BS EN ISO 18497-1:2024

BSI Standards Publication

# Agricultural machinery and tractors — Safety of partially automated, semi-autonomous and autonomous machinery

Part 1: Machine design principles and vocabulary

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Full document details: BS EN ISO 18497-1:2024

# National foreword

This British Standard is the UK implementation of EN ISO 18497-1:2024. It is identical to ISO 18497-1:2024. It supersedes BS EN ISO 18497:2018, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AGE/6, Agricultural tractors and forestry machinery.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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UK Government is responsible for legislation. For information on legislation and policies relating to that legislation, consult the relevant pages of www.gov.uk.

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**Amendments/corrigenda issued since publication**

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|---|---|

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN ISO 18497-1

August 2024

ICS 01.040.65; 65.060.01

Supersedes EN ISO 18497:2018

English Version

# Agricultural machinery and tractors - Safety of partially automated, semi-autonomous and autonomous machinery - Part 1: Machine design principles and vocabulary (ISO 18497-1:2024)

Tracteurs et matériels agricoles - Sécurité des machines partiellement automatisées, semi-autonomes et autonomes - Partie 1: Principes de conception des machines et vocabulaire (ISO 18497-1:2024)

Landmaschinen und Traktoren - Sicherheit von teilautomatisierten, halbautonomen und autonomen Maschinen - Teil 1: Gestaltungsleitsätze und Vokabular für Maschinen (ISO 18497-1:2024)

This European Standard was approved by CEN on 21 July 2024.

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 foreword

This document (EN ISO 18497-1:2024) 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 February 2025, and conflicting national standards shall be withdrawn at the latest by February 2025.

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 ISO 18497:2018.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

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

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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

## Endorsement notice

The text of ISO 18497-1:2024 has been approved by CEN as EN ISO 18497-1:2024 without any modification.

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# Annex ZA
(informative)

## Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered

This European Standard has been prepared under a Commission's standardization request "M/396 Mandate to CEN and CENELEC for Standardisation in the field of machinery" to provide one voluntary means of conforming to essential requirements of Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast).

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**

| The relevant Essential Requirements of Directive 2006/42/EC | Clause(s)/sub-clause(s) of this EN | Remarks/Notes |
|---|---|---|
| 1.1.2. Principles of safety integration | ----- | |
| 1.1.2(a) | 4 | |
| 1.1.2(c) | 4 | |
| 1.1.2(d) | | NOT COVERED |
| 1.1.2(e) | | NOT COVERED |
| 1.1.3. Materials and products | | NOT COVERED |
| 1.1.4. Lighting | | NOT COVERED |
| 1.1.5. Design of machinery to facilitate its handling | | NOT COVERED |
| 1.1.6. Ergonomics | | NOT COVERED |
| 1.1.7. Operating positions | | NOT COVERED |
| 1.1.8. Seating | | NOT COVERED |
| 1.2. CONTROL SYSTEMS | ----- | |
| 1.2.1. Safety and reliability of control systems | 4.2.3.1, 4.2.3.2, 4.2.4, 4.2.9.2 b), 4.2.10 | |
| 1.2.2. Control devices | | NOT COVERED |
| 1.2.3. Starting | 4.2.3 | |
| 1.2.4. Stopping | | NOT COVERED |
| 1.2.5. Selection of control or | | NOT COVERED |

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| The relevant Essential Requirements of Directive 2006/42/EC | Clause(s)/sub-clause(s) of this EN | Remarks/Notes |
|---|---|---|
| operating modes | | |
| 1.2.6. Failure of the power supply | 4.2.10 | |
| 1.3. PROTECTION AGAINST MECHANICAL HAZARDS | ---- | |
| 1.3.1. Risk of loss of stability | | NOT COVERED |
| 1.3.2. Risk of break-up during operation | | NOT COVERED |
| 1.3.3. Risks due to falling or ejected objects | | NOT COVERED |
| 1.3.4. Risks due to surfaces, edges or angles | | NOT COVERED |
| 1.3.5. Risks related to combined machinery | | NOT COVERED |
| 1.3.6. Risks related to variations in operating conditions | | NOT COVERED |
| 1.3.7. Risks related to moving parts | 4.2.4.1 c), 4.2.4.2 g), 4.2.7 | |
| 1.3.8. Choice of protection against risks arising from moving parts | | NOT COVERED |
| 1.3.9. Risks of uncontrolled movements | | NOT COVERED |
| 1.4. REQUIRED CHARACTERISTICS OF GUARDS AND PROTECTIVE DEVICES | ---- | |
| 1.4.1. General requirements | | NOT COVERED |
| 1.4.2. Special requirements for guards | | NOT COVERED |
| 1.4.3. Special requirements for protective devices | 4.2.2, 4.2.4.1 c), 4.2.4.2 g), 4.2.10 | |
| 1.5. RISKS DUE TO OTHER HAZARDS | ---- | |
| 1.5.1. Electricity supply | | NOT COVERED |
| 1.5.2. Static electricity | | NOT COVERED |
| 1.5.3. Energy supply other than electricity | | NOT COVERED |
| 1.5.4. Errors of fitting | | NOT COVERED |

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| The relevant Essential Requirements of Directive 2006/42/EC | Clause(s)/sub-clause(s) of this EN | Remarks/Notes |
|---|---|---|
| 1.5.5. Extreme temperatures | | NOT COVERED |
| 1.5.6. Fire | | NOT COVERED |
| 1.5.7. Explosion | | NOT COVERED |
| 1.5.8. Noise | | NOT COVERED |
| 1.5.9. Vibrations | | NOT COVERED |
| 1.5.10. Radiation | | NOT COVERED |
| 1.5.11. External radiation | | NOT COVERED |
| 1.5.12. Laser radiation | | NOT COVERED |
| 1.5.13. Emissions of hazardous materials and substances | | NOT COVERED |
| 1.5.14. Risk of being trapped in a machine | | NOT COVERED |
| 1.5.15. Risk of slipping, tripping or falling | | NOT COVERED |
| 1.5.16. Lightning | | NOT COVERED |
| 1.6. MAINTENANCE | ----- | |
| 1.6.1. Machinery maintenance | | NOT COVERED |
| 1.6.2. Access to operating positions and servicing points | | NOT COVERED |
| 1.6.3. Isolation of energy sources | | NOT COVERED |
| 1.6.4. Operator intervention | | NOT COVERED |
| 1.6.5. Cleaning of internal parts | | NOT COVERED |
| 1.7. INFORMATION | ---- | |
| 1.7.1. Information and warnings on the machinery | 4.4 | |
| 1.7.1.1. Information and information devices | 4.2.5, 4.2.6, 4.2.9.1, 4.2.9.2 a), 4.4, 4.5 | |
| 1.7.1.2. Warning devices | 4.2.5, 4.2.6, 4.2.9.1, 4.2.9.2 a), 4.2.10.1, 4.3 | |
| 1.7.2. Warning of residual risks | 4.2.5, 4.2.6, 4.2.9.1, 4.2.9.2 a), 4.3 | |
| 1.7.3. Marking of machinery | | NOT COVERED |
| 1.7.4. Instructions | 4.5 | |
| 2.4. MACHINERY FOR PESTICIDE APPLICATION | ---- | |
| 2.4.2. General | | NOT COVERED |

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| The relevant Essential Requirements of Directive 2006/42/EC | Clause(s)/sub-clause(s) of this EN | Remarks/Notes |
|---|---|---|
| 2.4.3. Controls and monitoring | | NOT COVERED |
| 2.4.4. Filling and emptying | | NOT COVERED |
| 2.4.5. Application of pesticides | ---- | |
| 2.4.5.1. Application rate | | NOT COVERED |
| 2.4.5.2. Distribution, deposition and drift of pesticide | | NOT COVERED |
| 2.4.5.3. Tests | | NOT COVERED |
| 2.4.5.4. Losses during stoppage | | NOT COVERED |
| 2.4.6. Maintenance | ---- | |
| 2.4.6.1. Cleaning | | NOT COVERED |
| 2.4.6.2. Servicing | | NOT COVERED |
| 2.4.7. Inspections | | NOT COVERED |
| 2.4.8. Marking of nozzles, strainers and filters | | NOT COVERED |
| 2.4.9. Indication of pesticide in use | | NOT COVERED |
| 2.4.10. Instructions | | NOT COVERED |
| 3.2 WORK POSITIONS | --- | |
| 3.2.1. Driving position | | NOT COVERED |
| 3.2.2. Seating | | NOT COVERED |
| 3.2.3. Positions for other persons | | NOT COVERED |
| 3.3 CONTROL SYSTEMS | --- | |
| 3.3.1. Control devices | 4.2.4.2 b) | |
| 3.3.2. Starting/moving | 4.2.2.1, 4.2.2.2, 4.2.3.1, 4.2.3.2 | |
| 3.3.3. Travelling function | | NOT COVERED |
| 3.3.4. Movement of pedestrian-controlled machinery | | NOT COVERED |
| 3.3.5. Control circuit failure | | NOT COVERED |
| 3.4 PROTECTION AGAINST MECHANICAL HAZARDS | --- | |
| 3.4.1. Uncontrolled movements | | NOT COVERED |
| 3.4.2. Moving transmission parts | | NOT COVERED |
| 3.4.3. Roll-over and tip-over | | NOT COVERED |
| 3.4.4. Falling objects | | NOT COVERED |

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| The relevant Essential Requirements of Directive 2006/42/EC | Clause(s)/sub-clause(s) of this EN | Remarks/Notes |
|---|---|---|
| 3.4.5. Means of access | | NOT COVERED |
| 3.4.6. Towing devices | | NOT COVERED |
| 3.4.7. Transmission of power between self-propelled machinery (or tractor) and recipient machinery | | NOT COVERED |
| 3.5 PROTECTION AGAINST OTHER HAZARDS | ---- | |
| 3.5.1. Batteries | | NOT COVERED |
| 3.5.2. Fire | | NOT COVERED |
| 3.5.3. Emissions of hazardous substances | | NOT COVERED |
| 3.6 INFORMATION AND INDICATIONS | ---- | |
| 3.6.1. Signs, signals and warnings | 4.2.5, 4.2.6, 4.2.9.1, 4.2.9.2 a), 4.2.10.1, 4.3 | |
| 3.6.2. Marking | | NOT COVERED |
| 3.6.3. Instructions | ---- | |
| 3.6.3.1. Vibrations | | NOT COVERED |
| 3.6.3.2. Multiple uses | | NOT COVERED |

**Table ZA.2 — Applicable Standards to confer presumption of conformity as described in this Annex ZA**

| Column 1 Reference in Clause 2 | Column 2 International Standard Edition | Column 3 Title | Column 4 Corresponding European Standard Edition |
|---|---|---|---|
| ISO 3767-1:2016 | ISO 3767-1:2016<br>ISO 3767-1:2016/A1:2020 | Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Symbols for operator controls and other displays — Part 1: Common symbols | None<br><br>For applicable standard edition see Column 2 |
| ISO 3767-2:2016 | ISO 3767-2:2016<br>ISO 3767-2:2016/A1:2020 | Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Symbols for operator controls and other displays — Part 2: Symbols for agricultural | None<br><br>For applicable standard edition see Column 2 |

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