SLOVENSKI STANDARD
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Safety of woodworking machines - Band sawing machines

Safety of woodworking machines - Band sawing machines

Sicherheit von Holzbearbeitungsmaschinen - Bandsägemaschinen

Sécurité des machines pour le travail du bois - Machines a scier a ruban

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Safety of woodworking machines - Band sawing machines

Sécurité des machines pour le travail du bois - Machines à scier à ruban

Sicherheit von Holzbearbeitungsmaschinen - Bandsägemaschinen

This European Standard was approved by CEN on 6 May 1999.

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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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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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of an identical text or by endorsement, at the latest by February 2000, and conflicting national standards shall be withdrawn at the latest by February 2000.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.

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.

Organisations contributing to the preparation of this European Standard include :

The European Manufacturers Association "EUMABOIS".

Normative and informative annexes to this European Standard are listed in the Contents list.

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 292-1 : 1991 for a description of A, B and C standards).

0 Introduction

This European Standard has been prepared to be a harmonised standard to provide one means of conforming to the Essential Health and 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 standard concern designers, manufacturers, suppliers and importers of band sawing machines, re-sawing machines and log sawing machines.

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

1 Scope

This European Standard specifies the requirements and/or measures to remove the hazards and limit the risk on band sawing machines with either manual or automatic loading and/or unloading, hereinafter referred to as "machines" designed to cut solid wood, chipboard, fibreboard, plywood and also these materials where they are covered with plastic laminate or edgings.

Electrically driven machines set up on a bench or a table similar to a bench, which are intended to carry out work in a stationary position, capable of being lifted by one person by hand, excluded by the scope of this European standard, are covered by the requirements of EN 61029-1 : 1995 and prEN 61029-2-5.

This European Standard covers all the hazards relevant to these machines as stated in Clause 4. This European Standard does not cover the hazards related to Electromagnetic Compatibility (EMC) as required by the EMC Directive 89/336/EEC of 03-05-89.

This European Standard does not apply to :

— hand held woodworking machines or any adaptation permitting their use in a different mode, i.e. bench mounting;

— machines set up on a bench or a table similar to a bench, which are intended to carry out work in a stationary position, capable of being lifted by one person by hand.

This European Standard does not cover the hazards arising from machining processes (e.g. milling and sawing) of related to associated machines e.g. canters and circular saws.

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

2 Normative references

This European Standard incorporates by dated or undated references, 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 349 : 1992	Safety of machinery — Minimum gaps to avoid crushing of parts of the human body
EN 418 : 1992	Safety of machinery — Emergency stop equipment — Functional aspects
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
prEN 1760-1	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 60204-1 : 1992	Safety of machinery — Electrical equipment of machines Part 1 : Specification for general requirements (IEC 204 : 1992, modified)
HD 21.1 S3 : 1997	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V — Part 1 : General requirements
HD 22.1 S3 : 1997	Rubber insulated cables of rated voltages up to and including 450/750 V — Part 1 : General requirements
EN 60529 : 1991	Specification for degree of protection provided by enclosure (IP code) (IEC 529 : 1989)
EN 60825-1 : 1994	Safety of laser products — Equipment classification requirements and user's guide (IEC 60825 : 1993)
EN 60947-4-1 : 1992	Specification for ow voltage switchgear and control gear Part 4 : Contractors and motor starters — Section 1 : Electromechanical contractors and motor starters (IEC 947-4-1 : 1990)
EN 60947-5-1 : 1991	Specification for low voltage switchgear and control gear Part 5 : Control circuits, devices and switching elements — Section 1 : Electromechanical control circuit devices (IEC 947-5-1 : 1990)
EN 61029 : 1995	Safety of transportable motor operated electric tools - Part 1 : General requirements (IEC 1029-1 : 1990 modified)
prEN 60129-2-5 :	Safety of transportable motor-operated electric tools - Part 2: Particular requirements for bandsaws
prEN 61496-2	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 using sound pressure — 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, moveable sources in reverberant fields — Part 2 : Methods for special reverberant test rooms (ISO 3743-2 : 1996)
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 : 1995)
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 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 the workstation 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 the workstation and at other specified positions — Method requiring environmental corrections (ISO 11204 : 1995)
ISO 1940-1 : 1986	Mechanical vibration — Balance quality requirements of rigid rotors Part 1 : Determination of permissible residual unbalance
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
ISO/TR 11688-1 : 1995	Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1 : Planning

3 Term(s) and definition(s)

3.1 Definitions

For the purposes of this standard the following definitions apply :

3.1.1
Band sawing machine
A sawing machine with one or more sawblades in the form of continuous bands each mounted on and running between two or more band wheels.

3.1.2
Sawblade straining
The force exerted on the sawblade to keep it in position on the band wheels during cutting (see figure 15).

3.1.3
Tensioning
The process used to form the cross-section of the sawblade, either by rolling or hammering, in order to ensure that the front and back edges of the sawblade grip the band wheels.

3.1.4
Sawblade tracking
The means used to maintain the position of the sawblade on the band wheels (see figure 16).

3.1.5
Dogging
The means of securing a log for cutting.

3.1.6
Table band saw
A hand fed band sawing machine with a fixed or tilting table (bed) or tilting frame (see figures 1, 7 and 8).

3.1.7
Log band saw
A band sawing machine designed for the primary conversion of logs

3.1.7.1
Travelling table log saw
A hand fed or power fed log band saw fitted with a travelling table and dogging (see figure 3).

3.1.7.2
Reciprocating carriage log saw
A power fed log band saw fitted with a reciprocating carriage and dogging (see figure 4).

3.1.7.3
Conveyor fed log saw
A log band saw fitted with a conveyor as an integrated feed device (see figure 5).

3.1.7.4
Moving head rig log saw (gantry log saw)
A log band saw with a moving saw unit (see figure 6).

3.1.8
Band re-saw
A band sawing machine with integrated feed used for secondary conversion of solid wood (see figures 2, 9, 10, 27 and 29).

3.1.9
Manual control
A situation where each process movement is initiated by the operator.

3.1.10
Machine actuator
A power mechanism used to effect motion of the machine.

3.1.11
Hand feed
The manual holding and/or guiding of the workpiece. 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.

3.1.12
Demountable power feed unit
A feed mechanism which is mounted on a hand fed machine so that it can be moved from its working position without the use of a spanner or similar additional device.

3.1.13
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 the machining operation.

3.1.14
Run-up time
The elapsed time from the actuation of the start control device until the driven band wheel reaches the intended speed.

3.1.15
Run-down time
The elapsed time from the actuation of the stop control device until driven band wheel standstill.

3.1.16
Manual loading of power fed machines
Where 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.

3.1.17
Manual unloading of power fed machines
Where 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.

3.1.18
Cutting area
The area where the sawblade can be involved in the cutting process.

3.1.19
Non-cutting area
The area where the sawblade is not involved in the cutting process.

3.1.20
Transportable machine
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.

3.1.21
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.

3.1.22
Confirmation
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.

3.2 TERMINOLOGY

The names of the main parts of the machines are shown in figures and Tables 1 to 6.

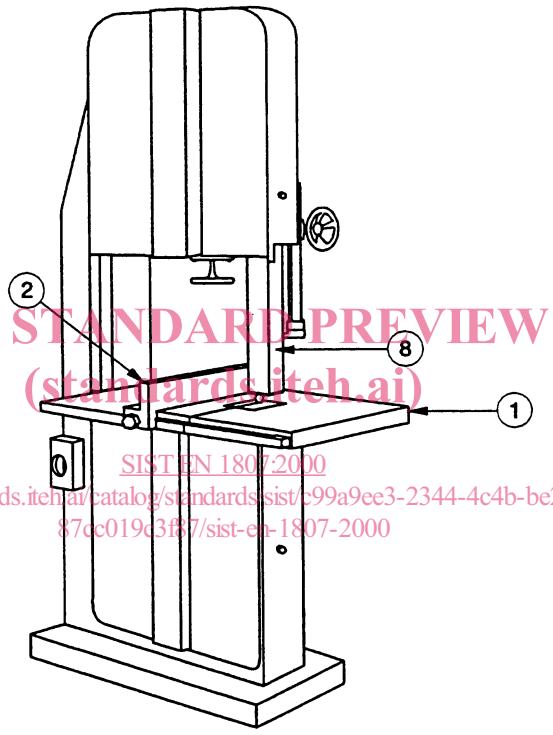

Figure 1a) — Guards closed

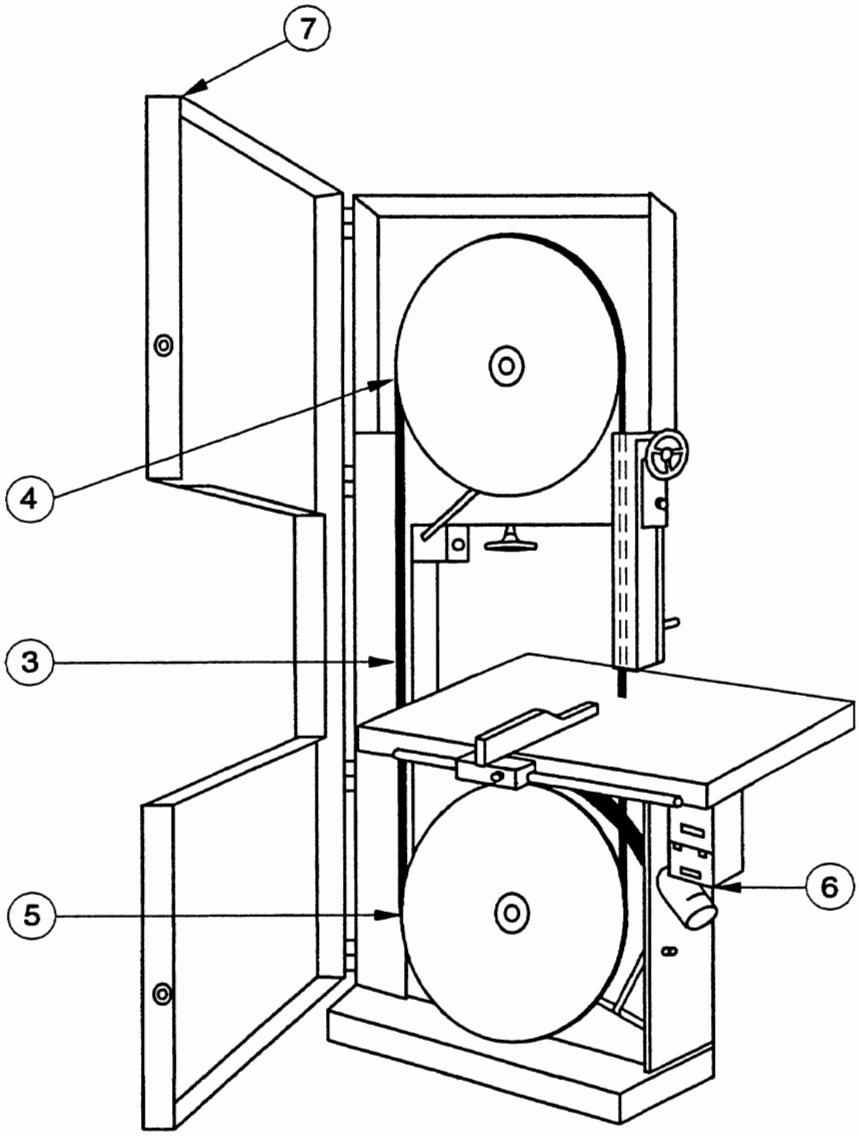

Figure 1b) — Guards open

Figure 1 — Hand fed table band saw

Table 1 — Terminology for table band saw

1	Table
2	Adjustable fence
3	Bandsaw blade
4	Top band wheel
5	Bottom band wheel
6	Start and stop controls
7	Band wheel guard
8	Adjustable guard for sawblade
9	Start and stop controls

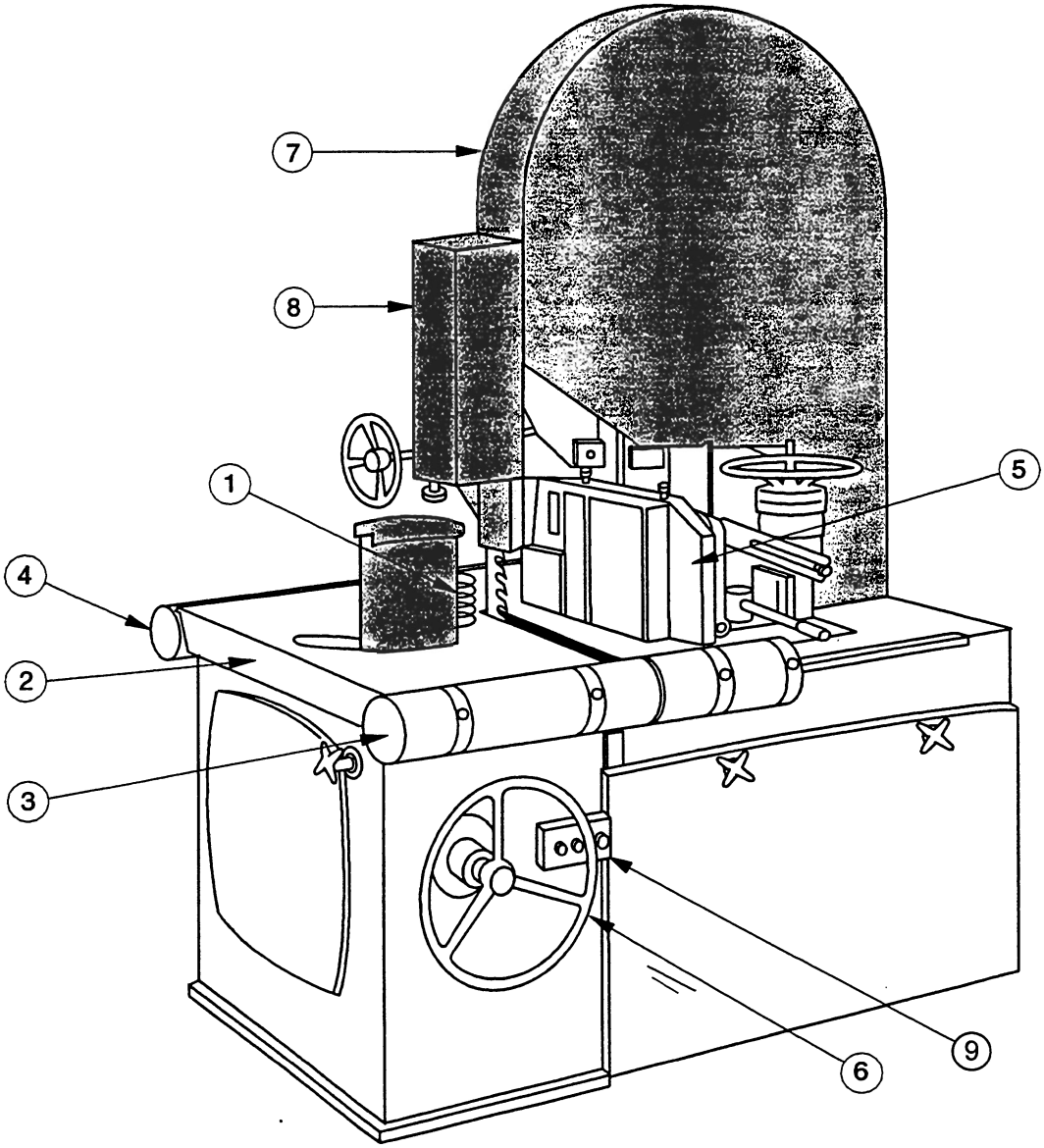

Figure 2 — Band re-saw

Table 2 — Terminology for band re-saw

1	Feed roller
2	Workpiece support (table)
3	Infeed table roller
4	Outfeed table roller
5	Fence
6	Handwheel for adjustment of feed rollers
7	Band wheel guard
8	Adjustable guard for sawblade

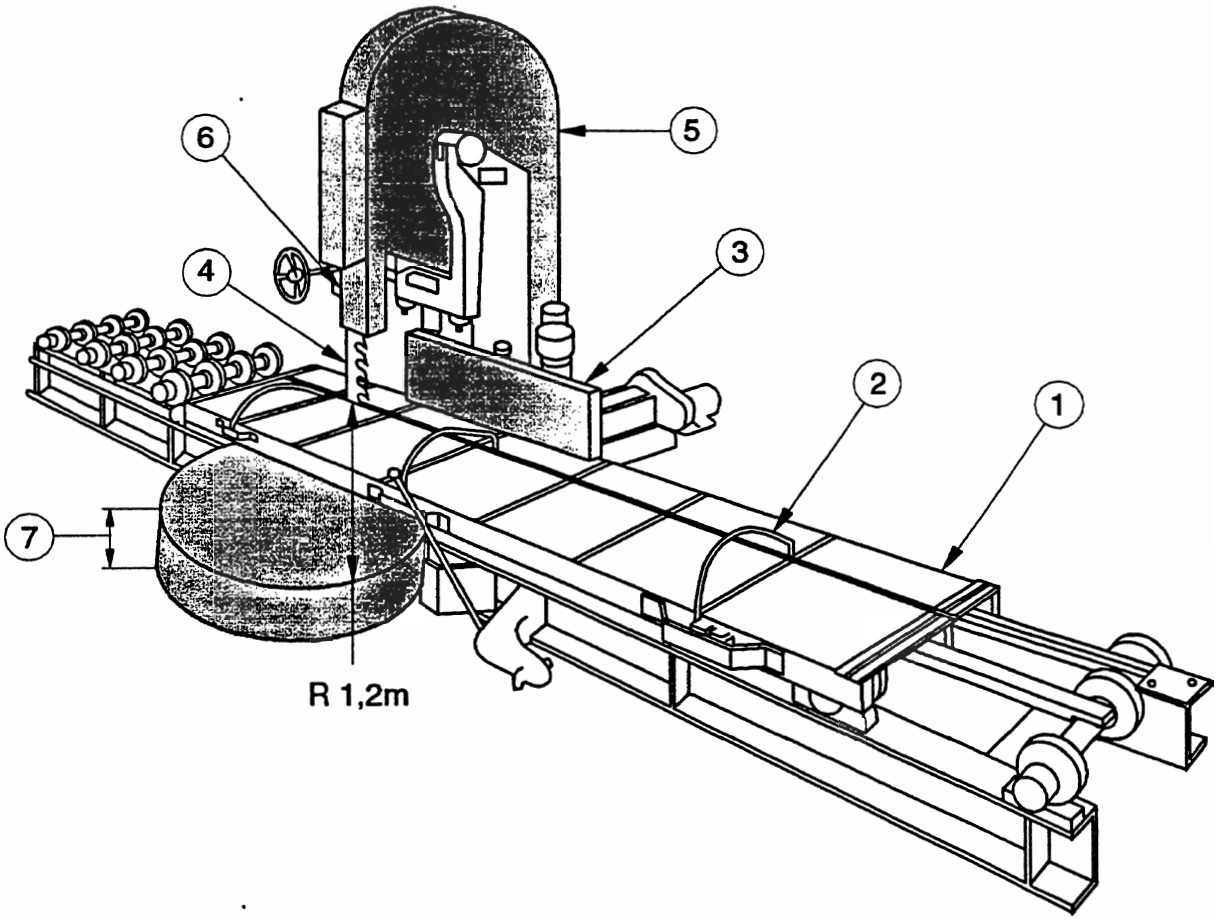

Figure 3 — Travelling table log saw

Table 3 — Terminology for travelling table log saw

1	Travelling table
2	Dogging
3	Fence
4	Saw blade
5	Band wheel guards
6	Adjustable guard for sawblade
7	Below travelling table height by not more than 100 mm

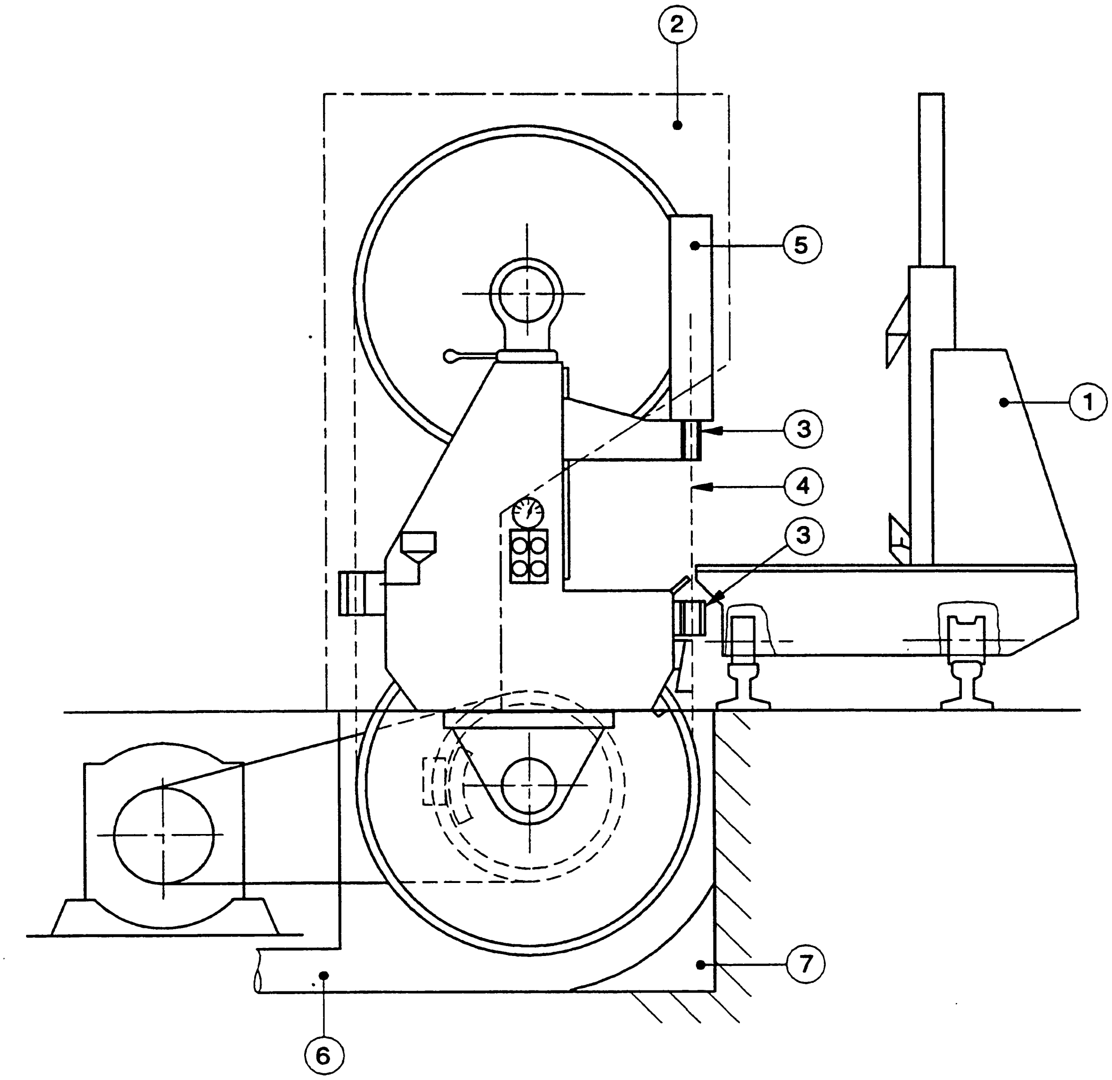

Figure 4 — Reciprocating carriage log saw

Table 4 — Terminology for reciprocating carriage log saw

1	Reciprocating log carriage
2	Band wheel guard
3	Saw guides
4.	Sawblade
5	Adjustable guard for sawblade
6	Dust extraction outlet
7	Pit