

SLOVENSKI STANDARD

SIST EN 1870-6:2003+A1:2009

01-december-2009

J U f b c g h Y g b c c V X Y c j U b j g h f c Y j ! ? f c y b Y y U j Y ! * " X Y . ? f c y b Y y U j Y n U X f j U j b j Y b U a Y b g _ Y y U j Y n U X f j U n X Y c j b c a j n c n f c b j a d c X U b Y a j b # U j c X j n Y a c a

Safety of woodworking machines - Circular 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

Sicherheit von Holzbearbeitungsmaschinen - Kreissägemaschinen - Teil 6: Brennholzkreissägemaschinen und kombinierte Brennholz- und Tischkreissägemaschinen, mit Handbeschickung und/oder Handentnahme

SÉCURITÉ des machines pour le travail du bois - Machines à scies circulaires - Partie 6: Scies circulaires à chevalet et/ou à table pour la coupe du bois de chauffage, avec chargement et/ou déchargement manuel

Ta slovenski standard je istoveten z: EN 1870-6:2002+A1:2009

ICS:

25.080.60	Strojne žage	Sawing machines
79.120.10	Lesnoobdelovalni stroji	Woodworking machines

SIST EN 1870-6:2003+A1:2009 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1870-6:2003+A1:2009

[https://standards.iteh.ai/catalog/standards/sist/04db337a-61dd-4e02-990e-
eb66ea836525/sist-en-1870-6-2003a1-2009](https://standards.iteh.ai/catalog/standards/sist/04db337a-61dd-4e02-990e-eb66ea836525/sist-en-1870-6-2003a1-2009)

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1870-6:2002+A1

September 2009

ICS 79.120.10

Supersedes EN 1870-6:2002

English Version

**Safety of woodworking machines - Circular 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**

Sécurité des machines pour le travail du bois - Machines à
scies circulaires - Partie 6: Scies circulaires à chevalet
et/ou à table pour la coupe du bois de chauffage, avec
chargement et/ou déchargement manuel

Sicherheit von Holzbearbeitungsmaschinen -
Kreissägemaschinen - Teil 6:
Brennholzkreissägemaschinen und kombinierte Brennholz-
und Tischkreissägemaschinen, mit Handbeschickung
und/oder Handentnahme

This European Standard was approved by CEN on 8 November 2001 and includes Amendment 1 approved by CEN on 13 August 2009.

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 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 Management Centre has the same status as the official versions.

<https://standards.iteh.ai/catalog/standards/sist/04db337a-61dd-4e02-990e->

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Foreword.....	3
0 Introduction	5
1 Scope	5
2 Normative references	6
3 Terms and definitions	8
3.1 Terms	8
3.2 Definitions	11
4 List of significant hazards	13
5 Safety requirements and/or measures	16
5.1 Controls	16
5.2 Protection against mechanical hazards	20
5.3 Protection against non-mechanical hazards	45
6 Information for use	49
6.1 Warning devices	49
6.2 Marking	49
6.3 Instruction handbook	50
Annex A (normative) Stability test.....	54
A.1 Torsional resistance test for the pivoting log carriage.....	54
A.2 Rigidity test for a dual-purpose circular sawing machine for firewood/circular saw bench machine set in the saw bench mode.....	55
A.3 Stability test for pivoting log carriage machines	55
Annex B (normative) Saw spindle dimensional tolerances	57
Annex C (normative) Riving knife mounting strength test	58
Annex D (normative) Riving knife lateral stability test.....	59
Annex E (normative) Test for safe log (workpiece) positioning on circular sawing machines for firewood with pivoting log carriage	60
Annex F (normative) Saw bench table minimum dimensions on dual-purpose circular sawing machines for firewood/circular saw benches.....	61
Annex G (normative) Saw blade guard stability test for dual purpose circular sawing machines for firewood/circular saw benches.....	62
G.1 General.....	62
G.2 Machines with saw blade guards with lead-in	62
G.3 Machines with saw blade guards with in-feed rollers.....	62
Annex ZA (informative) [A1] Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC [A1]	65
Annex ZB (informative) [A1] Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC [A1]	66
Bibliography	67

Foreword

This document (EN 1870-6:2002+A1:2009) has been prepared by Technical Committee 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 2010, and conflicting national standards shall be withdrawn at the latest by March 2010.

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 includes Amendment 1, approved by CEN on 2009-08-13.

This document supersedes EN 1870-6:2002.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

A1 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 the Machinery Directive.

For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. **A1**

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

Annexes A, B, C, D, E, F and G are normative and **A1** Annexes ZA and ZB **A1** are informative.

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 **A1** EN ISO 12100-1:2003 **A1** for a description of A, B and C standards).

A1 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

EN 1870-6:2002+A1:2009 (E)

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) ^(A1)

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

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

SIST EN 1870-6:2003+A1:2009

<https://standards.iteh.ai/catalog/standards/sist/04db337a-61dd-4e02-990e-eb66ea836525/sist-en-1870-6-2003a1-2009>

0 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 A1 EN ISO 12100-1:2003 A1.

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 circular sawing machines for firewood and dual-purpose circular sawing machines for firewood/circular saw benches, 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 A1 EN 847-1:2005 A1.

1 Scope

A1 This document deals with all significant hazards, hazardous situations and events as listed in Clause 4 which are relevant to firewood and dual-purpose circular sawing machines for firewood/circular saw benches, with manual loading and/or unloading, hereinafter referred to as “machines”, designed to cut solid wood. A1

On Combined circular sawing machines for firewood - Log splitting machines only the circular sawing machine for firewood is covered by this European Standard. For the requirements for the log splitting part of this machine see EN 609-1: 1999 and EN 609-2: 1999.

A1 *deleted text* A1

For Computer Numerically Controlled (CNC) machines this European Standard does not cover hazards related to Electro-Magnetic Compatibility (EMC).

This European Standard does not apply to:

- log sawing machines where the saw unit moves to cut the workpiece;
- machines where the saw blade is capable of tilting;
- A1 hand-held motor-operated electric tools or any adaptation permitting their use in a different mode, i.e. bench mounting; A1

A1 NOTE 1 Hand-held motor-operated electric tools and saw benches to form an integrated whole with a hand-held motor-operated electric tools are covered by EN 60745-1:2006 together with EN 60745-2-5:2007. A1

- machines driven by an internal combustion engine

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

A1 NOTE 2 A1 Machines covered by this European Standard are listed under A.1.1 and/or A.1.2 of annex IV of the Machinery Directive

EN 1870-6:2002+A1:2009 (E)

2 Normative references

^[A1] 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. ^[A1]

^[A1] *deleted text* ^[A1]

^[A1] EN 614-1:2006, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles* ^[A1]

^[A1] EN 847-1:2005 ^[A1], *Tools for woodworking — Safety requirements — Part 1: Milling tools* ^[A1], ^[A1] *circular saw blades*

^[A1] EN 894-1:1997, *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, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 2: Displays*

EN 894-3:2000, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 3: Control actuators* ^[A1]

^[A1] *deleted text* ^[A1]

EN 982, *Safety of machinery — Safety requirements for fluid power systems and their components — Hydraulics*

EN 983, *Safety of machinery — Safety requirements for fluid power systems and their components — Pneumatics*

^[A1] EN 1005-1:2001, *Safety of machinery — Human physical performance — Part 1: Terms and definitions*

EN 1005-2:2003, *Safety of machinery — Human physical performance — Part 2: Manual handling of machinery and component parts of machinery*

EN 1005-3:2002, *Safety of machinery — Human physical performance — Part 3: Recommended force limits for machinery operation*

EN 1005-4:2005, *Safety of machinery — Human physical performance — Part 4: Evaluation of working postures and movements in relation to machinery*

EN 1037:1995, *Safety of machinery — Prevention of unexpected start-up* ^[A1]

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

^[A1] *deleted text* ^[A1]

^[A1] 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* ^[A1]

^[A1] EN 60204-1:2006 ^[A1], *Safety of machinery — Electrical equipment of machines — Part 1: General*

requirements A1 (IEC 60204-1:2005, modified) A1

A1 EN 60439-1:1999, *Low-voltage switchgear and controlgear assemblies — Part 1: Type-tested and partially type-tested assemblies* (IEC 60439-1:1999) A1

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

A1 EN 60947-4-1:2001, *Low-voltage switchgear and controlgear — Part 4-1: Contactors and motor-starters — Electromechanical contactors and motor-starters* (IEC 60947-4-1:2000) A1

A1 EN 60947-5-1:2004, *Low voltage switchgear and control gear — Part 5-1: Control circuit devices and switching elements — Electromechanical control circuit devices* (IEC 60947-5-1:2003) A1

A1 EN 61310-1:2008, *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, acoustic and tactile signals* (IEC 61310-1:2007) A1

EN ISO 3743-1, *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, A1 *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) A1

EN ISO 3744, *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)

A1 EN ISO 3745, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Precision methods for anechoic and semi-anechoic rooms* (ISO 3745:2003) A1

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)

A1 EN ISO 4254-1:2005, *Agricultural machinery — Safety — Part 1: General requirements* (ISO 4254-1:2005) A1

EN ISO 4871:1996, *Acoustics — Declaration and verification of noise emission values of machinery and equipment* (ISO 4871:1996)

EN ISO 9614-1, *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, A1 *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) A1

EN ISO 11204:1995, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a workstation and at other specified positions — Method requiring environmental corrections* (ISO 11204:1995)

EN ISO 11688-1, *Acoustics — Recommended practice for the design of low noise machinery and equipment — Part 1: Planning* (ISO/TR 11688-1:1995)

A1 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) A1

EN 1870-6:2002+A1:2009 (E)

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)

deleted text

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

HD 21.1 S4:2002, *Cables of rated voltages up to and including 450/750 V and having thermoplastic insulation — Part 1: General requirements*

HD 22.1 S4:2002, *Cables of rated voltages up to and including 450/750 V and having cross-linked insulation — Part 1: General requirements*

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

3 Terms and definitions

For the purposes of this European Standard the following terms and definitions apply.

3.1 Terms

The different types of circular sawing machines for firewood and dual-purpose circular sawing machines for firewood/circular saw benches and their main parts of the machine are illustrated in the Figures 1, 2, 3 and 4.

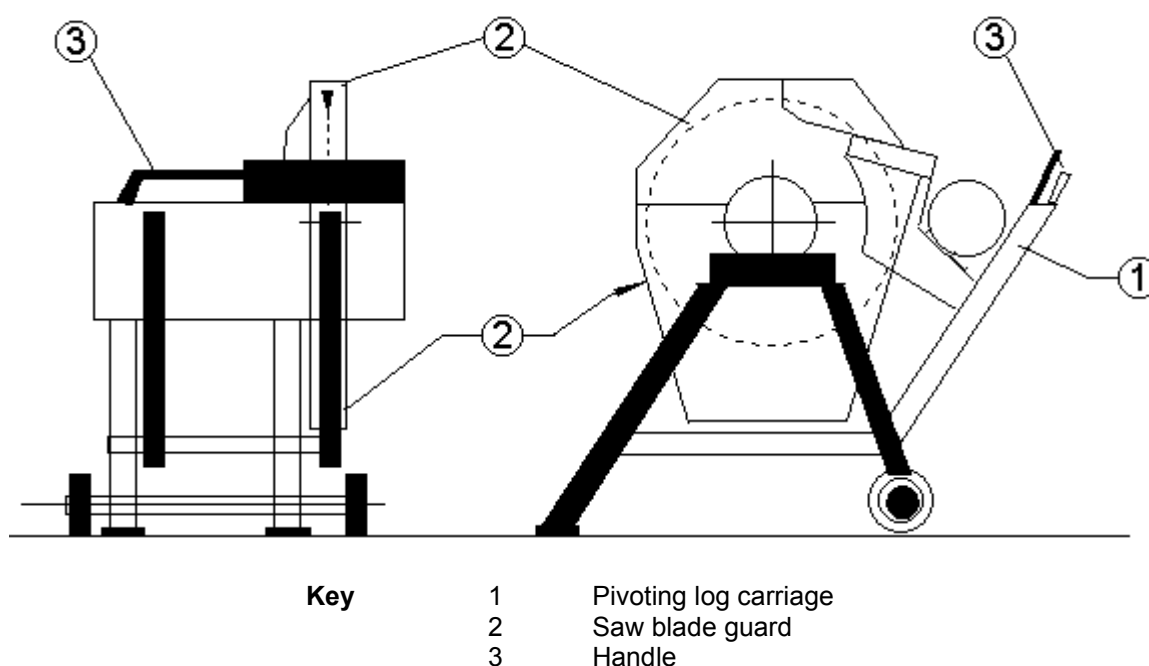
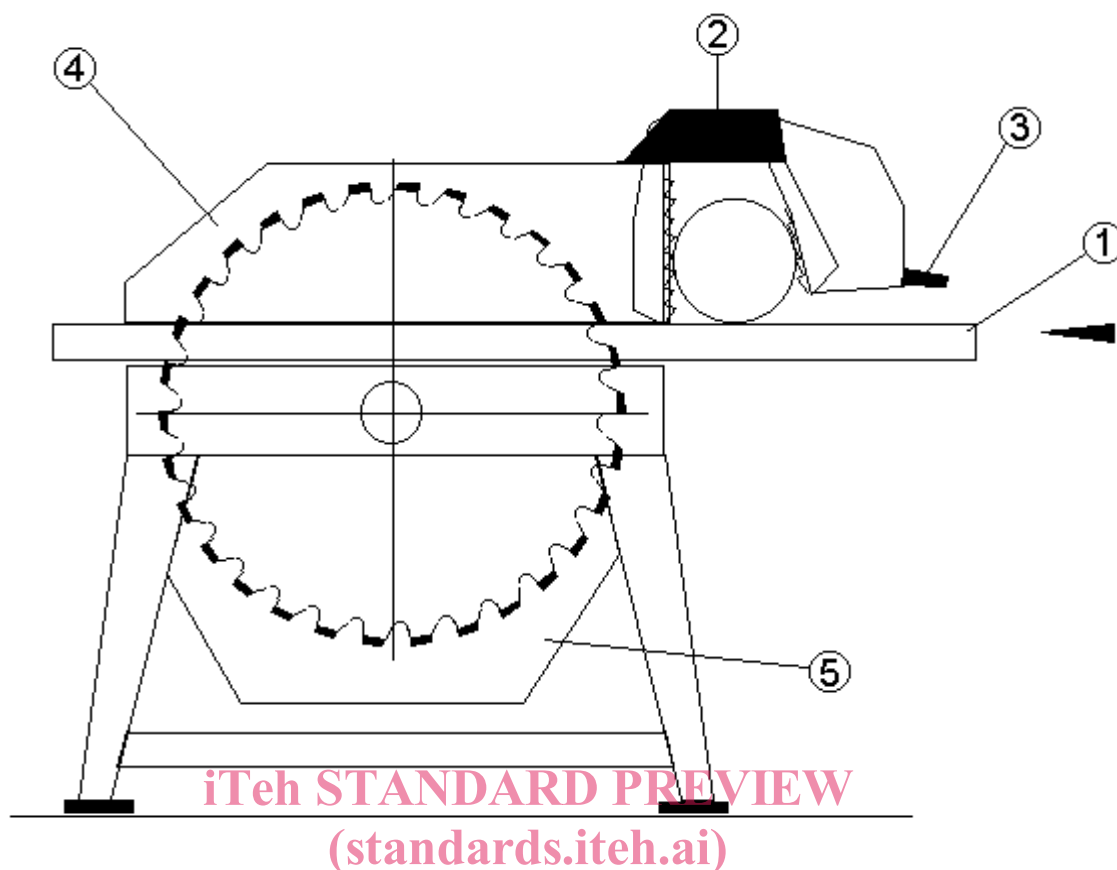
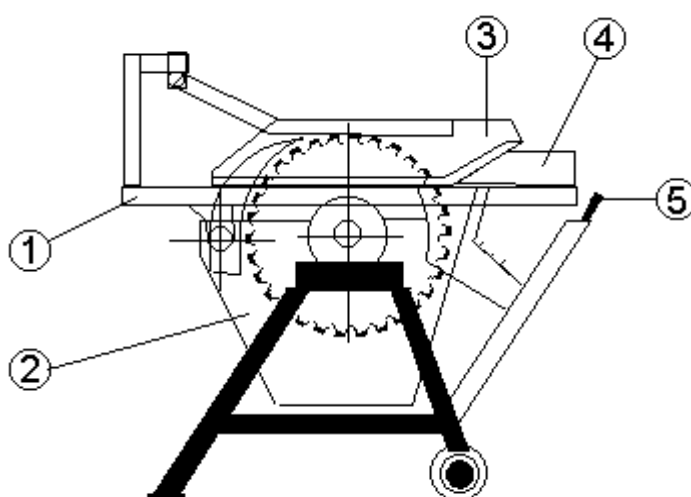


Figure 1 — Example of a circular sawing machine for firewood with pivoting log carriage



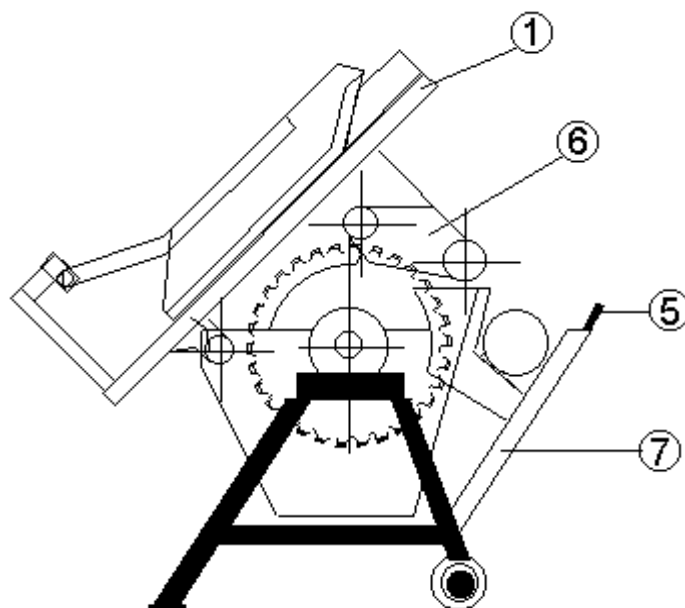
Key	1	Sliding table
	2	Workpiece holding device
	3	Operating handle
	4	Fixed guard above the table
	5	Fixed guard below the table

Figure 2 — Example of a circular sawing machine for firewood with sliding table



a) — Dual-purpose circular sawing machine for firewood/circular saw bench with pivoting log carriage in saw bench mode

EN 1870-6:2002+A1:2009 (E)

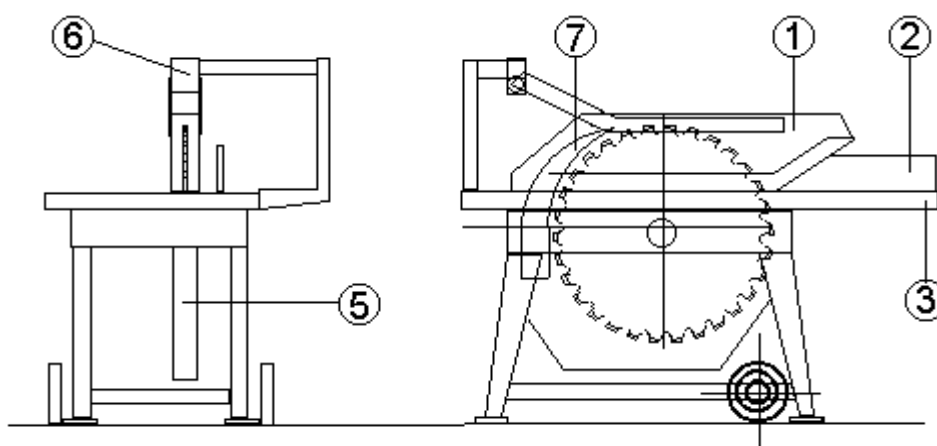


b) — Dual-purpose circular sawing machine for firewood/circular saw bench with pivoting log carriage in firewood sawing mode

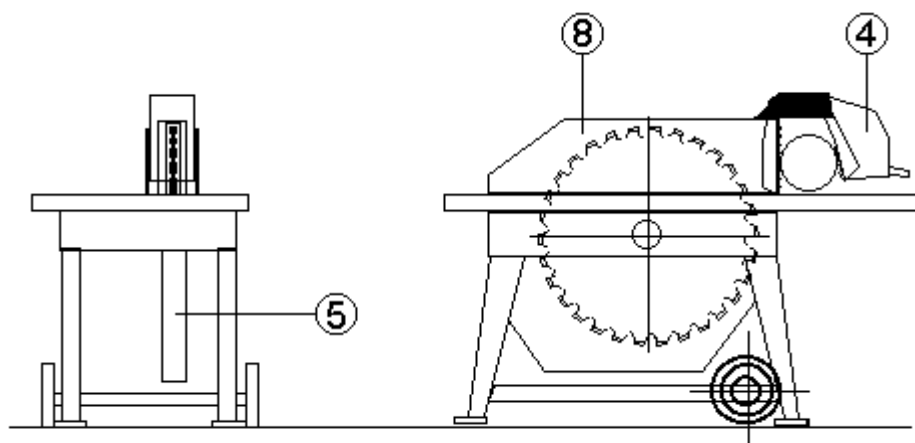
Key	1	Tilting saw bench table
	2	Saw blade guard below the table
	3	Adjustable saw blade guard
	4	Rip fence
	5	Handle
	6	Saw blade guard – firewood cutting
	7	Pivoting log carriage

<https://standards.iteh.ai/catalog/standards/sist/04db337a-61dd-4e02-990e-9e6072517317/en-1870-6:2003+A1:2009>

Figure 3 — Example of a dual-purpose circular sawing machine for firewood/circular saw bench with pivoting log carriage



a) — Dual-purpose circular sawing machine for firewood/circular saw bench with sliding table in saw bench mode



b) — Dual-purpose circular sawing machine for firewood/circular saw bench with sliding table in firewood sawing mode

Key		
1	Adjustable saw blade guard	
2	Rip fence	
3	Saw bench table	
4	Workpiece holding device	
5	Saw blade guard with chip outlet	
6	Adjustable support for saw blade guard	
7	Riving knife	
8	Fixed saw blade guard – log sawing	

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Figure 4 — Example of a dual-purpose circular sawing machine for firewood/circular saw bench with sliding table

[SIST EN 1870-6:2003+A1:2009](https://standards.iteh.ai/catalog/standards/sist/04db337a-61dd-4e02-990e-cb66ea836525/sist-en-1870-6-2003a1-2009)

3.2 Definitions

<https://standards.iteh.ai/catalog/standards/sist/04db337a-61dd-4e02-990e-cb66ea836525/sist-en-1870-6-2003a1-2009>

3.2.1

cross-cutting

the operation of cutting across the grain of a wooden workpiece

3.2.2

circular sawing machine for firewood

a sawing machine for cross-cutting logs for firewood, with a single saw blade driven by either an electric motor or a Power Take Off (PTO) device and which has manual loading and/or unloading. The workpiece is moved manually to the saw blade either by:

- a) a pivoting log carriage (circular sawing machine for firewood with pivoting log carriage - see Figure 1); or
- b) a sliding table with a clamping device (circular sawing machine for firewood with sliding table - see Figure 2)

3.2.3

dual-purpose circular sawing machine for firewood/circular saw bench

a dual-purpose machine which is either:

- a) a circular sawing machine for cross-cutting logs for firewood with a pivoting log carriage (see Figure 3b)); and a circular saw bench. When used as a circular sawing machine for firewood the saw bench table is tilted toward the rear of the machine (see Figure 3a)); or
- b) a circular sawing machine for cross-cutting logs for firewood with sliding table (see Figure 4b)) and a circular saw bench. When used as a saw bench the sliding table is locked in position (see Figure 4a))

EN 1870-6:2002+A1:2009 (E)**3.2.4****stationary machine**

a 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

3.2.5**displaceable machine ^{A1}**

a machine which is located on the floor stationary during use and equipped with a device, normally wheels, which allows it to be moved between locations

3.2.6**machine actuator**

a power mechanism used to effect motion of the machine

3.2.7**hand feed**

the manual holding and/or manual guiding of the workpiece (or of a machine element incorporating a tool). Hand feed includes the use of a hand operated carriage on which the workpiece is placed manually or clamped, (and the use of a demountable power feed unit)

NOTE The words in brackets are not applicable to this machine.

3.2.8**safety appliance**

an additional device which is not an integral part of the machine but which assists the operator in the safe feeding of the workpiece, e.g. see Figure 5



Figure 5b): Example of push block

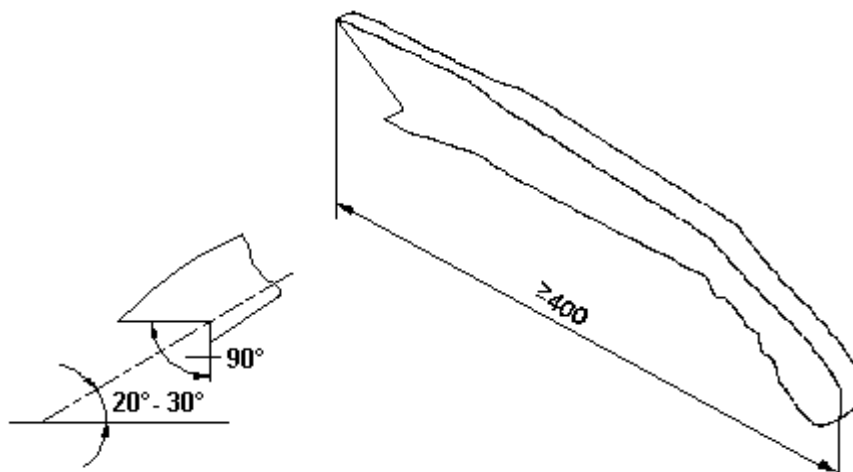


Figure 5a): Example of push stick

Figure 5 — Examples of a push stick and push block

3.2.9**ejection**

the 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**

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

3.2.11**information from the supplier**

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

4 List of significant hazards

This clause contains all 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 in accordance with Annex A of EN 1050:1996.