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**Equipment for harvesting and  
conservation — Round balers —  
Terminology and commercial specifications**

*Matériel de récolte et de conservation — Presses à balles rondes —  
Terminologie et spécifications commerciales*

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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 3.

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.

International Standard ISO 11450 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 7, *Equipment for harvesting and conservation*.

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## Introduction

The purpose of this International Standard is to improve the accuracy of communication among people involved in the design, manufacture or operation of round balers by defining terminology used and characteristics to be specified to define and compare round balers.

The design and configuration of round balers and associated equipment, hazard control and accident prevention depend on the awareness, concern and prudence of personnel involved in the operation, transport, maintenance and storage of such equipment.

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# Equipment for harvesting and conservation — Round balers — Terminology and commercial specifications

## 1 Scope

This International Standard establishes terminology and the content of commercial literature specifications for round balers as defined in 3.2.

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 4251-1:1998, *Tyres (ply rating marked series) and rims for agricultural tractors and machines — Part 1: Tyre designation and dimensions, and approved rim contours*

ISO 4254-1:1989, *Tractors and machinery for agriculture and forestry — Technical means for ensuring safety — Part 1: General.*

ISO 5673:1993, *Agricultural tractors and machinery — Power take-off drive shafts and position of power-input connection.*

ISO 7867-1:1996, *Tyres and rims (metric series) for agricultural tractors and machines — Part 1: Tyre designation, dimensions, marking and tyre/rim coordination.*

ISO 8016:1985, *Machinery for agriculture — Wheels with integral hub.*

## 3 Terms and definitions

### 3.1

#### **round bale**

compressed cylindrical volume of an agricultural crop

NOTE 1 This allows easier mechanical handling and storage of the crop.

NOTE 2 “Round bale” is also referred to as “bale” in this International Standard.

### 3.2

#### **round baler**

machine that produces a round bale of agricultural materials

NOTE “Round baler” is also referred to as “baler” in this International Standard.

### 3.3 Pickup and feeding

#### 3.3.1

**pickup**

device to gather and move the crop into the baler

#### 3.3.2

**tine bar pickup**

pickup consisting of a rotor with tines that rotates about an axis transverse to the movement of the baler and is located between stationary strippers

#### 3.3.3

**pickup gauge wheel**

ground wheel or wheels attached to the pickup to provide constant pickup height control and protect components from ground damage

#### 3.3.4

**windguard**

casing assembly that keeps the crop near the arc-path of the pickup tines to control feeding of the crop into the baler/bale chamber

#### 3.3.5

**converging wheels**

rotating elements located on the sides and front of the pickup which displace the crop laterally into the pickup

#### 3.3.6

**converging pickup**

pickup with the means to displace the crop laterally into the baler

#### 3.3.7

**feed rollers**

powered rollers located behind the pickup that deliver the crop to the opening of the bale chamber

#### 3.3.8

**feed rake**

feeder fork device located behind the pickup that delivers the crop to the opening of the bale chamber

#### 3.3.9

**feed rotor**

feed rotor located behind the pickup that delivers the crop into the opening of the bale chamber

### 3.4

**bale chamber**

cavity in which the bale is formed

#### 3.4.1

**fixed chamber baler**

baler that produces a bale with a diameter of one size

#### 3.4.2

**variable chamber baler**

baler that produces bales of variable diameter

### 3.5

**wrapping**

application of wrapping material(s) around the bale

### 3.6

**bale wrapping material**

any material used to contain the bale and preserve the bale quality and shape

**3.6.1****twine**

any cord-like material used to wrap bales around the circumference

**3.6.1.1****twine spacing**

average distance between adjacent twine strands on the bale, disregarding the end wraps

**3.6.2****net**

any material of multiple longitudinal and lateral strands linked or fused together used to wrap bales around the circumference

**3.6.3****film**

any thin sheet bale wrapping material

NOTE Usually for completely covering the bale.

**3.7 Monitoring functions****3.7.1****bale shape indicator**

means of indicating the relative bale profile during bale formation

**3.7.2****bale size indicator**

means of indicating the relative bale diameter during formation

**3.7.3****bale near-full indicator**

means of indicating that the bale is nearing the set bale diameters

**3.7.4****wrapping movement indicator**

means of indicating that the bale wrapping material is being applied to the bale

**3.7.5****twine indicator**

means of indicating the twine applicator position during the wrapping cycle

**3.8 Miscellaneous****3.8.1****gate**

movable part of the baler casing which can be raised allowing the completed bale to be discharged

**3.8.2****bale discharge device**

mechanism that discharges the bale beyond the gate

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## 4 Round baler classes

A round baler shall be classed according to maximum bale volume produced and designated according to Table 1.

**Table 1 — Baler classes**

Class	Bale volume $V$ $m^3$
Class I	$V < 1,6$
Class II	$1,6 \leq V < 2,5$
Class III	$2,5 \leq V < 3,5$
Class IV	$V > 3,5$

## 5 Bale specifications

### 5.1 Bale diameter

#### 5.1.1 Specification

Specify the bale diameter(s) produced by the baler, including the maximum and minimum diameters for variable chamber balers, in millimetres.

#### 5.1.2 Determination

5.1.2.1 Measure the circumference of the bale 150 mm from each end of the bale.

5.1.2.2 Average the two circumferences and divide by 3,14 to obtain the bale diameter.

5.1.2.3 The specified bale diameter shall be determined by averaging the bale diameters of at least three randomly selected bales. The bales shall be less than 24 hours old and shall not have been rained upon.

### 5.2 Bale width

Specify the overall bale width, in millimetres.

### 5.3 Bale volume

Specify the bale volume calculated in cubic metres to the nearest tenth cubic metre, using bale diameter and bale width as determined in 5.1.2 and 5.2.

### 5.4 Bale mass

Specify the bale mass rounded to the nearest kilogram. Wrapping material shall be included in this mass. The bale crop moisture content (wet basis) shall be specified.

### 5.5 Bale density

Specify the bale mass divided by the bale volume, in kilograms per cubic metre, calculated using bale volume and bale mass as determined in 5.3 and 5.4.



## 6 Baler specifications

### 6.1 Conditions

Specification of the baler characteristics given in 6.2 to 6.5 is subject to the following conditions:

- balers shall be equipped for field operation;
- all equipment options shall be specified;
- the bale chamber shall be empty;
- the tyres shall be inflated to the manufacturer's recommended pressure;
- the baler hitch height shall be specified when measuring the baler length and height.

### 6.2 Baler mass

Specify the mass of a complete unit, rounded to the nearest kilogram.

### 6.3 Baler length

Specify the horizontal distance from the foremost point to the rearmost point of the baler, in millimetres, with gate closed ( $L1$ ) and gate open ( $L2$ ) (see Figure 1).

### 6.4 Baler height

Specify the vertical distance from the ground plane to the highest point of the baler, with gate closed ( $H1$ ) and gate open ( $H2$ ) (see Figure 1).

### 6.5 Baler width ( $W1$ )

Specify the horizontal distance, in millimetres, from the left-hand most point to the right-hand most point on the baler. Specify both operating and transport widths (see Figure 1).

## 7 Pickup specifications

### 7.1 Tine bars

Specify the total quantity of tine bars in the pickup.

### 7.2 Tines

Specify the total quantity of single tines in the pickup.

### 7.3 Tine spacing

Specify the horizontal distance between tines, in millimetres.

### 7.4 Pickup width ( $W2$ )

Specify the horizontal distance between the outer most tines, in millimetres (see Figure 1).

### 7.5 Pickup gauge wheel

Specify the wheel size, state whether or not it is adjustable, and availability of right-hand and/or left-hand location.