



**International
Standard**

ISO 21120

**Machinery for forestry — Forestry
mulching equipment — Terms,
definitions and commercial
specifications**

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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 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).

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

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.

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Introduction

The figures in this document are intended to illustrate machine concepts for rather than any existing machines or all possible configurations (see [Annexes A](#) and [B](#)).

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Machinery for forestry — Forestry mulching equipment — Terms, definitions and commercial specifications

1 Scope

This document identifies and defines terms, specifies a means of classification, provides dimensional characteristics and commercial specifications, and gives a nomenclature of components for mulching equipment (in other words, mulching attachment carriers and mulching attachments) used in forestry and related operations. Its aim is to establish a uniform method of describing the various configurations of these types of forestry machines.

Machines for mulching which have been designed for feeding by hand are not covered by this document.

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

mulching attachment carrier

self-propelled machine for carrying a *mulching attachment* (3.1.2)

Note 1 to entry: Mulching attachment carriers are defined by their design configuration and operational purpose.

EXAMPLE Skid-steer loader, excavator, tractor with forestry application features.

3.1.2

mulching attachment

device affixed to and propelled by a *mulching attachment carrier* (3.1.1) and designed for the purpose of *mulching* (3.1.3)

3.1.3

mulching

reduction of trees, brush, or parts of trees on site with a grinding or shredding action, leaving the resulting material on the forest or worksite floor

[SOURCE: ISO 6814:2009, 2.16, modified to add: or worksite]

**3.1.4
mulching equipment**

mulching attachment carrier (3.1.1) equipped with a *mulching attachment* (3.1.2)

Note 1 to entry: Mulching equipment can be classified by how they are configured (for example, drive type, rotor type, tool type, mount type) and combination of these types. See 3.4

3.2 Terms related to mulching attachment carrier

**3.2.1
undercarriage**

base of the *mulching equipment* (3.1.4) that provides mobility

Note 1 to entry: An undercarriage typically has endless tracks or wheels, or a combination of both.

**3.2.2
maximum ground speed**

maximum forward speed able to be obtained on level ground based on the nominal design capacity of the *mulching attachment carrier* (3.1.1) with tyres or endless tracks

Note 1 to entry: The tyre size will be the largest diameter drive tyres as specified by the mulching attachment carrier manufacturer for the *mulching attachment carrier* (3.1.1).

3.3 Terms related to to mulching attachment

**3.3.1
rotor**

rotating component with *tools* (3.3.2) that strikes and reduces material it comes in contact with

Note 1 to entry: The rotor typically has an axis that is either horizontal (drum type) or vertical (disc type).

**3.3.2
tool**

material engaging element mounted to the *rotor* (3.3.1) that grinds, shreds, tears, or cuts material

EXAMPLE Tooth, hammer.

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**3.3.3
anvil**

reaction element or elements located close to the *rotor* (3.3.1) which restrains engaged material while it is struck and reduced by the *tools* (3.3.2)

**3.3.4
rotor housing**

enclosure containing the *rotor* (3.3.1) and reactionary elements which limit and direct material discharge

**3.3.5
debris sizing door**

adjustable element mounted on the *rotor housing* (3.3.4) that contributes to material reduction and directs material discharge

**3.3.6
push bar**

pushover bar

rigid or adjustable structure mounted on top of the *rotor housing* (3.3.4) for manipulating and directing material that is standing or on the ground

**3.3.7
skid shoe**

adjustable or rigid mounted element mounted at the bottom of the *mulching attachment* (3.1.2) outside of the *rotor housing* (3.3.4) that regulates distance between the cutting element and the ground

3.3.8

mount

mechanical interface that connects the *mulching attachment* (3.1.2) to the *mulching attachment carrier* (3.1.1) typically by welding, bolting, or pinning

Note 1 to entry: Quick couplers and quick attach systems are other types of interfaces.

3.3.9

debris guard

devices affixed to the lower section of the *mulching attachment* (3.1.2) that absorbs or deflects thrown debris

EXAMPLE Chains, protective skirt.

3.3.10

tool holder

device that affixes the *tool* (3.3.2) to the *drum* (3.4.2.1) or the *disc* (3.4.2.2)

3.4 Terms related to mulching equipment type

3.4.1 Drive type

3.4.1.1

PTO drive

configuration where the *mulching attachment* (3.1.2) is powered by the power take-off of the *mulcher attachment carrier* (3.1.1)

3.4.1.2

hydraulic drive

configuration where the *mulching attachment* (3.1.2) is powered by hydraulic fluid supplied by the *mulching attachment carrier* (3.1.1) to single or dual hydraulic motors of the *mulching attachment* (3.1.2)

3.4.1.3

self-powered drive

configuration where the *mulching attachment* (3.1.2) is configured with an on-board power source (for example, engine, electric motor, hydraulic motor), and is independent of any power from the *mulching attachment carrier* (3.1.1) to the *rotor* (3.3.1) of the *mulching attachment* (3.1.2)

3.4.2 Rotor type

3.4.2.1

drum

configuration where the rotor of the *mulching attachment* (3.1.2) is cylindrical and typically mounted with a horizontal shaft orientation within the *rotor housing* (3.3.4)

3.4.2.2

disc

configuration where the rotor of the *mulching attachment* (3.1.2) is a disc or disc-like assembly, and typically mounted with a vertical shaft orientation to the ground within the *rotor housing* (3.3.4)

3.4.3 Tool type

3.4.3.1

fixed

configuration where a *tool* (3.3.2) is rigidly mounted to the *rotor* (3.3.1)

3.4.3.2

swing

flail

configuration where a *tool* (3.3.2) that can swing or pivot independent of the *rotor* (3.3.1)

3.4.4 Mount type

3.4.4.1 limited reach

mount (3.3.8) configuration with a vertical lift capability typically less than 1,75 m

3.4.4.2 boom

mount (3.3.8) configuration intended for *mulching attachment carriers* (3.1.1) with lift and reach typically more than 4 m

Note 1 to entry: This configuration can include tilting and rotational elements for *mulching attachment* (3.1.2) positioning.

3.4.4.3 loader

mount (3.3.8) configuration intended for *mulching attachment carriers* (3.1.1) with loader arm geometry that typically provides vertical lift less than 4 m

Note 1 to entry: Reach is typically fixed and cannot be adjusted in or out, but the loader can include tilting elements to independently position the *mulching attachment* (3.1.2)

3.5 Terms related to dimensional characteristics

3.5.1 ground reference plane

GRP

hard, flat, horizontal surface on which the *mulching attachment carrier* (3.1.1) and *mulching attachment* (3.1.2) are placed for taking measurements

[SOURCE: ISO 13862:2022, modified – replaced "machine is" with "*mulching attachment carrier* (3.1.1) and *mulching attachment* (3.1.2) are".]

3.5.2 Mulching attachment carrier

3.5.2.1 height

H_1
distance from *ground reference plane* (3.5.1) to the top of the highest *mulching attachment carrier* (3.1.1) element with the attachment lowered to the ground

3.5.2.2 width

W_1
linear distance between each side-most *mulching attachment carrier* (3.1.1) element

3.5.2.3 length

L_1
linear distance between the forward-most *mulching attachment carrier* (3.1.1) element and the rearward-most *mulching attachment carrier* (3.1.1) element

3.5.2.4 ground clearance

H_2
vertical distance measured from the *ground reference plane* (3.5.1) to lowest point of the *mulching attachment carrier* (3.1.1) centre portion