C 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 backhoe loader
self-propelled crawler or wheeled machine having a main frame designed to carry both front-mounted equipment and rear-mounted backhoe equipment, normally with stabilisers or outriggers (see EN ISO 6165:2006)

NOTE 1 When used in backhoe mode, the machine is stationary and normally digs below ground level, but when used in loader mode (bucket use), the machine loads through forward motion.

NOTE 2 A backhoe work cycle normally comprises excavating, elevating, swinging and discharging material. A loader work cycle normally comprises filling, elevating, transporting and discharging material.

3.2 compact backhoe loader
backhoe loader with an operating mass (see ^{A1} ISO 6016:2008 ^{A1}) of 4 500 kg or less, designed to work in confined spaces with the associated needs for greater manoeuvrability

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

Backhoe loaders shall comply with the requirements of ^{A1} EN 474-1:2006+A1:2009 ^{A1}, as far as not modified or replaced by the requirements of this part.

5.2 Protection

5.2.1 Roll-over protective structures (ROPS)

^{A1} EN 474-1:2006+A1:2009 ^{A1}, 5.3.3 applies with the following addition for compact backhoe loaders: