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Woodworking machines — Safety —

Part 10: Building site saws (contractor saws)

Machines à bois — Sécurité —

Partie 10: Scies de chantier

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 39, *Machine tools*, Subcommittee SC 4, *Woodworking machines*.

This document is intended to be used in conjunction with ISO 19085-1:2017, which gives requirements common to different machine types.

A list of all parts in the ISO 19085 series can be found on the ISO website.

This corrected version of ISO 19085-10:2018 incorporates the following corrections:

— the sentence about list item o) has been moved from 8.2.1 to 8.3.1;

— additional information has been added in 8.3.2 g);

— minor editorial corrections have been made.

This corrected version of ISO 19085-10:2018 corrects 8.3.1.

Introduction

The ISO 19085 series of International Standards provides technical safety requirements for the design and construction of woodworking machinery. It concerns designers, manufacturers, suppliers and importers of the machines specified in the Scope. It also includes a list of informative items that the manufacturer will need to give to the user.

This document is a type-C standard as stated in ISO 12100.

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

When requirements of this type-C standard are different from those which are stated in type-A or type-B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

The full set of requirements for a particular type of woodworking machine are those given in the part of ISO 19085 applicable to that type, together with the relevant requirements from ISO 19085-1:2017, to the extent specified in the Scope of the applicable part of ISO 19085.

As far as possible, in parts of ISO 19085 other than ISO 19085-1:2017, safety requirements are referenced to the relevant sections of ISO 19085-1:2017, to avoid repetition and reduce their length. The other parts contain replacements and additions to the common requirements given in ISO 19085-1:2017.

Thus, Clauses 5, 6, 7 and 8, with their subclauses and the annexes of this document, can either

— confirm as a whole,

— confirm with additions,

— exclude in total, or

— replace with specific text

the corresponding subclauses or annexes of ISO 19085-1:2017.

This interrelation is indicated in the first paragraph of each subclause or annex right after the title by one of the following statements:

— “This subclause of ISO 19085-1:2017 applies.”;

— “This subclause of ISO 19085-1:2017 applies with the following additions.”, or “This subclause of ISO 19085-1:2017 applies with the following additions, subdivided into further specific subclauses.”;

— “This subclause of ISO 19085-1:2017 does not apply.”;

— “This subclause of ISO 19085-1:2017 is replaced by the following text.”, or “This subclause of ISO 19085-1:2017 is replaced by the following text, subdivided into further specific subclauses.”.

Specific subclauses and annexes in this part of ISO 19085 without correspondent in ISO 19085-1:2017 are indicated by the introductory sentence: “Subclause (or annex) specific to this part of ISO 19085.”

Clauses 1, 2, 4 replace the correspondent clauses of ISO 19085-1:2017, with no need for indication since they are specific to each part of the series.

NOTE Requirements for tools are given in EN 847-1:2013.

Woodworking machines — Safety —

Part 10:
Building site saws (contractor saws)

1 Scope

This document gives the safety requirements and measures for displaceable building site saws, designed to cut wood and materials with similar physical characteristics to wood, hereinafter referred to as "machines".

NOTE 1 For the definition of *displaceable machine*, see ISO 19085-1:2017, 3.5.

It deals with all significant hazards, hazardous situations and events as listed in Clause 4, relevant to the machines, when operated, adjusted and maintained as intended and under the conditions foreseen by the manufacturer including reasonably foreseeable misuse. Also, transport, assembly, dismantling, disabling and scrapping phases have been taken into account.

NOTE 2 For relevant but not significant hazards, e.g. sharp edges of the machine frame, see ISO 12100:2010.

The machine can also be fitted with a device for the saw blade to be manually raised and lowered through the table, whose hazards have been dealt with.

This document does not apply to the following:

a) machines with a maximum saw blade diameter smaller than 350 mm or greater than 500 mm;

b) hand-held woodworking machines, including any adaptation permitting their use in a different mode, i.e. bench mounting;

c) machines with a device to tilt the saw blade for angle cutting, machines with more than one saw blade rotational speed and machines equipped with a sliding table;

NOTE 3 Hand-held motor-operated electric tools are covered by IEC 62841-1 together with IEC 62841-2-5.

NOTE 4 Machines with the device to tilt the saw blade for angle cutting, machines with more than one saw blade rotational speed and machines equipped with a sliding table are considered as table saws, covered by ISO 19085-9.

This document is not applicable to machines intended for use in potentially explosive atmospheres or to machines manufactured prior to the date of its publication.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

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

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

ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

ISO 13849-1:2015, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

ISO 13857:2008, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs*

ISO 19085-1:2017, *Woodworking machines — Safety — Common requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100:2010, ISO 13849-1:2015, ISO 19085-1:2017 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

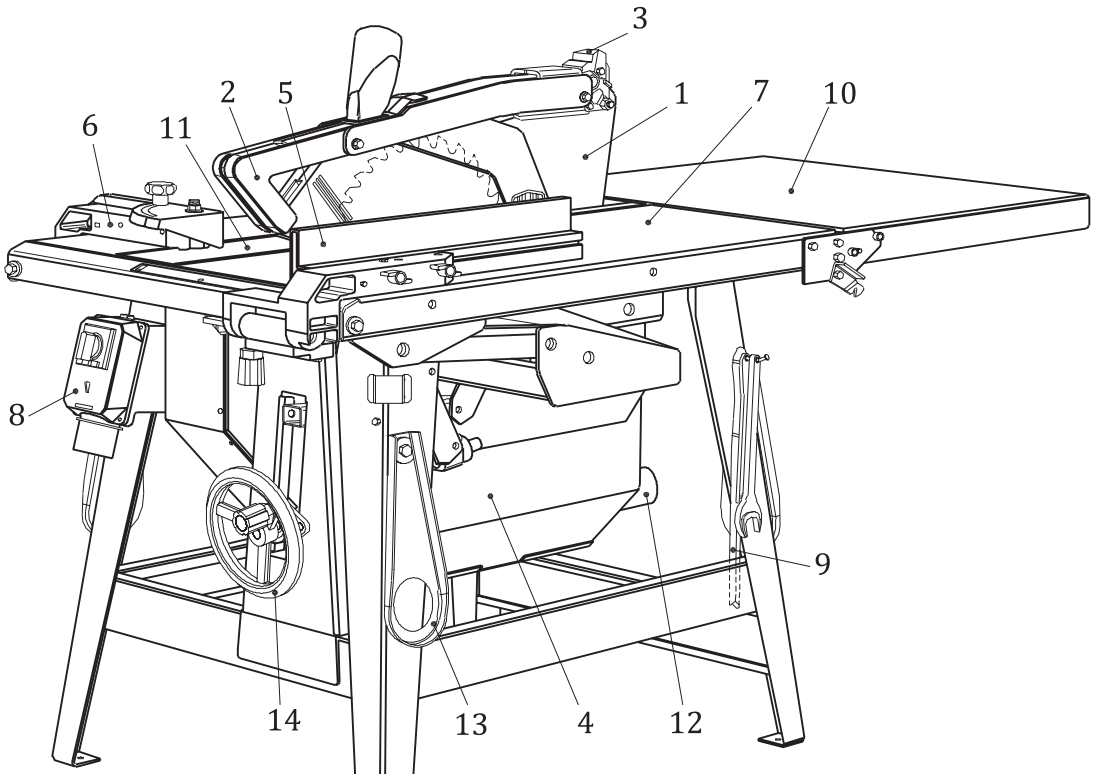
— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
building site saw
contractor saw
displaceable hand-fed machine fitted with a saw blade mounted under the table designed for use on building sites outdoor and equipped with integral provisions for lifting, e.g. lifting eyes

Note 1 to entry: The saw blade is mounted on a horizontal spindle below the table. The machine can have the device for the saw blade to be raised and lowered through the table. An example is given in Figure 1.

Note 2 to entry: The machine can have the possibility to be connected to a chip and dust extraction system.



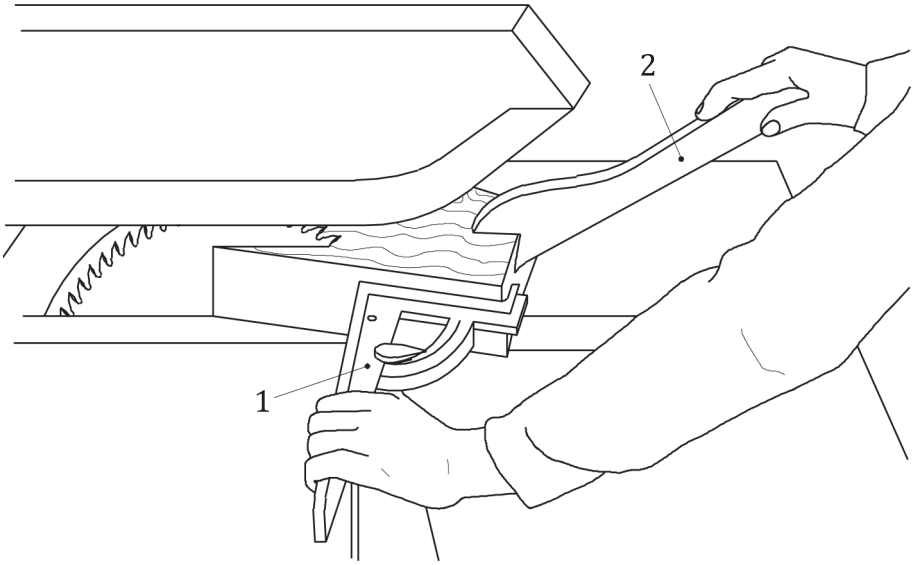
Key

1	riving knife	8	controls on the front side
2	saw blade guard	9	push block/ push stick
3	saw blade guard support	10	extension table
4	fixed guard beneath table	11	table insert
5	rip fence	12	exhaust outlet (optional)
6	cross-cut fence	13	lifting eyes
7	machine table	14	cutting height adjustment (optional)

Figure 1 — Example of a building site saw

3.2
wedge cutting device
integral device to the machine to cut wedges with different angles

Note 1 to entry: An example of a wedge-cutting device is shown in Figure 2.



Key

1 wedge cutting device

2 push stick

Figure 2 — Example of a wedge cutting device

4 List of significant hazards

This clause contains all significant hazards, hazardous situations and events (see ISO 12100), identified by risk assessment as significant for the machines as defined in Clause 1 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, hazardous situations and hazardous events	ISO 12100:2010	Relevant section of ISO 19085-10:2018
1	**Mechanical hazards related to**		
	— Machine parts or work-pieces due to		
	a) shape	6.2.2.1, 6.2.2.2, 6.3	6.3, 6.6, 6.8, 6.9.2, 6.10, 7.5, 7.14
	b) relative location		5.2, 6.6, 6.10
	e) mechanical strength		6.2, 6.3, 6.4, 6.9, 6.10, Annexes D, F, G and I
	— Accumulation of energy inside the machinery due to		
	f) elastic elements (springs)	6.2.10, 6.3.5.4	6.3
1.3	Cutting or severing hazard		6.6.2, 6.10, 6.11, 8.3.2
2	**Electrical hazards due to**		
2.1	Contact of persons with live parts (direct contact)	6.2.9, 6.3.5.4	7.4, 7.13
2.2	Contact of persons with parts which have become live under faulty conditions (indirect contact)	6.2.9	7.4, 7.13
4	**Hazards generated by noise, resulting in**		

Table 1 *(continued)*

No.	Hazards, hazardous situations and hazardous events	ISO 12100:2010	Relevant section of ISO 19085-10:2018
4.1	Hearing loss (deafness), other physiological disorders (loss of balance, loss of awareness)	6.2.2.2, 6.3	7.2, 8.3
4.2	Interference with speech communication, acoustic signals		8.3
7	**Hazards generated by materials and substances (and their constituent elements) processed or used by the machinery**		
7.1	Hazards from contact with or inhalation of harmful fluids and dusts	6.2.3, 6.2.4	7.3, 8.3
7.2	Fire hazard	6.2.4	7.1
8	**Hazards generated by neglecting ergonomic principles in machinery design**		
8.1	Unhealthy postures or excessive effort	6.2.7, 6.2.8, 6.2.11.12, 6.3.5.5, 6.3.5.6	5.2, 7.5
8.2	Hand-arm or foot-leg anatomy	6.2.8.3	7.5
8.4	Local lighting	6.2.8.6	8.3
8.5	Mental overload and underload, stress	6.2.8.5	8.3
8.6	Human error, human behaviour	6.2.8, 6.2.11.8, 6.2.11.10, 6.3.5.2, 6.4	8.3
8.7	Design, location or identification of manual controls	6.2.8.f, 6.2.11.8	5.2, 7.5
8.8	Design or location of visual display units	6.2.8, 6.4.2	5.2, 7.5
10	**Unexpected start up, unexpected overrun/overspeed (or any similar malfunction) from**		
10.1	Failure/disorder of the control system	6.2.11, 6.3.5.4	5.1, 7.13
10.2	Restoration of energy supply after an interruption	6.2.11.4	5.9, 7.7
10.3	External influences on electrical equipment	6.2.11.11	5.1, 7.9
10.6	Errors made by the operator (due to mismatch of machinery with human characteristics and abilities; see 8.6)	6.2.8, 6.2.11.8, 6.2.11.10, 6.3.5.2, 6.4	7.5, 8.3
11	**Impossibility of stopping the machine in the best possible conditions**	6.2.11.1, 6.2.11.3, 6.3.5.2	5.4, 7.12
13	**Failure of the power supply**	6.2.11.1, 6.2.11.4	5.8
14	**Failure of the control circuit**	6.2.11, 6.3.5.4	5.1
15	**Errors of fitting**	6.2.7, 6.4.5	7.12
16	**Break-up during operation**	6.2.3	6.2
17	**Falling or ejected objects or fluids**	6.2.3, 6.2.10	6.9
18	**Loss of stability/overturning of machinery**	6.3.2.6	6.1, 8.3, Annex C

5 Safety requirements and measures for controls

5.1 Safety and reliability of control systems

This subclause of ISO 19085-1:2017 applies.

5.2 Control devices

This subclause of ISO 19085-1:2017 applies with the following additions.

The normal stop control device for the saw blade shall be positioned adjacent to the start control device. Both shall be positioned on the front side of the machine (see Figure 1).

Verification: By checking the relevant drawings, measurement and inspection of the machine.

5.3 Start

This subclause of ISO 19085-1:2017 is replaced by the following text.

Start or restart shall only be possible by actuation of the start control device provided for this purpose. Unintended actuation shall be impeded, e.g. by a control device with shroud. The SRP/CS for prevention of unexpected start/restart shall achieve PL_r = c.

Verification: By checking the relevant drawings and/or circuit diagrams, inspection of the machine and relevant functional testing of the machine.

5.4 Safe stops

5.4.1 General

This subclause of ISO 19085-1:2017 applies.

5.4.2 Normal stop

This subclause of ISO 19085-1:2017 applies.

5.4.3 Operational stop

This subclause of ISO 19085-1:2017 does not apply.

5.4.4 Emergency stop

This subclause of ISO 19085-1:2017 does not apply.

5.5 Braking function of tool spindles

This subclause of ISO 19085-1:2017 applies.

5.6 Mode selection

This subclause of ISO 19085-1:2017 does not apply.

5.7 Spindle speed changing

5.7.1 Spindle speed changing by changing belts on the pulleys

This subclause of ISO 19085-1:2017 does not apply.

5.7.2 Spindle speed changing by incremental speed change motor

This subclause of ISO 19085-1:2017 does not apply.

5.7.3 Infinitely variable speed by frequency inverter

This subclause of ISO 19085-1:2017 does not apply.

5.8 Failure of any power supply

This subclause of ISO 19085-1:2017 applies.

5.9 Manual reset control

This subclause of ISO 19085-1:2017 does not apply.

5.10 Enabling control

This subclause of ISO 19085-1:2017 does not apply.

5.11 Machine moving parts speed monitoring

This subclause of ISO 19085-1:2017 does not apply.

5.12 Time delay

This subclause of ISO 19085-1:2017 applies.

6 Safety requirements and measures for protection against mechanical hazards

6.1 Stability

6.1.1 Stationary machines

This subclause of ISO 19085-1:2017 does not apply.

6.1.2 Displaceable machines

This subclause of ISO 19085-1:2017 applies with the following additions.

The machine shall pass the frame rigidity test of Annex F.

Verification: By checking the relevant drawings, inspection of the machine and performing the rigidity test of Annex F.

6.2 Risk of break-up during operation

This subclause of ISO 19085-1:2017 applies with the following additions.

The machine table slot shall be lined with easily machinable material (see ISO 19085-1:2017, 3.3).

Verification: By checking the relevant drawings and inspection of the machine.

6.3 Tool holder and tool design

6.3.1 General

This subclause of ISO 19085-1:2017 applies with the following additions.

Saw spindles shall be manufactured from steel with an ultimate tensile strength of at least 580 N mm^{-2}.

Verification: By checking the relevant drawings and by measurement.

6.3.2 Spindle locking

This subclause of ISO 19085-1:2017 applies.