

**Puidutöötlemismasinate ohutus.
Ketassaagimisseadmed. Osa 14: Vertikaalasetusega
saeraam KONSOLIDEERITUD TEKST**

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 1870-14:2007+A2:2012 sisaldab Euroopa standardi EN 1870-14:2007+A2:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 1870-14:2007+A2:2012 consists of the English text of the European standard EN 1870-14:2007+A2:2012.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 28.03.2012.	Date of Availability of the European standard is 28.03.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 79.120.10

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Aru 10, 10317 Tallinn, Eesti; www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:
Aru 10, 10317 Tallinn, Estonia; www.evs.ee; phone 605 5050; e-mail info@evs.ee

English Version

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

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

Sicherheit von Holzbearbeitungsmaschinen -
Kreissägemaschinen - Teil 14:
Vertikalplattenkreissägemaschinen

This European Standard was approved by CEN on 22 November 2007 and includes Amendment 1 approved by CEN on 20 August 2009 and Amendment 2 approved by CEN on 30 January 2012.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.





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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	4
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	10
3.1 A₂ General A₂	10
3.2 A₂ Definitions A₂	10
4 List of significant hazards	14
5 Safety requirements and / or measures	16
5.1 General.....	16
5.2 Controls	17
5.2.1 Safety and reliability of control systems.....	17
5.2.2 Position of controls	17
5.2.3 Starting	18
5.2.4 Normal stopping	19
5.2.5 Emergency stop	20
5.2.6 Cutting cycle on vertical panel sawing machines with integrated feed.....	21
5.2.7 Speed changing	21
5.2.8 Failure of the power supply	22
5.2.9 Failure of the control circuits	22
5.3 Protection against mechanical hazards	22
5.3.1 Stability	22
5.3.2 Hazard resulting from break-up during operation.....	22
5.3.3 Tool holder and tool design.....	23
5.3.4 Braking.....	24
5.3.5 Devices to minimise the possibility or the effect of ejection	24
5.3.6 Work piece supports and guides	28
5.3.7 Prevention of access to moving parts.....	29
5.3.8 Guarding of drives	32
5.4 Protection against non-mechanical hazards	33
5.4.1 Fire	33
5.4.2 Noise	33
5.4.3 Emission of chips and dust	34
5.4.4 Electricity	35
5.4.5 Ergonomics and handling.....	36
5.4.6 Pneumatics.....	36
5.4.7 Electromagnetic compatibility.....	37
5.4.8 Static electricity	37
5.4.9 Errors of fitting.....	37
5.4.10 Supply disconnection (isolation)	37
5.4.11 Maintenance	37
6 Information for use	38
6.1 Warning devices	38
6.2 Marking	38
6.2.1 Marking of the machine.....	38
6.2.2 Marking of riving knives and pressure shoes	39
6.3 Instruction handbook	39
Annex A (normative) Impact test method for guards	44

A.1	General	44
A.2	Test method	44
A.2.1	Preliminary remarks	44
A.2.2	Testing equipment.....	44
A.2.3	Projectile for guards.....	44
A.2.4	Sampling.....	44
A.2.5	Test procedure.....	44
A.3	Results.....	45
A.4	Assessment	45
A.5	Test report.....	45
A.6	Test equipment for impact test.....	45
Annex B	(normative) Saw spindle dimensional tolerances.....	47
Annex C	(normative) Riving knife mounting strength.....	48
Annex D	(normative) Riving knife testing - Lateral stability.....	49
Annex E	(normative) Braking tests	50
E.1	Conditions for all tests.....	50
E.2	Tests	50
E.2.1	Un-braked run-down time.....	50
E.2.2	Braked run-down time.....	50
Annex ZA	(informative)  Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC 	53
Bibliography	57

Foreword

This document (EN 1870-14:2007+A2:2012) 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 September 2012 and conflicting national standards shall be withdrawn at the latest by September 2012.

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 includes Amendment 1, approved by CEN on 2009-08-20, and Amendment 2, approved by CEN on 2012-01-30.

This document supersedes ^{A2} EN 1870-14:2007+A1:2009 ^{A2}.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ^{A1} ^{A1} and ^{A2} ^{A2}.

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 ^{A2} Machinery Directive ^{A2}.

^{A2} For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document. ^{A2}

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 ^{A2} EN ISO 12100:2010 ^{A2} 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;*

^{A1} *deleted text* ^{A1}

— *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);*
- Ⓐ₂
- *Part 18: Dimension saws;*
 - *Part 19: Circular saw benches (with and without sliding table) and building site saws.* Ⓐ₂

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, Croatia, 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, Turkey and the United Kingdom.

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 12100:2010 .

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 .

1 Scope

This document [A1] specifies all [A1] 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 [A2] including reasonably foreseeable misuse [A2].

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 [A2] 1.4 [A2] 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.

[A1] *deleted text* [A1]

[A2] EN 847-1:2005+A1:2007 [A2], *Tools for woodworking — Safety requirements — Part 1: Milling tools, circular saw blades*

[A2] EN 894-1:1997+A1:2008 [A2] *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+A1:2008 ^{A2}, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 2: Displays*

EN 894-3:2000+A1:2008 ^{A2}, *Safety of machinery — Ergonomics requirements for the design of display and control actuators — Part 3: Control actuators*

EN deleted text ^{A2}

EN 1005-1:2001+A1:2008 ^{A2}, *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* ^{A2}

EN 1005-3:2002+A1:2008 ^{A2}, *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* ^{A2}

EN 1037:1995+A1:2008 ^{A2}, *Safety of machinery — Prevention of unexpected start-up*

EN 1088:1995+A2:2008 ^{A2}, *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*

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 60439-1:1999¹⁾, ^{A2} *Low-voltage switchgear and controlgear assemblies — Part 1: Type-tested and partially type-tested assemblies (IEC 60439-1:1999)*

EN 60529:1991²⁾, ^{A2} *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, acoustic and tactile signals (IEC 61310-1:2007)* ^{A1}

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

EN deleted text ^{A2}

EN 61800-5-2:2007, *Adjustable speed electrical power drive systems — Part 5-2: Safety requirements — Functional (IEC 61800-5-2:2007)* ^{A2}

^{A2} 1) EN 60439-1:1999 is impacted by EN 60439-1:1999/A1:2004. ^{A2}

^{A2} 2) EN 60529:1991 is impacted by EN 60529:1991/A1:2000. ^{A2}

■_{A2} 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)* ■_{A2}

■_{A2} EN ISO 3743-2:2009 ■_{A2}, *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)*

■_{A2} 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)* ■_{A2}

■_{A2} EN ISO 3745:2009 ■_{A2}, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Precision methods for anechoic and semi-anechoic rooms (ISO 3745:2003)*

■_{A2} 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)* ■_{A2}

■_{A2} EN ISO 4414:2010, *Pneumatic fluid power — General rules and safety requirements for systems and their components (ISO 4414:2010)* ■_{A2}

■_{A2} EN ISO 4871:2009 ■_{A2}, *Acoustics — Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*

■_{A2} EN ISO 9614-1:2009 ■_{A2}, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 1: Measurement at discreet points (ISO 9614-1:1993)*

■_{A2} 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)* ■_{A2}

■_{A2} 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)* ■_{A2}

■_{A2} EN ISO 11688-1:2009 ■_{A2}, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO/TR 11688-1:1995)*

■_{A2} EN ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction (ISO 12100:2010)* ■_{A2}

■_{A1} EN ISO 13849-1:2008 ■_{A1}, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2006)*

■_{A1} EN ISO 13849-2:2008 ■_{A1}, *Safety of machinery — Safety-related parts of control systems — Part 2: Validation (ISO 13849-2:2003)*

■_{A2} EN ISO 13850:2008, *Safety of machinery — Emergency stop — Principles for design (ISO 13850:2006)* ■_{A2}

■_{A1} EN ISO 13857:2008, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)* ■_{A1}

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