

# **SLOVENSKI STANDARD**

## **SIST EN 1870-9:2012**

**01-december-2012**

**Nadomešča:**

**SIST EN 1870-9:2000+A1:2009**

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**Varnost lesnoobdelovalnih strojev - Krožne žage - 9. del: Dvolistne krožne žage za prečni rez z vgrajenim podajalnikom ter z ročnim podajanjem in/ali odvzemom**

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

**iTeh STANDARD PREVIEW**

Sicherheit von Holzbearbeitungsmaschinen - Kreissägemaschinen - Teil 9: Doppelgehrungskreissägemaschinen mit mechanischem Vorschub und Handbeschickung und/oder Handentnahme

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Sécurité des machines pour le travail du bois - Machines à scies circulaires - Partie 9: Machines à scier à deux lames de scie circulaires pour tronçonnage, à avance mécanisée et à chargement et/ou déchargement manuels

**Ta slovenski standard je istoveten z: EN 1870-9:2012**

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**ICS:**

25.080.60	Strojne žage	Sawing machines
79.120.10	Lesnoobdelovalni stroji	Woodworking machines

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**en,fr,de**

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EUROPEAN STANDARD  
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**EN 1870-9**

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English Version

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

Sécurité des machines pour le travail du bois - Machines à  
scies circulaires - Partie 9: Machines à scier à deux lames  
de scie circulaires pour tronçonnage, à avance mécanisée  
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Sicherheit von Holzbearbeitungsmaschinen -  
Kreissägemaschinen - Teil 9:  
Doppelgehrungskreissägemaschinen mit mechanischem  
Vorschub und Handbeschickung und/oder Handentnahme

This European Standard was approved by CEN on 13 July 2012.

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

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

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## Foreword

This document (EN 1870-9:2012) 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 March 2013, and conflicting national standards shall be withdrawn at the latest by March 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 1870-9:2000+A1:2009.

The main modifications to the previous version concern inclusion of performance levels (PL).

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 2006/42/EC, see informative Annex ZA, which is an integral part of this document.

Organisations contributing to the preparation of this document 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 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 (the present document)*
- *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 (manual radial arm saws)*
- *Part 18: Dimension saws*
- *Part 19: Circular saw benches (with and without sliding table) and building site saws*

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.

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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 defined in EN ISO 12100:2010.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered is indicated in the scope of this document.

The requirements of this document are directed to manufacturers and their authorised representatives of double blade circular sawing machines for cross-cutting with integrated feed and with manual loading and/or unloading. This document is also useful for designers and importers.

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. This document also includes 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 European Standard deals with all significant hazards, hazardous situations and events as listed in Clause 4 which are relevant to double blade circular sawing machines for cross-cutting with integrated feed of the saw units and with manual loading and/or unloading, hereinafter referred to as 'machines'. These are machines designed to cut solid wood, chipboard, fibreboard and plywood, and also these materials when covered with plastic edging and/or plastic/light alloy laminate, when they are used as intended and under the conditions foreseen by the manufacturer including reasonably foreseeable misuse.

This document does not apply to:

- machines for cross cutting logs;
- double blade up-cutting cross-cut sawing machines.

This document is not applicable to machines which are manufactured before its date of publication as an 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 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 847-1:2005+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 1870-9:2012 (E)**

EN 1088:1995+A2:2008, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

EN 1760-1:1997+A1:2009, *Safety of machinery — Pressure sensitive protective devices — Part 1: General principles for the design and testing of pressure sensitive mats and pressure sensitive floors*

EN 1760-2:2001+A1:2009, *Safety of machinery — Pressure sensitive protective devices — Part 2: General principles for the design and testing of pressure sensitive edges and pressure sensitive bars*

EN 60204-1:2006, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005, modified)*

EN 60529:1991, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)<sup>1)</sup>*

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 61496-2:2006, *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)*

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 3745:2009, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Precision methods for anechoic and hemi-anechoic rooms (ISO 3745:2003)<sup>2)</sup>*

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)*

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

2) EN ISO 3745:2009 has been replaced by EN ISO 3745:2012.

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 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*

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### 3 Terms and definitions

[SIST EN 1870-9:2012](https://standards.iteh.ai/catalog/standards/sist/ef81ff62-b11c-4300-b506-5135f9ac0ac4/sist-en-1870-9-2012)

#### 3.1 General <https://standards.iteh.ai/catalog/standards/sist/ef81ff62-b11c-4300-b506-5135f9ac0ac4/sist-en-1870-9-2012>

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and the following apply.

#### 3.2 Definitions

##### 3.2.1

##### **cross-cutting**

operation of cutting across the grain of a wooden workpiece

##### 3.2.2

##### **double blade circular sawing machine for cross-cutting with integrated feed and with manual loading and/or unloading**

machine fitted with two sawing units for cross-cutting, which has integrated feed and the workpiece is manually loaded and/or unloaded and stationary during cutting

Note 1 to entry: The cutting stroke can be downwards or horizontal. One or both sawing units can be adjusted horizontally and may be canted and/or pivoted.

##### 3.2.3

##### **semi-automatic double blade circular sawing machine for cross-cutting**

machine where the saw units have integrated feed which is initiated manually and the workpiece is positioned manually or by means of a positioning mechanism for cutting to length

Note 1 to entry: The cutting stroke can be downwards or horizontal.

**EN 1870-9:2012 (E)****3.2.4****automatic double blade circular sawing machine for cross-cutting**

machine where the saw units have integrated feed which is initiated automatically and where the workpiece is manually loaded and/or unloaded and automatically positioned for cutting to pre-selected lengths

Note 1 to entry: The cutting stroke can be downwards or horizontal.

**3.2.5****machine actuator**

power mechanism used to effect motion of the machine

**3.2.6****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 machining operation

**3.2.7****cutting area of the saw blade**

area of the saw blade which can be involved in the cutting process

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

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

**3.2.9****ejection**

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

**3.2.10****run-down time**

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

**3.2.11****run-up time**

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

**3.2.12****manual loading of power fed machines**

operation during which the workpiece 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 workpiece from the operator to the integrated feed

**3.2.13****manual unloading of power fed machines**

operation during which the workpiece is removed by the operator directly from the machine outfeed; i.e. there is no intermediate unloading device to receive and transfer the workpiece from the machine outfeed to the operator

**3.2.14****information from the supplier**

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

**3.2.15****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]

#### 4 List of significant hazards

This clause contains all significant hazards, hazardous situations and events (see EN ISO 12100:2010), 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 making reference to relevant standards.

These hazards are listed in Table 1.

Table 1 — List of significant hazards

No	Hazards, hazardous situations and hazardous events	EN ISO 12100:2010	Relevant sub-clause of this document
1	<b>Mechanical hazards</b> related to:		
	- machine parts or workpieces:		
	a) shape	6.2.2.1, 6.2.2.2, 6.3	5.3.3, 5.3.7, 5.3.8
	b) relative location		5.2.2, 5.2.3, 5.3.6, 5.3.7, 5.3.8
	d) mass and velocity (kinetic energy of elements in controlled or uncontrolled motion)		5.3.7
	e) mechanical strength		5.3.2, 5.3.3, 5.3.6
	- accumulation of energy inside the machinery:		
	g) liquids and gases under pressure	6.2.10, 6.3.5.4	5.4.7, 5.4.8
1.1	Crushing hazard		5.3.7, 5.3.8
1.2	Shearing hazard		5.3.7, 5.3.8
1.3	Cutting or severing hazard		5.3.2, 5.3.3, 5.3.7,
1.4	Entanglement hazard		5.3.7
1.5	Drawing-in or trapping hazard		5.3.7
1.9	High pressure fluid injection or ejection hazard	6.2.10	5.4.7, 5.4.8
2	<b>Electrical hazards</b> due to:		
2.1	Contact of persons with live parts (direct contact)	6.2.9, 6.3.5.4	5.4.4, 5.4.11, 5.4.12
2.2	Contact of persons with parts which have become live under faulty conditions (indirect contact)	6.2.9	5.4.4, 5.4.11, 5.4.12
4	<b>Hazards generated by noise</b> , resulting in:		
4.1	Hearing loss (deafness), other physiological disorders (loss of balance, loss of awareness)	6.2.2.2, 6.3	5.4.2
4.2	Interference with speech communication, acoustic signals.		5.4.2
6	<b>Hazards generated by radiation</b>		
6.5	Lasers	6.3.4.5	5.4.9