
**Woodworking machines — Safety —
Part 7:
Surface planing, thickness planing,
combined surface/thickness planing
machines**

iTeh STANDARD PREVIEW
Machines à bois — Sécurité —
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*Partie 7: Machines à dégauchir, à raboter et machines combinées à
dégauchir/raboter*

ISO 19085-7:2019

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Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	2
3 Terms and definitions	2
4 List of significant hazards	7
5 Safety requirements and measures for controls	9
5.1 Safety and reliability of control systems.....	9
5.2 Control devices.....	9
5.3 Start.....	12
5.4 Safe stops.....	12
5.4.1 General.....	12
5.4.2 Normal stop.....	12
5.4.3 Operational stop.....	12
5.4.4 Emergency stop.....	12
5.5 Braking function of tool spindles.....	13
5.6 Mode selection.....	13
5.7 Spindle speed changing.....	13
5.7.1 Spindle speed changing by changing belts on the pulleys.....	13
5.7.2 Spindle speed changing by incremental speed change motor.....	13
5.7.3 Infinitely variable speed change by frequency inverter.....	13
5.8 Failure of any power supply.....	13
5.9 Manual reset control.....	13
5.10 Enabling control.....	13
5.11 Machine moving part speed monitoring.....	13
5.12 Time delay.....	13
5.13 Power-operated adjustment of tables.....	13
6 Safety requirements and measures for protection against mechanical hazards	14
6.1 Stability.....	14
6.1.1 Stationary machines.....	14
6.1.2 Displaceable machines.....	14
6.2 Risk of break-up during operation.....	14
6.3 Tool holder and tool design.....	14
6.3.1 General.....	14
6.3.2 Spindle locking.....	14
6.3.3 Circular saw blade fixing device.....	14
6.3.4 Flange dimension for circular saw blades.....	14
6.4 Braking.....	15
6.4.1 Braking of tool spindles.....	15
6.4.2 Maximum run-down time.....	15
6.4.3 Brake release.....	15
6.5 Safeguards.....	15
6.5.1 Fixed guards.....	15
6.5.2 Interlocking moveable guards.....	15
6.5.3 Hold-to-run control.....	15
6.5.4 Two-hand control.....	15
6.5.5 Electro-sensitive protective equipment (ESPE).....	15
6.5.6 Pressure sensitive protective equipment (PSPE).....	15
6.6 Prevention of access to moving parts.....	16
6.6.1 General.....	16
6.6.2 Guarding of tools.....	16
6.6.3 Guarding of drives.....	19

6.6.4	Guarding of shearing and/or crushing zones	19
6.7	Impact hazard	19
6.8	Clamping devices	19
6.9	Measures against ejection	19
6.9.1	General	19
6.9.2	Guards material and characteristics	20
6.9.3	Anti-kickback devices	20
6.10	Work-piece supports and guides	21
6.10.1	General	21
6.10.2	Surface planing tables	22
6.10.3	Thickening table	23
6.10.4	Mortising table	23
6.10.5	Work-piece guiding during surface planing	24
6.10.6	Work-piece guiding during thickness planing	25
6.11	Safety appliances	25
7	Safety requirements and measures for protection against other hazards	26
7.1	Fire	26
7.2	Noise	26
7.2.1	Noise reduction at the design stage	26
7.2.2	Noise emission measurement	26
7.3	Emission of chips and dust	26
7.4	Electricity	27
7.4.1	General	27
7.4.2	Displaceable machines	27
7.5	Ergonomics and handling	27
7.6	Lighting	27
7.7	Pneumatics	27
7.8	Hydraulics	27
7.9	Electromagnetic compatibility	28
7.10	Laser	28
7.11	Static electricity	28
7.12	Errors of fitting	28
7.13	Isolation	28
7.14	Maintenance	28
8	Information for use	28
8.1	Warning devices	28
8.2	Marking	28
8.2.1	General	28
8.2.2	Additional markings	28
8.3	Instruction handbook	28
8.3.1	General	28
8.3.2	Additional information	28
	Annex A (informative) Performance levels required	30
	Annex B (normative) Test for braking function	31
	Annex C (normative) Stability test for displaceable machines	32
	Annex D (normative) Impact test for guards	35
	Annex E (normative) Noise emission measurement for machines not in ISO 7960:1995	36
	Annex F (normative) Tests for bridge-type guards	37
	Annex G (normative) Surface planing machines table lips resistance test	39
	Annex H (normative) Kickback test	42
	Bibliography	43

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<https://standards.iteh.ai/catalog/standards/sist/334209d8-d216-491b-850b-4cd69b7adc6e/iso-19085-7-2019>

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 of 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 www.iso.org/iso/foreword.html.

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

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Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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.

Introduction

The ISO 19085 series 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 to be provided to the user by the manufacturer.

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

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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:

— “ISO 19085-1:2017, [subclause/Annex], applies.”;

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

— “ISO 19085-1:2017, [subclause/Annex], does not apply.”;

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

Specific subclauses and annexes in this document without correspondent in ISO 19085-1:2017 are indicated by the introductory sentence: “Subclause/Annex specific to this document.”.

[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 847-1:2017.

Woodworking machines — Safety —

Part 7:

Surface planing, thickness planing, combined surface/ thickness planing machines

1 Scope

This document gives the safety requirements and measures for stationary and displaceable

- surface planing machines, also called jointers,
- thickness planing machines, also called planers or single surface planers,
- combined surface/thickness planing machines

with fixed cutterblock position, with an integrated feed in thicknessing mode, with or without demountable power feed device in planing mode and with manual loading and unloading of the work-piece, hereinafter referred to as “machines”. The machines are designed to cut solid wood and material with similar physical characteristics to wood.

NOTE 1 For the definitions of stationary and displaceable machines, see ISO 19085-1:2017, 3.4 and 3.5.

It deals with all significant hazards, hazardous situations and events as listed in [Clause 4](#) relevant to these machines when they are 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 are taken into account.

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

It is also applicable to surface planing machines and combined surface/thickness planing machines fitted with an optional mortising device, whose hazards have been dealt with.

This document does not apply to:

- a) machines with more than one cutterblock;
- b) machines with mortising unit driven by a separate motor;
- c) machines where the cutterblock is adjustable for depth of cut setting in thicknessing mode;
- d) machines where the conversion from planing to thicknessing mode or vice versa is achieved by mounting or demounting parts/units;
- e) machines where surfacing and thicknessing can be performed on the same section of the cutterblock at the same time;
- f) machines intended for use in potentially explosive atmosphere;
- g) machines manufactured before the date of its publication as an international standard;
- h) displaceable machines with a maximum planing width of ≤ 330 mm.

NOTE 3 Transportable motor-operated electric tools are dealt with in IEC 62841-1:2014 and IEC 61029-2-3:1993.

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 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 — Part 1: Common requirements*

EN 847-1:2013, *Tools for woodworking — Safety requirements — Part 1: Milling tools, circular saw blades*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100:2010, ISO 13849-1:2015 and 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/>
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3.1 cutterblock

cylindrical shaped complex tool equipped with blades or inserts

Note 1 to entry: See also EN 847-1:2017 for a description of the complex tool.

3.2 surface planing machine jointer

machine designed for cutting off layers of the lower surface of a work-piece by a *cutterblock* (3.1) rotating around a horizontal axis, mounted at right angles to the feed direction between two tables designed to position and support the work-piece that is fed into the machine against the direction of the cut

Note 1 to entry: See [Figure 1](#).

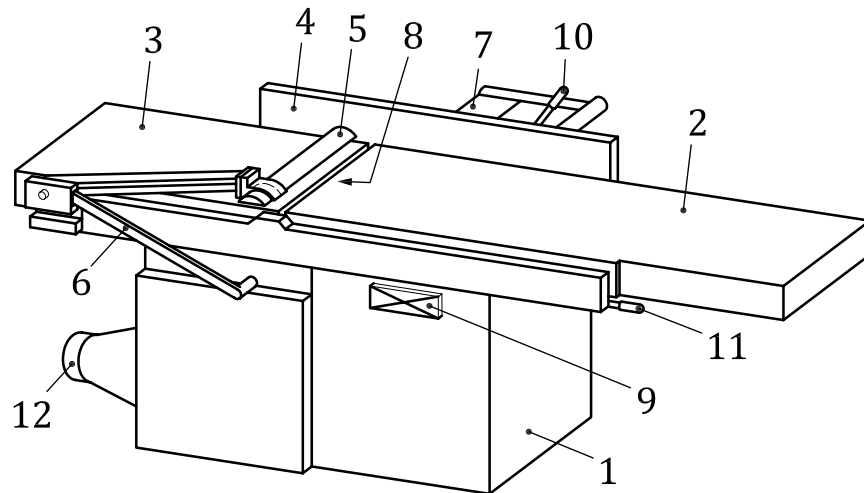
Note 2 to entry: Typical working operations with surface planing machine are shown in [Figure 4](#).

3.3 thickness planing machine single surface planer

machine designed for cutting off layers of the upper surface of a work-piece by a *cutterblock* (3.1) rotating around a horizontal axis, mounted at right angles to the feed direction above the table designed to position and support the work-piece that is fed into the machine against the direction of the cut

Note 1 to entry: See [Figure 2](#).

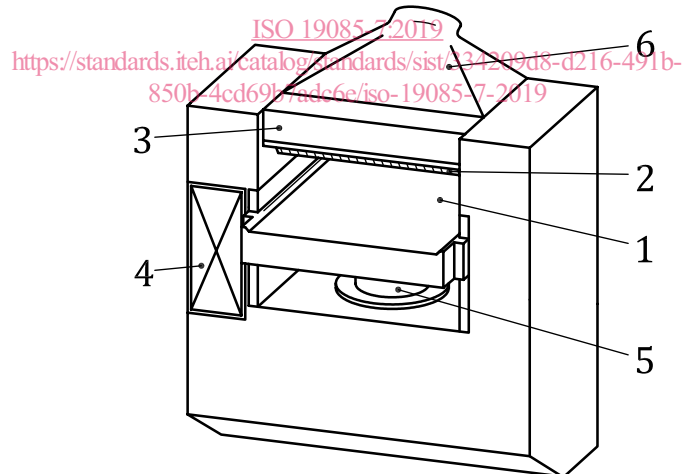
Note 2 to entry: The internal structure of a thickness planing machine is shown in [Figure 5](#).



Key

- | | | | |
|---|--|----|-----------------------------------|
| 1 | main frame | 7 | guard behind the fence |
| 2 | infeed table | 8 | cutterblock |
| 3 | outfeed table | 9 | controls |
| 4 | tiltable fence | 10 | fence tilting adjustment |
| 5 | bridge-type guard | 11 | lever for table height adjustment |
| 6 | lever for bridge-type guard adjustment | 12 | dust extraction outlet |

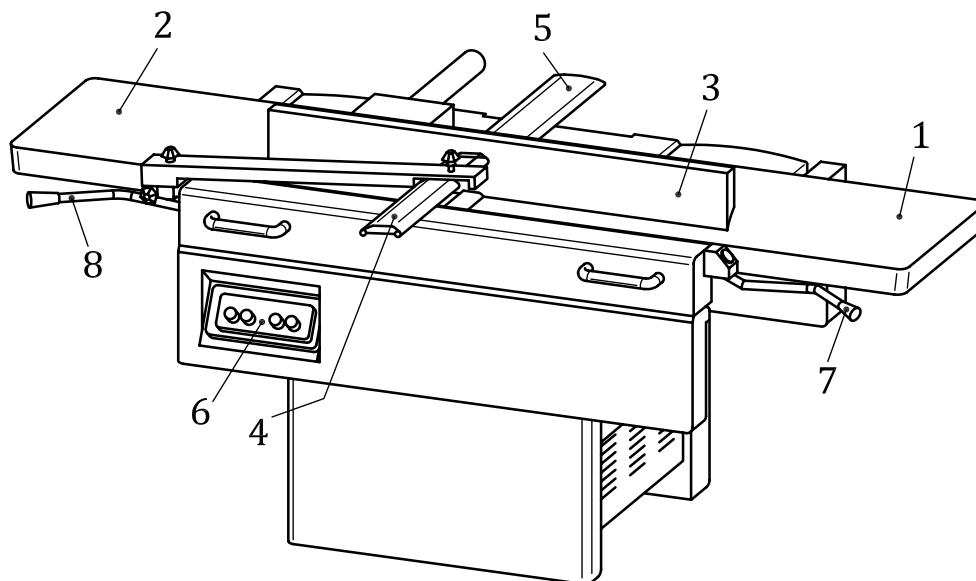
Figure 1 — Example of a surface planing machine



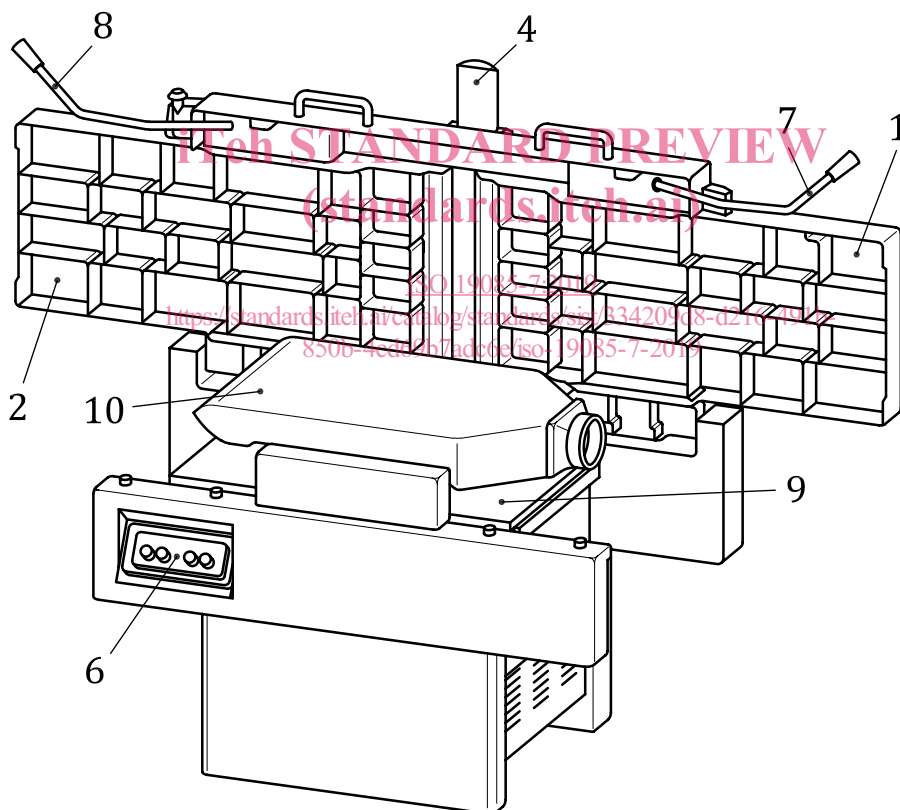
Key

- | | | | |
|---|-----------------------|---|----------------------|
| 1 | thickening table | 4 | controls |
| 2 | anti-kickback fingers | 5 | table lifting system |
| 3 | upper guard | 6 | extraction hood |

Figure 2 — Example of a thickness planing machine



a) Example of combined surface/thickness planing machine (set up for surface planing)



b) Example of combined surface/thickness planing machine (set up for thicknessing)

Key

- | | | | |
|---|------------------------|----|--------------------------------|
| 1 | infeed table | 6 | controls |
| 2 | outfeed table | 7 | infeed table height adjustment |
| 3 | tiltable fence | 8 | bridge-type guard adjustment |
| 4 | bridge-type guard | 9 | thicknessing table |
| 5 | guard behind the fence | 10 | guard for thicknessing mode |

Figure 3 — Example of combined surface/thickness planing machine

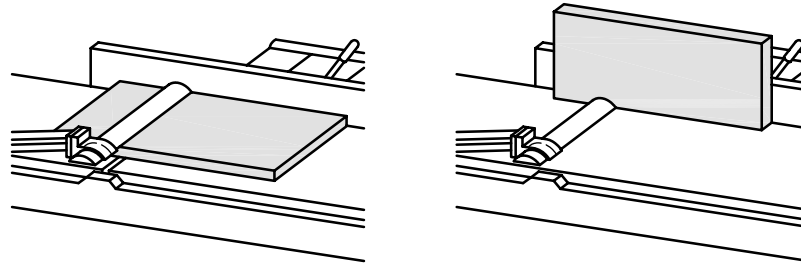


Figure 4 — Typical surface planing operations: planing (left) and edging (right)

3.4 combined surface/thickness planing machine combined jointer/single surface planer

combined machine that allows surface planing as well as thickness planing

Note 1 to entry: Example is given in [Figure 3](#).

Note 2 to entry: The work-piece is fed into the machine against the direction of the cut.

Note 3 to entry: Combined surface/thickness planing machines may also be fitted with an optional *mortising device* ([3.7](#)).

Note 4 to entry: When surfacing, the work-piece is passed over the *cutterblock* ([3.1](#)) located between two tables which are used to position and support the work-piece and the lower surface is planed. The infeed table of the surface planing unit is adjustable in height.

Note 5 to entry: For thicknessing, both of the *surface planing tables* ([3.5](#)) can be raised. The work-piece rests on the *thicknessing table* ([3.6](#)); the distance between it and the cutting circle diameter is adjustable. The upper surface of the work-piece is planed.

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3.5 surface planing table

table in front and behind the *cutterblock* ([3.1](#)) used to support the work-piece during planing of the lower surface

3.6 thicknessing table

table used to support the work-piece during thicknessing at the machine which can comprise an assembly of rollers, belts or other fixed or moving mechanical elements

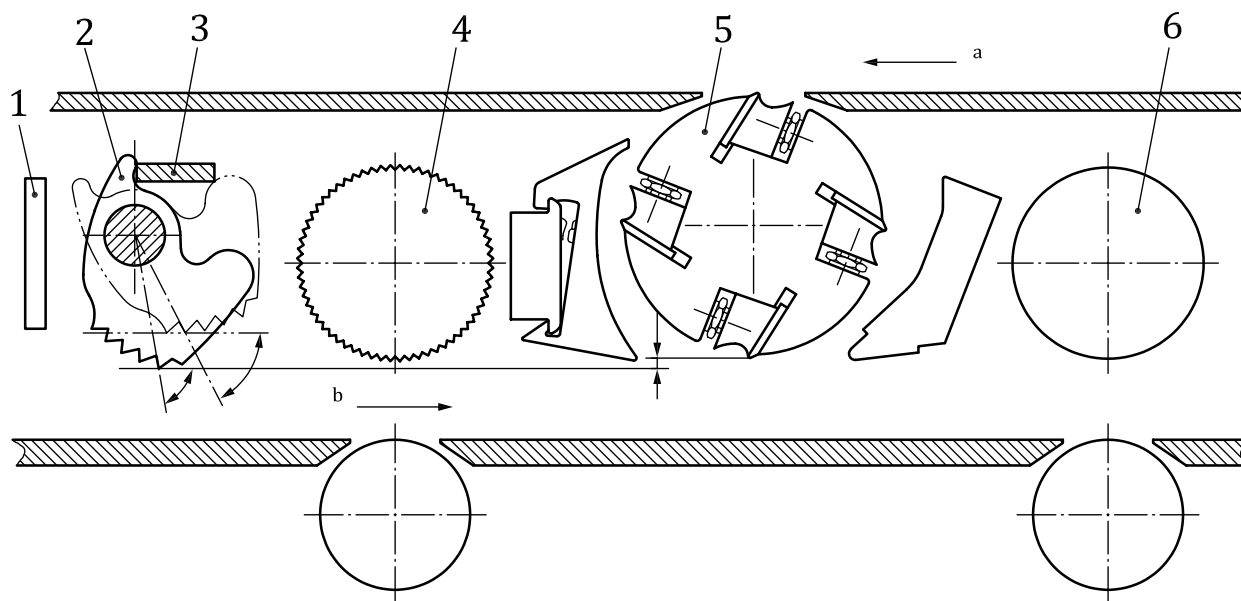
3.7 mortising device

fixed or detachable element of a machine which is designed for slot boring (mortising) or boring by means of a single rotating tool and a moveable table

Note 1 to entry: The tool holding device, e.g. chuck, is mounted on one end of the *cutterblock* ([3.1](#)) (see [Figure 6](#)).

3.8 initiation control

control which after actuation enables providing power to specific machine actuators, e.g. by a programmable logic control

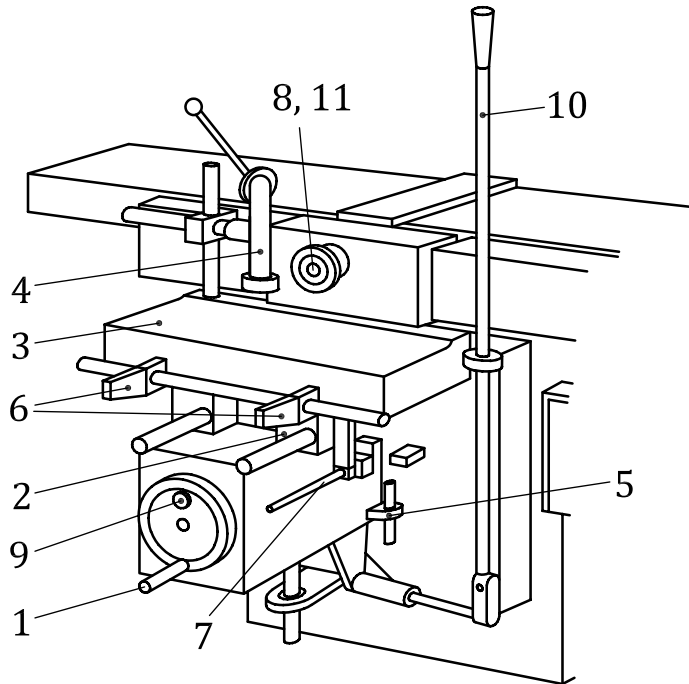


Key

- | | | | |
|---|--|---|--|
| 1 | limiting device for the depth of cut | 5 | cutterblock |
| 2 | anti-kickback fingers | 6 | outfeed roller |
| 3 | mechanical end stop for the rotation of the finger | a | Feed direction during surface planing. |
| 4 | infeed roller | b | Feed direction during thickness planing. |

Figure 5 — Example of internal of a combined surface/thickness planing machine

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Key

- | | | | |
|---|------------------------|----|------------------------------|
| 1 | vertical adjustment | 7 | horizontal depth stop |
| 2 | infeed slide | 8 | chuck |
| 3 | table | 9 | vertical adjustment lock |
| 4 | work-piece clamp | 10 | table movement control lever |
| 5 | height stop | 11 | chuck guard |
| 6 | horizontal length stop | | |

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Figure 6 — Example of a mortising device

4 List of significant hazards

This clause contains all significant hazards, hazardous situations and events (see ISO 12100:2010), 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, hazardous situations and hazardous events	ISO 12100:2010	Relevant section of this document
1	Mechanical hazards related to		
	— Machine parts or work-pieces due to		
	a) shape		6.3, 6.6, 6.9.2, 6.10, 6.11
	b) relative location	6.2.2.1, 6.2.2.2, 6.3	5.2, 6.6, 7.5
	c) mass and stability (potential energy of elements which may move under effect of gravity)		6.1, 6.6, 6.10
d) mass and velocity (kinetic energy of elements in controlled or uncontrolled motion)		5.13, 6.4, 6.6	

Table 1 (continued)

No.	Hazards, hazardous situations and hazardous events	ISO 12100:2010	Relevant section of this document
	e) mechanical strength		6.2, 6.3, 6.4, 6.6, 6.9, 6.10, Annex D, Annex F, Annex G, Annex H
	— Accumulation of energy inside the machinery		
	f) elastic elements (springs)	6.2.10, 6.3.5.4	6.6, 6.10, 7.5
	g) liquids and gases under pressure		7.7, 7.8
1.1	Crushing hazard		6.6.4
1.2	Shearing hazard		6.6.4
1.3	Cutting or severing hazard		6.3, 6.6, 8.3.2
1.4	Entanglement hazard		6.6, 8.3.2
1.5	Drawing-in or trapping hazard		6.6, 8.3.2
1.6	Impact hazard		6.10, 8.3.2
1.9	High pressure fluid injection or ejection hazard		7.8
2	Electrical hazards due to		
2.1	Contact of persons with live parts (direct contact)	6.2.9, 6.3.5.4	7.4
2.2	Contact of persons with parts which have become live under faulty conditions (indirect contact)	6.2.9	7.4
4	Hazards generated by noise , resulting in		
4.1	Hearing loss (deafness), other physiological disorders (loss of balance, loss of awareness)	6.2.2.2, 6.3	7.2
4.2	Interference with speech communication, acoustic signals		7.2, 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, 8.3
8.2	Hand-arm or foot-leg anatomy	6.2.8.3	5.2, 6.6, 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
9	Combination of hazards	6.3.2.1	5.1, 6.6, 7.13, 7.14
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	5.8, 7.7
10.3	External influences on electrical equipment	6.2.11.11	5.1, 7.9
10.5	Errors in the software	6.2.11.7	5.1

Table 1 (continued)

No.	Hazards, hazardous situations and hazardous events	ISO 12100:2010	Relevant section of this document
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 , 8.2
16	Break-up during operation	6.2.3	6.2 , 6.9 , Annex G , Annex H
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

ISO 19085-1:2017, 5.1, applies.

5.2 Control devices

ISO 19085-1:2017, 5.2, applies with the following additions.

On **surface planing machines**, the control devices for start, normal stop, emergency stop and powered table adjustment, if fitted, shall be located in area A or B shown in [Figure 7](#).

On **thickness planing machines**, the control devices for start, normal stop, emergency stop and powered table adjustment, if fitted, shall be located at the infeed side in area E or F shown in [Figure 8](#).

On **combined surface/thickness planing machines**, the control devices for start, normal stop, emergency stop and powered table adjustment, if fitted, shall be either (see [Figures 7](#) and [9](#)):

- in area A or B and in area C or D, or
- in the overlapping area of A and C.