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BSI Standards Publication

Machinery for forestry — Machine-fed woody biomass reduction chippers, grinders, and shredders — Vocabulary

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National foreword

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Foreword

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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*.

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Introduction

The figures in this document (see Annex A and Annex B) are intended to illustrate machine concepts for applying dimensional characteristics and for component identification purposes related to the machines defined in 3.2.

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Machinery for forestry — Machine-fed woody biomass reduction chippers, grinders, and shredders — Vocabulary

1 Scope

This document identifies and defines terms used, illustrates configurations, and gives a nomenclature of components for machine-fed woody biomass reduction chippers, grinders, and shredders used in forestry. It aims to establish a uniform description of the various configurations of these types of forestry machines.

Machines covered by this document include:

— drum chippers;

— disc chippers;

— screw chippers;

— horizontal grinders;

— tub grinders;

— shredders.

Chippers, grinders, and shredders that are manually fed are not covered by this document.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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
woody biomass
biomass originating from trees, bushes and shrubs together with their fruit, leaves and needles inherent to the biomass

Note 1 to entry: This definition includes forest, plantation and other virgin wood, wood processing industry by-products and residues, and used wood.

[SOURCE: ISO 16559:2022, 3.227]

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3.2 Terms related to base machines

3.2.1
chipper
<machine-fed>
self-propelled, portable, or stationary forestry machine designed to chip whole trees or parts of trees where the material is mechanically loaded into the infeed components using a material loading device

Note 1 to entry: The material loading device can be another machine or a loading mechanism [for example, a *grapple loader* (3.6.2)] mounted on the chipper.

3.2.1.1
drum chipper
chipper (3.2.1) where the cutting elements are mounted on the periphery of cylindrical steel drum

3.2.1.2
disc chipper
chipper (3.2.1) where the cutting elements are mounted in slots on a large steel disc

3.2.1.3
screw chipper
chipper (3.2.1) where rotating conical-screw blades attached to a flywheel pull in the material and chip it simultaneously

3.2.2
grinder
self-propelled, towed, or stationary forestry machine designed to reduce trees, brush, or parts of trees by tearing, shredding, impacting, or shearing

[SOURCE: ISO 6814:2009, 2.3.1.10 modified to add "stationary forestry" and remove "to a uniform particle size"]

3.2.2.1
horizontal grinder
grinder (3.2.2) that presents and advances material with a horizontal feeding mechanism to *the grinding system* (3.3.2) and grinds the material to a reduced particle size

3.2.2.2
tub grinder
grinder (3.2.2) that presents and advances material with a vertical feeding mechanism to the *grinding system* (3.3.2) using a rotating tub and grinds the material to a reduced particle size

3.2.3
shredder
self-propelled, towed, or stationary forest machine that presents and advances material with either a vertical feeding mechanism or a horizontal feeding mechanism to the *shredding system* (3.3.3) and shreds the material to a reduced particle size

3.3 Terms related to cutting systems

3.3.1
chipping system
device used to chip and reduce whole or partial trees

3.3.2
grinding system
rotating components that reduce the fed material by impacting or shearing

3.3.3
shredding system
rotating components that reduce the fed material by shredding

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3.3.4
cutting element
component incorporating single or multiple cutting surfaces

Note 1 to entry: The cutting element attachment hardware is not considered part of the cutting element.

Note 2 to entry: Examples of cutting elements include drums, discs, and screws.

[SOURCE: ISO 11839:2021, 3.1, modified — Note 1 to entry modified and Note 2 to entry added.]

3.3.5
grinding element
component incorporating single or multiple grinding surfaces

Note 1 to entry: The grinding element attachment hardware is not considered part of the grinding element.

[SOURCE: ISO 11839:2021, 3.1, modified — Note 1 to entry modified.]

3.3.6
shredding element
component incorporating single or multiple shredding surfaces

Note 1 to entry: The shredding element attachment hardware is not considered to be part of the shredding element.

3.3.7
anvil
sheer bar
counter-knife
element located close to the cutting system which restrains the feed material while it is cut, shredded, impacted, and reduced

3.3.8
screen
restricting element located close to the cutting system which retains the feed material while it is cut and reduced until it is reduced to a passing size

3.4 Terms related to infeed

3.4.1
infeed system
machine structure that accepts material from a loading machine or *grapple loader* (3.6.2) mechanism

EXAMPLE Feed rollers, conveyor(s), tub, hopper.

3.4.1.1
horizontal infeed
device that presents and advances material with a horizontal or near horizontal feeding action to the cutting system where gravity has a negligible effect

3.4.1.2
tub infeed
device that presents and advances material with a vertical and rotating feeding action to cutting system where gravity has a significant effect

3.4.1.3
hopper infeed
device that retains material and allows gravity to provide the principle feeding action to the cutting system

3.4.2
feed roller
component of a horizontal feeding mechanism using powered rotation on top of the feed material to assist feeding of the material

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3.4.3
chipper infeed winch
mechanism which pulls, by means of a flexible element (rope) from a power-driven drum, whole trees or parts of trees to the infeed mechanism of a *chipper* (3.2.1)

3.4.4
infeed conveyor
portion of the *infeed system* (3.4.1) that continuously transports *woody biomass* (3.1.1) to the *feed roller* (3.4.2) using an endless belt, chain, or rollers

3.4.5
tub
rotating funnel-shaped receptacle, into which *woody biomass* (3.1.1) is loaded for processing

3.4.6
hopper
stationary receptacle, into which *woody biomass* (3.1.1) is loaded for processing or used for storage

Note 1 to entry: Hopper can be tipped for unloading.

3.4.7
hammermill
drum
rotor
device containing a vertical or horizontal rotating shaft or drum with hammer bars that impact material being fed into the *hopper infeed* (3.4.1.1) and is thereby shredded and expelled through *screens* (3.3.8)

3.5 Terms related to discharge

3.5.1
discharge system
system that transports reduced material away from the cutting system (3.3), by momentum, air flow or mechanical means

EXAMPLE a *discharge chute* (3.5.2), a *discharge conveyor* (3.5.3), a *discharge fan* (3.5.4).

3.5.2
discharge chute
portion of the *discharge system* (3.5.1) extending outward from the *discharge fan* (3.5.4) opening designed to control the ejection of processed material

3.5.3
discharge conveyor
portion of the *discharge system* (3.5.1) that continuously transports processed material along a gentle slope using an endless belt

3.5.4
discharge fan
portion of the *discharge system* (3.5.1) producing an airstream to the *discharge chute* (3.5.2) where processed material is discharged

3.5.5
discharge auger
device within the *discharge system* (3.5.1) for moving processed material to the *discharge chute* (3.5.2) or *discharge conveyor* (3.5.3)

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