



# SLOVENSKI STANDARD

## SIST EN 12750:2013

01-april-2013

Nadomešča:

SIST EN 12750:2002+A1:2009

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**Varnost lesnoobdelovalnih strojev - Rezkalni stroji za štiristransko obdelavo**

Safety of woodworking machines - Four sided moulding machines

Sicherheit von Holzbearbeitungsmaschinen - Fräsmaschinen für vierseitige Bearbeitung

Sécurité des machines pour le travail du bois - Machines à moulurer sur quatre faces  
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**ICS:**

79.120.10      Lesnoobdelovalni stroji      Woodworking machines

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 12750**

February 2013

ICS 79.120.10

Supersedes EN 12750:2001+A1:2009

English Version

**Safety of woodworking machines - Four sided moulding machines**

Sécurité des machines pour le travail du bois - Machines à  
mouler sur quatre faces

Sicherheit von Holzbearbeitungsmaschinen -  
Fräsmaschinen für vierseitige Bearbeitung

This European Standard was approved by CEN on 15 December 2012.

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## Foreword

This document (EN 12750:2013) has been prepared by Technical Committee CEN/TC 142 "Woodworking machines - Safety", the secretariat of which is held by UNI.

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of an identical text or by endorsement, at the latest by August 2013, and conflicting national standards shall be withdrawn at the latest by August 2013.

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

This document supersedes EN 12750:2001+A1:2009.

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 2006/42/EC, see informative Annex ZA, which is an integral part of this document.

The following most significant changes have been made in comparison with EN 12750:2001+A1:2009:

- a) In Clause 1 Scope: The scope has been limited to machines having a maximum speed of the integrated work-piece feed of 200 m/min;
- b) In 5.2.1 Safety and reliability of control systems: Application of EN ISO 13849, i.e. by requiring PL for the machine's safety functions;
- c) In 5.2.7 Speed changing: concretion of requirements for different technologies;
- d) In 5.2.9 Integrated feed: Additional requirements related to the powered adjustment of spindle position, height adjustment of the feed mechanism, fences, table height, chip breakers and pressure shoes;
- e) In 5.3.4 Braking: concretion of requirements for different braking systems;
- f) In 5.3.5.2 Out-feed end of the machine: Additional requirements to prevent ejection from the machine;
- g) In 5.3.5.3 Use of glass bead cutting unit: Additional requirements for the glass bead cutting unit;
- h) In 5.3.7 Prevention of access to moving parts and ejection of parts of tools: concretion of requirements related to the safeguarding of the tools and ejection of parts of tools;
- i) In 5.4.2.1 Noise reduction at the design stage: Additional requirements related to integrated enclosures;
- j) In 5.4.2.2 Noise emission measurement: Additional noise emission test for machines having a maximum feed speed > 40 m/min;
- k) In 5.4.3 Emission of chips and dust: Additional requirements related to the emission of chips and dust;
- l) In 6.3 Instruction handbook: The sermon to be provided by the manufacturer has been extended to a large extent.

Organisations contributing to the preparation of this European Standard include the European Manufacturers Association "EUMABOIS".

The European Standards produced by CEN/TC 142 are particular to woodworking machines and complement the relevant A and B Standards on the subject of general safety (see Introduction of EN ISO 12100:2010 for a description of A, B and C standards).

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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## Introduction

This document has been prepared to be a harmonised standard to provide one means of conforming to the Essential Health and Safety Requirements of the Machinery Directive and associated EFTA Regulations. This document is a type C standard as defined in EN ISO 12100:2010.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered is indicated in the scope of this document.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of other standards, for machines that have been designed and built according to the provisions of this type C standard.

The requirements of this document are directed to manufacturers and their authorised representatives of four sided moulding machines. This document is also useful for designers.

This document also includes provisions and examples of information to be provided by the manufacturer to the user.

Common requirements for tooling are given in EN 847-1:2005+A1:2007.

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## 1 Scope

This European Standard deals with all significant hazards, hazardous situations and events as listed in Clause 4, which are relevant to stationary four sided moulding machines with a maximum working width of 350 mm and a maximum speed of the integrated work-piece feed of 200 m/min, with electrical and/or electronic control system, hereafter referred to as "machines" designed to cut solid wood, chipboard, fibreboard, plywood and also these materials where these are covered with plastic laminate or edgings when they are used as intended and under the conditions foreseen by the manufacturer, including reasonably foreseeable misuse of the machine (see 6.3 c)).

For the definition of a stationary machine, see 3.22.

This European Standard deals also with hazards relating to the following optional work units:

- universal spindle;
- glass bead cutting unit.

This European Standard is not applicable to machines designed for machining logs which have not previously been machined.

This European Standard does not deal with any hazards relating to:

- a) in-feed devices (magazines, hoppers, etc.);

NOTE For mechanical in-feed devices which also prevent access to the in-feed opening, see 5.3.7.2.

- b) the combination of single machines with any other machine as part of a line;

- c) out-feed devices (e.g. mechanical handling systems) except for hazards related to ejection from the machine due to climb cutting.

This European Standard is not applicable to four sided moulding machines which are manufactured before the date of its publication as EN.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 614-1:2006+A1:2009, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

EN 847-1:2005+A1:2007, *Tools for woodworking — Safety requirements — Part 1: Milling tools, circular saw blades*

EN 894-1:1997+A1:2008, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 1: General principles for human interactions with displays and control actuators*

EN 894-2:1997+A1:2008, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 2: Displays*

EN 894-3:2000+A1:2008, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 3: Control actuators*

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EN 953:1997+A1:2009, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

EN 1005-1:2001+A1:2008, *Safety of machinery — Human physical performance — Part 1: Terms and definitions*

EN 1005-2:2003+A1:2008, *Safety of machinery — Human physical performance — Part 2: Manual handling of machinery and component parts of machinery*

EN 1005-3:2002+A1:2008, *Safety of machinery — Human physical performance — Part 3: Recommended force limits for machinery operation*

EN 1005-4:2005+A1:2008, *Safety of machinery — Human physical performance — Part 4: Evaluation of working postures and movements in relation to machinery*

EN 1037:1995+A1:2008, *Safety of machinery — Prevention of unexpected start-up*

EN 1088:1995+A2:2008, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

EN 1760-2:2001+A1:2009, *Safety of machinery — Pressure sensitive protective devices — Part 2: General principles for the design and testing of pressure sensitive edges and pressure sensitive bars*

EN 1837:1999+A1:2009, *Safety of machinery — Integral lighting of machines*

EN 50178:1997, *Electronic equipment for use in power installations*

EN 50370-1:2005, *Electromagnetic compatibility (EMC) — Product family standard for machine tools — Part 1: Emission*

EN 50370-2:2003, *Electromagnetic compatibility (EMC) — Product family standard for machine tools — Part 2: Immunity*

EN 60204-1:2006, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005, modified)*

EN 60439-1:1999<sup>1)</sup>, *Low-voltage switchgear and controlgear assemblies — Part 1: Type-tested and partially type-tested assemblies (IEC 60439-1:1999)*

EN 60529:1991<sup>2)</sup>, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

EN 61310-1:2008, *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, auditory and tactile signals (IEC 61310-1:2007)*

EN 61496-1:2004, *Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and tests (IEC 61496-1:2004, modified)*

EN 61800-5-2:2007, *Adjustable speed electrical power drive systems — Part 5-2: Safety requirements — Functional (IEC 61800-5-2:2007)*

EN ISO 286-2:2010, *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 2: Tables of standard tolerance classes and limit deviations for holes and shafts (ISO 286-2:2010)*

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1) This document is impacted by the amendment EN 60439-1:1999/A1:2004.

2) This document is impacted by the amendment EN 60529:1991/A1:2000.

EN ISO 354:2003, *Acoustics — Measurement of sound absorption in a reverberation room (ISO 354:2003)*

EN ISO 3743-1:2010, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering methods for small, movable sources in reverberant fields — Part 1: Comparison method for a hard-walled test room (ISO 3743-1:2010)*

EN ISO 3743-2:2009, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering methods for small, movable sources in reverberant fields — Part 2: Methods for special reverberation test rooms (ISO 3743-2:1994)*

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 3745:2012, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Precision methods for anechoic rooms and hemi-anechoic rooms (ISO 3745:2012)*

EN ISO 3746:2010, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Survey method using an enveloping measurement surface over a reflecting plane (ISO 3746:2010)*

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

EN ISO 4414:2010, *Pneumatic fluid power — General rules and safety requirements for systems and their components (ISO 4414:2010)*

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

EN ISO 9614-1:2009, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 1: Measurement at discrete points (ISO 9614-1:1993)*

EN ISO 11202:2010, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections (ISO 11202:2010)*

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 13849-1:2008, *Safety of machinery — Safety-related parts of controls systems — Part 1: General principles for design (ISO 13849-1:2006)*

EN ISO 13850:2008, *Safety of machinery — Emergency stop — Principles for design (ISO 13850:2006)*

EN ISO 13857:2008, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)*

**EN 12750:2013 (E)**

EN ISO 15667:2000, *Acoustics — Guidelines for noise control by enclosures and cabins (ISO 15667:2000)*

ISO 7960:1995, *Airborne noise emitted by machine tools — Operating conditions for woodworking machines*

**3 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and the following apply.

**3.1**  
**four sided moulding machine**  
machine where the work-piece, once loaded manually or by magazine, moves by an integrated feed mechanism; the machine has at least four work units with rotating planing or moulding tools, where one unit is located on each longitudinal side of the work-piece; the spindles have horizontal and/or vertical axes which can be adjusted manually or under power; the machine can be fitted with additional work units such as universal spindle(s) or glass bead cutting unit(s)

Note 1 to entry: Machines where the first feed roller is fitted after the first tool are, for the purpose of this document, integrated fed machines.

**3.2**  
**universal spindle**  
work unit, the position of which can be changed manually or under power so as to allow it to work at different positions around the work-piece

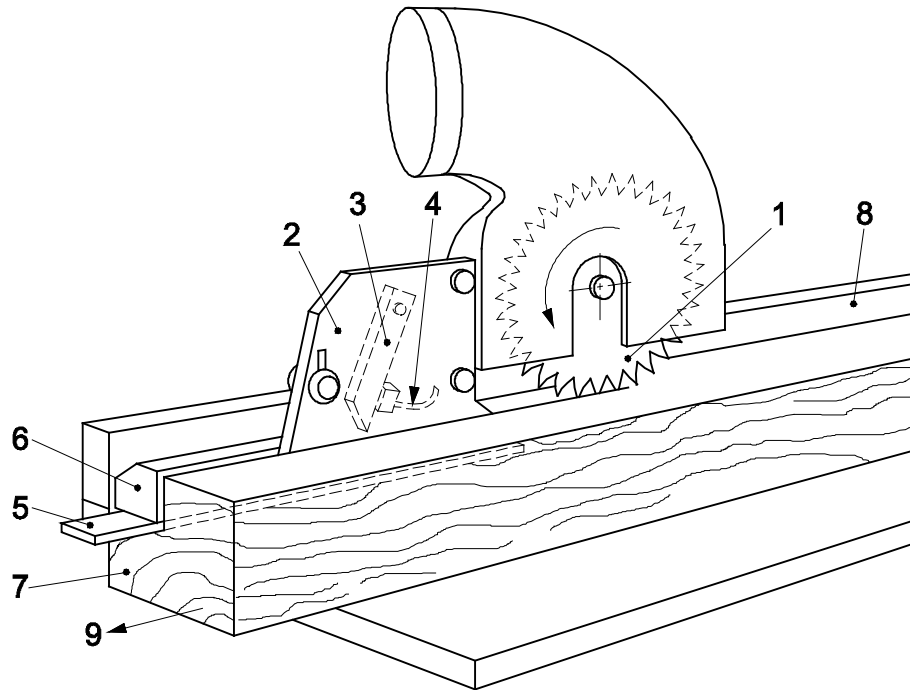
**3.3**  
**glass bead cutting unit**  
work unit fitted with a tool, usually a saw blade, with or without coaxial mounted milling tool, to cut out a glass bead from the machined profile of the work-piece

Note 1 to entry: See also Figure 1.

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**Key**

- 1 glass bead saw-blade
- 2 bed ledge separator
- 3 anti-kickback finger
- 4 pressure device
- 5 guiding channel for glass bead ledge
- 6 glass bead ledge
- 7 work-piece
- 8 fence
- 9 feed direction

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**Figure 1 — Example of a glass bead cutting unit**

**3.4****hydraulic tool fixing device**

device for clamping the tool to the spindle using hydraulic pressure

**3.5****integrated feed on four sided moulding machines**

feed mechanism for the work-piece or tool which is integrated with the machine and where the work-piece or machine element with incorporated tool are held and controlled mechanically during the machining operation

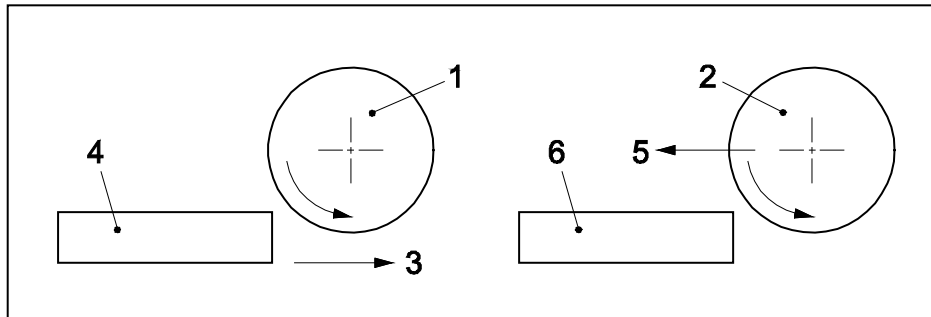
**3.6****loading of four sided moulding machines**

manual or automatic placing of the work-piece on to a carriage, magazine, lift, hopper, movable bed, conveyor or the presentation of the work-piece to an integrated feed device

**3.7****climb cutting**

cutting where the projection of the movement of the cutting knife in direction of the feed movement shows in the same direction as the relative movement of the work-piece against the tool

Note 1 to entry: See also Figure 2.

**Key**

- 1 tool, fixed axis
- 2 tool, moving axis
- 3 feed direction (work piece)
- 4 work piece (moving)
- 5 feed direction (tool)
- 6 work piece (fixed)

**Figure 2 — Climb cutting****3.8****cutting area of the tool**

area where the tool can be involved in the cutting process

**3.9****non-cutting area of the tool**

area of the tool not involved in the cutting process

**3.10****ejection**

uncontrolled movement of the work-piece or parts of it or part of the tool from the machine during processing

**3.11****kickback**

unexpected sudden movement of the work-piece or parts of it opposite to the direction of feed during processing

**3.12****anti-kickback device**

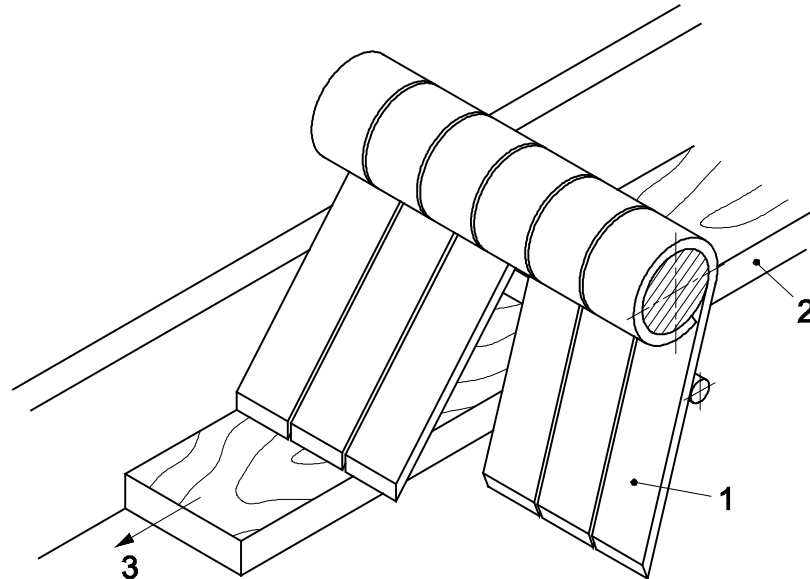
device which either reduces the possibility of kickback or arrests the motion of the work-piece or parts of it during kickback

Note 1 to entry: For example see Key 3 in Figure 1.

**3.13****catching fingers device**

device designed to prevent the ejection of divided work-pieces

Note 1 to entry: See also Figure 3.

**Key**

- 1 catching finger
- 2 work-piece
- 3 feed direction

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 Figure 3 — Example of a catching fingers device

**3.14****speed range**

range between the lowest and the highest rotational speed for which the spindle or tool is designed to operate

**3.15****run-up time**

time elapsed from the actuation of the start control device until the spindle reaches the intended speed

**3.16****run-down time**

time elapsed from the actuation of the stop control device up to spindle standstill

**3.17****pressure sensitive protective equipment****PSPE**

mechanically actuated assembly of devices and/or components working together for protective tripping or presence-sensing purposes comprising as a minimum:

- one or more pressure sensing elements;
- a control unit (where necessary);
- one or more output signal switching device(s)

Note 1 to entry: Safety-related control system associated with the PSPE or the PSPE itself can further include a secondary switching device, start interlock, re-start interlock, etc.

EXAMPLE Pressure sensitive bars.