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## Agricultural machinery — Safety —

### Part 14: Bale wrappers

*Matériel agricole — Sécurité —  
Partie 14: Emballeuses de balles*

ICS: 65.060.01

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This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.



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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.

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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 4254-14 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*
- *Part 5: Power-driven soil-working equipment*
- *Part 6: Sprayers and liquid fertilizer distributors*
- *Part 7: Combine harvesters, forage 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 mowers and flail mowers*
- *Part 13: Large rotary mowers*
- *Part 14: Mounted, semi-mounted and trailed bale wrappers*

## 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 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-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 or hazardous events are covered are indicated in the Scope of this part of ISO 4254. These hazards are specific to mounted, semi-mounted and trailed bale wrappers for bales of agricultural harvesting products, including wrappers which are combined or integrated with pick-up balers.

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.

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# Agricultural machinery — Safety — Part 14: Bale wrappers

## 1 Scope

This part of ISO 4254, intended to be used together with ISO 4254-1, specifies the safety requirements and their verification for the design and construction of mounted, semi-mounted and trailed bale wrappers for bales of agricultural harvesting products, including wrappers which are combined or integrated with pick-up balers. 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 Further requirements could be added on self-propelled bale wrappers.

NOTE 2 Examples of these machines are given in Annex A.

NOTE 3 Requirements for pick-up balers are specified in ISO 4254-11.

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 relevant to mounted, semi-mounted and trailed bale wrappers, including wrappers which are combined with pick-up balers, when they are used as intended and under the conditions of misuse that are reasonably foreseeable by the manufacturer (see Clause 4).

This part of ISO 4254 is not applicable to

- non-mobile stationary fixed bale wrappers,
- tube/inline wrappers,
- wrapping process that concerns only the circumferential part of the bale and that occurs in the bale chamber.

This part of ISO 4254 is not applicable to environmental hazards (except noise), road safety, and hazards related to moving parts for power transmission. It is not applicable to hazards related to maintenance or repairs 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 referenced documents are indispensable for the application 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.

ISO 3864-1:2011, *Graphical symbols -- Safety colours and safety signs -- Part 1: Design principles for safety signs and safety markings*

ISO 4254-1:2013, *Agricultural machinery -- Safety -- Part 1: General requirements*

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

ISO 13849-1:2006, *Safety of machinery -- Safety-related parts of control systems -- Part 1: General principles for design*

ISO 13849-2:2012, *Safety of machinery — Safety-related parts of control systems — Part 2: Validation*

ISO 13850:2006, *Safety of machinery - Emergency stop - Principles for design*

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

ISO 25119-1:2010, *Tractors and machinery for agriculture and forestry — Safety-related parts of control systems — Part 1: General principles for design and development*

ISO 25119-2:2010, *Tractors and machinery for agriculture and forestry — Safety-related parts of control systems — Part 2: Concept phase*

ISO 25119-3:2010, *Tractors and machinery for agriculture and forestry — Safety-related parts of control systems — Part 3: Series development, hardware and software*

ISO 25119-4:2010, *Tractors and machinery for agriculture and forestry — Safety-related parts of control systems — Part 4: Production, operation, modification and supporting processes*

IEC 60204-1:1997, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements*

ISO/TR 11688-1:1995, *Acoustics - Recommended practice for the design of low-noise machinery and equipment - Part 1: Planning*

### 3 Terms and definitions

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

#### 3.1 bale wrapper

machine to wrap preformed bales of agricultural harvesting products with plastic wrap/film

#### 3.2 stationary bale wrapper

**bale wrapper**, generally with its own power source, to be used in a static position to wrap individual bales or to form tubes of multiple bales, to be loaded by external means

#### 3.3 fixed platform

part of the machine on which the bale to be wrapped is placed and which imparts rotative motion to the bale with rolls or belts, usually around an axis parallel to the ground (see Figure 1)

#### 3.4 rotating platform

platform which, in addition to the rotation around an axis parallel to the ground, imparts another rotative motion to the bale, around an axis generally perpendicular to the ground (see Figure 2)

#### 3.5 self-loading platform

platform able to pick the bale directly from the ground and to put it directly on the ground



**3.6****stretching system**

system made by a number of rolls including the plastic wrap/film roll(s), that, because of different peripheral speed, stretches the plastic wrap/film

**3.7****wrapping arm**

part of the machine including the stretching system which makes the stretching system rotate around the bale to wrap it

**3.8****loading arm/system**

powered activated device to pick the bale from the ground and load it on the platform

**3.9****unloading system**

device to unload the wrapped bale on the ground

**3.10****automatic mode**

machine function that consists of either repetitive work cycles or a single work cycle that, once initiated by the intentional actuation of a control by the operator or by the machine itself, either repeats a cycle or comes to stop at the completion of a cycle without operator intervention as a part of normal machine operation

[3.7 of ISO 4254-1:2013]

**3.11****work cycle**

series of machine functional events that recur in succession and that either lead back to the starting point or come to a predetermined stopping point

[Adapted from 3.8 of ISO 4254-1:2013]

**3.12****remote control**

wireless handpiece with usually a "Start" and "Stop" function for an automatic cycle, and a possible further two switches for loading or unloading functions

**3.13****station remote control**

remote control which could be cables or an electrical control unit that has a manual switch to operate each machine function

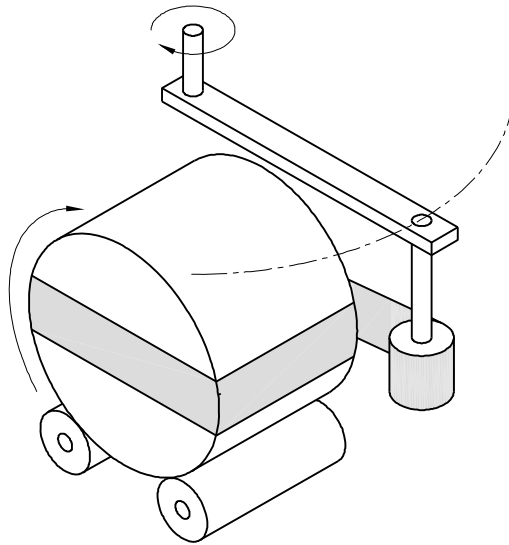


Figure 1 — Fixed platform and rotation of the bale and of the wrapping arm

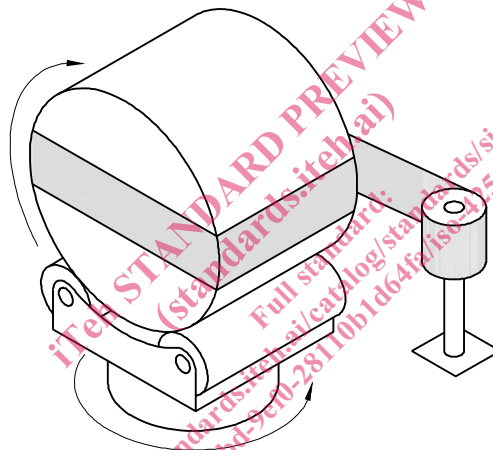


Figure 2 — Rotating platform and rotations of the bale

#### 4 List of significant hazards

Table 1 specifies the significant hazards, the significant hazardous situations and significant hazardous events that have been identified by risk assessment as being significant for this type of machine, covered by this part of ISO 4254, and which may require specific action by the designer or manufacturer to eliminate or reduce the risk.

Attention is drawn to the necessity to verify that the safety requirements specified in this part of ISO 4254 apply to each significant hazard presented by a given machine and to validate that the risk assessment is complete.

Table 1 — List of significant hazards associated with bale wrappers, including wrappers which are combined with pick-up balers

N <sup>o</sup> a	Hazard	Hazardous situation / event	Clause/sub-clause of ISO 4254-1:2013	Clause/sub-clause of this part of ISO 4254
A.1	<b>Mechanical hazards</b>			
A.1.1	Crushing hazard	— Controls — Power transmission — Working tools	4.5.3; 5.1.3.2; 5.1.8; 6.1 6.4 4.10	- - 5.4.3; 5.6.1.4; 5.6.2

		— Service/maintenance — Shearing/pinching points — Moving the machine — Stability — Mounting of machines	4.11; 4.17.1; 4.17.3; 4.9.2; 4.9.3 5.1.4 5.2 6.2 6.2.2; 6.2.3; 6.3	5.5.1; 5.4.2 - 5.4.2 5.4.3 -
A.1.2	Shearing hazard	— Controls — Power transmission — Working tools — Service/maintenance — Shearing/pinching points — Moving the machine — Stability — Mounting of machines	4.5.3; 5.1.3.2; 5.1.8; 6.1 6.4 4.10 4.11; 4.17.1; 4.17.3; 4.9.2; 4.9.3 5.1.4 5.2 6.2 6.2.2; 6.2.3; 6.3	- - 5.4.3; 5.6.1.4; 5.6.2 5.5.1; 5.4.2 - 5.4.2 5.4.3 -
A.1.3	Cutting or severing hazard	— Working tools	4.9.2; 4.9.3	5.7
A.1.4	Entanglement hazard	— Power transmission — Working tools	6.4 4.9.2; 4.9.3	- 5.6.2
A.1.5	Drawing-in or trapping hazard	— Power transmission — Working tools — Service/maintenance	6.4 4.9.2; 4.9.3 -	- 5.2; 5.6 5.5
A.1.6	Impact hazard	— Working tools	-	5.2; 5.3; 5.6
A.1.9	High-pressure fluid injection or ejection hazard	— Hydraulic components	4.13; 6.5	-
<b>A.2</b>	<b>Electrical hazards</b>			
A.2.1	Contact of persons with live parts (direct contact)	— Electrical equipment	4.12; 5.3; 6.5	-
A.2.2	Contact of persons with parts which have become live under faulty conditions (indirect contact)	— Electrical equipment	4.12.1	-
A.2.4	Thermal radiation or other phenomena such as the projection of molten particles and chemical effects from short circuits, overloads, etc.	— Electrical equipment	4.12.2; 5.3.1	-
A.2.5	Electromagnetic phenomena	— Electrical equipment	4.18	-
<b>A.3</b>	<b>Thermal hazards</b>			
	Burns, scalds and other injuries by possible contact of persons with objects or materials with an extreme high or low	— Operating fluids — Hot surfaces	4.15 5.5	- -