

SLOVENSKI STANDARD

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Safety of woodworking machines - Circular sawing machines - Part 14: Vertical panel sawing machines

Sicherheit von Holzbearbeitungsmaschinen - Kreissägemaschinen - Teil 14: Vertikalplattenkreissägemaschinen

Sécurité des machines pour le travail du bois - Machines à scies circulaires - Partie 14: Scies à panneaux verticales

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Safety of woodworking machines - Circular sawing machines - Part 14: Vertical panel sawing machines

Sécurité des machines pour le travail du bois - Machines à
scies circulaires - Partie 14: Scies à panneaux verticales

Sicherheit von Holzbearbeitungsmaschinen -
Kreissägemaschinen - Teil 14:
Vertikalplattenkreissägemaschinen

This European Standard was approved by CEN on 22 November 2007.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

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 CEN Management Centre has the same status as the official versions.

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EN 1870-14:2007 (E)**Foreword**

This document (EN 1870-14:2007) has been prepared by Technical Committee CEN/TC 142 "Woodworking machines - Safety", the secretariat of which is held by UNI.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2008 and conflicting national standards shall be withdrawn at the latest by June 2009.

This document together with EN 1870-13:2007 supersedes EN 1870-2:1999.

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 the Machinery Directive.

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

Organisations contributing to the preparation of this European Standard include the 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).

EN 1870 *Safety of woodworking machines* — *Circular sawing machines* consists of the following parts:

Part 1: Circular saw benches (with and without sliding table), dimension saws and building site saws

Part 2: Horizontal beam panel saws and vertical panel saws

Part 3: Down cutting cross-cut saws and dual purpose down cutting cross-cut saws/circular saw benches

Part 4: Multiblade rip sawing machines with manual loading and/or unloading

Part 5: Circular saw benches/up-cutting cross-cut sawing machines

Part 6: Circular sawing machines for firewood and dual purpose circular sawing machines for firewood/circular saw benches, with manual loading and/or unloading

Part 7: Single blade log sawing machines with integrated feed table and manual loading and/or unloading

Part 8: Single blade edging circular rip sawing machines with power driven saw unit and manual loading and/or unloading

Part 9: Double blade circular sawing machines for cross-cutting with integrated feed and with manual loading and/or unloading

Part 10: Single blade automatic and semi-automatic up-cutting cross-cut sawing machines

Part 11: Semi-automatic and automatic horizontal cross-cut sawing machines with one saw unit (radial arm saws)

Part 12: Pendulum cross-cut sawing machines

Part 13: Horizontal beam panel sawing machines

Part 14: Vertical panel sawing machines

Part 15: Multiblade cross-cut sawing machines with integrated feed of the workpiece and manual loading and/or unloading

Part 16: Double mitre sawing machines for V-cutting

Part 17: Manual horizontal cutting cross-cut sawing machines with one saw unit (manual radial arm saws)

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

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EN 1870-14:2007 (E)**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 defined in EN ISO 12100-1:2003.

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 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 vertical panel sawing machines. This document is also useful for designers and importers.

This document also includes provision 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 document deals with the significant hazards, hazardous situations and events as listed in Clause 4 which are relevant to manually loaded and unloaded vertical panel sawing (with or without integrated feed) machines fitted with:

- the facility for scoring;
- an angle cutting device;
- a middle support device;
- a programmable stop for parallel vertical cuts;
- the facility for grooving with a width of at most 20 mm in one pass by using a milling tools,

hereinafter referred to as "machines" when they are used as intended and under the conditions foreseen by the manufacturer.

The machines are designed for cutting panels of the following materials:

- a) wood based materials such as chipboard, fibreboard, plywood and also these materials where they are covered with plastic / light alloy laminates;
- b) solid wood;
- c) hardened rubber and hardened plastic material;
- d) non ferrous materials e.g. light alloy;

e) compound materials with core consisting of polyurethane or mineral material laminated with light alloy.

This document does not apply to vertical panel saws with pressure beam and saw unit mounted behind the workpiece support.

This document does not deal with hazards relating to the combination of a single machine being used with any other machine (as part of a line).

This document is not applicable to vertical panel saws which are manufactured before the date of its publication as EN.

NOTE Machines covered by this standard are listed under A.1.4 of annex IV of the Machinery Directive.

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

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

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

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

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

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

EN 1005-2:2003, *Safety of machinery — Human physical performance — Part 2: Manual handling of objects associated to machinery*

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

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

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

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

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*

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

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

EN 61310-1:1995, *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, auditory and tactile signals (IEC 61310-1:1995)*

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

EN 61508-3:2001, *Functional safety of electrical/electronic/programmable electronic safety-related systems — Part 3: Software requirements (IEC 61508-3:1998 + Corrigendum 1999)*

EN 62061:2005, *Safety of machinery — Functional safety of safety related electrical, electronic and programmable control systems for machinery (IEC 62061:2005)*

EN ISO 3743-1:1995, *Acoustics — Determination of sound power levels of noise sources — Engineering methods for small movable 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 movable sources in reverberant fields — Part 2: Methods for special reverberant 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 3745:2003, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Precision methods for anechoic and semi-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 discreet points (ISO 9614-1:1993)*

EN ISO 11202:1995, *Acoustics - Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at the work station and at other specified positions — Survey method in situ (ISO 11202:1995)*

EN ISO 11204:1995, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at the work station 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 machines — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)*

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

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

EN ISO 13849-2:2003, *Safety of machinery — Safety-related parts of control systems — Part 2: Validation (ISO 13849-2:2003)*

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

ISO 7960:1995, *Airborne noise emitted by woodworking 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 12100-1:2003 and the following apply.

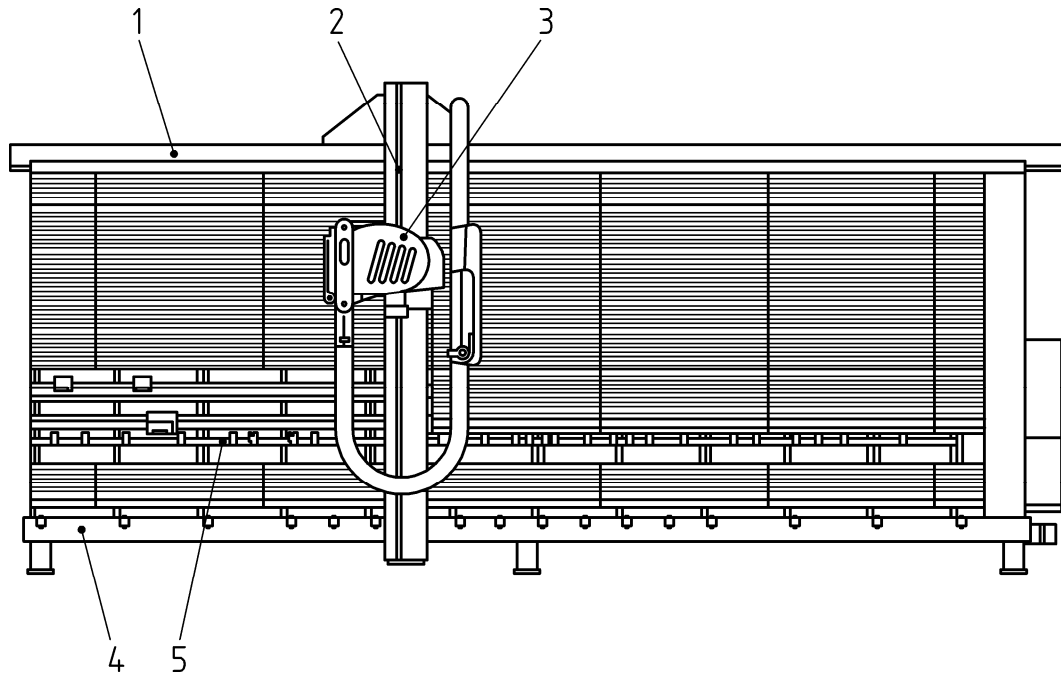
3.1

vertical panel sawing machine

machine designed for cutting panels where the work piece is supported in a near vertical plane during cutting. The saw unit is mounted in front of the workpiece support (example see Figures 1). The cut takes place either in a single straight vertical line by moving the saw unit along the moving beam or in a single horizontal line by moving the moving beam along the work piece support. The work piece is manually loaded and unloaded. The machine may have any of the following main features:

- a) the facility for scoring; [SIST EN 1870-14:2008](https://standards.iteh.ai/catalog/standards/sist/86dbc4f6-7a7e-4c63-a037-e867556de55a/sist-en-1870-14-2008)
- b) an angle cutting device; <https://standards.iteh.ai/catalog/standards/sist/86dbc4f6-7a7e-4c63-a037-e867556de55a/sist-en-1870-14-2008>
- c) a middle support device;
- d) a programmable stop for parallel vertical cuts;
- e) the facility for using grooving tools

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**Key**

- 1 frame
- 2 moving beam
- 3 saw unit
- 4 base of workpiece support
- 5 middle support device

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Figure 1 — Example of a vertical panel sawing machine

3.2 vertical panel sawing machine with hand feed
 machine where the saw unit incorporating the saw blade is manually guided along the moving beam for vertical cuts or manually guided together with the moving beam along the workpiece support for horizontal cuts

3.3 vertical panel sawing machine with integrated feed
 machine where the saw unit incorporating the saw blade has integrated feed for its vertical movement along the moving beam and / or for its horizontal movement by moving the moving beam along the work piece support. The saw blade is automatically projected through the work piece during the cutting stroke and then retracted together with the saw unit from the work piece to its rest position followed by the return stroke of the saw unit to its rest position

3.4 manual loading
 where the operator puts the work piece on the workpiece support i.e. there is no intermediate loading device to receive and transfer the work piece from the operator to the cutting position

3.5 manual unloading
 where the operator removes the work piece from the workpiece support i.e. there is no intermediate unloading device to transfer the work piece from the cutting position to the operator

3.6**saw unit**

supporting unit of the tool(s) e.g. saw blade(s), milling tool, which performs the cutting stroke

3.7**main saw blade**

circular saw blade which is used for separating the work piece

3.8**scoring**

the making of a shallow cut in the surface of a work piece, deep enough to pass through any veneer or plastic facing on the workpiece so as to prevent surface damage when the main saw blade makes its cut

3.9**scoring saw blade**

saw blade mounted in front of the main saw blade which is designed for scoring

3.10**saw blade/saw unit rest position**

position to which the saw unit returns at the end of each cut either power driven on integrated fed machines or manually on machines with hand feed

3.11**cutting cycle on integrated feed machines**

movements of the saw unit incorporating the tool during the machining operation comprising:

- movement of the saw unit with the tool from its rest position to the cutting position;
- movement of the saw unit from its cutting position either along the moving beam (vertical cutting) or together with the moving beam through the cutting stroke (horizontal cutting);
- returning of the saw unit to its rest position.

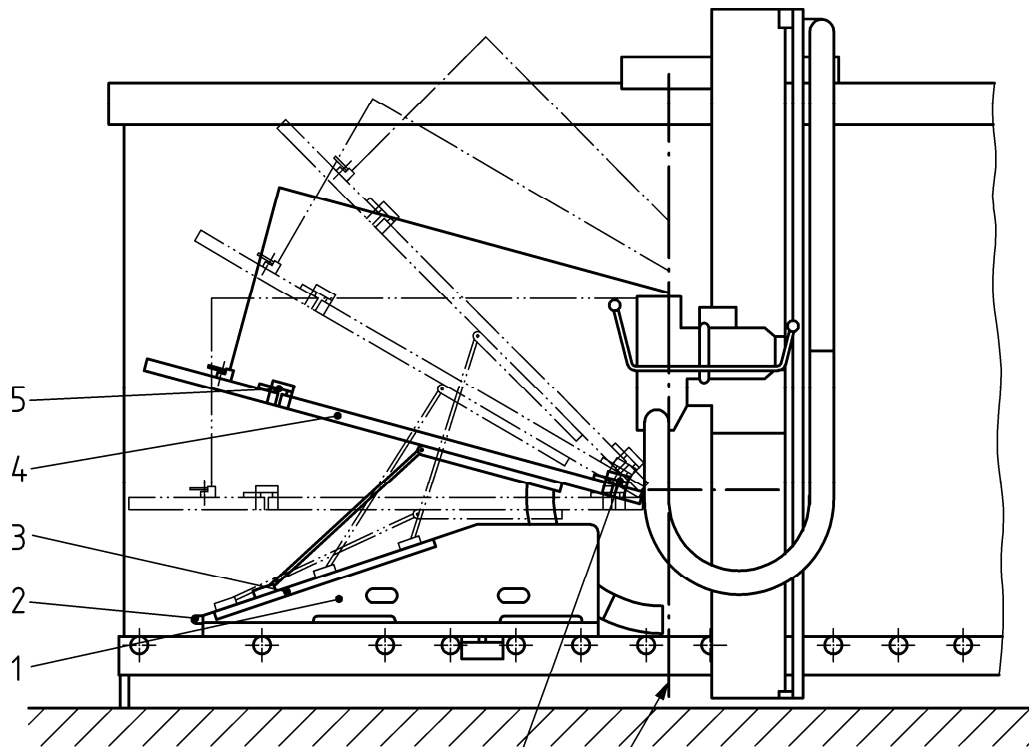
A further movement of the saw unit along the moving beam or of the moving beam with saw unit back to their starting positions may follow

3.12**middle support device**

device for supporting a work piece with small dimensions fitted to the work piece support

3.13**angle cutting device**

device fitted to the work piece support of the machine (example see Figure 2)



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Keys

- 1 support system
- 2 lockable device for adjusting the cutting angle
- 3 scale for indicating the adjusted cutting angle
- 4 work piece support
- 5 work piece clamping
- 6 cutting line

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Figure 2 — Example of an angle cutting device

3.14

programmable stop for vertical cuts

device fitted to the work piece support of the machine designed for vertical cuts at predetermined dimensions

3.15

machine actuator

power mechanism used to effect motion on the machine

3.16

run-down time

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

3.17

information from the supplier

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

3.18 safety related electrical control system (SRECS)

electrical part of a control system whose failure can result in a immediate increase of the risk(s) a hazard (3.2.4 of EN 62061:2005)

3.19 safety related part of a control system (SRP(CS))

part or subpart(s) of a control system that responds to input signals and generates safety-related output signals

NOTE The combined safety-related parts of a control system start at the point where the safety-related signals are initiated (including e.g. the actuating cam and the roller of the position switch) and end at the output of the power control elements (including e.g. the main contacts of the contactor). This also includes monitoring systems (3.1 of EN ISO 13849-1:2006).

3.20 embedded software

software that is part of the system supplied by the manufacturer and is not accessible for modification by the end user

NOTE 1 Embedded software is also referred to as firmware or system software (see 3.2.47 of EN 62061:2005).

NOTE 2 Manufacturer means manufacturer of the system.

NOTE 3 For example the operating system of a speed monitoring device.

3.21 application software

software specific to the application specifically implemented for the SRECS. In general it contains logic sequences, limits and expressions that control the appropriate outputs decisions necessary to meet SRECS functional requirements (see 3.2.46 of EN 62061:2005)

NOTE For example the SRECS program.

4 List of significant hazards

This clause contains the significant hazards, hazardous situations and events (see EN 1050:1996) as far as they are dealt with in this document, identified by risk assessment as significant for the machines as defined in the scope and which require action to eliminate or reduce the risk. This document deals with these significant hazards by defining safety requirements and / or measures or by reference to relevant standards.

These hazards are listed in Table 1 in accordance with Annex A of EN 1050:1996.