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

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

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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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.

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).

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For an explanation of the voluntary nature of standards, 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 www.iso.org/iso/foreword.html.

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

This second edition cancels and replaces the first edition (ISO 13861:2000), which has been technically revised.

The main changes compared to the previous edition are as follows:

- added a new terminological entry for "skidder";
- moved ISO 6814 to the Bibliography;
- deleted the terms "right hand", "left hand", "front" and "rear";
- revised [Clause 4](#) to explicitly state the required information;
- updated [Figures A.1](#) and [A.4](#);
- moved the figures to a new informative [Annex A](#);
- applied editorial changes.

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.

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

1 Scope

This document 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.

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

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology 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 General terms

3.1.1 skidder

self-propelled machine designed to transport trees or parts of trees by trailing or dragging

[SOURCE: ISO 6814:2009, 2.3.1.15]

3.1.2 ground reference plane GRP

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

3.2 Terms related to 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

axle load

load on each axle at *normal operating mass* (3.2.1) or *maximum operating mass* (3.2.2)

3.3 Terms related to 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

Note 1 to entry: See [Figure A.1](#).

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

Note 1 to entry: See [Figure A.1](#).

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

Note 1 to entry: See [Figure A.1](#).

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

Note 1 to entry: See [Figure A.1](#).

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

Note 1 to entry: See [Figure A.1](#).

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

Note 1 to entry: See [Figure A.1](#).

3.3.7**overall height** h_1

vertical distance between the *ground reference plane* (3.1.2) and a horizontal plane passing through the highest point of the machine

Note 1 to entry: See [Figure A.1](#).

3.3.8**blade height** h_2

vertical distance from the lower edge, resting on the *ground reference plane* (3.1.2), to the top of the blade, decking lugs excluded

Note 1 to entry: See [Figure A.1](#).

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 *ground reference plane* (3.1.2)

Note 1 to entry: See [Figure A.1](#).

3.3.10**lowest blade position** h_4

vertical distance from the *ground reference plane* (3.1.2) to the blade's lower edge with blade at its lowest position

Note 1 to entry: See [Figure A.1](#).

3.3.11**ground clearance** h_5

vertical distance from the *ground reference plane* (3.1.2) to the lowest point of the machine centre portion, i.e. 25 % of the *tread* (3.3.19) to either side of the longitudinal centreline

Note 1 to entry: See [Figure A.2](#).

3.3.12**ground clearance at articulation joint** h_6

vertical distance from the *ground reference plane* (3.1.2) to the lowest point at the articulation joint

Note 1 to entry: See [Figure A.1](#).

3.3.13**loaded tire radius** r_1

vertical distance from the *ground reference plane* (3.1.2) to the horizontal centre of the axle with the machine at *normal operating mass* (3.2.1)

Note 1 to entry: See [Figure A.1](#).

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

Note 1 to entry: See [Figure A.1](#).

3.3.15

winch height

h_8
vertical distance from the horizontal centre of the winch drum to the horizontal centre of the axle

Note 1 to entry: See [Figure A.1](#).

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

Note 1 to entry: See [Figure A.1](#).

3.3.17

main fairlead roller diameter

d_1
diameter of main fairlead roller at its mid-length position

Note 1 to entry: See [Figure A.1](#).

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

Note 1 to entry: See [Figure A.2](#).

3.3.19

tread

w_2
horizontal distance between two parallel vertical planes passing through the centreline of the tires on an axle

Note 1 to entry: See [Figure A.2](#).

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

Note 1 to entry: See [Figure A.2](#).

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

Note 1 to entry: See [Figure A.2](#).

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

Note 1 to entry: See [Figure A.3](#).

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

Note 1 to entry: See [Figure A.3](#).

3.3.24**blade width** w_3

horizontal distance between the outer edges of the blade

Note 1 to entry: See [Figure A.3](#).

3.4 Terms related to grapple dimensions**3.4.1****grapple reach** ll_1, ll_2, ll_3, ll_4

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

- ll_1 with the pivot in the highest, fully extended position;
- ll_2 with the pivot in the lowest, fully extended position;
- ll_3 with the pivot in the highest, fully retracted position;
- ll_4 with the pivot in the lowest, fully retracted position

Note 1 to entry: See [Figure A.4](#).

3.4.2**grapple lift** hh_1, hh_2, hh_3, hh_4

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

- hh_1 with the pivot in the highest, fully retracted position;
- hh_2 with the pivot in the highest, fully extended position;
- hh_3 with the pivot in the lowest, fully retracted position;
- hh_4 with the pivot in the lowest, fully extended position

Note 1 to entry: See [Figure A.4](#).

3.4.3**boom rotation** aa_1

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

Note 1 to entry: See [Figure A.4](#).

3.4.4
rear axle to main swing boom pivot

ll_5
horizontal distance from the vertical centre of the rear axle to the vertical centre of the main *swing boom* (3.5.3) pivot

Note 1 to entry: See [Figure A.4](#).

3.4.5
grapple height

hh_5, hh_6, hh_7
vertical distance from the centre of the upper pivot to the lowest point of the grapple arms under the following conditions:

- hh_5 with the grapple fully open;
- hh_6 with the grapple in tip-to-tip position;
- hh_7 with the grapple fully closed

Note 1 to entry: See [Figure A.5](#).

3.4.6
maximum grapple opening

ll_6
horizontal distance between the tips of the grapple arms the grapple fully open

Note 1 to entry: See [Figure A.5](#).

3.4.7
area of grapple opening

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

Note 1 to entry: See [Figure A.5](#).

3.4.8
minimum log size

dd_1
smallest diameter of log which the grapple can hold in a fully closed position

Note 1 to entry: See [Figure A.5](#).

3.4.9
grapple rotation

number of degrees through which the grapple can rotate

3.5 Terms related to grapple configurations

3.5.1
single function

configuration in which the grapple support assembly consists of a single arch and a pair of hydraulic cylinders allowing the grapple pivot to move through a fixed arc

3.5.2
dual function

configuration in which the grapple support assembly consists of a boom, arch, and two sets of hydraulic cylinders allowing the grapple pivot to describe a range of motion in a vertical longitudinal plane

3.5.3**swing boom**

configuration in which the grapple support consists of a boom assembly which allows both horizontal and vertical grapple movement

3.6 Terms related to butt plate dimensions**3.6.1****rear axle to butt plate** ll_7

horizontal distance from the centre of the rear axle to the rearward face of the butt plate

Note 1 to entry: See [Figure A.6](#).

3.6.2**length of load support** ll_8

horizontal distance from the rearward face of the butt plate to the rearmost edge of the load support

Note 1 to entry: See [Figure A.6](#).

3.6.3**lowest butt plate position** hh_8

vertical distance from the *ground reference plane* ([3.1.2](#)) to the lowest edge of the butt plate with the butt plate fully lowered

Note 1 to entry: See [Figure A.6](#).

4 Required information

For identifying and describing the main dimensions and features of wheeled skidders, the following information shall be supplied where appropriate (see examples in [Annex A](#)):

- normal operating mass ([3.2.1](#));
- maximum operating mass ([3.2.2](#));
- axle load ([3.2.3](#));
- total frame length ([3.3.1](#));
- overall length ([3.3.2](#));
- wheelbase ([3.3.3](#));
- articulation joint to maximum blade arc ([3.3.4](#));
- articulation joint to front of machine ([3.3.5](#));
- articulation joint to front axle ([3.3.6](#));
- overall height ([3.3.7](#));
- blade height ([3.3.8](#));
- maximum blade lift of lower edge ([3.3.9](#));
- lowest blade position ([3.3.10](#));
- ground clearance ([3.3.11](#));

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- ground clearance at articulation joint ([3.3.12](#));
- loaded tire radius ([3.3.13](#));
- main fairlead roller height ([3.3.14](#));
- winch height ([3.3.15](#));
- rear axle to main fairlead roller ([3.3.16](#));
- main fairlead roller diameter ([3.3.17](#));
- overall width ([3.3.18](#));
- tread ([3.3.19](#));
- frame oscillation ([3.3.20](#));
- axle oscillation ([3.3.21](#));
- clearance circle ([3.3.22](#));
- angle of articulation ([3.3.23](#));
- blade width ([3.3.24](#));
- grapple reach ([3.4.1](#));
- grapple lift ([3.4.2](#));
- boom rotation ([3.4.3](#));
- rear axle to main swing boom pivot ([3.4.4](#));
- grapple height ([3.4.5](#));
- maximum grapple opening ([3.4.6](#));
- area of grapple opening ([3.4.7](#));
- minimum log size ([3.4.8](#));
- grapple rotation ([3.4.9](#));
- rear axle to butt plate ([3.6.1](#));
- length of load support ([3.6.2](#));
- lowest butt plate position ([3.6.3](#));

In addition, the following information shall be supplied where appropriate:

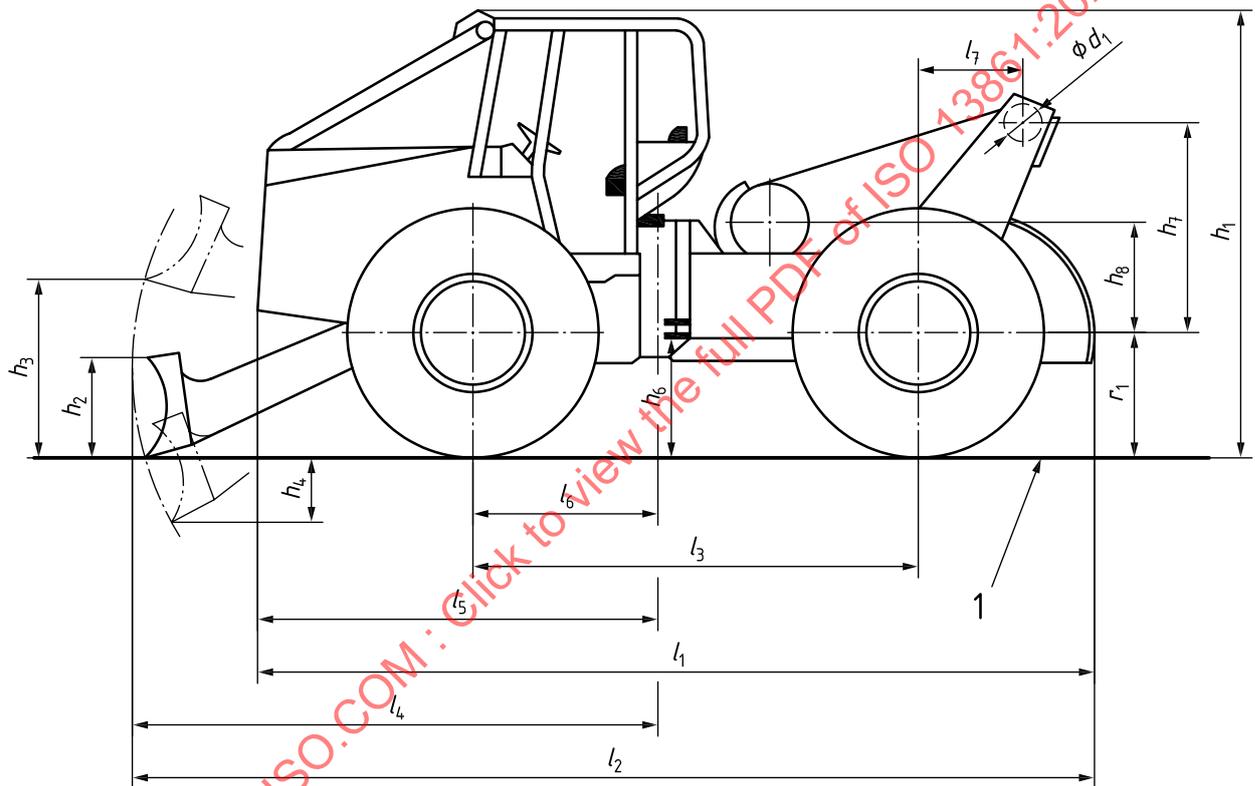
- tyre size;
- ply rating;
- inflation pressure;
- possible hydro-inflation;
- maximum and minimum for adjustable dimensions, e.g. main fairlead roller height ([3.3.14](#)) and rear axle to main fairlead roller ([3.3.16](#));
- unequal front/rear or left/right for asymmetrical dimensions, e.g. tread ([3.3.19](#)), angle of articulation ([3.3.23](#)), boom rotation ([3.4.3](#)).

Annex A (informative)

Examples of dimensions and features

Figures A.1 to A.6 give examples of dimensions and features defined in Clause 3. The figures are for illustrative purposes only and are not intended to depict specific machines.

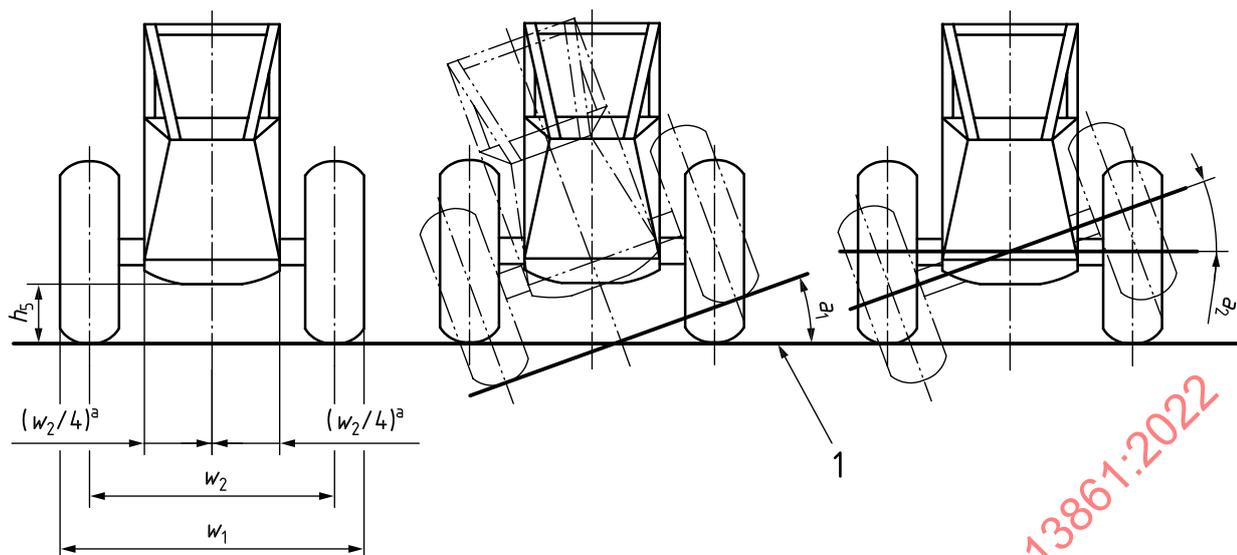
All dimensions are with the axles parallel, unless otherwise specified.



Key

1 ground reference plane

Figure A.1 — Articulated rubber-tired skidder



Key

- 1 ground reference plane
- a Used for definition h_5 only.

Figure A.2 — Tread, ground clearance and oscillation

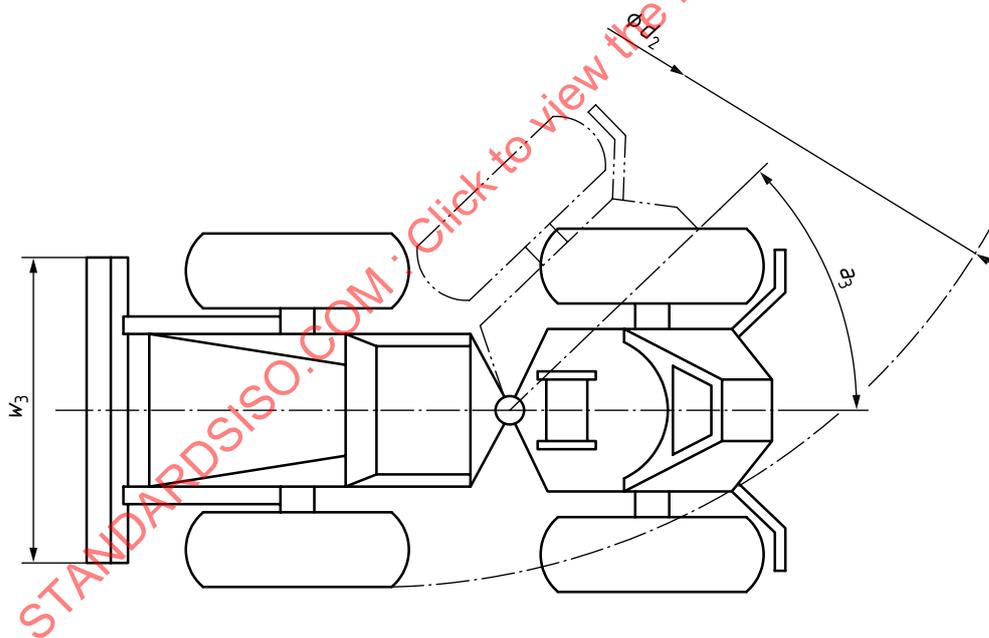


Figure A.3 — Steering