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Woodworking machines — Safety —

Part 14: Four-sided moulding machines

Machines à bois — Sécurité —

Partie 14: Machines à moulurer sur quatre faces

Reference number
ISO 19085-14:2021(E)

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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 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*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 142, *Woodworking machines – Safety*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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 19085-1:2021, 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.

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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.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

— machine manufacturers (small, medium and large enterprises);

— health and safety bodies (regulators, accident prevention organisations, market surveillance etc.)

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

— machine users/employers (small, medium and large enterprises);

— machine users/employees (e.g. trade unions, organizations for people with special needs);

— service providers, e. g. for maintenance (small, medium and large enterprises);

— consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

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

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, to the extent specified in the Scope of the applicable part of ISO 19085 series.

As far as possible, the safety requirements of parts of the ISO 19085 series refer to the relevant subclauses of ISO 19085-1. Each part contains replacements and additions to the common requirements given in ISO 19085-1.

Clauses 1 to 3 are specific to each part and, therefore, replace ISO 19085-1:2021, Clauses 1 to 3.

For Clauses 4 to 7 and the annexes, ISO 19085-1:2021, Clauses 4 to 7 and Annexes, each subclause can be:

— confirmed as a whole;

— confirmed with additions;

— excluded in total; or

— replaced with specific text.

This is indicated by one of the following possible statements:

— “ISO 19085-1:2021, [subclause/Annex], applies”;

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— “ISO 19085-1:2021, [subclause/Annex], applies with the following additions.” or “ISO 19085-1:2021, [subclause/Annex], applies with the following additions, subdivided into further specific subclauses.”;

— “ISO 19085-1:2021, [subclause/Annex], does not apply.”;

— “ISO 19085-1:2021, [subclause/Annex], is replaced by the following text.” or “ISO 19085-1:2021, [subclause/Annex], is replaced by the following text, subdivided into further specific subclauses.”.

Other subclauses and annexes specific to this document are indicated by the introductory sentence: “Subclause/Annex specific to this document.”.

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Woodworking machines — Safety —

Part 14: Four-sided moulding machines

1 Scope

This document gives the safety requirements and measures for four-sided moulding machines, capable of continuous production use, with a maximum working width of 350 mm and a maximum speed of the integrated workpiece feed of 200 m/min, hereinafter referred to as "machines", designed to cut solid wood and materials with similar physical characteristics to wood (see ISO 19085-1:2021, 3.2).

It deals with all significant hazards, hazardous situations and events, listed in Annex A, relevant to the machines, when operated, adjusted and maintained as intended and under the conditions foreseen by the manufacturer; reasonably foreseeable misuse has been considered too. Also, transport, assembly, dismantling, disabling and scrapping phases are taken into account.

It is also applicable to machines fitted with one or more of the following devices / additional working units, whose hazards have been dealt with:

— universal spindle;

— glass bead saw unit;

— fixed or movable workpiece support;

— quick tool changing system;

— laser marking unit;

— automatic workpiece returner;

— in-feed hopper;

— loading magazine;

— unloading table.

This document does not deal with any hazards related to:

a) in-feed devices other than in-feed hopper and loading magazine;

NOTE 1 For mechanical in-feed devices which also prevent access to the in-feed opening, see 6.6.4.

b) out-feed devices other than unloading table, except for hazards related to ejection from the machine due to climb cutting;

c) out-feed of workpieces on machines with feed speed higher than 60 m/min;

NOTE 2 Machines with feed speed higher than 60 m/min are usually combined with mechanical unloading and workpiece transfer systems.

d) machines being used in combination with any other machine (as part of a line).

It is not applicable to machines intended for use in potentially explosive atmosphere and to machines manufactured prior to its publication.

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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 286-2:2010, *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 2: Tables of standard tolerance classes and limit deviations for holes and shafts*

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 13857:2019, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs*

ISO 19085-1:2021, *Woodworking machines – Safety – Part-1: common requirements*

IEC 60825-1:2014, *Safety of laser products – Part 1: Equipment classification and requirements*

EN 847-1:2017, *Tools for woodworking — Safety requirements — Part 1: Milling tools, circular saw blades*

EN 1837:1999+A1:2009, *Safety of machinery — Integral lighting of machines*

EN 12198-1:2000+A1:2008, *Safety of machinery — Assessment and reduction of risks arising from radiation emitted by machinery — Part 1: General principles*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100:2010, ISO 13849-1:2015, ISO 19085-1:2021 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 https://www.electropedia.org/

3.1
four-sided moulding machine
machine for four-sided longitudinal processing with four or more working units with spindles, which can be equipped with planing and/or moulding tools, at least one unit on each side of the workpiece, and with integrated feed of the workpiece

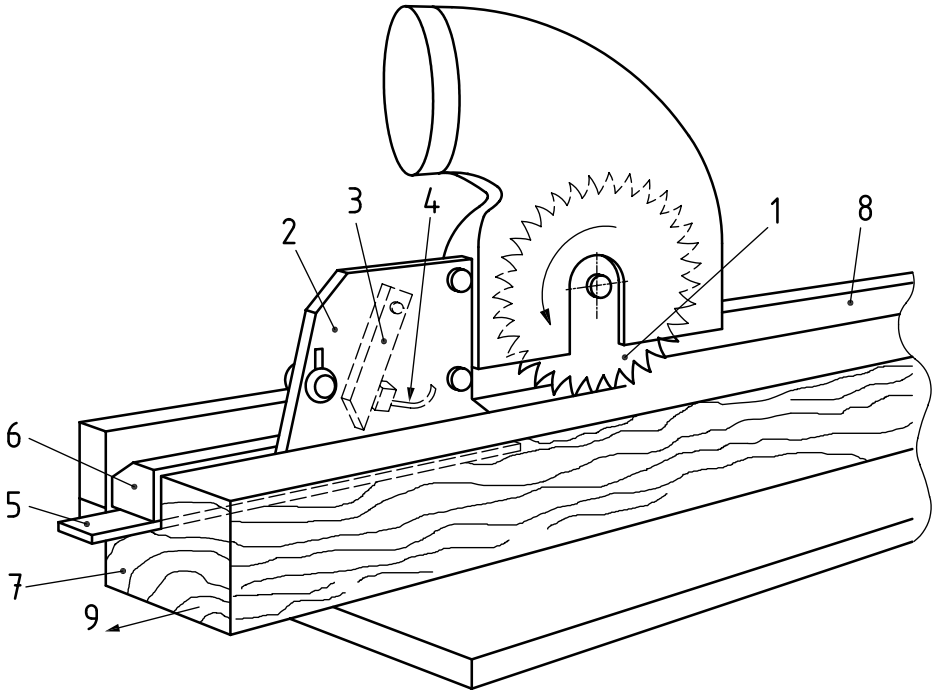
Note 1 to entry: machines where the first feed roller is fitted after the first tool and machines where the feed roller before the first bottom spindle can be raised up for the purpose of straightening are, for the purpose of this document, also integrated fed machines.

3.2
universal spindle
working unit whose position can be changed manually or under power so as to allow it to work at different positions around the workpiece

3.3
glass bead saw unit
working unit fitted with a tool, usually a saw blade, with or without coaxially mounted milling tool, to cut out a glass bead from the machined profile of the workpiece

Note 1 to entry: An example of glass bead saw unit is shown in Figure 1.

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Key

1	glass bead saw-blade	2	bed ledge separator	3	anti-kickback finger
4	pressure device	5	guiding channel for glass bead ledge	6	glass bead ledge
7	workpiece	8	fence	9	feed direction

Figure 1 — Example of glass bead saw unit

3.4
in-feed hopper
device to hold a stack of workpieces at the in-feed, so that, after the lowest one is fed, the next one can be fed to the machine automatically

Note 1 to entry: An example of in-feed hopper is shown in Figure 2.

3.5
loading magazine
system where the workpieces are loaded, independently from the operational sequence of the machine, with a device to bring them to the machine feed in sequence

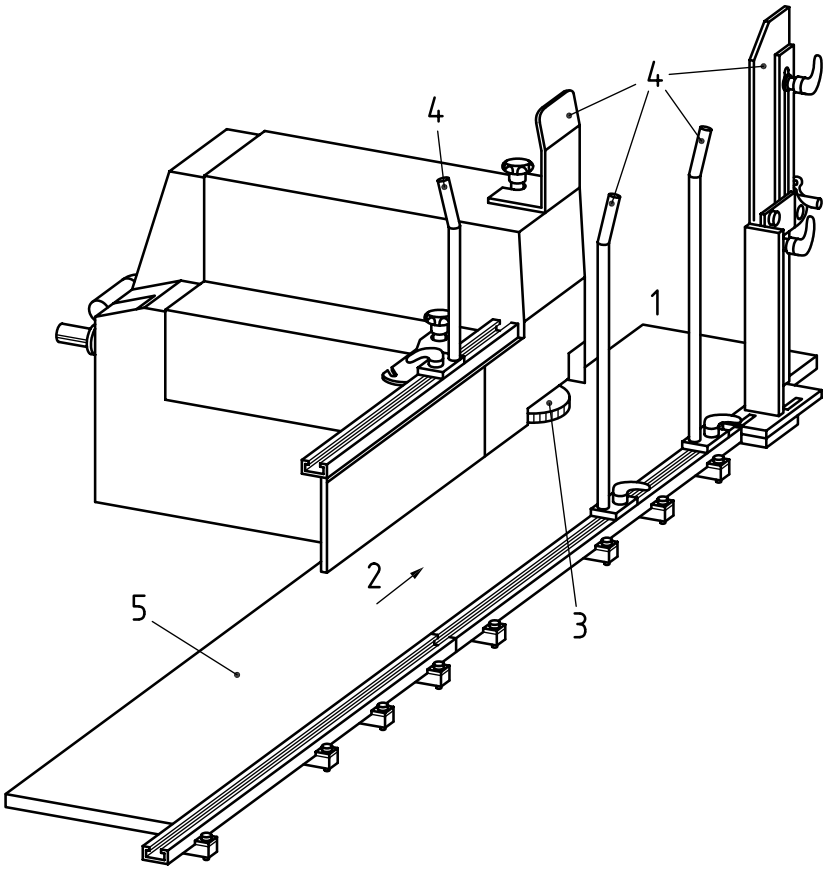
Note 1 to entry: An example of loading magazine is shown in Figure 3 (safeguarding not complete).

3.6
automatic workpiece returner
powered system that brings the machined workpiece from the machine end to the loading position

Note 1 to entry: An example of automatic workpiece returner is shown in Figure 4 (safeguarding not complete).

3.7
integral enclosure
guarding designed to fit close to the machine and provide a measure of noise attenuation and where certain setting adjustments can be available outside the enclosure

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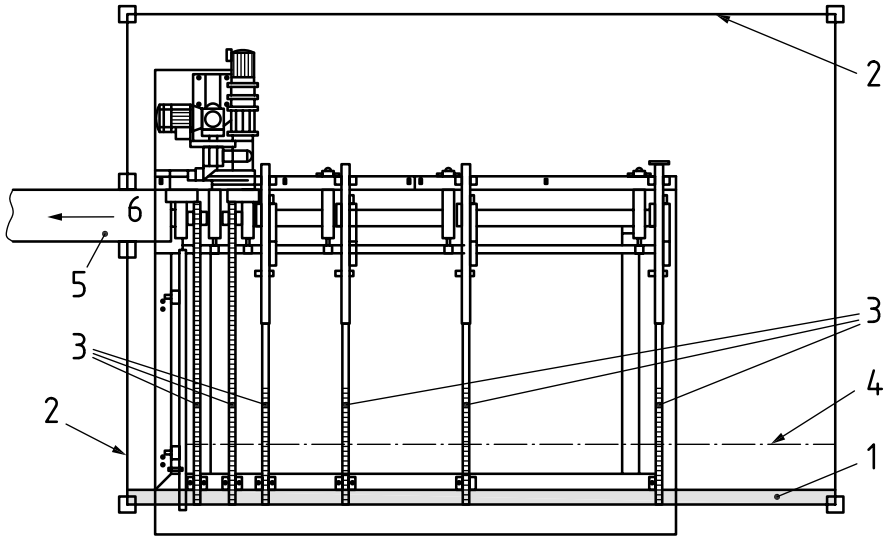


Key

1 in-feed-end of the machine
2 feed direction
3 feed roller
4 workpieces stack vertical guides
5 workpiece support

Figure 2 — Example of in-feed hopper

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Key

1 fixed guard
2 lateral fence
3 loading belts/chains
4 AOPD
5 machine in-feed table
6 feed direction

Figure 3 — Example of loading magazine

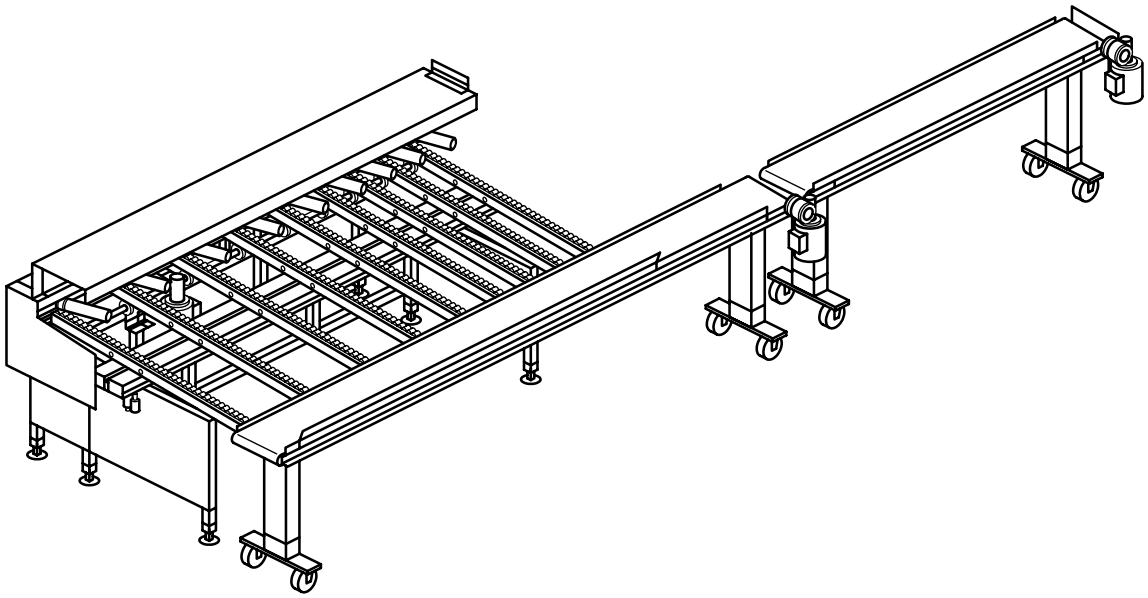


Figure 4 — Example of automatic workpiece returner

3.8
complete enclosure
total machine enclosure primarily designed for noise attenuation and to permit the operator to move around freely within it and where all machine setting and adjustments are available inside it and access is normally through a door/opening

Note 1 to entry: The complete enclosure usually contains openings for workpiece loading and unloading. The openings are usually equipped with measures for noise attenuation.

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3.9
initiation control
control that does not directly start any movement, but enables power supply to specific machine actuators when activated

3.10
MODE 2
condition with safeguards disabled, for setting or adjustment of processing units, feeding and guiding devices, and/or for cleaning

3.11
MODE 3
condition with safeguards disabled, for test run, fine adjustment of processing units, feeding and guiding devices

3.12
jog control
control device for momentary activation of a function or a movement

3.13
hydrostatic tool fixing device
device for clamping the tool to the spindle using hydraulic pressure

4 Safety requirements and measures for controls

4.1 Safety and reliability of control systems

ISO 19085-1:2021, 4.1, applies with the following additions.

Table B.1 replaces ISO 19085-1:2021, Table B.1.

4.2 Control devices

ISO 19085-1:2021, 4.2, applies with the following additions.

Emergency stop control devices shall be fitted at the following positions:

a) in close proximity to the in-feed end of the machine;

b) at the loading side of the loading magazine, if provided;

c) in close proximity to the out-feed end of the machine;

d) on each hand-held control set (if provided);

e) not more than 1,5 m from each fixed hold–to–run control device and jog control device;

f) on the main control panel.

If the distance between two required emergency stop control devices is less than 1 m, only one emergency stop control device may be provided.

Additional control devices for process start and normal stop may be provided on hand-held control sets with cable connection or wireless.

When a wireless control set loses its connection to the machine an emergency stop shall be automatically activated. The SRP/CS for interlocking of wireless connection with emergency stop shall achieve PL_r = c.

Reset function control devices, control devices for control power-on and mode selectors shall not be positioned on hand-held control sets and inside the complete enclosure.

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