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**Agricultural machinery — Safety —**

**Part 13:**

**Large rotary mowers**

*Matériel agricole — Sécurité —*

*Partie 13: Grandes faucheuses rotatives*



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# Contents

|   | Page     |
|---|----------|
| Foreword.....   | v        |
| Introduction.....   | vii      |
| <b>1 Scope.....</b>   | <b>1</b> |
| <b>2 Normative references.....</b>  | <b>2</b> |
| <b>3 Terms and definitions.....</b>   | <b>2</b> |
| 3.1 Rotary mowers.....  | 2        |
| 3.2 Cutting elements.....   | 3        |
| 3.3 Thrown-object testing.....  | 3        |
| <b>4 Safety requirements and/or protective/risk reduction measures.....</b>                 | <b>4</b> |
| 4.1 General.....  | 4        |
| 4.2 Protection against thrown objects.....  | 4        |
| 4.3 Protection against inadvertent contact with the cutting elements.....                   | 4        |
| 4.4 Rotating power component guarding and shielding.....                                    | 5        |
| 4.5 Overrunning clutch or freewheel device.....   | 5        |
| 4.6 Attachment means for trailed mowers.....  | 5        |
| 4.7 Attachment means for mounted and semi-mounted mowers.....                               | 5        |
| 4.8 Cutting elements.....   | 5        |
| 4.9 Impact of the cutting-element assemblies.....   | 5        |
| 4.10 Unbalance.....   | 6        |
| 4.11 Structural integrity.....  | 6        |
| <b>5 Verification of safety requirements and/or protective/risk reduction measures.....</b> | <b>6</b> |
| 5.1 Test conditions — General.....  | 6        |
| 5.1.1 Assembly.....   | 6        |
| 5.1.2 Mower position.....   | 6        |
| 5.1.3 Test speed.....   | 6        |
| 5.1.4 Number of tests.....  | 6        |
| 5.2 Foot-probe test.....  | 6        |
| 5.2.1 Foot-probe test equipment.....  | 6        |
| 5.2.2 Test conditions.....  | 8        |
| 5.2.3 Test procedure.....   | 9        |
| 5.2.4 Test acceptance.....  | 9        |
| 5.3 Impact test for cutting-element assemblies.....   | 9        |
| 5.3.1 Test equipment.....   | 9        |
| 5.3.2 Test conditions.....  | 9        |
| 5.3.3 Test procedure.....   | 9        |
| 5.3.4 Test acceptance.....  | 12       |
| 5.4 Unbalance test for cutting-element assemblies.....                                      | 12       |
| 5.4.1 Test equipment.....   | 12       |
| 5.4.2 Test conditions — Multi-piece cutting element assembly.....                           | 12       |
| 5.4.3 Test conditions — One-piece cutting element construction.....                         | 12       |
| 5.4.4 Test procedure.....   | 12       |
| 5.4.5 Test acceptance.....  | 12       |
| 5.5 Structural integrity test.....  | 12       |
| 5.5.1 Test equipment.....   | 12       |
| 5.5.2 Test conditions.....  | 13       |
| 5.5.3 Test procedure.....   | 13       |
| 5.5.4 Test acceptance.....  | 13       |
| 5.6 Thrown object test.....   | 13       |
| 5.6.1 Operator zone.....  | 13       |
| 5.6.2 Test equipment.....   | 16       |
| 5.6.3 Test conditions.....  | 17       |
| 5.6.4 Test procedure.....   | 18       |

|                     |   |           |
|---------------------|---|-----------|
| 5.6.5               | Scoring.....  | 19        |
| 5.6.6               | Test acceptance.....  | 19        |
| <b>6</b>            | <b>Information for use.....</b>                                 | <b>20</b> |
| 6.1                 | Operator's manual.....  | 20        |
| <b>7</b>            | <b>Marking and safety signs.....</b>                            | <b>21</b> |
| 7.1                 | Marking.....  | 21        |
| 7.2                 | Safety signs.....   | 21        |
| <b>Annex A</b>      | <b>(informative) List of significant hazards.....</b>           | <b>22</b> |
| <b>Annex B</b>      | <b>(informative) Example of test recording forms.....</b>       | <b>24</b> |
| <b>Annex C</b>      | <b>(informative) Example illustrations of mowers.....</b>       | <b>27</b> |
| <b>Annex D</b>      | <b>(normative) Corrugated fibreboard penetration tests.....</b> | <b>30</b> |
| <b>Bibliography</b> | .....   | <b>32</b> |

## 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 document 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](http://www.iso.org/directives)).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights.

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

For an explanation of 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 [www.iso.org/iso/foreword.html](http://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 7, *Equipment for harvesting and conservation*.

This second edition cancels and replaces the first edition (ISO 4254-13:2012), which has been technically revised.

The main changes are as follows:

- additional information has been added to the Scope regarding applicability;
- the Normative references have been updated;
- in [Clause 3](#):
  - some terms and definitions have been modified, added or removed;
  - former Figure 1 has been removed and subsequent figures have been renumbered;
- blade test and performance requirements have been moved to ISO 5718-2;
- in [Clause 4](#), [subclauses 4.8](#), [4.9](#), [4.10](#) and [4.11](#) have been revised to reflect the strength and performance requirements in the standards concerned;
- in [Clause 5](#):
  - title has been revised;
  - [Figure 2](#) (former Figure 3) has been modified;
  - [Figure 3](#) (former Figure 4) has been modified;

- [5.2.2.3](#) has been added to indicate a test condition;
- [5.3.1.4](#) has been modified to indicate new requirements for test equipment;
- [5.4.1.4](#) has been added to indicate new requirements for test equipment;
- [5.4.5](#) test acceptance criteria has been modified;
- [5.5.4](#) test acceptance criteria has been modified;
- subclause 5.7 and succeeding subclauses have been removed;
- subclause 5.8 and succeeding subclauses, including Table 1 and Figure 12, have been removed;
- [5.6.2.6](#) has been modified to correct an error in the sand particle size requirements for test equipment;
- the Bibliography has been updated.

A list of all parts of ISO 4254 series can be found on the ISO website.

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](http://www.iso.org/members.html).

## Introduction

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

- type-A standards (basis safety standards) giving basic concepts, principle for design, and general aspects that can be applied to machinery;
- type-B standards (generic safety standards) dealing with one safety aspect or one type of safeguards that can be used across a wide range of machinery;
  - type-B1 standards on particular safety aspects (for example, safety distances, surface temperature, noise);
  - type-B2 standards on safeguards (for example, two-hands controls, interlocking devices, pressure sensitive devices, guards);
- type-C standards (machinery safety standards) dealing with detailed safety requirements for a particular machine or group of machines.

This Standard is a type C standard as stated in ISO 12100.

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.

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

Significant hazards that are common to all agricultural machines (self-propelled ride-on, mounted, semi-mounted and trailed) are dealt with in ISO 4254-1.



# Agricultural machinery — Safety —

## Part 13: Large rotary mowers

### 1 Scope

This document, when used together with ISO 4254-1, specifies the safety requirements and their verification for the design and construction of towed, semi-mounted, or mounted large rotary mowers with single or multiple cutting elements which have a cutting element tip circle of 1 000 mm or greater for any single cutting-element assembly, mounted on a propelling tractor or machine, intended for agricultural mowing equipment and designed for shredding crop residue, grass and small brush by impact. It describes methods for the elimination or reduction of hazards arising from the intended use and reasonably foreseeable misuse of these machines by one person (the operator) in the course of normal operation and service. In addition, it specifies the type of information on safe working practices to be provided by the manufacturer.

NOTE 1 When used outside of agriculture, additional requirements not specified in this document can be applicable.

This document is not applicable to:

- rotary disc mowers, rotary drum mowers, and flail mowers designed for forage crop harvesting as covered by ISO 4254-12;
- arm-type large rotary mowers;
- pedestrian-controlled motor mowers;
- lawn mowers covered by the ISO 5395 series.

When requirements of this document are different from those which are stated in ISO 4254-1, the requirements of this document take precedence over the provisions of ISO 4254-1 for machines that have been designed and built according to the provisions of this document.

This document is also not applicable to environmental hazards, road safety, electromagnetic compatibility, vibration and hazards related to moving parts for power transmission. It is also not applicable to hazards related to maintenance or repairs to be carried out by professional service personnel.

This document, taken together with ISO 4254-1, deals with all the significant hazards, hazardous situations and events relevant to large rotary mowers used as intended and under the conditions foreseen by the manufacturer. (A list of significant hazards is provided in [Annex A](#).)

NOTE 2 Example illustrations of two mowers (a rigid-deck large rotary mower and a trail-type multi-section, foldable-wing large rotary mower) dealt with in this document are shown in [Annex C, C.1](#).

NOTE 3 Example illustrations of mowers not dealt with in this document are shown in [Annex C, C.2](#).

NOTE 4 ISO 14982 specifies test methods and acceptance criteria for evaluating the electromagnetic compatibility of all kinds of mobile agricultural machinery.

This document is not applicable to large rotary mowers which are manufactured before the date of publication.

## 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. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 730, *Agricultural wheeled tractors — Rear-mounted three-point linkage — Categories 1N, 1, 2N, 2, 3N, 3, 4N and 4*

ISO 4254-1, *Agricultural machinery — Safety — Part 1: General requirements*

ISO 5673-1, *Agricultural tractors and machinery — Power take-off drive shafts and power-input connection — Part 1: General manufacturing and safety requirements*

ISO 5718-2, *Harvesting equipment – Requirements for cutting elements – Part 2: Blades for large rotary mowers (under development)*

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

ISO 13857:2019, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4254-1, ISO 12100 and the following apply.

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

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

### 3.1 Rotary mowers

#### 3.1.1

##### **large rotary mower**

mower, which may include mulching, with single or multiple cutting-element assemblies which have a *cutting-element tip circle* (3.2.4) of 1 000 mm or greater powered by a propelling machine in which one or more functional components rotate(s) about a vertical axis to cut or shear crop residue, grass and small brush by impact

#### 3.1.1.1

##### **rigid-deck large rotary mower**

*large rotary mower* (3.1.1) with single or multiple cutting-element assemblies on a common rigid deck

#### 3.1.1.2

##### **multi-section, foldable-wing large rotary mower**

*large rotary mower* (3.1.1) with multiple cutting-element assemblies and with a single wing or multiple wings that are capable of following the terrain

Note 1 to entry: The wings are foldable for transport and to clear obstacles, but are intended to operate only with all sections in close proximity to the ground surface when mowing.