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**Machinery for forestry — Wheeled  
skidders — Terms, definitions and  
commercial specifications**

*Matériel forestier — Débusqueuses à roues — Termes, définitions et  
spécifications commerciales*

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## Foreword

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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.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 13861 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 15, *Machinery for forestry*.

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# Machinery for forestry — Wheeled skidders — Terms, definitions and commercial specifications

## 1 Scope

This International Standard specifies terminology and required information as a general framework for identifying and describing the main dimensions and features of wheeled skidders.

It is applicable to articulated wheeled cable and grapple skidders as defined in ISO 6814.

NOTE The terminology and requirements given in this International Standard will not necessarily all apply to a specific machine. Machines may be characterized by the dimensions and features which are relevant to them.

## 2 Normative reference

The following normative document contains 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 edition of the normative document 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 6814:2000, *Machinery for forestry — Mobile and self-propelled machinery — Terms, definitions and classification*.

## 3 Terms definitions and classification

See Figures 1 to 6. The figures are for illustrative purposes only and are not intended to depict specific machines.

All dimensions are with the axles parallel, unless otherwise specified.

### 3.1 General

#### 3.1.1

##### **right (left) hand**

operator's right hand side (left hand side) when facing in the normal direction of travel and with the machine in its primary functional mode

#### 3.1.2

##### **front/rear**

front or rear of the operator, respectively, when facing in the normal direction of travel and with the machine in its primary functional mode

#### 3.1.3

##### **ground reference plane**

##### **GRP**

hard, flat, horizontal surface on which the machine is placed for measurements

## 3.2 Masses

### 3.2.1

#### normal operating mass

total mass of the machine as specified, fully serviced, with full fluid levels and a 75 kg operator

### 3.2.2

#### maximum operating mass

total mass of the machine as specified, fully serviced, with full fluid levels and a 75 kg operator, including all machine options with the largest tyre or hydro-inflation combination and the manufacturer's maximum specified load

### 3.2.3

#### load per axle

standard and maximum mass on both the front and rear axles

## 3.3 Main machine dimensions

### 3.3.1

#### total frame length

$l_1$

horizontal distance between the vertical planes perpendicular to the longitudinal axis passing through the farthest points on the front and rear of the machine, including fenders, tow bars, butt plate, etc., but excluding the fairlead, blade, or grapple

### 3.3.2

#### overall length

$l_2$

horizontal distance from a vertical plane touching the forwardmost point of the machine, blade positioned to give maximum forward reach, to a vertical plane touching the rearmost point of the machine

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### 3.3.3

#### wheelbase

$l_3$

horizontal distance from the centre of the front axle or front bogie axle assembly to the centre of the rear axle or rear bogie axle assembly when both axles are perpendicular to the longitudinal axis

### 3.3.4

#### articulation joint to maximum blade arc

$l_4$

horizontal distance from the centreline of the articulation joint to a vertical line tangent to the arc of the blade's lower edge as it passes from its maximum height  $h_3$  to the lowest blade position  $h_4$

### 3.3.5

#### articulation joint to front of machine

$l_5$

horizontal distance from the centreline of the articulation joint to a vertical plane touching the farthest point forward, blade excluded

### 3.3.6

#### articulation joint to front axle

$l_6$

horizontal distance from the centreline of the articulation joint to the centre of the front axle or front bogie axle assembly

**3.3.7****overall height** $h_1$ 

vertical distance between the GRP and a horizontal plane passing through the highest point of the machine

**3.3.8****blade height** $h_2$ 

vertical distance from the lower edge, resting on the GRP, to the top of the blade, decking lugs excluded

**3.3.9****maximum blade lift of lower edge** $h_3$ 

maximum vertical height to which the lower edge of the blade can be raised from the GRP

**3.3.10****lowest blade position** $h_4$ 

vertical distance from the GRP to the blade's lower edge with blade at its lowest position

**3.3.11****ground clearance** $h_5$ 

vertical distance from the GRP to the lowest point of the machine centre portion, i.e. 25 % of the tread to either side of the longitudinal centreline

**3.3.12****ground clearance at articulation joint** $h_6$ 

vertical distance from the GRP to the lowest point at the articulation joint

**3.3.13****loaded tire radius** $r_1$ 

vertical distance from the GRP to the horizontal centre of the axle with the machine at normal operating mass

**3.3.14****main fairlead roller height** $h_7$ 

vertical distance from the horizontal centre of the main fairlead roller to the horizontal centre of the axle

**3.3.15****winch height** $h_8$ 

vertical distance from the horizontal centre of the winch drum to the horizontal centre of the axle

**3.3.16****rear axle to main fairlead roller** $l_7$ 

horizontal distance from the vertical centre of the rear axle to the vertical centre of the main fairlead roller

**3.3.17****main fairlead roller diameter** $d_1$ 

diameter of main fairlead roller at its mid-length position

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**3.3.18**

**overall width**

$w_1$

horizontal distance between two vertical planes parallel to the longitudinal axis of the machine and passing through the farthest points on the two sides of this axis

**3.3.19**

**tread**

$w_2$

horizontal distance between two parallel vertical planes passing through the centreline of the tires on an axle

**3.3.20**

**frame oscillation**

$a_1$

angle that one frame will rotate from a horizontal datum, in both directions, without rotating the other frame, measured in degrees

**3.3.21**

**axle oscillation**

$a_2$

angle that one axle will rotate from a horizontal datum, in both directions, without rotating either frame, measured in degrees

**3.3.22**

**clearance circle**

$d_2$

diameter of the smallest circle that the outermost point on the machine will describe when turning, brakes unapplied, blade in travel position, unloaded

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**3.3.23**

**angle of articulation**

$a_3$

maximum angle of frame steering movement from the straight ahead position between longitudinal centrelines of the front and rear frames, measured in degrees

**3.3.24**

**blade width**

$w_3$

horizontal distance between the outer edges of the blade

**3.4 Grapple dimensions**

**3.4.1**

**grapple reach**

$l_1, l_2, l_3, l_4$

horizontal distance from the vertical centre of the rear axle to the vertical centre of the grapple pivot under the following conditions:

- $l_1$  with the pivot in the highest, fully extended position;
- $l_2$  with the pivot in the lowest, fully extended position;
- $l_3$  with the pivot in the highest, fully retracted position;
- $l_4$  with the pivot in the lowest, fully retracted position



**3.4.2****grapple lift***hh<sub>1</sub>, hh<sub>2</sub>, hh<sub>3</sub>, hh<sub>4</sub>*

vertical distance from the horizontal centre of the rear axle to the horizontal centre of the grapple pivot under the following conditions:

- *hh<sub>1</sub>* with the pivot in the highest, fully retracted position;
- *hh<sub>2</sub>* with the pivot in the highest, fully extended position;
- *hh<sub>3</sub>* with the pivot in the lowest, fully retracted position;
- *hh<sub>4</sub>* with the pivot in the lowest, fully extended position

**3.4.3****boom rotation***aa<sub>1</sub>*

angle in degrees from the longitudinal axis of the machine to the longitudinal centre of the boom at maximum swing position

**3.4.4****rear axle to main swing boom pivot***ll<sub>5</sub>*

horizontal distance from the vertical centre of the rear axle to the vertical centre of the main swing boom pivot

**3.4.5****grapple height***hh<sub>5</sub>, hh<sub>6</sub>, hh<sub>7</sub>*

vertical distance from the centre of the upper pivot to the lowest point of the grapple arms under the following conditions:

- *hh<sub>5</sub>* with the grapple fully open; [ISO 13861:2000](https://standards.iteh.ai/catalog/standards/sist/4354f0b5-8355-491b-889c-80e2984a32/iso-13861-2000)
- *hh<sub>6</sub>* with the grapple in tip-to-tip position; <https://standards.iteh.ai/catalog/standards/sist/4354f0b5-8355-491b-889c-80e2984a32/iso-13861-2000>
- *hh<sub>7</sub>* with the grapple fully closed

**3.4.6****maximum grapple opening***ll<sub>6</sub>*

horizontal distance between the tips of the grapple arms the grapple fully open

**3.4.7****area of grapple opening***A*

cross-sectional area of the grapple opening in the tip-to-tip position

**3.4.8****minimum log size***dd<sub>1</sub>*

smallest diameter of log which the grapple can hold in a fully closed position

**3.4.9****grapple rotation**

number of degrees through which the grapple can rotate

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