

**Puidutöötlemismasinate ohutus.
Ketassaagimisseadmed. Osa 17: Käsijuhtimisega
ühekettalised horisontaalselt lõikavad
järkamissaemasinad (suportsaed)**

**Safety of woodworking machines - Circular sawing
machines - Part 17: Manual horizontal cutting cross-cut
sawing machines with one saw unit (radial arm saws)**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 1870-17:2012 sisaldab Euroopa standardi EN 1870-17:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 1870-17:2012 consists of the English text of the European standard EN 1870-17:2012.
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 17.10.2012.	Date of Availability of the European standard is 17.10.2012.
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 17: Manual horizontal cutting cross-cut sawing machines
with one saw unit (radial arm saws)**

Sécurité des machines pour le travail du bois - Machines à
scies circulaires - Partie 17: Tronçonneuses manuelles à
coupe horizontale avec une unité de sciage (scies
circulaires radiales manuelles)

Sicherheit von Holzbearbeitungsmaschinen -
Kreissägemaschinen - Teil 17: Handbetätigte waagrecht
schneidende Auslegerkreissägemaschinen mit einem
Sägeaggregat (handbetätigte Radialsägen)

This European Standard was approved by CEN on 4 August 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, 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 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 General.....	10
3.2 Definitions	10
4 List of significant hazards	12
5 Safety requirements and/or measures	15
5.1 General.....	15
5.2 Controls	15
5.2.1 Safety and reliability of control systems.....	15
5.2.2 Position of controls	16
5.2.3 Starting	16
5.2.4 Normal stopping	17
5.2.5 Failure of the power supply	17
5.3 Protection against mechanical hazards	17
5.3.1 Stability	17
5.3.2 Risk of break-up during operation	18
5.3.3 Tool holder and tool design.....	18
5.3.4 Braking.....	21
5.3.5 Workpiece supports and guides	22
5.3.6 Prevention of access to moving parts.....	23
5.3.7 Clamping devices	27
5.4 Protection against non-mechanical hazards	28
5.4.1 Fire	28
5.4.2 Noise	28
5.4.3 Emission of chips and dust.....	29
5.4.4 Electricity.....	30
5.4.5 Ergonomics and handling.....	31
5.4.6 Pneumatics.....	31
5.4.7 Electromagnetic compatibility.....	31
5.4.8 Laser	32
5.4.9 Static electricity	32
5.4.10 Errors of fitting.....	32
5.4.11 Supply disconnection (Isolation)	32
5.4.12 Maintenance	33
6 Information for use	33
6.1 General.....	33
6.2 Marking	33
6.3 Instruction handbook	34
Annex A (normative) Stability test for displaceable machines	37
Annex B (normative) Saw spindle dimensional tolerances	38
Annex C (normative) Impact test method for guards	39
C.1 General.....	39
C.2 Test method.....	39
C.2.1 Preliminary remarks	39

C.2.2	Testing equipment.....	39
C.2.3	Projectile for guards.....	39
C.2.4	Sampling.....	39
C.2.5	Test procedure.....	39
C.3	Results.....	40
C.4	Assessment	40
C.5	Test report.....	40
C.6	Test equipment for impact test	40
Annex D	(normative) Brake tests	42
D.1	Conditions for all tests.....	42
D.2	Tests	42
D.2.1	Un-braked run-down time	42
D.2.2	Braked run-down time.....	42
Annex ZA	(informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC	43
Bibliography		46

Foreword

This document (EN 1870-17:2012) 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 April 2013, and conflicting national standards shall be withdrawn at the latest by April 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 1870-17:2007+A2:2009.

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 the Machinery Directive.

For relationship with the Machinery Directive 2006/42/EC, see informative Annex ZA, which is an integral part of this document.

The main modification to the 2009 edition relates to the introduction of performance levels (PL).

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

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 3: Down cutting cross-cut saws and dual purpose down cutting cross-cut saws/circular saw benches;*
- *Part 4: Multi-blade rip sawing machines with manual loading and/or unloading;*
- *Part 5: Circular sawbenches/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: Multi-blade 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 (radial arm saws);*
- *Part 18: Dimension saws (at Enquiry stage at the time of publication of the present document);*
- *Part 19: Circular saw benches (with and without sliding table) and building site saws (at Enquiry stage at the time of publication of the present document).*

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.

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 ISO 12100:2010.

The machinery concerned and the extent to which hazards, hazardous situations and events are 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 in accordance with the requirements of the provisions of this type C standard.

The requirements of this document are directed to manufacturers and their authorised representatives of manual horizontal cutting cross-cut circular sawing machines with one saw unit (manual radial arm saws). It 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.

1 Scope

This European Standard specifies all significant hazards, hazardous situation and events as listed in Clause 4, relevant to stationary and displaceable manual horizontal cutting cross-cut circular sawing machines with one saw unit (manual radial arm saws), hereinafter referred to as “machines”, designed to cut solid wood, chipboard, fibreboard, plywood and also these materials if they are covered with plastic edging and/or plastic laminates, when they are used as intended and under the conditions foreseen by the manufacturer including reasonably foreseeable misuse.

NOTE 1 For the definition of stationary and displaceable machine, see 3.2.3 and 3.2.4.

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

This document does not apply to:

- a) machines set up on a bench or a table similar to a bench, which are intended to carry out work in a stationary position, capable of being lifted by one person by hand; the bench can also be an integrated part of the machine if it consists of hinged legs which can be extended down;

NOTE 2 Transportable motor-operated electrical tools are dealt with in EN 61029-1:2009 together with IEC 61029-2-2:1993.

- b) machines fitted with hydraulically powered machine actuators;
- c) machines fitted with powered work-piece positioning;
- d) machines fitted with the facility for either ripping, milling (including trenching and grooving), sanding and/or drilling;
- e) machines equipped with more than one saw spindle speed;

NOTE 3 A standard to cover machines that can be used for ripping and moulding will be considered at the next revision.

NOTE 4 Semi-automatic and automatic horizontal cutting cross-cut circular sawing machines with one saw unit (radial arm saws) are dealt with in EN 1870-11:2003+A1:2009.

- f) machines with integrated feed.

This document is not applicable to manual horizontal cutting cross-cut circular sawing machines with one saw unit (manual radial arm saws) 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 614-2:2000+A1:2008, *Safety of machinery — Ergonomic design principles — Part 2: Interactions between the design of machinery and work tasks*

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*

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

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

EN 60825-1:2007, *Safety of laser products — Part 1: Equipment classification and requirements (IEC 60825-1:2007)*

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

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 moveable sources in reverberant fields — Part 1: Comparison method for a hard-walled test room (ISO 3743-1:2010)*

1) EN 60439-1:1999 is amended by EN 60439-1:1999/A1:2004, based on IEC 60439-1:1999/A1:2004.

2) EN 60529:1991 is amended by EN 60529:1991/A1:2000, based on IEC 60529:1989/A1:1999.

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 method in an essentially free field over a reflecting plane (ISO 3744:2010)*

EN ISO 3745:2009,³⁾ *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 3746:2010, *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 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 13849-1:2008, *Safety of machinery — Safety-related parts of controls systems — Part 1: General principles for design (ISO 13849-1:2006)*

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

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

HD 22.4 S4:2004,⁴⁾ *Cables of rated voltages up to and including 450/750 V and having cross-linked insulation — Part 4: Cords and flexible cables*

3) EN ISO 3745:2009 is superseded by EN ISO 3745:2012.

4) HD 22.4 S4:2004 is superseded by EN 50525-2-21:2011.