



**International  
Standard**

**ISO 4254-20**

**Agricultural machinery — Safety —  
Part 20:  
Grape, olives and coffee harvesters**

*Matériel agricole — Sécurité —*

*Partie 20: Machines à vendanger, de récolte des olives et du café*

**First edition  
2025-01**

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Published in Switzerland

# Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>2</b>
<b>4 Safety requirements and/or protective/risk reduction measures</b> .....	<b>3</b>
4.1 General.....	3
4.1.1 Applicable general standards.....	3
4.1.2 Applicable standards for agricultural machines.....	3
4.1.3 Lighting.....	3
4.1.4 Extractor (blower).....	4
4.1.5 Cleaning the harvester.....	4
4.1.6 Elements in direct contact with grapes.....	5
4.1.7 Operator's station.....	5
4.2 Additional requirements for self-propelled machines.....	6
4.2.1 Failure of power supply.....	6
4.2.2 Remote control.....	6
4.2.3 Stability of the grapes and olives harvester.....	6
4.2.4 Stability of the coffee harvester.....	7
4.2.5 Stability for storage of the harvesting picking unit.....	7
4.2.6 Noise.....	7
4.2.7 Presence of the operator.....	8
4.2.8 Brakes.....	8
4.2.9 Glare.....	8
4.2.10 Audible alarm.....	8
4.2.11 Batteries and other power sources.....	9
4.2.12 Acoustic warning (horn).....	9
4.3 Additional requirements for trailed machines.....	9
4.3.1 Remote control.....	9
4.3.2 Failure of power supply.....	9
4.3.3 Stability.....	9
4.3.4 Noise.....	9
4.3.5 Brakes.....	10
<b>5 Verification of the safety requirements and/or protective/risk reduction measures</b> .....	<b>10</b>
5.1 General.....	10
5.2 Test for the parking brake.....	11
<b>6 Information for use</b> .....	<b>11</b>
6.1 Operator's manual — Content of the manual.....	11
6.2 Safety and instructional labels.....	13
6.2.1 Safety label about overhead power lines.....	13
6.2.2 Criteria.....	13
6.2.3 Requirements for safety labels.....	13
6.3 Marking.....	13
6.3.1 General.....	13
6.3.2 Marking for lifting and tying down the machine.....	13
6.3.3 Marking regarding stability.....	13
<b>Annex A (normative) Additional requirements for remote-controls</b> .....	<b>14</b>
<b>Bibliography</b> .....	<b>17</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)).

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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*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 144, *Tractors and machinery for agriculture and forestry*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the 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

This document is a type-C standard as stated in ISO 12100:2010.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

- machine manufacturers (small, medium and large enterprises);
- health and safety bodies (regulators, accident prevention organizations, market surveillance, etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

- machine users/employers (small, medium and large enterprises);
- machine users/employees (for example, trade unions, organizations for people with special needs);
- service providers, for example for maintenance (small, medium and large enterprises);
- consumers (in the case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

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

When requirements of this type-C standard are different from those which are stated in type-A or 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 requirements 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. These hazards are specific to grape, olives and coffee harvesters.

Significant hazards that are common to all the agricultural machines (self-propelled ride-on, mounted, semi-mounted and trailed) are dealt with in ISO 4254-1:2013 and ISO 4254-1:2013/AMD1:2021.

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# Agricultural machinery — Safety —

## Part 20: Grape, olives and coffee harvesters

### 1 Scope

This document, when used together with ISO 4254-1:2013 and ISO 4254-1:2013/AMD1:2021, specifies the safety requirements and their verification for the design and construction of trailed and self-propelled harvesters for grapes, olives and coffee. It describes methods for the elimination or reduction of hazards arising from the intended use 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.

When provisions of this document are different from those which are stated in ISO 4254-1:2013 and ISO 4254-1:2013/AMD1:2021, the provisions of this document take precedence over the provisions of ISO 4254-1:2013 and ISO 4254-1:2013/AMD1:2021 for machines that have been designed and built according to the provisions of this document.

This document, taken together with ISO 4254-1:2013 and ISO 4254-1:2013/AMD1:2021, deals with all the significant hazards, hazardous situations and events relevant to trailed and self-propelled harvesters for grapes, olives and coffee, when they are used as intended and under the conditions of misuse that are reasonably foreseeable by the manufacturer. It is not applicable to hazards arising from the presence of persons other than the operator, hazards related to lack of visibility, except lighting, hazards related to vibrations and moving parts for power transmission, except for strength requirements for guards and barriers.

This document does not deal with environmental hazards, except noise.

In respect of steering of self-propelled machines, it is applicable only to the ergonomic aspects (for example, location of the steering wheel); no other aspects related to steering are covered.

NOTE Specific requirements related to road traffic regulations are not taken into account in this document.

This document is not applicable to machines manufactured before the date of its 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 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 3600:2022, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Operator's manuals — Content and format*

ISO 3776-1:2006, *Tractors and machinery for agriculture — Seat belts — Part 1: Anchorage location requirements*

ISO 3776-2:2013, *Tractors and machinery for agriculture — Seat belts — Part 2: Anchorage strength requirements*

ISO 3776-3:2009, *Tractors and machinery for agriculture — Seat belts — Part 3: Requirements for assemblies*

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

## ISO 4254-20:2025(en)

ISO 4254-1:2013/AMD 1:2021, *Agricultural machinery — Safety — Part 1: General requirements — Amendment 1*

ISO 5700:2013, *Tractors for agriculture and forestry — Roll-over protective structures — Static test method and acceptance conditions*

ISO 5721-1:2013, *Agricultural tractors — Requirements, test procedures and acceptance criteria for the operator's field of vision — Part 1: Field of vision to the front*

ISO 7000:2019, *Graphical symbols for use on equipment — Registered symbols*

ISO 9533:2010, *Earth-moving machinery — Machine-mounted audible travel alarms and forward horns — Test methods and performance criteria*

ISO 10263-4:2009, *Earth-moving machinery — Operator enclosure environment — Part 4: Heating, ventilating and air conditioning (HVAC) test method and performance*

ISO 11684:2023, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Safety labels — General principles*

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

ISO 13850:2015, *Safety of machinery — Emergency stop function — Principles for design*

ISO 16231-1:2013, *Self-propelled agricultural machinery — Assessment of stability — Part 1: Principles*

ISO 16231-2:2015, *Self-propelled agricultural machinery — Assessment of stability — Part 2: Determination of static stability and test procedures*

IEC 60529:1989+AMD1:1999+AMD2:2013, *CSV, Degrees of protection provided by enclosures (IP Code)*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4254-1:2013, ISO 4254-1:2013/AMD1:2021, ISO 12100:2010 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

##### **grape harvester**

##### **olive harvester**

mobile harvesting machine for picking up grape berries or olives, separating, cleaning and conveying them into a tank which is part of the harvester, or into an external tank, and depositing harvest residue onto the ground

#### 3.2

##### **coffee harvester**

mobile harvesting machine for picking up coffee cherries (or drupes), separating, cleaning and conveying them into a tank and depositing harvest residue onto the ground

#### 3.3

##### **shaker**

device of the harvester which removes the fruits from the tree by contact and vibration on the branches

#### 3.4

##### **conveyor**

device or combination of devices of the harvester which transfer the harvested product through the sections of the machine until unloading it

**3.5**

**extractor  
blower**

device or combination of devices of the harvester which separate the fruits from leaves and branches

**3.6**

**destemmer**

device or combination of devices of the harvester which separate the stems or branches from the individual fruits

**3.7**

**auger**

device of the harvester which spreads the fruits in the *storage tank* (3.10) or to transfer the fruit from one *conveyor* (3.4) to another conveyor or tank

**3.8**

**separating system**

device or combination of devices of the harvester which separate residual material from the fruits

**3.9**

**discharge conveyor**

device of the harvester which brings fruits to an external tank, trailer or to the *storage tank* (3.10)

**3.10**

**storage tank**

section of the harvester dedicated to temporarily store the harvested product

**3.11**

**storage tank discharge conveyor**

*conveyor* (3.4) whose function is to discharge the harvested product to an external tank or trailer

**3.12**

**remote control**

**remote operator control**

operator control of a harvester by wireless or wired transmission of signals from a remote-control box not located inside the driving operator's station of the harvester to a receiving unit located on the harvester, with a range limited to 5 m and dedicated to cleaning and/or maintenance operations

Note 1 to entry: in addition to cleaning and maintenance operations, door opening is an example of possible functions controlled remotely.

## **4 Safety requirements and/or protective/risk reduction measures**

### **4.1 General**

#### **4.1.1 Applicable general standards**

Machinery shall comply with the safety requirements and/or protective/risk reduction measures of this clause.

In addition, the machine shall be designed according to the principles of ISO 12100:2010 for relevant but not significant hazards which are not dealt with by this document.

#### **4.1.2 Applicable standards for agricultural machines**

Except where otherwise specified in this document, the machine shall be in accordance with ISO 4254-1:2013 and ISO 4254-1:2013/AMD1:2021.

#### **4.1.3 Lighting**

Forward-facing and rearward-facing work lights for use in the field shall be provided.

The forward-facing lights shall at minimum illuminate the area defined by ISO 5721-1:2013, 3.6.

The rearward-facing lights shall, at minimum, illuminate an area which, viewing the harvester from the top, is limited by two lines parallel to the median longitudinal axis of the harvester and tangential to its lateral outer limits, and by two lines perpendicular to the median longitudinal axis of the harvester, one tangential to its rear outer limits and the second at 3 m from its rear outer limits.

Emergency stops shall be illuminated, by dedicated separate lights or by an integrated illumination system.

#### 4.1.4 Extractor (blower)

A visual indicator, located on the extractor, shall be automatically activated when power to the extractor is shut off and remain visible until motion is completely stopped.

If there is no possibility of accidental contact with moving parts, the requirement does not apply.

#### 4.1.5 Cleaning the harvester

##### 4.1.5.1 Instructions

Instructions for safe cleaning of the machine elements shall be provided in the operator's manual. These elements include: shaker, destemmer, auger, separating system, discharge conveyor, storage tank, and storage tank discharge conveyor.

##### 4.1.5.2 Cleaning mode

A specific cleaning mode shall be provided for the machine.

The cleaning mode shall be activated from the driving operator's station. Activation shall be intentional and acknowledged by the operator. The acknowledging shall lock the cleaning mode as active until reset (for example, power shut-off) or the activation and acknowledgment of a different mode is performed.

The cleaning functions shall be active only when the cleaning mode for the machine is selected. The cleaning functions can be provided either as a dedicated control(s) or by remote control.

The performance level of the safety function associated with the cleaning mode shall be determined according to ISO 4254-1:2013, 4.20 and ISO 4254-1:2013/AMD1:2021.

An emergency stop device for the machine conforming to ISO 13850:2015 shall be provided on each side of the longitudinal median plane of the machine, accessible from the ground, close to the separate control(s) and on the remote control, if provided.

Any emergency-stop controls on the machine shall remain active at all times, independently from the control mode or station in use (for example, cleaning mode and/or remote control).

The performance level of the emergency stop safety function shall be determined according to ISO 4254-1:2013, 4.20 and ISO 4254-1:2013/AMD1:2021.

##### 4.1.5.3 Activation of machine elements during cleaning mode

For self-propelled machines, when the cleaning mode is activated, the machine propulsion functions shall be inactivated. It shall be possible for the operator to leave the seat without interrupting the cleaning operations (see [4.2.7](#)).

In the cleaning mode, the moving working elements may be operated, but their operating speed shall not exceed 50 % of the nominal working speed.

For cleaning purposes, it shall be possible to operate only individual machine elements.

If integrated cleaning equipment (for example, pump unit, nozzles) is supplied, their control shall be activated from the driving operator's station, the separate control(s) or the remote control.

#### 4.1.5.4 Guards

Conveyors and upper extractors shall be guarded by means of interlocked movable guards when accessible from an operating position.

#### 4.1.5.5 Access

A place to stand according to ISO 4254-1:2013 and ISO 4254-1:2013/AMD1:2021, 4.8.2, shall be provided for cleaning parts of the machine not accessible from the ground and the task requires to be performed from an elevated location on the machine.

To avoid risk of falling, in the case of the operator requiring both hands to perform the cleaning tasks, the machine shall provide a place to stand with barriers according to ISO 4254-1:2013 and ISO 4254-1:2013/AMD1:2021, 4.7.2.2. Parts of the machine can be considered to fulfil this requirement.

When daily cleaning is required in normal operation, for machines that require the operator to perform cleaning tasks at a location higher than 1 000 mm above the ground, a water supply that can be connected from the ground shall be provided.

To avoid risk of harm from moving parts, accessible from the ground, an activating/de-activating device shall be provided, which is accessible from the ground or included in the remote control. In particular, extractors accessible from the ground shall be capable of being stopped for cleaning or of being operated by the separate control or by the remote control.

The upper extractors which are only accessible from a platform higher than 1 000 mm above the ground, shall be able:

- to be stopped for cleaning, or
- to be operated by a separate control located at the top of the machine or by the remote control.

#### 4.1.6 Elements in direct contact with grapes

To minimize the need for cleaning operations, elements in direct contact with grapes shall be made of materials ensuring that the risk of infection is minimized.

In particular, surfaces shall be designed such that the accumulation of residues which can generate infections, is minimized (for example, by avoiding protruding parts, by providing a low friction lining to assist sliding of the material).

The machinery shall be designed and constructed in such a way that materials in contact with, or intended to come into contact with, grapes can be cleaned before each use.

Cleaning mode shall allow for complete draining of residual materials and fluids from cleaning, disinfecting and rinsing.

Machinery shall be designed and constructed in such a way that no ancillary substances hazardous to health, including the lubricants used, can come into contact with grapes.

These requirements are not applicable to olive and coffee harvesters.

#### 4.1.7 Operator's station

For access to operator's station, provisions of ISO 4254-1:2013 and ISO 4254-1:2013/AMD1:2021, 4.7 apply.

For machines fitted with a cab, the mechanism for opening the door to the operator's station shall be easily accessible from the boarding means.

An air conditioning system shall be provided for machines fitted with a cab, and it shall comply with ISO 10263-4:2009.

## 4.2 Additional requirements for self-propelled machines

### 4.2.1 Failure of power supply

For the self-levelling system, a failure in the power supply shall not cause any movement of the machine.

When restarting the engine after an interruption of the power supply, any operational system of the machine shall not start without action on its dedicated control.

The performance level of the safety function described in the above paragraph shall be determined in accordance with ISO 4254-1:2013, 4.20 and ISO 4254-1:2013/AMD1:2021.

### 4.2.2 Remote control

#### 4.2.2.1 General

If the remote control is provided for cleaning or maintenance operations, it shall fulfil the following requirements and those specified in [Annex A](#).

#### 4.2.2.2 Activation / deactivation

When the remote control is activated, no other controls shall be active, except emergency stops.

The remote control shall authenticate disengagement when exiting the remote mode to activate another control.

#### 4.2.2.3 Limitation of functions

When the remote control is activated, it shall not be possible to activate the travelling and levelling functions.

#### 4.2.2.4 Identification of the machine related to the remote control

Each control unit shall clearly identify the specific machinery to be controlled from that unit at each connection, for example, by means of visual or audible indicator which is activated on the machine upon the activation of the connection of the remote control.

### 4.2.3 Stability of the grapes and olives harvester

To ensure protection of the operator against the risks related to roll-over, ISO 16231-1:2013 and ISO 16231-2:2015 shall apply.

ROPS shall be fitted if:

- results of machine stability analysis per ISO 16231-1:2013 and ISO 16231-2:2015 indicate requirement for ROPS, or
- the machine is intended to be used on slopes of more than 20 % for machines without a self-levelling system, or
- the machine is intended to be used on slopes of more than 30 % for machines with a self-levelling system.

In the case of the machine becoming unstable (for example, when operating the hopper for discharging or the conveying system for emptying) while emptying the hopper on slopes or inclines, different from normal operation working slopes or inclines, an additional calculation of the tipping angle shall be made.

The machine shall not be able to continue to unload if the slope and incline limits of the machine are exceeded during unloading operation.

When a ROPS is fitted, it shall be designed to fulfil OECD code IV or VIII for tractors or in accordance with ISO 5700:2013.

Seat-belts shall be provided according to ISO 3776-1:2006 and ISO 3776-2:2013.

The slope shall be indicated to the operator in a continuous manner. A warning device, activated when the slope reaches 90 % of the limit slope(s) specified by the manufacturer, shall be provided.

For self-levelling machines, the self-levelling system can act automatically or manually. In the case of manual intervention by the operator on the levelling system, the system shall automatically detect the direction of correction given by the operator and, if the correction approaches instability, the system shall automatically stop movement upon reaching the limit determined by the manufacturer. In the case of hydraulic power interruption, the self-levelling system shall maintain its position.

The performance level of the self-levelling safety function shall be determined in accordance with ISO 4254-1:2013, 4.20 and ISO 4254-1:2013/AMD1:2021.

#### 4.2.4 Stability of the coffee harvester

In case of rollover of a self-propelled coffee harvester, the protection of the operator is considered sufficient if the design of the machine (shape and integrated structure, or cab in combination with or without the structure of the machine), in combination with a restraining system in accordance with ISO 3776-1:2006, ISO 3776-2:2013 and ISO 3776-3:2009, gives sufficient space to avoid serious injury.

An audible or visual warning for coffee harvesters with slope compensation shall be provided at the operator's workstation. The warning shall be activated when the slope compensation reaches its limit.

ISO 16231-1:2013 and ISO 16231-2:2015 shall apply.

#### 4.2.5 Stability for storage of the harvesting picking unit

When removed and parked on firm ground, the harvesting/picking unit shall be stable in accordance with an inclination up to 8,5° in any direction.

#### 4.2.6 Noise

The emission of noise, which can cause discomfort, stress, tinnitus, tiredness, loss of hearing, accidents due to interference with speech communication and acoustic warning signals, shall be taken into account at the design stage.

Components or mechanisms that contribute mostly to noise are:

- extractor (blower);
- transmission;
- engine.

To reduce noise emissions from the extractor, its speed shall be adjustable from the driving operator's station.

For machines equipped with a cab, the operator's manual shall include a recommendation to operate the machine with all the doors and windows closed [see 6.1 r)].

The cleaning mode shall not be tested for noise, since as specified in 4.1.5 the working elements have a limited speed and the time exposure of this mode is limited. For the same reason, the only position to be tested is the driving operator's station, because the other positions are used during cleaning operations only; this includes also the operation through remote controls.

ISO 4254-1:2013 and ISO 4254-1:2013/AMD1:2021, 4.3 apply. The configuration of the machine shall reflect the harvesting configuration. In addition, the measurements shall be taken in the following conditions:

- while the machine is stationary and running;
- the engine is functioning at maximum field speed as indicated by the manufacturer in the operator's manual;

- all working elements are activated and the machine is empty;
- the operator shall not be at the driving operator's station during the measurement of noise emission.

#### 4.2.7 Presence of the operator

The machine shall be designed in order to allow:

- initiating machine travelling, and/or
- activating the working elements of machine, except for cleaning mode (see [4.1.5.2](#) and [4.1.5.3](#)),

only if the operator is in the driving operator's station.

Self-propelled machines which are fitted with electronically activated working elements shall have a system that:

- prevents engagement of the working elements (travelling function and self-levelling function are not included) if the operator is not in the driving operator's station, and
- automatically disengages the working elements when the operator leaves the driving operator's station, and
- when the working elements are disengaged as per the previous indent, activates an alarm (audible, visual on display or both) which is maintained until the elements are disengaged.

The maximum delay time for triggering the disengagement shall be 7 s. Re-engagement of working elements shall require intentional action by means other than the automatic working elements disengagement control after stopping.

The performance level of the safety function which controls disengagement of working elements if the operator is not seated shall be determined in accordance with ISO 4254-1:2013, 4.20 and ISO 4254-1:2013/AMD1:2021.

#### 4.2.8 Brakes

##### 4.2.8.1 Service brake

A service brake shall be provided.

NOTE Performance of service brakes depends on regional or national road regulation.

##### 4.2.8.2 Parking brake

A parking brake system shall be provided. The parking brake system with which the machine is equipped shall be capable of holding the fully laden machine stationary on an 18 % gradient with the machine positioned with its longitudinal axis parallel to the gradient and facing both up and down the gradient.

##### 4.2.9 Glare

For machinery with a cab, devices (for example, sun visors or tinted glass) shall be provided to reduce to a minimum glare caused by solar radiation or artificial lighting.

##### 4.2.10 Audible alarm

An audible alarm to warn bystanders when the machine is travelling backward shall be fitted.

This audible alarm shall:

- automatically activate at the start and continue during a reverse manoeuvre of the machine,
- comply with ISO 9533:2010.

The performance level of the function of the warning emission signal shall be determined in accordance with ISO 4254-1:2013, 4.20 and ISO 4254-1:2013/AMD1:2021.

#### 4.2.11 Batteries and other power sources

A dedicated device (for example, an automated or manual switch) shall be provided to disconnect the battery.

Hydraulic and pneumatic power shall be disconnected by turning off the ignition key.

If accumulators with a nominal volume greater than 5 l are fitted, provisions shall be made available to isolate them from the circuit when the ignition key is in the off position.

#### 4.2.12 Acoustic warning (horn)

The machines shall be equipped with an acoustic warning (horn), it shall be activated from the driving operator's station, and it shall comply with ISO 9533:2010.

### 4.3 Additional requirements for trailed machines

#### 4.3.1 Remote control

[Subclause 4.2.2](#) applies, except [4.2.2.3](#), since the travelling functions are not integrated in the trailed machines.

#### 4.3.2 Failure of power supply

For the self-levelling system, a failure in the power supply shall not allow any movement of the machine.

Restarting the power supply after an interruption shall not allow re-activation of machine operational systems without an intentional action performed on its dedicated control.

The performance level of the safety function described in the above paragraph shall be determined in accordance with ISO 4254-1:2013, 4.20 and ISO 4254-1:2013/AMD1:2021.

#### 4.3.3 Stability

For self-levelling machines, the self-levelling system can act automatically or manually. In the case of manual intervention by the operator on the levelling system, the system shall:

- automatically detect the direction of correction determined by the operator and;
- if the correction approaches instability, the system shall automatically stop movements upon reaching the limit specified by the manufacturer.

In the case of hydraulic power interruption, the self-levelling system shall maintain its position.

The performance level of the self-levelling safety function of the trailed machine shall be determined in accordance with ISO 4254-1:2013, 4.20 and ISO 4254-1:2013/AMD1:2021.

The slope shall be indicated to the operator in a continuous manner.

When operating the hopper for emptying can result in the machine becoming unstable (for example, tipping or translating) at different angles compared to normal operation working angles, an additional calculation of the tipping angle shall be made.

#### 4.3.4 Noise

The emission of noise, which could cause discomfort, stress, tinnitus, tiredness, loss of hearing, accidents due to interference with speech communication and acoustic warning signals, shall be taken into account at the design stage.

Components or mechanisms that contribute mostly to noise are:

- extractor (blower);
- transmission.

To reduce noise emissions from the extractor, its speed shall be adjustable from the driving operator's station.

The cleaning mode shall not be tested for noise, since as specified in [4.1.5](#) the working elements have a limited speed and the time exposure of this mode is limited. For the same reason, the only position to be tested is the driving operator's station, because the other positions are used during cleaning operations only; this includes also the operation through remote controls.

ISO 4254-1:2013 and ISO 4254-1:2013/AMD1:2021, 4.3 and B.2.6 apply. The configuration of the machine shall reflect the harvesting configuration. In addition, the measurements have to be taken in the following conditions:

- machine at standstill;
- power source running at the maximum rotational speed to operate in the field, as indicated by the manufacturer in the operator's manual;
- all the working elements activated, empty;
- the operator shall not be at the driving operator's station during the measurement of noise emission.

#### 4.3.5 Brakes

##### 4.3.5.1 Service brake

A service brake shall be provided for trailed machines with the sum of the technically permissible masses per axle exceeding 3,5 t.

NOTE Performance of service brakes depends on regional or national road regulation.

##### 4.3.5.2 Parking brake

A parking brake according to [4.2.8.2](#) shall be provided. The requirement applies to the machine when detached from the tractor. A parking brake is not required if the machine lower frame contacts the ground such that the machine weight is removed from the tires.

## 5 Verification of the safety requirements and/or protective/risk reduction measures

### 5.1 General

The methods indicated in [Table 1](#) shall be applied to verify the subclauses listed. When more than one mark per line is present, all the corresponding methods shall be applied.

**Table 1 — List of safety requirements and/or protective/risk reduction measurements and their verification**

Subclause	Inspection	Measurement	Test	Design verification
<a href="#">4.1.3</a>	X			
<a href="#">4.1.4</a>				X
<a href="#">4.1.5</a>	X	X	X	X
<a href="#">4.1.6</a>				X
<a href="#">4.1.7</a>	X	X		

Table 1 (continued)

Subclause	Inspection	Measurement	Test	Design verification
<a href="#">4.2.1</a>	X			X
<a href="#">4.2.2</a>				X
<a href="#">4.2.3</a>			X	X
<a href="#">4.2.4</a>				X
<a href="#">4.2.5</a>			X	
<a href="#">4.2.6</a>	X		X	
<a href="#">4.2.7</a>			X	X
<a href="#">4.2.8</a>	X		X	X
<a href="#">4.2.9</a>	X			
<a href="#">4.2.10</a>			X	X
<a href="#">4.2.11</a>				X
<a href="#">4.2.12</a>	X		X	X
<a href="#">4.3.1</a>				X
<a href="#">4.3.2</a>			X	X
<a href="#">4.3.3</a>			X	X
<a href="#">4.3.4</a>	X		X	
<a href="#">4.3.5</a>			X <a href="#">5.2</a> applies	X

## 5.2 Test for the parking brake

Position the machine, loaded at its maximum permissible load, and with any steerable axles in the most unfavourable angle on a firm surface with a slope of 18 %. This test shall be carried out with the machine positioned with its longitudinal axis parallel to the gradient and facing both up and down the gradient.

During the test, the machine shall not move.

## 6 Information for use

### 6.1 Operator's manual — Content of the manual

The operator's manual shall conform [4.1.2](#) and to the requirements of ISO 3600:2022, including provision of safety instructions relative to normal operation and servicing of the machine and use of personal protective equipment as appropriate.

In addition, it shall include the following information and points, if relevant:

- a) a general description of the machinery;
- b) a description of the workstation(s) to be occupied by operators;
- c) information about the residual risks that remain despite the inherent safe design measures, safeguarding and complementary protective measures adopted, including warnings concerning the ways the machinery must not be used, corresponding to the most probable misbehaviour of the operator according to the risk analysis of the manufacturer;
- d) instructions on the protective measures to be taken by the user, including, where appropriate, the personal protective equipment to be provided;
- e) instructions on the removal/installation procedure of the harvesting/picking unit, and that the removal of the harvesting/picking unit shall be carried out on a flat and hard ground;

## ISO 4254-20:2025(en)

- f) instructions that the maintenance on parts of the machine at height (for example, cab lamp changing) shall be done in workshop only;
- g) the conditions in which the machinery meets the requirement of stability during harvesting, unloading, transportation, assembly, dismantling when out of service, testing or foreseeable breakdowns;
- h) instructions on the cleaning procedure and the locations from where the cleaning needs to be performed, including the need to make sure about the absence of bystanders in the hazard zone before activating any element for cleaning;
- i) residual risks associated with overhead power lines, when the machine exceeds 4 m in height during any mode of operation, including the specific height in any of these modes;
- j) instructions to be followed in the event of contact between the machine and a power line;
- k) instructions with a view to ensuring that transport, handling and storage tasks can be performed safely, and providing the mass of the machinery and of its various parts where these are regularly to be transported separately;
- l) the operating procedures to be followed in the event of breakdown;
- m) procedures to be followed to safely clear blockages of the machine;
- n) the description of the adjustment and maintenance operations that should be performed by the operator;
- o) instructions for safely performing adjustment and maintenance tasks, including the protective measures to be followed;
- p) the height of the machine in different configurations, for example:
  - when levelled to travel along the maximum allowed slope, or
  - with hopper or discharging systems folded and unfolded;
- q) the specifications of the spare parts to be used, when these affect the health and safety of operators;
- r) for machines equipped with a cab, a recommendation to operate the machine with all the doors and windows closed;
- s) how and where to apply lifting jacks, including the use of jacks and supporting devices, as well as their technical features such as the lifting capacity, and the need to contact professionals where relevant;
- t) the procedure for changing the wheels;
- u) tyre size(s) and inflation pressure(s);
- v) instruction how to change operating fluids;
- x) where it is possible that lubricant can enter into contact with harvest, recommendation for use of dietary fats or vegetable oil;
- y) the need to activate the cleaning mode, before disinfection of the internal parts;
- z) additional information:
  - initial set-up of the machinery;
  - fire precautions.

NOTE Further regional requirements can apply.

## 6.2 Safety and instructional labels

### 6.2.1 Safety label about overhead power lines

A safety label shall be provided on the machine, clearly visible from the driving operator's station to inform of the risk of possible overhead power line contact when the machine exceeds 4,00 m in height during any mode of operation.

### 6.2.2 Criteria

Safety labels shall be appropriately displayed when necessary to alert the operator and others of the risk of personal injury during normal operation and service.

### 6.2.3 Requirements for safety labels

Safety labels shall conform to the requirements of ISO 11684:2023.

## 6.3 Marking

### 6.3.1 General

All machinery shall be marked visibly, legibly and indelibly.

NOTE Marking of machinery can be subject of national or regional legislation.

### 6.3.2 Marking for lifting and tying down the machine

Application points for use with jacks shall be clearly marked on the machine, if not obvious, by symbol 0542 of ISO 7000:2019 and additional information shall be provided in the manual.

Tying down points shall be clearly identified by symbol 2069 of ISO 7000:2019.

### 6.3.3 Marking regarding stability

A label on the machine shall be provided showing which special measures are to be taken or how the machine is to be used to ensure stability, if applicable, and additional information shall be provided in the operator's manual.