



# SLOVENSKI STANDARD

## SIST EN 1870-11:2014

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Nadomešča:

SIST EN 1870-11:2004+A1:2009

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**Varnost lesnoobdelovalnih strojev - Krožne žage - 11. del: Polavtomatske horizontalne krožne žage za prečni rez z eno rezalno enoto (radialne žage)**

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

Sicherheit von Holzbearbeitungsmaschinen - Kreissägemaschinen - Teil 11: Halbautomatische waagrecht schneidende Auslegerkreissägemaschinen mit einem Sägeaggregat (Radialsägen)

Sécurité des machines pour le travail du bois - Machines à scies circulaires - Partie 11: Tronçonneuses semi-automatiques à coupe horizontale avec une unité de sciage (scies circulaires radiales)

**Ta slovenski standard je istoveten z: EN 1870-11:2013**

**ICS:**

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79.120.10	Lesnoobdelovalni stroji	Woodworking machines

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 1870-11**

October 2013

ICS 79.120.10

Supersedes EN 1870-11:2003+A1:2009

English Version

**Safety of woodworking machines - Circular sawing machines -  
Part 11: Semi automatic horizontal cross-cut sawing machines  
with one saw unit (radial arm saws)**

Sécurité des machines pour le travail du bois - Machines à  
scies circulaires - Partie 11: Tronçonneuses semi-  
automatiques à coupe horizontale avec une unité de sciage  
(scies circulaires radiales)

Sicherheit von Holzbearbeitungsmaschinen -  
Kreissägemaschinen - Teil 11: Halbautomatische  
waagrecht schneidende Auslegerkreissägemaschinen mit  
einem Sägeaggregat (Radialsägen)

This European Standard was approved by CEN on 24 August 2013.

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.

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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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**EN 1870-11:2013 (E)****Foreword**

This document (EN 1870-11:2013) 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 April 2014, and conflicting national standards shall be withdrawn at the latest by April 2014.

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 1870-11:2003+A1:2009.

The main modifications to the previous version include:

- the deletion of automatic machines;
- the deletion of displaceable machines fitted with wheels;
- introduction of PL;
- more precise requirements for braking function and for access to the saw blade for change;
- to require the fence to be located on both sides of the cutting line.

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.

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: 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 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 (manual radial arm saws);*
- *Part 18: Dimension saws;*
- *Part 19: Circular saw benches (with and without sliding table) and building site saws.*

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 12100:2010 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.

**EN 1870-11:2013 (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 12100:2010.

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 C type 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 semi-automatic horizontal cutting cross-cut sawing machines with one saw unit (radial arm saws). It is also useful for designers.

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

Common requirements for tooling are given in EN 847-1:2013.

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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 semi-automatic horizontal cutting cross-cut sawing machines with one saw unit (radial arm saws), hereinafter referred to as "machines", designed to cut solid wood, chipboard, fibreboard, plywood and also these materials when covered with plastic edging and/or plastic/light alloy laminates when they are used as intended and under the conditions foreseen by the manufacturer including reasonably foreseeable misuse. Machines which are designed to work wood based materials may also be used for working rigid plastic materials with similar physical characteristics as wood.

Any work-piece positioning equipment fitted to the machine is included in this European Standard.

This European Standard does not apply to machines:

- a) with manual feed of the saw unit; or
- b) for cross cutting logs; or
- c) specifically designed for sawing and/or milling roof timber frames; or
- d) fitted with hydraulic braking systems.

NOTE 1 Radial arm saws with manual feed of the saw unit (the saw unit is moved by hand) are dealt with in EN 1870-17:2012 and EN 61029-2-2:2009.

NOTE 2 The requirements of this European Standard apply to all machines whatever their method of control, e.g. electromechanical and/or electronic.

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

NOTE 3 Machines covered by this European Standard are listed under 1.4 of Annex IV of the Machinery Directive.

## 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 574:1996+A1:2008, *Safety of machinery - Two-hand control devices - Functional aspects - Principles for design*

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

EN 847-1:2013, *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*

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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<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 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, acoustic and tactile signals (IEC 61310-1:2007)*

CLC/TS 61496-2:2009, *Safety of machinery – Electro-sensitive protective equipment - Part 2: Particular requirements for equipment using active opto-electronic protective devices (AOPDs) (IEC 61496-2:2006)*

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 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)*

1) EN 60439-1:1999 is impacted by EN 60439-1:1999/A1:2004.

2) EN 60529:1991 is impacted by EN 60529:1991/A1:2000.

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 13849-1:2008, *Safety of machinery - Safety-related parts of control 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 13856-1:2013, *Safety of machinery - Pressure-sensitive protective devices - Part 1: General principles for design and testing of pressure-sensitive mats and pressure-sensitive floors (ISO 13856-1:2013)*

EN ISO 13856-2:2013, *Safety of machinery - Pressure-sensitive protection devices - Part 2: General principles for design and testing of pressure-sensitive edges and pressure-sensitive bars (ISO 13856-2:2013)*

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*

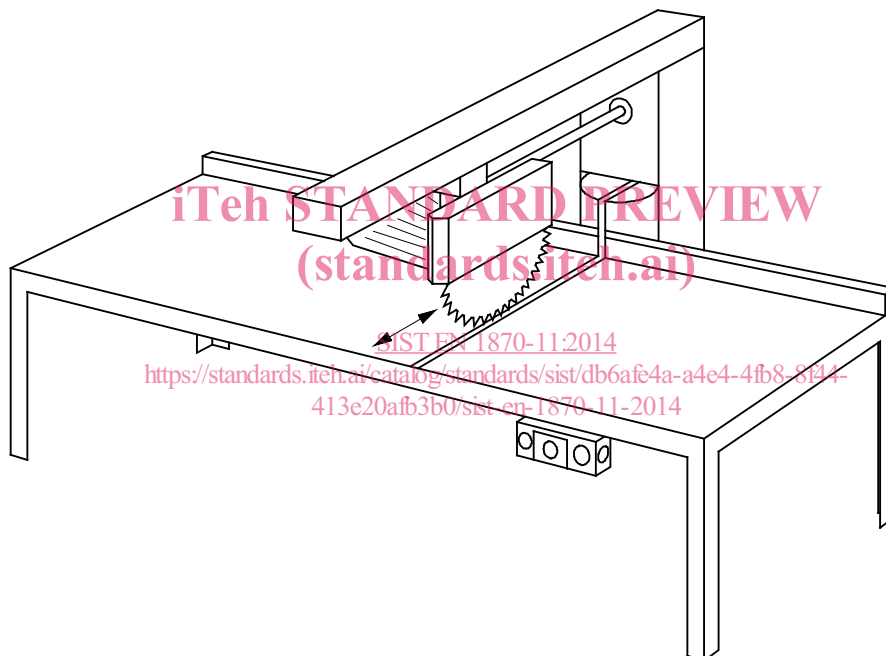
## EN 1870-11:2013 (E)

### 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 cross-cutting**  
operation of cutting across the grain of a wooden work-piece
- 3.2 semi-automatic horizontal cutting cross-cut sawing machine with one saw unit (radial arm saw)**  
machine where the saw unit has integrated feed and moves horizontally forward on an arm in a straight line during the cutting stroke and then back to its rest position

Note 1 to entry: The arm can pivot relative to the centre line of its vertical support and the saw unit can cant relative to a horizontal line in direction of the arm (see Figure 1), the work-piece is positioned manually or by means of a positioning mechanism and integrated feed of saw unit is initiated manually.



NOTE Guards are not shown.

**Figure 1 — Example of a horizontal cutting cross-cut sawing machine with one saw unit (semi-automatic machine)**

- 3.3 machine actuator**  
power mechanism used to effect motion of the machine

- 3.4 integrated feed on radial arm saws**  
power operated feed mechanism for the saw-blade and work-piece which is integrated with the machine and where the saw unit with incorporated saw-blade and the work-piece are held and controlled mechanically during the machining operation

**3.5****stationary machine**

machine designed to be located on or fixed to the floor or other parts of the structure of the premises and to be stationary during use

**3.6****cutting area of the saw-blade**

area where the saw-blade can be involved in the cutting process

**3.7****non-cutting area of the saw-blade**

area of the saw-blade where the saw-blade is not involved in the cutting process

**3.8****cutting area of a semi-automatic radial arm saw**

area defined by all possible positions in front of the fence of the saw-blade with the maximum diameter for which the machine is designed, taking into account the saw unit's ability to cant or pivot for angled cutting and the maximum cutting stroke and cutting depth

**3.9****run-up time**

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

**3.10****un-braked run-down time**

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

**3.11****braked run-down time**

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

**3.12****manual loading of power fed machines**

operation where the work-piece is presented by the operator directly to the machine integrated feed, e.g. rotating feed rollers, travelling table or reciprocating carriage; i.e. for which there is no intermediate loading device to receive and transfer the work-piece from the operator to the integrated feed

**3.13****manual unloading of power fed machines**

operation where the work-piece is removed by the operator directly from the machine out feed; i.e. for which there is no intermediate unloading device to receive and transfer the work-piece from the machine out feed to the operator

**3.14****information from the supplier**

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

**3.15****performance level (PL)**

discrete level used to specify the ability of safety-related parts of control systems to perform a safety function under foreseeable conditions

[SOURCE: EN ISO 13849-1:2008, 3.1.23]

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