



# SLOVENSKI STANDARD

## SIST EN 1870-9:2000

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### 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

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

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 scier 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 1870-9:2000**

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#### **ICS:**

25.080.60	Strojne žage	Sawing machines
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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 1870-9**

June 2000

ICS 79.120.10

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**

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This European Standard was approved by CEN on 1 March 2000.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 142 "Woodworking machines - Safety", the secretariat of which is held by BSI.

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 December 2000, and conflicting national standards shall be withdrawn at the latest by December 2000.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

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

Annex A is normative, the annex B, C and ZA are informative.

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

## Introduction

This European Standard 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 European Standard is a type "C" standard as defined in EN 292-1 : 1991.

The extent to which hazards are covered is indicated in the scope of this European Standard.

The requirements of this European Standard concern designers, manufacturers, suppliers and importers of double blade circular sawing machines for cross-cutting with integrated feed and with manual loading and/or unloading.

This European Standard also includes information to be provided by the manufacturer to the user.

Common requirements for tooling are given in EN 847-1 : 1997.

### 1 Scope

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This European Standard specifies the requirements and/or measures to remove the hazards and limit the risks on double blade circular sawing machines for cross-cutting with integrated feed and with manual loading and/or unloading, 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 laminate.

This European Standard does not apply to :

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

This European Standard covers the hazards relevant to these machines as stated in 4.

For Computer Numerically Controlled (CNC) machines, this European Standard does not cover the hazards related to Electromagnetic Compatibility (EMC).

This European Standard is primarily directed at machines which are manufactured after the date of issue of this European Standard.

## 2 Normative References

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to, or revisions of, any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 292 - 1 : 1991	Safety of machinery - Basic concepts, general principles for design - Part 1 : Basic terminology, methodology
EN 292 - 2 : 1991 EN 292-2/A1 : 1995	Safety of machinery - Basic concepts, general principles for design - Part 2 : Technical principles and specifications
EN 294 : 1992	Safety of machinery - Safety distances to prevent danger zones being reached by the upper limbs
EN 418 : 1992	Safety of machinery - Emergency stop equipment, functional aspects - Principles for design
EN 574 : 1996	Safety of Machinery - Two hand control devices - Functional aspects, Principles for design
EN 847-1 : 1997	Tools for woodworking - Safety requirements - Part 1 : Milling tools and circular sawblades
EN 954-1 : 1996	Safety of machinery - Safety-related parts of control systems - Part 1 : General principles for design
EN 982 : 1996	Safety of machinery - Safety requirements for fluid power systems and their components - Hydraulics
EN 983 : 1996	Safety of machinery - Safety requirements for fluid power systems and their components - Pneumatics
EN 1088 : 1995	Safety of machinery. - Interlocking devices associated with guards - Principles for design and selection

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EN 1760-1 : 1997	Safety of machinery - Pressure sensitive protective devices - Part 1 : General principles for the design and testing of pressure sensitive mats and pressure sensitive floors
prEN 1760-2:1996	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 : 1992	Safety of machinery - Electrical equipment of machines - Part 1 : General requirements (IEC 60204-1 : 1992)
EN 60529 : 1991	Degrees of protection provided by enclosures (IP Code) (IEC 529 : 1989)
EN 60825-1 : 1994	Safety of laser products – Part 1 : Equipment classification, requirements and user's guide (IEC 60825-1 : 1993)
EN 60947-4-1 : 1992	Low voltage switchgear and control gear - Part 4 : Contactors and motor starters - Section 1 : Electromechanical contactors and motor starters (IEC 60947-4-1 : 1997)
EN 60947-5-1 : 1997	Low voltage switchgear and control gear - Part 5-1 : Control circuit devices and switching elements - Electromechanical control circuit devices (IEC 60947-5-1 : 1997)
prEN 61496-2:1997	Safety of machinery - Electro-sensitive protective equipment - Part 2 : Particular requirements for equipment using active opto-electronic protective devices
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 reverberation 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 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 discrete points (ISO 9614-1 : 1993)

EN ISO 11202 : 1995	Acoustics - Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at a workstation and at other specified positions - Survey method in situ (ISO 11202 : 1995)
EN ISO 11204 : 1996	Acoustics - Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at a 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)
ISO 3745 : 1977	Acoustics - Determination of sound power levels of noise sources - Precision methods for anechoic and semi-anechoic rooms
ISO 7960 : 1995	Airborne noise emitted by machine tools - Operating conditions for woodworking machines
HD 21.1 S3 : 1997	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V - Part 1 : General requirements
HD 22.1 S3 : 1997	Rubber insulated cables of rated voltages up to and including 450/750V - Part 1 : General requirements.

### 3 Definitions

For the purposes of this European Standard the following definitions apply :

#### 3.1 cross-cutting

the operation of cutting across the grain of a wooden workpiece.

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

a 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. The cutting stroke can be downwards or horizontal.

One or both sawing units can be adjusted horizontally and may be canted or pivoted.

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

a 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. The cutting stroke can be downwards or horizontal.

#### 3.4 automatic double blade circular sawing machine for cross-cutting

a machine where the saw units have integrated feed which is initiated automatically. The workpiece is manually loaded and/or unloaded and automatically positioned for cutting to pre-selected lengths. The cutting stroke can be downwards or horizontal.



**3.5 machine actuator**

a power mechanism used to effect motion of the machine.

**3.6 integrated feed**

a 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.

**3.7 cutting area of the sawblade**

the area of the sawblade which can be involved in the cutting process.

**3.8 non-cutting area of the sawblade**

the area of the sawblade where the sawblade is not be involved in the cutting process.

**3.9 ejection**

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

**3.10 run-down time**

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

**3.11 manual loading of power fed machines**

the 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.

**3.12 manual unloading of power fed machines**

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

**3.13 confirmation**

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.

**4 List of hazards**

This European Standard deals with all hazards listed and relevant to the machines as defined in the scope :

- for significant hazards by defining safety requirements and/or measures or by reference to relevant type B standards;

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- for hazards which are not significant e.g. general, minor or secondary hazards by reference to relevant type A or B standards, especially EN 292-1 : 1991 and EN 292-2 : 1991/A1 : 1995.

These hazards are listed in table 1 in accordance with Annex A of EN 292-2 : 1991/A1 : 1995.

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**Table 1 : List of hazards**

Number	Hazard	Relevant clause of this standard
1	Mechanical Hazards (caused for example by : - shape - relative location - mass and stability (potential energy of elements) - mass and velocity (kinetic energy of elements) - inadequacy of the mechanical strength - accumulation of potential energy by : . elastic elements (springs) or . liquid or gases under pressure, or . vacuum of the machine parts or workpieces).	
1.1	Crushing hazard	5.2.7, 5.2.8
1.2	Shearing hazard	5.2.7, 5.2.8
1.3	Cutting or severing hazard	5.2.2, 5.2.3, 5.2.7,
1.4	Entanglement hazard	5.2.7
1.5	Drawing-in or trapping hazard	5.2.7
1.6	Impact hazard	Not Relevant
1.7	Stabbing or puncture hazard	Not Relevant
1.8	Friction or abrasion hazard	Not Relevant
1.9	High pressure fluid injection hazard	5.3.7, 5.3.8
1.10	Ejection of parts (of machinery and processed material/workpieces)	5.2.2, 5.2.3, 5.2.5, 5.2.6, 5.2.8
1.11	Loss of stability (of machinery and machine parts)	5.2.1
1.12	Slip, trip and fall hazards in relationship with machinery (because of their mechanical nature)	Not Relevant
2	Electrical hazards, caused for example by :	
2.1	Electrical contact (direct or indirect)	5.3.4, 5.3.15, 5.3.16
2.2	Electrostatic phenomena	Not Relevant
2.3	Thermal radiation or other phenomena such as ejection of molten particles, and chemical effects from short circuits, overloads etc.	Not Relevant
2.4	External influences on electrical equipment	5.1.1, 5.3.4
3	Thermal hazards resulting in :	
3.1	Burns and scalds, by a possible contact of persons, by flames or explosions and also by the radiation of heat sources	Not Relevant
3.2	Health damaging effects by hot or cold work environment	Not Relevant
4	Hazards generated by noise resulting in :	
4.1	Hearing loss (deafness) other physiological disorders (e.g. loss of balance, loss of awareness)	5.3.2
4.2	Interference with speech communication, acoustic signals etc.	5.3.2

(continued)

**Table 1 : List of hazards (continued)**

Number	HAZARD	Relevant clause of this standard
5	Hazards generated by vibration (resulting in a variety of neurological and vascular disorders)	Not Relevant
6	Hazards generated by radiation, especially by :	
6.1	Electric arcs	Not Relevant
6.2	Lasers	5.3.12
6.3	Ionising radiation sources	Not Relevant
6.4	Machines making use of high frequency electrical fields	Not Relevant
7	Hazards generated by materials and substances processed, used or exhausted by machinery for example :	
7.1	Hazards resulting from contact with or inhalation of harmful fluids, gases, mists, fumes and dust	5.3.3
7.2	Fire or explosion hazard	5.3.3
7.3	Biological and microbiological (viral or bacterial hazards)	Not Relevant
8	Hazards generated by neglecting ergonomic principles in machine design (mismatch of machinery with human characteristics and abilities) caused for example by :	
8.1	Unhealthy posture or excessive efforts	5.1.2
8.2	Inadequate consideration of human hand-arm or foot-leg anatomy	Not relevant
8.3	Neglected use of personal protective equipment	6.3
8.4	Inadequate area lighting	Annex B
8.5	Mental overload or underload, stress etc.	Not Relevant
8.6	Human error	6.3
9	Hazard combinations	5.1.7
10	Hazards caused by failure of energy supply, breaking down of machinery parts and other functional disorders, for example :	
10.1	Failure of energy supply (of energy and/or control circuits)	5.1.8, 5.1.9, 5.3.7, 5.3.8
10.2	Unexpected ejection of machine parts or fluids	5.2.5
10.3	Failure, malfunction of control system (unexpected start up, unexpected overrun)	5.1.1
10.4	Errors of fitting	5.2.3
10.5	Overturn, unexpected loss of machine stability	5.2.1

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