# PÕLLUMAJANDUSMASINAD JA TRAKTORID. SUURES OSAS AUTOMATISEERITUD PÕLLUMAJANDUSMASINATE OHUTUSNÕUDED. KONSTRUEERIMISE PÕHIMÕTTED

# Agricultural machinery and tractors - Safety of highly automated agricultural machines - Principles for design (ISO 18497:2018)

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

| | |
|---|---|
| See Eesti standard EVS-EN ISO 18497:2018 sisaldab Euroopa standardi EN ISO 18497:2018 ingliskeelset teksti. | This Estonian standard EVS-EN ISO 18497:2018 consists of the English text of the European standard EN ISO 18497:2018. |
| Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. | This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation. |
| Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 12.12.2018. | Date of Availability of the European standard is 12.12.2018. |
| Standard on kättesaadav Eesti Standardikeskusest. | The standard is available from the Estonian Centre for Standardisation. |



Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 65.060.01

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN ISO 18497

December 2018

ICS 65.060.01

English Version

# Agricultural machinery and tractors - Safety of highly automated agricultural machines - Principles for design (ISO 18497:2018)

Tracteurs et matériels agricoles - Sécurité des machines hautement automatisées - Principes de conception (ISO 18497:2018)

Landwirtschaftliche Maschinen und Traktoren - Sicherheit hochautomatisierter Maschinen (ISO 18497:2018)

This European Standard was approved by CEN on 3 September 2018.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**



Ref. No. EN ISO 18497:2018 E

## European foreword

This document (EN ISO 18497:2018) has been prepared by Technical Committee ISO/TC 23 "Tractors and machinery for agriculture and forestry" in collaboration with Technical Committee CEN/TC 144 “Tractors and machinery for agriculture and forestry” the secretariat of which is held by AFNOR.

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 June 2019, and conflicting national standards shall be withdrawn at the latest by June 2019.

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

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

## Endorsement notice

The text of ISO 18497:2018 has been approved by CEN as EN ISO 18497:2018 without any modification.

# Annex ZA
(informative)

## Relationship between this European Standard and the Essential Requirements of Directive 2006/42/EC Machinery aimed to be covered

This European Standard has been prepared under a Commission's standardization request M/396 to provide one voluntary means of conforming to essential requirements of Directive 2006/42/EC on machinery.

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive and associated EFTA regulations.

**Table ZA.1 — Correspondence between this European Standard and Annex I of Directive 2006/42/EC**

| Essential Requirements of Directive 2006/42/EC | Clause(s)/sub-clause(s) of this EN | Remarks/Notes |
|---|---|---|
| Within the limits of scope all relevant essential requirements are covered | All | Compliance with Essential Requirements is limited to establishing the principles for design and associated verification procedures relevant to highly automated and autonomous operation.<br>In addition, compliance with the detailed requirements of a relevant machine specific type-C standard dealing with highly automated and/or autonomous operation based on these design principles and providing presumption of conformity with the relevant Essential Requirements of Directive 2006/42/EC is required to achieve presumption of conformity for the machine.<br>For relation of normative clauses of this standard to significant hazards/relevant essential requirements of 2006/42/EC see informative Annex A, "List of significant hazards ", of this standard in combination with Annex D "Examples of significant hazards, hazardous situations, |

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| | | hazardous events and their relation to the Essential Requirements of the Machinery Directive 2006/42/EC" of CEN Guide 414 (https://boss.cen.eu/ref/CEN_414.pdf) |

**WARNING 1** — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

**WARNING 2** — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

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# Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 3, *Safety and comfort*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

# Introduction

This document is a type-B1 standard as stated in ISO 12100.

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 organisations, 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.

In addition, this document is intended for standardization bodies elaborating type-C standards.

The requirements of this document can be supplemented or modified by a type-C standard.

For machines which are covered by the scope of a type-C standard and which have been designed and built according to the requirements of that standard, the requirements of that type-C standard take precedence.

The structure of safety standards in the field of machinery is as follows.

— Type-A standards (basis standards) give basic concepts, principles for design, and general aspects that can be applied to machinery.

— Type-B standards (generic safety standards) deal with one or more safety aspects or one or more types of safeguards that can be used across a wide range of machinery:

  — Type-B1 standards on particular safety aspects (e.g. safety distances, surface temperature, noise);

  — Type-B2 standards on safeguards (e.g. two-hands controls, interlocking devices, pressure sensitive devices, guards).

— Type-C standards (machinery safety standards) deal with detailed safety requirements for a particular machine or group of machines.

Highly automated agricultural machine operations are an enabling technology. Customer benefits are increased; productivity and increased operator comfort.

Highly automated operation is a departure from traditional machine applications in the agricultural machinery and mobile equipment sectors that up to now required an on-board operator to perform work. Highly automated operations require unique safety considerations.

The objective of this document is to specify principles for the design of highly automated agricultural machine operations to achieve safe operation. Should requirements of this document for highly automated operation be different from those which are stated in a machine-specific standard dealing with highly automated operation, the requirements of the machine-specific standard take precedence over the requirements of this document.