SLOVENSKI STANDARD
SIST EN 13525:2020

01-junij-2020

Nadomešča:
SIST EN 13525:2005+A2:2010

Gozdarski stroji - Sekalniki - Varnost

Forestry machinery - Wood chippers - Safety

Forstmaschinen - Buschholzhacker - Sicherheit

Machines forestières - Déchiqueteuses - Sécurité

Ta slovenski standard je istoveten z: EN 13525:2020

ICS:

65.060.80	Gozdarska oprema	Forestry equipment

SIST EN 13525:2020 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13525

April 2020

ICS 65.060.80

Supersedes EN 13525:2005+A2:2009

English Version

Forestry machinery - Wood chippers - Safety

Machines forestières - Déchiqueteuses - Sécurité

Forstmaschinen - Buschholzhacker - Sicherheit

This European Standard was approved by CEN on 13 February 2020.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN 13525:2020 E

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European foreword

This document (EN 13525:2020) has been prepared by Technical Committee CEN/TC 144 “Tractors and machinery for agriculture and forestry”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2020, and conflicting national standards shall be withdrawn at the latest by October 2020.

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

This document supersedes EN 13525:2005+A2:2009.

The main changes compared to the previous edition concern requirements to deal with risks related to moving parts and more particularly to moving parts involved in the process.

This has resulted in a substantial revision of the chapters dealing with operator controls (4.2) and with protection against mechanical hazards (4.3).

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

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

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 (e.g. trade unions, organizations for people with special needs);

— service providers, e.g. for maintenance (small, medium and large enterprises);

— consumers (in 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 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 type-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.

1 Scope

This document specifies safety requirements and their verification for design and construction of, i.e. self-propelled, mounted, semi-mounted and trailed, wood chippers used in forestry, agriculture, horticulture and landscaping.

This document applies to chippers, used when stationary, which are manually loaded with wood through a horizontal or near horizontal infeed chute and where the infeed action is performed by the chipping components acting as infeed components or by separate integrated infeed components such as rollers or conveyors integral to the infeed chute. Wood chippers may be powered either by an external power take-off, hydraulics etc. or by an integral power source such as an internal combustion engine.

This document does not cover:

— requirements relating to national road regulations arising from transport between work sites;

— hazards arising from any self-propelled function;

— hazards arising from the transmission of power from an external power source – e.g. power take-off drive shafts;

— any machines where the infeed chute is fitted with an extension table or an integrated conveyor that is protruding beyond the outermost lower edge of the infeed chute and the Lower Protective Device of the infeed chute;

— hazards arising from the engine pull starting of an integral power source;

— hazards arising from mechanical loading;

— vertical infeed chute chippers;

— electromagnetic aspects of the chippers;

— shredders/chippers to be covered by EN 13683;

— any machines that are only loaded mechanically;

— additional mechanical discharge systems for woodchips which are not part of the chipping mechanism e.g. conveyors.

For machines that can be both manually and mechanically loaded, this document is only covering the safety of the manual loading.

NOTE 1 Any additional requirements related to use with both mechanical and manual feed that could affect safe use or which are necessary to maintain the integrity of protective devices are outside the scope of this document. Such additional measures are intended to be determined by risk assessment carried out by the manufacturer.

This document deals with all significant hazards, hazardous situations and events relevant to wood chippers, when they are used as intended and under the conditions foreseeable by the manufacturer (see Annex A).

In addition, it specifies the type of information to be provided by the manufacturer on the safe use of these machines.

It is not applicable to environmental hazards (except noise).

NOTE 2 The noise test code described in this document does not comply with the outdoor noise directive 2000/14/EC.

This document is not applicable to wood chippers which are manufactured before the date of publication of this document by CEN.

2 Normative references

The following documents are referred to in the text in such 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.

EN 1175-2:1998+A1:2010, *Safety of industrial trucks — Electrical requirements — Part 2: General requirements of internal combustion engine powered trucks*

EN 10025-2:2019, *Hot rolled products of structural steels — Part 2: Technical delivery conditions for non-alloy structural steels*

EN 15811:2014, *Agricultural machinery — Fixed guards and interlocked guards with or without guard locking for moving transmission parts (ISO/TS 28923:2012 modified)*

EN 60204-1:2018, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2016)*

EN 60529:1991, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

EN 60529:1991/A1:2000, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989/A1:1999)*

EN 60529:1991/A2:2013, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989/A2:2013)*

EN 60947-5-1:2004, *Low-voltage switchgear and controlgear — Part 5-1: Control circuit devices and switching elements — Electromechanical control circuit devices (IEC 60947 5 1:2003)*

EN ISO 3744:2010, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering methods for an essentially free field over a reflecting plane (ISO 3744:2010)*

EN ISO 4254-1:2015, *Agricultural machinery — Safety — Part 1: General requirements (ISO 4254-1:2013)*

EN ISO 4413:2010, *Hydraulic fluid power — General rules and safety requirements for systems and their components (ISO 4413:2010)*

EN ISO 4871:2009, *Acoustics — Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*

EN ISO 11201:2010, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections (ISO 11201:2010)*

EN ISO 11204:2010, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying accurate environmental corrections (ISO 11204:2010)*

EN ISO 11688-1:2009, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO/TR 11688-1:1995)*

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

EN ISO 13732-1:2008, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces (ISO 13732-1:2006)*

EN ISO 13857:2019, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2019)*

EN ISO 13849-1:2015, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2015)*

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

EN ISO 14120:2015, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards (ISO 14120:2015)*

ISO 11684:1995, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Safety signs and hazard pictorials — General principles*

EN 17067:2018, *Forestry machinery — Safety requirements on radio remote controls*

IEC 60245-1:2003+AMD1:2007, *Rubber insulated cables — Rated voltages up to and including 450/750 V — Part 1: General requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
wood chipper
machine designed to reduce wood into chips

3.2
chipping components
rotating disc or drum or similar device with cutting tools or screw arrangement that performs the chipping operation and may perform also the infeed operation

3.3
infeed component
device designed to feed wood into the chipping components

Note 1 to entry: Infeed components may be rollers or conveyors.

3.4
infeed action
action or process of supplying material into the chipping components

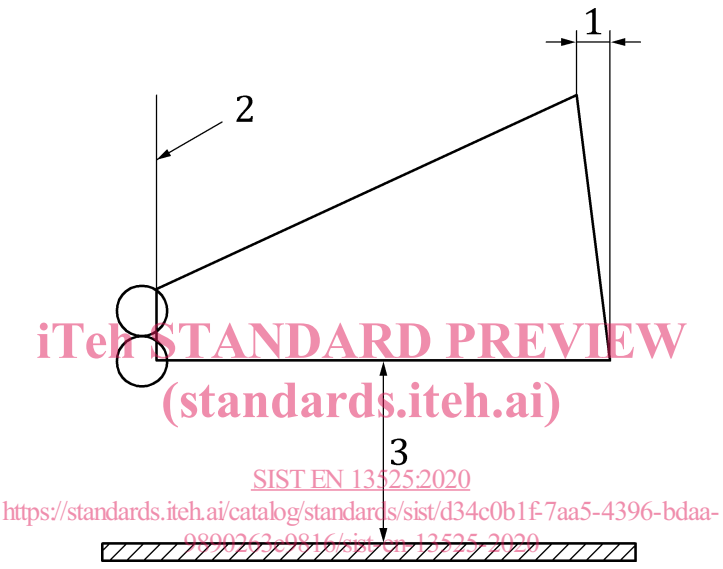
3.5
horizontal or near horizontal infeed chute
infeed chute for which the gravity has a negligible effect on infeed action

3.6
manual loading
method where the wood is presented to the machine by the operator without mechanical help

3.7
infeed chute
device through which wood is fed and guided to the chipping components and which also provides the required safety distances

Note 1 to entry: See different types of infeed chute Figure 1, Figure 2, Figure 3 and Figure 4.

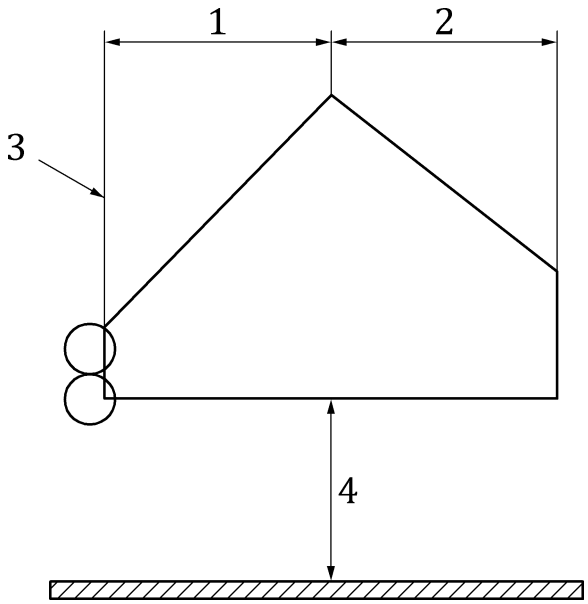
Note 2 to entry: Any dimensions used to determine the type of infeed chute are to be considered horizontal and with the machine on level ground and the infeed chute in its designated working position.



Key

1 maximum offset of 100 mm from lower edge of chute
2 reference plane
3 minimum distance from the ground

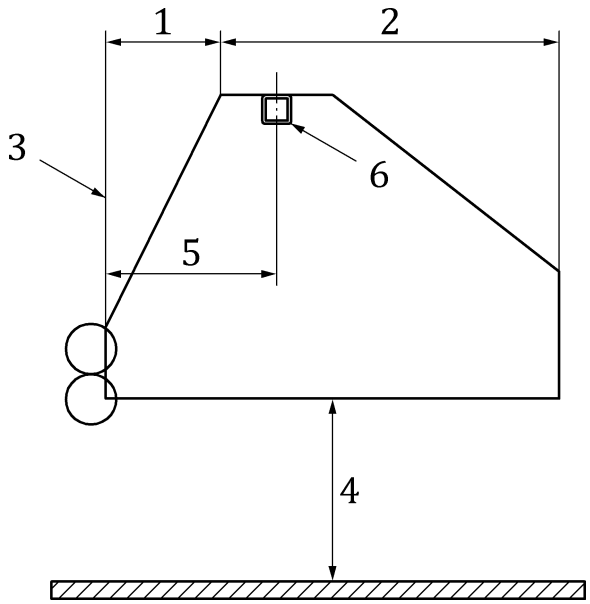
Figure 1 — Type A: fully closed infeed chute – Left side view



Key

1 closed top panel greater than 600 mm from the reference plane and a distance greater than 100 mm from the chute lower edge
2 open top panel
3 reference plane
4 minimum distance from the ground

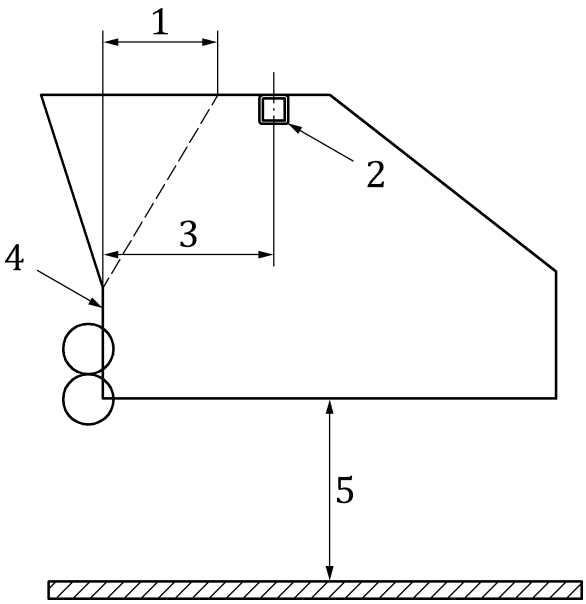
Figure 2 — Type B: semi open infeed chute – Left side view



Key

1 closed top panel greater than 300 mm from the reference plane and less than 600 mm from the chute's top edge
2 open top panel
3 reference plane
4 minimum distance from the ground
5 distance between Chute Top Structure and reference plane
6 Chute Top Structure

Figure 3 — Type C: fully open infeed chute – Left side view



Key

1 any distance less than 300 mm from or in front of the reference plane in the direction of infeed classifies the chute as a type D
2 Chute Top Structure
3 distance between Chute Top Structure and reference plane
4 reference plane
5 minimum distance from the ground

Figure 4 — Type D: extended open infeed chute – Left side view

3.8
integrated infeed conveyor
transporting system incorporated in the infeed chute that transports and presents material to cutting mechanism or additional infeed components

3.9
discharge chute
device through which the chipped material is guided away from the chipping components and which may also provide the required safety distances

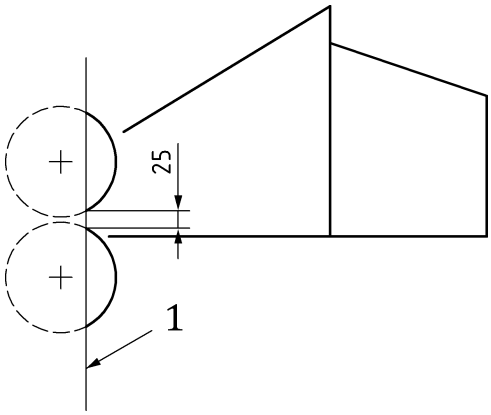
3.10
run down time
time elapsed from the actuation of the stop control device until the chipping and/or infeed components come to a complete stop

3.11
reference plane
vertical imaginary plane normal to the infeed direction, at a point nearest to the operator during the action of in-feeding, where the distance between the infeed components or if there is only one infeed component between this infeed component and the infeed chute is 25 mm or where the infeed is achieved by the chipping components alone, the point nearest the operator where the chipping components are accessible

Note 1 to entry: Figures are given as example and do not represent all cases.

Note 2 to entry: The reference plane of wood chippers with opposing vertical rollers is determined as shown on Figure 5 assuming that rollers are vertical.

Dimensions in millimetres

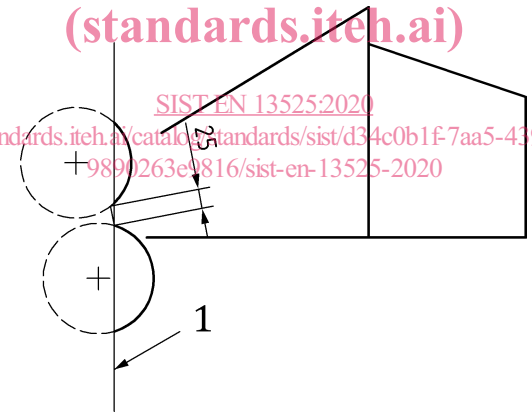


Key

1 reference plane

Figure 5 — Wood chipper with opposing rollers – Left side view

Dimensions in millimetres



Key

1 reference plane

Figure 6 — Wood chipper with offset rollers – left side view