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Agricultural machinery — Safety —

Part 14: Bale wrappers

Matériel agricole — Sécurité —

Partie 14: Enrubanneuses

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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Foreword

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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 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

The committee responsible for this document is 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 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*

— *Part 14: 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 part of ISO 4254 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 the 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 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, trailed, and stationary bale wrapper 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 Requirements for self-propelled bale wrappers may be added during the next revision of this part of ISO 4254.

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 the following:

— non-mobile fixed bale wrappers;

— tube/inline wrappers;

— wrapping process that concerns only the circumferential part of the bale and that occurs in the bale chamber;

— the integrity of safety related parts of control systems with regard to the specification of performance levels;

— environmental hazards (except noise), road safety, and hazards related to moving parts for power transmission;

— hazards related to maintenance or repairs carried out by professional service personnel.

NOTE 4 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, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Operator's manuals — Content and format*

ISO 3864-1, *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, *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 13857:2008, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs*

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

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

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

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

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

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

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

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 (3.1), generally with its own power source, to be used in a static position, but can be readily moved from one place to another to wrap individual bales or to form tubes of multiple bales to be loaded by external means

Note 1 to entry: Tube/inline wrappers are not covered by this part of ISO 4254.

Note 2 to entry: See Figure A.4 as an example.

3.3
non-mobile fixed bale wrappers
bale wrapper (3.1) designed to be used at a fixed location and is not meant to be moved from one place to another

3.4
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

Note 1 to entry: See Figure 1 as an example.

3.5
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

Note 1 to entry: See Figure 2 as an example.

3.6
self-loading platform
platform able to pick the bale directly from the ground and to put it directly on the ground

3.7
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

3.8
wrapping arm
part of the machine including the *stretching system* (3.7) which makes the stretching system rotate around the bale to wrap it

3.9
loading arm/system
powered activated device to pick the bale from the ground and load it on the platform

3.10
unloading system
device to unload the wrapped bale on the ground

3.11
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

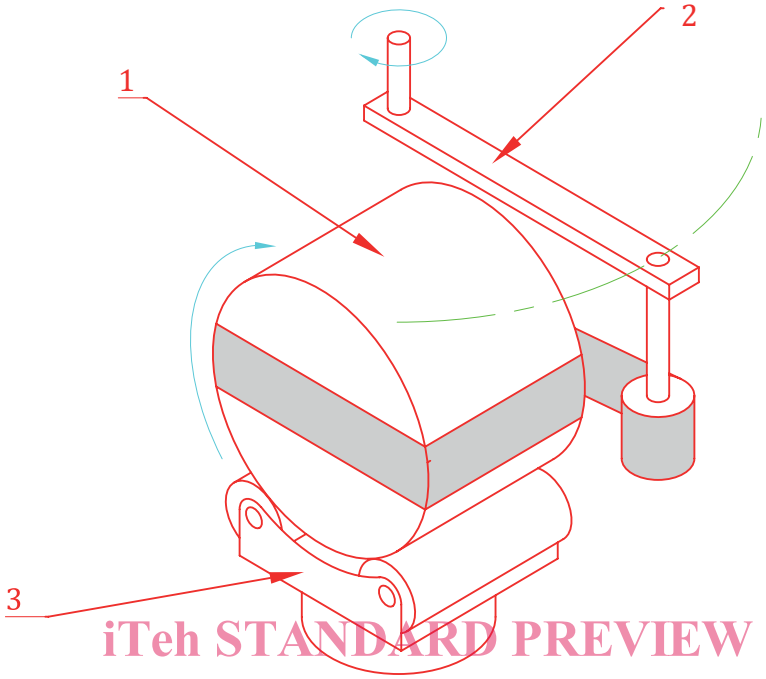
[SOURCE: ISO 4254-1:2013, 3.7]

3.12
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

[SOURCE: ISO 4254-1:2013, 3.8, modified]

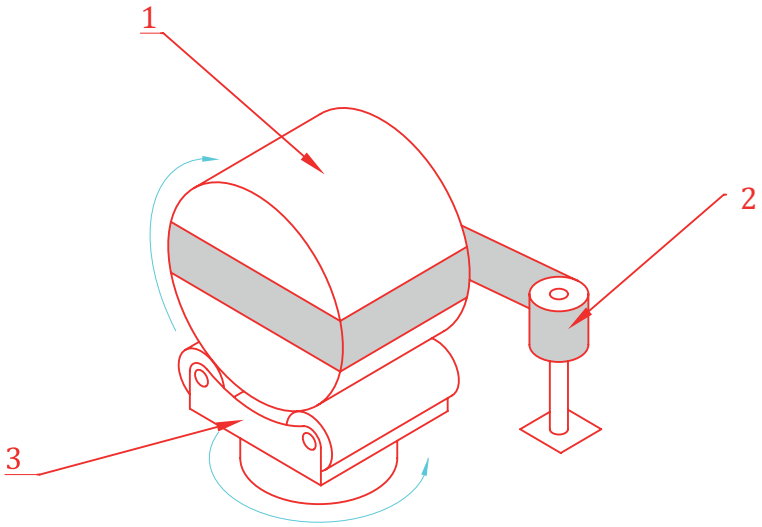
3.13
wireless or cable-less remote control
wireless handpiece with usually a “start” and “stop” function for an automatic cycle and a possible further two switches for loading or unloading functions

3.14
wired or cabled remote control
remote control which could be cables or an electrical control unit that has a manual switch to operate each machine function



Key
1 bale
2 wrapping arm
3 fixed platform

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



Key

1 bale
2 plastic wrap film roll
3 rotating platform

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[a]	Hazard	Hazardous situation/event	Clause/subclause of ISO 4254-1:2013	Clause/subclause of this part of ISO 4254
A.1	**Mechanical hazards**			
A.1.1	Crushing hazard	— Controls	4.5.3; 5.1.3.2; 5.1.8; 6.1	—
		— Power transmission	6.4	—
		— Working tools	4.10	5.2; 5.3; 5.4; 5.5; 5.6;
		— Service/maintenance	4.11; 4.17.1; 4.17. 3; 4.9.2; 4.9.3	5.5.1; 5.4.2
		— Shearing/pinching points	5.1.4	—
		— Moving the machine	5.2	5.4.3
		— Stability	6.2	5.4.3; 5.4.4
		— Mounting of machines	6.2.2; 6.2.3; 6.3	—
A.1.2	Shearing hazard	— Controls	4.5.3; 5.1.3.2; 5.1.8; 6.1	—
		— Power transmission	6.4	—
		— Working tools	4.10	5.2; 5.3; 5.4.2; 5.6;
		— Service/maintenance	4.11; 4.17.1; 4.17. 3; 4.9.2; 4.9.3	5.5
		— Shearing/pinching points	5.1.4	—
		— Moving the machine	5.2	—
		— Stability	6.2	—
		— Mounting of machines	6.2.2; 6.2.3; 6.3	—
A.1.3	Cutting or severing hazard	— Working tools	4.9.2; 4.9.3	5.7
A.1.4	Entanglement hazard	— Power transmission	6.4	—
		— Working tools	4.9.2; 4.9.3	5.2; 5.3; 5.5; 5.6.3
A.1.5	Drawing-in or trapping hazard	— Power transmission	6.4	—
		— Working tools	4.9.2; 4.9.3	5.2; 5.3; 5.6
		— Service/maintenance	—	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	—
A.2	**Electrical hazards**			
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] With reference to ISO 4254-1:2013, Table A.1.