



SLOVENSKI STANDARD

SIST EN 1218-2:2004

01-november-2004

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Safety of woodworking machines - Tenoning machines - Part 2: Double end tenoning and/or profiling machines fed by chain or chains

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Sicherheit von Holzbearbeitungsmaschinen - Zapfenschneid- und Schlitzmaschinen - Teil 2: Doppelseitige Zapfenschneid- und Schlitzmaschinen und/oder Doppelendprofiler mit Kettenbandvorschub

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Sécurité des machines pour le travail du bois - Tenonneuses - Partie 2: Machines a tenonner et/ou a profiler a chaîne ou chaînes

Ta slovenski standard je istoveten z: EN 1218-2:2004

ICS:

79.120.10 Lesnoobdelovalni stroji Woodworking machines

SIST EN 1218-2:2004

en

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ICS 79.120.10

English version

Safety of woodworking machines - Tenoning machines - Part 2:
Double end tenoning and/or profiling machines fed by chain or
chains

Sécurité des machines pour le travail du bois -
Tenonneuses - Partie 2: Machines à tenonner et/ou à
profiler à chaîne ou chaînes

Sicherheit von Holzbearbeitungsmaschinen -
Zapfenschneid- und Schlitzmaschinen - Teil 2:
Doppelseitige Zapfenschneid- und Schlitzmaschinen
und/oder Doppelendprofiler mit Kettenbandvorschub

This European Standard was approved by CEN on 24 March 2004.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 1218-2:2004) has been prepared by the Technical Committee CEN/TC 142 "Woodworking machines -Safety", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by January 2005, and conflicting national standards shall be withdrawn at the latest by January 2005.

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 Directives, see informative Annex ZA, which is an integral part of this document.

Organisations contributing to the preparation of this European Standard include European Committee of Woodworking Machinery 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 12100-1:2003 for a description of A, B and C standards).

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and 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 safety requirements of the Machinery Directive, and associated EFTA regulations.

This document is a type C standard as stated in EN 1070:1998.

The machinery concerned and the extent to which hazards, hazardous situations and events covered are 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 C type standard take precedence over the provisions of other standards, for machines that have been designed and built in accordance with the provisions of this type C standard.

The requirements of this document are directed to manufacturers and their authorised representatives of double end tenoning and/or profiling machines fed by chain or chains. It is also useful for designers.

This document also includes information which can be provided by the manufacturer to the user.

Common requirements for tooling are given in EN 847-1:1997.

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1 Scope

This document specifies the requirements and/or measures to remove the hazards and/or limit the risks on double end tenoning and/or profiling machines fed by chain or chains, hereinafter referred to as the machine, designed to cut solid wood, chipboard, fibreboard or plywood and also these materials where they are covered with plastic laminate or edgings. The workpiece is fed passed the tools by an integrated feed.

This document covers the hazards relevant to these machines as stated in Clause 4.

This document does not apply to:

- a) double end tenoning and/or profiling machines fed by chain or chains with a complete enclosure as defined in 3.3.11;
- b) transportable machines.

This document does not deal with any hazards relating to:

- c) mechanical loading of the workpiece to a single machine; or
- d) single machine being used in combination with any other machine (as part of a line); or
- e) use of tools working between the machine halves (see 3.1); or
- f) use of laser.

For Computer Numerically Controlled (CNC) machines this document does not cover hazards related to Electro-Magnetic Compatibility (EMC).

NOTE 1 The requirements of this document apply to all machines whatever their method of control e.g. electromechanical and/or electronic.

This document is primarily directed to machines which are manufactured after the date of publication by CEN.

NOTE 2 Single end tenoning machines with sliding table are dealt with in EN 1218-1:1999. Single end tenoning machines where the tenon is produced only by means of saw blades are dealt with in EN 1218-3. Single end profiling machines fed by chain or chains are dealt with in EN 1218-5.

2 Normative references

The following referenced documents are indispensable for the application 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 294:1992, *Safety of machinery - Safety distances to prevent danger zones being reached by the upper limbs.*

EN 418:1992, *Safety of machinery - Emergency stop equipment, functional aspects - Principles for design.*

EN 847-1:1997, *Tools for woodworking - Safety requirements - Part 1: Milling tools and circular saw blades.*

EN 954-1:1996, *Safety of machinery - Safety related parts of controls systems - Part 1: General principles for design.*

EN 982:1996, *Safety of machinery - Safety requirements for fluid power systems and their components – Hydraulics.*

EN 983:1996, *Safety of machinery - Safety requirements for fluid power systems and their components – Pneumatics*.

EN 1037:1995, *Safety of machinery - Prevention of unexpected start-up*.

EN 1070:1998, *Safety of machinery – Terminology*.

EN 1088:1995, *Safety of machinery - Interlocking devices associated with guards - Principles for design and selection*.

EN 1760-2:2001, *Safety of machinery - Pressure sensitive protection devices - Part 2: General principles for the design and testing of pressure sensitive edges and pressure sensitive bars*.

EN 1837:1999, *Safety of machinery - Integral lighting of machines*.

EN 60204-1:1992, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:1992, modified)*.

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

EN 60947-4-1:1992, *Low voltage switchgear and controlgear - Part 4-1: Contactors and motor starters - Electromechanical contactors and motor starters (IEC 60947-4-1:1990)*.

EN 60947-5-1:1997, *Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices (IEC 60947-5-1:1997)*.

CEN/TS 61496-2:2003, *Safety of machinery – Electro-sensitive protective equipment - Part 2: Particular requirements for equipment using active optoelectronic devices (IEC 61496-2:1997)*.

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

EN ISO 3743-1:1995, *Acoustics - Determination of sound power levels of noise sources - Engineering methods for small, moveable sources in reverberant fields - Part 1: Comparison method for hard walled test rooms (ISO 3743-1:1994)*.

EN ISO 3743-2:1996, *Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering methods for small, moveable sources in reverberant fields - Part 2: Methods for special reverberation test rooms (ISO 3743-2:1994)*.

EN ISO 3744:1995, *Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering method in an essentially free field over a reflecting plane (ISO 3744:1994)*.

EN ISO 3745, *Acoustics - Determination of sound power levels of noise sources using sound pressure - Precision methods for anechoic and hemi-anechoic rooms (ISO 3745:2003)*

EN ISO 3746:1995, *Acoustics - Determination of sound power levels of noise sources using sound pressure - Survey method using an enveloping measurement surface over a reflecting plane (ISO 3746:1995)*.

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

EN ISO 9614-1:1995, *Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 1: Measurement at discrete points (ISO 9614-1:1993)*.

EN ISO 11202:1995, *Acoustics - Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at a workstation and at other specified positions (ISO 11202:1995)*.

EN ISO 11204:1995, *Acoustics - Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at the workstation and at other specified positions - Method requiring environmental corrections (ISO 11204:1995)*.

EN ISO 11688-1:1998, *Acoustics - Recommended practice for the design of low noise machinery and equipment - Part 1: Planning* (ISO/TR 11688-1:1995).

EN ISO 12100-1:2003, *Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology* (ISO 12100-1:2003)

EN ISO 12100-2:2003, *Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles* (ISO 12100-2:2003)

ISO 286-2:1988, *ISO system of limits and fits - Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts.*

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

HD 21.1 S3:1997, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V - Part 1: General requirements.*

HD 22.1 S3:1997, *Rubber insulated cables of rated voltages up to and including 450/750V - Part 1: General requirements.*

3 Terms and definitions

3.1 General

For the purposes of this document, the terms and definitions given in EN 1070:1998 apply. Additional definitions specifically needed for this document are shown in 3.2 and 3.3.

3.2 Terms

The main parts of the machine and their terminology are illustrated in Figure 1.

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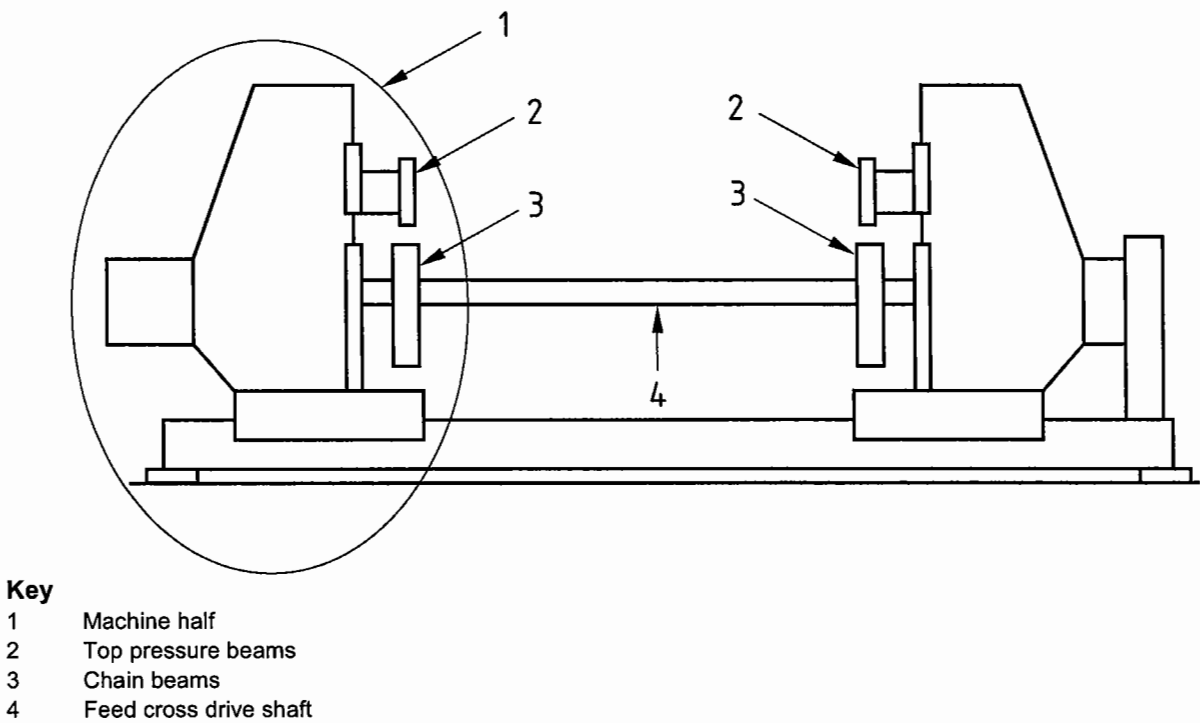


Figure 1 — Terminology

3.3 Definitions

3.3.1 double end tenoning and/or profiling machine fed by chain or chains
woodworking machine primarily designed for production of tenons and/or profiles on opposing ends of a workpiece in one pass. The tenons and/or profiles are cut by means of milling tools, saw blade(s) and/or sanding units mounted on one or more spindles on each machine half. The workpiece is presented by means of a chain or chains using pads and/or dogs mounted on a continuous chain belt or similar conveyor

3.3.2 machine half
part of a machine consisting of a frame, chain beam, top pressure beam and working units. Each machine half processes one, different, end of the workpiece. One or both machine halves move to accept workpieces of different dimensions

3.3.3 profile
shaping of an edge of a workpiece by milling tools, saw blades and/or sanding units. Profiling also includes panel sizing

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

3.3.5 ejection
unexpected movement of the workpiece or parts of it or part of the machine from the machine during processing

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3.3.6 machine actuator
power mechanism used to effect the motion of the machine

3.3.7 run-up time
time elapsed from the actuation of the start control device until the spindle reaches the intended speed

3.3.8 unbraked run-down time
time elapsed from the actuation of the stop control, but not the braking device (if fitted) up to spindle standstill

3.3.9 braked run-down time
time elapsed from the actuation of the stop control and the brake devices up to spindle standstill

3.3.10 integral enclosure
guarding designed to fit close to the machine and provide a measure of sound attenuation and where certain setting adjustments may be available outside the enclosure. Each machine half is provided with separate guarding and on the adjustable machine half/halves this guarding moves with it when adjustment is made for workpiece width

3.3.11 complete enclosure
total machine enclosure primarily designed for noise attenuation and to permit the operator to move around freely within it and where all machine setting and adjustments are available inside it

3.3.12 transportable machine
machine which is located on the floor, stationary during use and equipped with a device, normally wheels, which allow it to be moved between locations

3.3.13 confirmation
statements, sales literature, leaflets or other documents where a manufacturer (supplier) declares either the characteristics of e.g. a material or product or the compliance of the material or product to a relevant standard

4 List of hazards

This document deals with hazards listed and relevant to the machines as defined in the scope:

- for significant hazards by defining safety requirements and/or measures or by reference to relevant type B standards;
- for hazards which are not significant e.g. general, minor or secondary hazards by reference to relevant type A or B standards, especially EN ISO 12100-1:2003 and EN ISO 12100-2:2003.

These hazards are listed in Table 1 in accordance with Clause 4 of EN ISO 12100-1:2003.

Table 1 — List of hazards

Number	Hazard	Relevant sub-clause of this document
1	Mechanical hazards (caused for example by: <ul style="list-style-type: none">- shape- relative location- mass and stability (potential energy of elements)- mass and velocity (kinetic energy of elements)- inadequacy of the mechanical strength. Accumulation of Potential energy by: <ul style="list-style-type: none">- elastic elements (springs), or- liquids or gases under pressure, or- vacuum. of the machine parts or workpieces	
1.1	Crushing hazard	5.3.7
1.2	Shearing hazard	5.3.7
1.3	Cutting or severing hazard	5.3.2, 5.3.3, 5.3.4, 5.3.7
1.4	Entanglement hazard	5.3.3, 5.3.4, 5.3.6, 5.3.7
1.5	Drawing in or trapping hazard	5.3.7.1
1.6	Impact hazard	5.3.7
1.8	Friction or abrasion hazard	5.3.4
1.9	High pressure fluid injection hazard	5.3.4, 5.4.7, 5.4.8
1.10	Ejection of parts (of machinery and processed materials/workpieces)	5.2.6, 5.2.8, 5.3.2, 5.3.3, 5.3.5, 5.3.6
1.11	Loss of stability (of machinery and machine parts)	5.3.1
2	Electrical hazards, caused for example by:	
2.1	Electrical contact (direct or indirect)	5.4.4, 5.4.6, 5.4.12, 5.4.13
2.2	Electrostatic phenomena	5.4.10
2.4	External influences on electrical equipment	5.4.4, 5.4.9
4	Hazards generated by noise, resulting in:	
4.1	hearing losses (deafness), other physiological disorders (e.g. loss of balance, loss of awareness)	5.4.2
4.2	interference with speech communication, acoustic signals, etc.	5.4.2
7	Hazards generated by materials and substances processed, used or exhausted by machinery for example:	
7.1	hazards resulting from contact with or inhalation of harmful fluids, mists, fumes and dusts	5.4.3, 6.3
7.2	fire hazard	5.4.1, 5.4.3
8	Hazards generated by neglecting ergonomic principles in machine design (mismatch of machinery with human characteristics and abilities) caused for example by:	
8.1	unhealthy postures or excessive efforts	5.2.2, 5.4.5, 6.3
8.2	inadequate consideration of human hand/arm or foot/leg anatomy	5.2.2, 5.4.5, 6.3
8.3	neglected use of personal protection equipment	6.3
8.4	inadequate area lighting	5.4.6, 6.3
8.6	human error	6.3
9	Hazard combinations	5.2.6, 5.2.7
10	Hazards caused by failure of energy supply, breaking down of machinery parts and other functional disorders, for example:	
10.1	failure of energy supply (of energy and/or control circuits)	5.2.10, 5.3.3.7
10.2	unexpected ejection of machine parts or fluids	5.3.5, 5.4.12

(continued)