
Agricultural machinery — Safety —

Part 12:

**Rotary disc and drum mowers and flail
mowers**

Matériel agricole — Sécurité —

*Partie 12: Faucheuses rotatives à disques, faucheuses rotatives à
tambours et faucheuses-broyeuses*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 4254-12 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 7, *Equipment for harvesting and conservation*.

ISO 4254 consists of the following parts, under the general title *Agricultural machinery — Safety*:

- *Part 1: General requirements*¹⁾
- *Part 5: Power-driven soil-working machines*
- *Part 6: Sprayers and liquid fertilizer distributors*
- *Part 7: Combine harvesters, forage harvesters and cotton harvesters*
- *Part 8: Solid fertilizer distributors*
- *Part 9: Seed drills*
- *Part 10: Rotary tedders and rakes*
- *Part 11: Pick-up balers*
- *Part 12: Rotary disc and drum mowers and flail mowers*
- *Part 13: Large rotary mowers*²⁾

The following part is under preparation:

- *Part 14: Mounted, semi-mounted and trailed bale wrappers*

Part 2, *Anhydrous ammonia applicators*, has been withdrawn; Part 3, *Tractors*, has been cancelled and is replaced by ISO 26322 (all parts), *Tractors for agriculture and forestry — Safety*; and Part 4, *Forestry winches*, has been cancelled and replaced by ISO 19472, *Machinery for forestry — Winches — Dimensions, performance and safety*.

1) For the purposes of global relevance, the requirements related to the guarding of moving parts for power transmission have been transferred and published as two separate Technical Specifications: ISO/TS 28923:2007 (*Guard opening with tool*) and ISO/TS 28924:2007 (*Guard opening without tool*).

2) To be published.

Introduction

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

- a) Type-A standards (basic standards) giving basic concepts, principles for design, and general aspects that can be applied to machinery.
- b) Type-B standards (generic safety standards) dealing with one or more safety aspect(s) or one or more type(s) 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-hand controls, interlocking devices, pressure sensitive devices, guards);
- c) Type-C standards (machinery safety standards) dealing with detailed safety requirements for a particular machine or group of machines.

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

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the Scope of this part of ISO 4254. These hazards are specific to rotary disc mowers, rotary drum mowers, as used for forage crop harvesting in agriculture only, and flail mowers with horizontal axis for agriculture only, that are mounted, semi-mounted, trailed or self-propelled.

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

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 provisions of this type-C standard.

Agricultural machinery — Safety —

Part 12:

Rotary disc and drum mowers and flail mowers

1 Scope

This part of ISO 4254, where used with ISO 4254-1, specifies the safety requirements and their verification for the design and construction of rotary disc mowers, rotary drum mowers, as used for forage crop harvesting in agriculture only, and flail mowers with a horizontal axis for use in agriculture only, that are mounted, semi-mounted, trailed or self-propelled. 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.

Flail mowers with a horizontal axis that can be opened at the rear only for maintenance reasons are included.

This part of ISO 4254 is also applicable to mowers equipped with a conditioning device.

This part of ISO 4254 is applicable only to mowers intended to work at ground level, examples of which are given in A.1.

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

This part of ISO 4254, taken together with ISO 4254-1, deals with all the significant hazards (as listed in Table 1), hazardous situations and events (with the exception of noise and vibrations) relevant to rotary disc mowers, rotary drum mowers and flail mowers, when they are used as intended and under the conditions of misuse that are reasonably foreseeable by the manufacturer (see Clause 4).

It is not applicable to (see examples in A.2)

- flail mowers that have the rear part which can be opened for particular field use operations,
- mowers with an articulated arm,
- mowers with one or more vertical axes designed for mulching,
- pedestrian-controlled motor mowers,
- lawn mowers,
- inter-row mowing units, or
- machines specifically designed for highway and road maintenance.

This part of ISO 4254 does not deal with environmental hazards, road safety and hazards related to moving parts for power transmission. It does not deal with hazards related to maintenance or repairs to be carried out by professional service personnel.

NOTE Specific requirements related to road traffic regulations are not taken into account in this part of ISO 4254.

This part of ISO 4254 is not applicable to machines manufactured before the date of its publication.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3600:1996, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Operator's manuals — Content and presentation*

ISO 4254-1:2008, *Agricultural machinery — Safety — Part 1: General requirements*

ISO 5718:2002, *Harvesting equipment — Blades for agricultural rotary mowers — Requirements*

ISO 11684:1995, *Tractors, machinery for agricultural and forestry, powered lawn and garden equipment — Safety signs and hazard pictorials — General principles*

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

ISO 13857:2008, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs*

ISO 14982:1998, *Agricultural and forestry machinery — Electromagnetic compatibility — Test methods and acceptance criteria*

ISO 17101-1:—³⁾, *Agricultural machinery — Thrown-object test and acceptance criteria — Part 1: Rotary mowers*

ISO 17101-2:—³⁾, *Agricultural machinery — Thrown-object test and acceptance criteria — Part 2: Flail mowers*

ISO 17103:2009, *Agricultural machinery — Rotary disc mowers, rotary drum mowers and flail mowers — Test methods and acceptance criteria for protective skirts*

3 Terms and definitions

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

NOTE For illustrations of mowers and components, see A.1.

3.1
rotary mower
mower in which one or more functional components cut or shear forage crop by impact without mulching and rotate about a vertical axis

3.1.1
rotary disc mower
rotary mower (3.1) where the drive line is below the path of the cutting elements

3) To be published. (Revision of ISO 17101:2004)