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KAEVIKUMASINATELE ESITATAVAD NÕUDED

Earth-moving machinery - Safety - Part 10:
Requirements for trenchers

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 474-10:2022 sisaldab Euroopa standardi EN 474-10:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 474-10:2022 consists of the English text of the European standard EN 474-10:2022.
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English Version

Earth-moving machinery - Safety - Part 10: Requirements for trenchers

Engins de terrassement - Sécurité - Partie 10 :
Prescriptions applicables aux trancheuses

Erdbaumaschinen - Sicherheit - Teil 10: Anforderungen
für Grabenfräsen

This European Standard was approved by CEN on 14 February 2022.

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European foreword

This document (EN 474-10:2022) 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of an identical text or by endorsement, at the latest by September 2022, and conflicting national standards shall be withdrawn at the latest by March 2024.

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

This document supersedes EN 474-10:2006+A1:2009.

This document has been prepared under a standardization request 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 EN 474-1:2022.

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
- Part 13: Requirements for rollers

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

The main changes between this document and EN 474-10:2006+A1:2009 are as follows:

- a) definitions and illustrations corresponding to categories of trenchers now covered in EN 474-10 (added);
- b) safety-related functions of control systems (excluded);
- c) safety requirements (e.g. maintenance mode and protective measures) for categories of products already covered in the superseded version and new categories of products (e.g. truck vacuum trenchers, trencher backhoe equipment) (added);
- d) normative references (updated);
- e) verification methods table (added) (Clause 5);
- f) Annex A (updated);
- g) Annex ZA (updated).

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This document is a type-C standard as stated in EN ISO 12100:2010.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

- machine manufacturers (small, medium and large enterprises);
- health and safety bodies (regulators, accident prevention organizations, market surveillance, etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

- machine users/employers (small, medium and large enterprises);
- machine users/employees (e.g. trade unions, organizations for people with special needs);
- service providers, e.g. for maintenance (small, medium and large enterprises);
- consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the Scope of this document.

When requirements of this type-C standard are different from those which are stated in type-A or type-B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

1 Scope

This document together with EN 474-1:2022 deals with all significant hazards, hazardous situations and events relevant to trenchers as defined in Clause 3 when used as intended and under the conditions of misuse which are reasonably foreseeable by the manufacturer (see Annex A) associated with the whole lifetime of the machine as described in EN ISO 12100:2010, 5.4.

The requirements of this document are complementary to the common requirements formulated in EN 474-1:2022. This document does not repeat the requirements of EN 474-1:2022 but supplements or modifies the requirements for trenchers.

This document deals with:

- trenchers (3.1);
- trenching equipment (3.2);

NOTE In this document "trenchers" entails both "trencher" and "trenching equipment".

- truck vacuum trenchers (3.1.2);
- trenchers equipped with trencher backhoe equipment (3.3).

This document provides specific health and safety requirements of the trenching equipment itself and of the interface (e.g. mechanical, electric, hydraulic, controls) between the carrier-vehicle and its equipment as well as the interaction and effects on each other when used together (e.g. visibility).

This document does not apply to carrier-vehicles which are subject to other relevant regulations.

This document does not deal with continuous surface miners as defined in ISO 19224:2017, truck-trenchers that do not incorporate a vacuum extraction system or self-propelled ride-on and pedestrian controlled floor cutting-off machinery (e.g. ground saw) which are under the scope of EN 13862:2021.

This document does not provide requirements for main electrical circuits and drives of machinery when the primary source of energy is an external electrical supply.

This document does not provide performance requirements for safety related functions of control system(s).

The following significant and relevant hazards are not covered in this document:

- Transmission of power between self-propelled machinery (or tractor) and recipient machinery;
- Laser;
- Lightning.

This document is not applicable to trenchers which are manufactured before the date of publication of this document by CEN.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 474-1:2022, *Earth-moving machinery — Safety — Part 1: General requirements*

EN 620:2021, *Continuous handling equipment and systems — Safety requirements for fixed belt conveyors for bulk materials*

EN 795:2012, *Personal fall protection equipment — Anchor devices*

EN 856:2015+AC:2019, *Rubber hoses and hose assemblies — Rubber-covered spiral wire reinforced hydraulic type — Specification*

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

EN ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction (ISO 12100:2010)*

ISO 6393:2008, *Earth-moving machinery — Determination of sound power level — Stationary test conditions*

ISO 6394:2008, *Earth-moving machinery — Determination of emission sound pressure level at operator's position — Stationary test conditions*

ISO 6394:2008/Cor 1:2009, *Earth-moving machinery — Determination of emission sound pressure level at operator's position — Stationary test conditions — Technical Corrigendum 1*

ISO 6405-1:2017, *Earth-moving machinery — Symbols for operator controls and other displays — Part 1: Common symbols*

ISO 11112:1995, *Earth-moving machinery — Operator's seat — Dimensions and requirements*

ISO 11112:1995/AMD 1:2001, *Earth-moving machinery — Operator's seat — Dimensions and requirements*

ISO 16001:2017, *Earth-moving machinery — Object detection systems and visibility aids — Performance requirements and tests*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 474-1:2022 and EN ISO 12100:2010 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

trencher

self-propelled crawler or wheeled machine, having rear- and/or front-mounted equipment (trenching equipment (3.4)), primarily designed to produce a trench in a continuous operation, through motion of the machine

[SOURCE: EN ISO 6165:2012, 4.5]

Note 1 to entry: See examples in Annex B.

Note 2 to entry: Terminology for trenchers is specified in ISO 13539:1998.