



# SLOVENSKI STANDARD

## SIST EN 1870-15:2005

01-april-2005

JUfbcgh`YgbccVXYcj Ub]l `ghfc`Yj `!`?fcybY`yU] Y`E`%` "XY.`JY `]gfbY`\_fcybY`yU] Y`  
fl Y]b]\_]k`n`a Y Ubg\_]a `dca ]\_ca `cVXYcj UbWU]b`fc b]a `dcXUUb`Ya `]b#U]  
cXj nYa ca

Safety of woodworking machines - Circular sawing machines - Part 15: Multiblade cross-cut sawing machines with integrated feed of the workpiece and manual loading and/or unloading

Sicherheit von Holzbearbeitungsmaschinen - Kreissägemaschinen - Teil 15: Mehrfachablängkreissägemaschinen mit mechanischem Vorschub für das Werkstück und Handbeschickung und/oder Handentnahme

[SIST EN 1870-15:2005](https://standards.iteh.ai/catalog/standards/sist/845a8c39-1646-45e8-93b6-)

Sécurité des machines pour le travail du bois - Machines à scier circulaires - Partie 15: Tronçonnuses multilames à avance mécanisée de la pièce et à chargement et/ou déchargement manuels

**Ta slovenski standard je istoveten z: EN 1870-15:2004**

### ICS:

25.080.60	Strojne žage	Sawing machines
79.120.10	Lesnoobdelovalni stroji	Woodworking machines

**SIST EN 1870-15:2005**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 1870-15:2005

<https://standards.iteh.ai/catalog/standards/sist/845a8c39-1646-45e8-93b6-576f622ba348/sist-en-1870-15-2005>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 1870-15**

December 2004

ICS 79.120.10

English version

**Safety of woodworking machines - Circular sawing machines -  
Part 15: Multiblade cross-cut sawing machines with integrated  
feed of the workpiece and manual loading and/or unloading**

Sécurité des machines pour le travail du bois - Machines à scier circulaires - Partie 15: Machines à scier multilames pour tronçonnage à avance mécanisée de la pièce et à chargement et/ou déchargement manuels

Sicherheit von Holzbearbeitungsmaschinen - Kreissägemaschinen - Teil 15: Mehrfachablangkreissägemaschinen mit mechanischem Vorschub für das Werkstück und Handbeschickung und/oder Handentnahme

This European Standard was approved by CEN on 20 October 2004.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

**Management Centre: rue de Stassart, 36 B-1050 Brussels**

## Contents

	page
Foreword.....	4
0 Introduction.....	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions.....	8
4 List of significant hazards.....	10
5 Safety requirements and/or measures.....	13
5.1 General.....	13
5.2 Controls.....	13
5.2.1 Safety and reliability of control systems.....	13
5.2.2 Position of controls.....	14
5.2.3 Starting.....	15
5.2.4 Normal stopping.....	15
5.2.5 Emergency stop.....	16
5.2.6 Integrated feed.....	16
5.2.7 Control duplication.....	16
5.2.8 Failure of the power supply.....	16
5.2.9 Failure of the control circuits.....	17
5.3 Protection against mechanical hazards.....	17
5.3.1 Stability.....	17
5.3.2 Risk of break-up during operation.....	17
5.3.3 Tool holder and tool design.....	18
5.3.4 Braking.....	19
5.3.5 Devices to minimise the possibility or the effect of ejection.....	20
5.3.6 Work-piece supports and guides.....	21
5.3.7 Prevention of access to moving parts.....	22
5.4 Protection against non-mechanical hazards.....	26
5.4.1 Fire.....	26
5.4.2 Noise.....	26
5.4.3 Emission of chips, dust and gases.....	27
5.4.4 Electricity.....	28
5.4.5 Ergonomics and handling.....	28
5.4.6 Lighting.....	28
5.4.7 Pneumatic.....	28
5.4.8 Hydraulic.....	28
5.4.9 Electromagnetic compatibility.....	28
5.4.10 Laser.....	29
5.4.11 Static electricity.....	29
5.4.12 Errors of fitting.....	29
5.4.13 Isolation.....	29
5.4.14 Maintenance.....	29
6 Information for use.....	30
6.1 General.....	30
6.2 Warning devices.....	30
6.3 Marking.....	30
6.4 Instruction handbook.....	31

<b>Annex A (normative) Saw spindle dimensional tolerances .....</b>	<b>34</b>
<b>Annex B (normative) Stability test for the deterring/impeding device required in 5.3.7.1.2.....</b>	<b>35</b>
<b>Annex C (normative) Operating conditions for noise emission measurement .....</b>	<b>36</b>
<b>Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 98/37 .....</b>	<b>38</b>
<b>Bibliography.....</b>	<b>41</b>

## **iTeh STANDARD PREVIEW (standards.iteh.ai)**

[SIST EN 1870-15:2005](https://standards.iteh.ai/catalog/standards/sist/845a8c39-1646-45e8-93b6-576f622ba348/sist-en-1870-15-2005)

<https://standards.iteh.ai/catalog/standards/sist/845a8c39-1646-45e8-93b6-576f622ba348/sist-en-1870-15-2005>

**EN 1870-15:2004 (E)****Foreword**

This document (EN 1870-15:2004) 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 June 2005, and conflicting national standards shall be withdrawn at the latest by June 2005.

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 EU Directive(s).

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

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 12100-1:2003 for a description of A, B and C standards).

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

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)  
SIST EN 1870-15:2005  
<https://standards.iteh.ai/catalog/standards/sist/845a8c39-1646-45e8-93b6-576f622ba348/sist-en-1870-15-2005>

## 0 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 12100-1:2003.

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 multi-blade cross-cut sawing machines with integral feed of the work-piece and manual loading and/or unloading. It is also useful for designers and importers.

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

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

ITC STANDARD PREVIEW  
(standards.iteh.ai)

SIST EN 1870-15:2005

<https://standards.iteh.ai/catalog/standards/sist/845a8c39-1646-45e8-93b6-576f622ba348/sist-en-1870-15-2005>

**EN 1870-15:2004 (E)****1 Scope**

This document specifies the requirements and/or measures to reduce the hazards and limit the risks on multi-blade cross-cut sawing machines with integrated feed of the work-piece and manual loading and/or unloading fitted with a saw blade drive motor for each saw unit, hereinafter referred to as “machines”, designed to cut solid wood, chipboard, fibreboard, plywood and also these materials where they are covered with plastic edging and/or plastic/light alloy laminates.

This document covers the hazards relevant to these machines as stated in Clause 4. It does not deal with any hazards relating to the mechanical loading and/or unloading of the work-piece or which result from the combination of the machine with any other.

This document does not cover machines designed for climb cutting (see 3.10).

For Computer Numerically Controlled (CNC) machines this document does not cover hazards related to electromagnetic compatibility (EMC).

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

This document is not applicable to multi-blade cross-cut sawing machines with integrated feed of the work-piece and manual loading and/or unloading which are manufactured before the date of publication of this document by CEN.

NOTE Machines covered by this document are listed under A.1.3 of Annex IV of the Machinery Directive.

**(standards.iteh.ai)**

**2 Normative references**

SIST EN 1870-15:2005

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.

EN 418:1992, *Safety of machinery – Emergency stop equipment, functional aspects – Principles for design.*

EN 614-1:1995, *Safety of machinery – Ergonomic design principles – Part 1: Terminology and general principles.*

EN 847-1:1997, *Tools for woodworking – Safety requirements – Part 1: Milling tools and circular saw-blades.*

EN 894-2:1997, *Safety of machinery – Ergonomics requirements for the design of displays and control actuators – Part 2: Displays.*

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 1037:1995, *Safety of machinery – Prevention of unexpected start-up.*

EN 1088:1995, *Safety of machinery – Interlocking devices associated with guards – Principles for design and selection.*



EN 1837:1999, *Safety of machinery - Integral lighting of machines.*

EN 60204-1:1997, *Safety of machinery – Electrical equipment of machines – Part 1: General requirements (IEC 60204-1:1997).*

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

EN 60825-1:1994, *Safety of laser products – Part 1: Equipment classification, requirements and user's guide (IEC 60825-1:1993).*

EN 61000-6-2:2001, *Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments (IEC 61000-6-2:1999, modified).*

EN ISO 3743-1:1995, *Acoustics – Determination of sound power levels of noise sources – Engineering methods for small, moveable 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: Method 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 3745:2003, *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 3746:1995, *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: Measurements 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 work station and at other specified positions – Survey method in situ (ISO 11202:1995).*

EN ISO 11204:1995, *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).*

EN ISO 12100-1:2003, *Safety of machinery – Basic concepts, general principles for design - Part 1: Basic terminology and methodology (ISO 12100-1:2003).*

EN ISO 12100-2:2003, *Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles (ISO 12100-2:2003).*

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

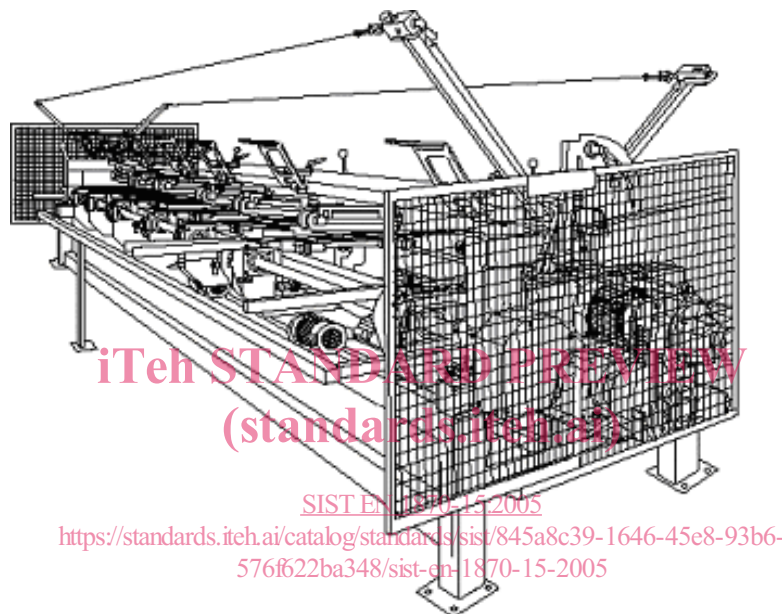
## EN 1870-15:2004 (E)

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100-1:2003 and the following apply.

#### 3.1 multi-blade cross-cut sawing machine with integrated feed of the work-piece and manual loading and/or unloading

machine with two or more saw spindles located below the work-piece support. Each saw unit is equipped with a saw-spindle drive motor. The distance between the saw units is adjustable either manually or under power. The position of the saw-blade(s) is fixed during cutting. The work-piece is fed to the saw-blades by chains and held down during cutting by a top pressure device combined with the upper saw blade guard or mounted separately (see Figure 1)



**Figure 1 — Example of multi-blade cross-cut sawing machine with integrated feed of the work-piece and manual loading and/or unloading (guards are not represented for clarity)**

#### 3.2 top pressure device

device located above each saw-blade which holds the work-piece against the chains e.g. by belts or rollers

#### 3.3 saw unit

part(s) of the machine incorporating the saw spindle with its drive motor, the top pressure device and a chain/chains for the feed of the work-piece. The saw spindle may be fixed or retractable manually or under power to a non-cutting position

#### 3.4 integrated feed of multi-blade cross-cut sawing machines

feed mechanism for the work-piece or tool which is integrated with the machine and where the work-piece or machine element with incorporated tool is 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****transportable machine**

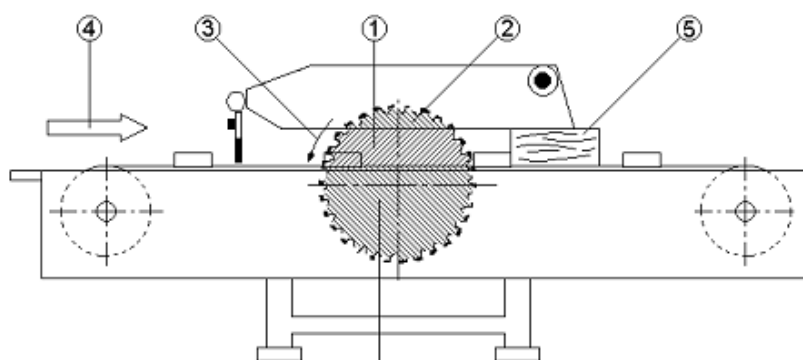
machine which is located on the floor, stationary during use and equipped with devices, such as wheels, which allows it to be moved between locations

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

area of the saw-blade which is covered by the work-piece during the cutting process (see Figure 2)

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

area of the saw-blade which is not covered by the work-piece during the cutting process (see Figure 2)



iTeh STANDARD PREVIEW  
(standards.iteh.ai)

**Key**

- 1 Cutting area of the saw-blade
- 2 Non-cutting area of the saw-blade
- 3 Direction of saw-blade rotation [SIST EN 1870-15:2005](https://standards.iteh.ai/catalog/standards/sist/845a8c39-1646-45e8-93b6-576f622ba348/sist-en-1870-15-2005)
- 4 Feed direction <https://standards.iteh.ai/catalog/standards/sist/845a8c39-1646-45e8-93b6-576f622ba348/sist-en-1870-15-2005>
- 5 Work-piece

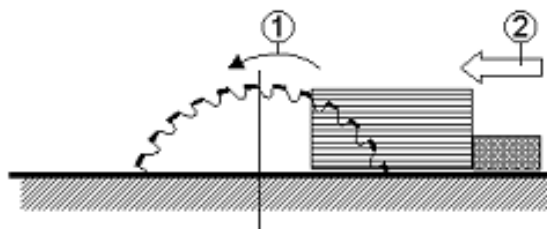
**Figure 2 — Cutting/non-cutting area of the saw-blade**

**3.9****non-cutting position of the saw spindle**

position of a saw unit with its saw spindle outside the maximum cutting width for which the machine is designed or where the saw-spindle is retracted to a position such that the saw-blade with the maximum saw-blade diameter for which the machine is designed does not protrude over the work-piece support

**3.10****climb cutting**

event where the rotation of the saw-blade and the movement of the work-piece are in the same direction (see Figure 3)

**Key**

- 1 Direction of saw-blade rotation
- 2 Work-piece feed

**Figure 3 — Climb cutting**

**EN 1870-15:2004 (E)****3.11****ejection**

unexpected movement of the work-piece or parts of it or part of the machine from the machine during processing

**3.12****kickback**

particular form of ejection describing the unexpected movement of the work-piece or parts of it or parts of the machine opposite to the direction of feed during processing

**3.13****run-up time**

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

**3.14****run-down time**

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

**3.15****machine actuator**

power mechanism used to effect the motion of the machine

**3.16****confirmation**

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

THIS STANDARD PREVIEW  
(standards.iteh.ai)

**4 List of significant hazards**

This clause contains all the significant hazards, hazardous situations and events (see EN 1050:1996), as far as they are dealt with in this document, 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 reference to relevant standards.

These hazards are listed in Table 1.

Table 1 — List of significant hazards

No	Hazards	EN ISO 12100		Relevant clause of this document
		Part 1: 2003	Part 2: 2003	
Hazards, hazardous situations and hazardous events				
1	<b>Mechanical hazards</b> due to: - machine parts or work-pieces, e.g.:  a) shape; b) relative location;  c) mass and stability (potential energy of elements which may move under the effect of gravity); d) mass and velocity (kinetic energy of elements in controlled or uncontrolled motion); e) inadequacy of mechanical strength. - accumulation of energy inside the machinery e.g.: f) elastic elements (springs); g) liquids and gases under pressure;	4.2, 4.10	4.2.1, 4.2.2, 5	5.3.2, 5.3.7
				5.3.2, 5.3.3, 5.3.7, Annex A
				5.3.1, Annex B
				5.3.3, 5.3.5, 5.3.7, 6.2
				5.3.2, 5.3.3, Annex B
		4.2	4.10, 5.5.4	
				5.4.7, 5.4.8
1.1	Crushing hazard	4.2	4.10, 5.5.4	5.3.3, 5.3.7
1.2	Shearing hazard			5.3.3, 5.3.7
1.3	Cutting or severing hazard			5.3.3, 5.3.4, 5.3.7
1.4	Entanglement hazard			5.3.7
1.5	Drawing-in or trapping hazard			5.3.7
1.6	Impact hazard			5.3.5, 6.2 a)
1.8	Friction or abrasion hazard			5.3.4
2	<b>Electrical hazards</b> due to:			
2.1	Contact of persons with live parts (direct contact)	4.3	4.9, 5.5.4	5.4.4, 5.4.13
2.2	Contact of persons with parts which have become live under faulty conditions (indirect contact)	4.3	4.9	5.4.4, 5.4.13
2.3	Approach to live parts under high voltage	4.3	4.9, 5.5.4	5.4.4, 6.4
2.4	Electrostatic phenomena	4.3	4.9	5.4.11
4	<b>Hazards generated by noise</b> , resulting in:			
4.1	Hearing loss (deafness), other physiological disorders (e.g. loss of balance, loss of awareness)	4.5	4.2.2, 5	5.4.2
4.2	Interference with speech communication, acoustic signals, etc.			5.4.2

(to be continued)