

Earth-moving machinery — Safety

Part 1. General requirements

The European Standard EN 474-1 : 1994, with the incorporation of its amendment A1 : 1998, has the status of a British Standard

ICS 53.100

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee B/513, Construction equipment and plant, and site safety, to Subcommittee B/513/1, Earth-moving machinery, upon which the following bodies were represented:

- British Coal Corporation
- Construction Plant (Hire Association)
- Federation of Civil Engineering Contractors
- Federation of Manufacturers of Construction Equipment and Cranes
- Health and Safety Executive
- Institution of Civil Engineers
- Silsoe Research Institute

This British Standard, having been prepared under the direction of the Building and Civil Engineering Sector Board, was published under the authority of the Standards Board and comes into effect on 15 March 1995

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Amendments issued since publication

Amd. No.	Date	Text affected
8843	December 1995	Indicated by a sideline
10284	February 1999	Indicated by a sideline

The following BSI references relate to the work on this standard:
Committee reference B/513
Draft for comment 91/12675 DC

ISBN 0 580 23689 7

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National foreword

This Part of this British Standard has been prepared by Subcommittee B/513/1 and is the English language version of EN 474-1 : 1994 *Earth-moving machinery — Safety — Part 1: General requirements* including Corrigendum, February 1995 and Amendment 1, May 1998, published by the European Committee for Standardization (CEN). It is one of a series implementing European Standards on machinery safety matters, in the development of which the United Kingdom has played an active part.

This British Standard covers the essential safety requirements in the Machinery Directive (89/392/EEC) and the Amending Directive (91/368/EEC).

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Descriptors: earth moving equipment, safety, protection against fall, overturning (vehicles), operating stations, ports, opening, seats, control devices, braking, signal devices, safety devices, maintenance, marking

English version

Earth-moving machinery — Safety — Part 1: General requirements (includes amendment A1 : 1998)

Engins de terrassement — Sécurité —
Partie 1: Exigences générales
(inclut l'amendement A1 : 1998)

Erdbaumaschinen — Sicherheit —
Teil 1: Allgemeine Anforderungen
(enthält Änderung A1 : 1998)

This European Standard was approved by CEN on 1994-09-16; amendment A1 was approved by CEN on 1998-05-07. 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.

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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

This European Standard was 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 Commission of the European Communities and the European Free Trade Association, and supports essential requirements of EC Directive(s).

The annex A is normative and contains ‘Operator’s seat dimensions’, the annex B is normative and contains ‘Steering test for rubber-tyred machines’, the annex C is also normative and contains ‘List of hazards’ and the annex D is informative and contains a ‘Bibliography’.

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 landfill compactors*

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 March 1995, and conflicting national standards shall be withdrawn at the latest by March 1995.

According to CEN/CENELEC Internal Regulations, 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.

Foreword of amendment A1

This amendment EN 474-1 : 1994/A1 : 1998 to EN 474-1 : 1994 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 amendment updates requirements for steels used in roll-over protective structures (ROPS), falling-object protective structures (FOPS) respectively and includes requirements for electromagnetic compatibility (EMC) of earth-moving machinery.

This amendment to the European Standard EN 474-1 : 1994 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 1998, and conflicting national standards shall be withdrawn at the latest by November 1998.

This amendment to the European Standard EN 474-1 : 1994 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).

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

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0 Introduction

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

Those hazards that are relevant for all mechanical, electrical, hydraulic, pneumatic and other equipment of machinery and that are dealt with in standards for common use (type A-, B 1- and B 2-standards) are not covered by this standard.

Reference to pertinent standards of this kind is made where such standards are applicable and so far necessary.

It is intended to revise EN 474 at an early date to take account of subsequent standards and legislation.

1 Scope

1.1 This Part of this standard specifies the general safety requirements for earth-moving machinery¹⁾ described in ISO 6165 except rollers. Landfill compactors on the bases of a wheel loader and/or a wheel dozer are included in this standard.

This standard also applies to derivated machinery designed primarily for use with equipment to loosen, pick-up, move, transport, distribute earth or grade earth or rock.

Additional safety requirements are given for specific families of earth-moving machinery in machine-specific Parts 2 to 11 of this standard.

This Part of this standard gives safety requirements for all earth-moving machinery families and shall be used in conjunction with one of the Parts 2 to 11. These machine specific parts do not repeat the requirements from Part 1 but add or replace the requirements for the family in question.

Specific requirements in Parts 2 to 11 take precedence over the respective requirements of this standard.

For earth-moving machinery families not dealt with in Parts 2 to 11 of EN 474-1 applies.

For multipurpose machinery the Parts of the standard, that cover the predominant application have to be used.

When operating in underground work additional requirements are needed which are under preparation. When operating in an explosive atmosphere e.g. coal mines, additional requirements are needed which are going to be covered in a special standard.

1.2 This standard deals with the significant hazards pertinent to earth-moving machinery, when used as intended and under the conditions foreseen by the manufacturer (see annex C).

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 286-2 : 1991	<i>Simple unfired pressure vessels designed to contain air or nitrogen Part 2: Simple unfired serially produced pressure vessels for air braking and auxiliary systems for motor-vehicles and trailers</i>
EN 292-1 : 1991	<i>Safety of machinery — Basic concepts, general principles for design Part 1: Basic terminology, methodology</i>
EN 292-2 : 1991	<i>Safety of machinery — Basic concepts, general principles for design Part 2: Technical principles and specifications</i>
EN 23411 : 1988	<i>Earth-moving machinery — Human physical dimensions of operators and minimum operator space envelope (ISO 3411 : 1988)</i>
EN 25353 : 1988	<i>Earth-moving machinery and tractors and machinery for agriculture and forestry — Seat index point (ISO 5353 : 1988)</i>
ENV 1070 : 1993	<i>Safety of machinery — Terminology</i>
ISO 2860 : 1992	<i>Earth-moving machinery — Minimum access dimensions</i>
ISO/DIS 2867 : 1993	<i>Earth-moving machinery — Access systems</i>
ISO 3449 : 1992	<i>Earth-moving machinery — Falling-object protective structures — Laboratory tests and performance requirements</i>
ISO 3450 : 1985	<i>Earth-moving machinery — Wheeled machines — Performance requirements and test procedures for braking systems</i>

¹⁾ For travelling on public roads the national traffic regulations shall be complied with.