
Woodworking machines — Safety —
Part 15:
Presses

Machines à bois — Sécurité —
Partie 15: Presses



This document is a preview generated by EUS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2021

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	2
3 Terms and definitions	3
4 List of significant hazards	12
5 Safety requirements and measures for controls	14
5.1 Safety and reliability of control systems	14
5.2 Control devices	14
5.3 Start	15
5.4 Safe stops	15
5.4.1 General	15
5.4.2 Normal stop	15
5.4.3 Operational stop	16
5.4.4 Emergency stop	16
5.5 Braking function of tool spindles	16
5.6 Mode selection	16
5.7 Spindle speed changing	16
5.7.1 Spindle speed changing by changing belts on the pulleys	16
5.7.2 Spindle speed changing by incremental speed change motor	16
5.7.3 Infinitely variable speed by frequency inverter	16
5.8 Failure of any power supply	16
5.9 Manual reset control	17
5.10 Enabling control	17
5.11 Machine moving parts speed monitoring	17
5.12 Time delay	17
6 Safety requirements and measures for protection against mechanical hazards	17
6.1 Stability	17
6.1.1 General	17
6.1.2 Displaceable machines	18
6.2 Risk of break-up during operation	18
6.3 Tool holder and tool design	18
6.3.1 General	18
6.3.2 Spindle locking	18
6.3.3 Circular saw blade fixing devices	18
6.3.4 Flange dimensions for circular saw blades	19
6.4 Braking	19
6.4.1 Braking of tool spindles	19
6.4.2 Maximum run-down time	19
6.4.3 Brake release	19
6.5 Safeguards	19
6.5.1 Fixed guards	19
6.5.2 Interlocking moveable guards	19
6.5.3 Hold-to-run control	19
6.5.4 Two hand control	19
6.5.5 Electro-sensitive protective equipment (ESPE)	19
6.5.6 Pressure sensitive protective equipment (PSPE)	19
6.6 Prevention of access to moving parts	20
6.6.1 General	20
6.6.2 Guarding of tools	20
6.6.3 Guarding of drives	20
6.6.4 Guarding of shearing and/or crushing zones	20

6.7	Impact hazard	24
6.8	Clamping devices	24
6.9	Measures against ejection	25
6.9.1	General	25
6.9.2	Guards materials and characteristics	25
6.10	Work-piece support and guides	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 and declaration	27
7.3	Emission of chips and dust	27
7.4	Electricity	28
7.4.1	General	28
7.4.2	Displaceable machines	29
7.5	Ergonomics and handling	29
7.6	Lighting	29
7.7	Pneumatics	29
7.8	Hydraulics	29
7.9	Electromagnetic compatibility	29
7.10	Laser	29
7.11	Static electricity	29
7.12	Errors of fitting	29
7.13	Isolation	29
7.14	Maintenance	30
7.15	Extreme temperatures	30
8	Information for use	30
8.1	Warning devices	30
8.2	Marking	30
8.2.1	General	30
8.2.2	Additional markings	30
8.3	Instruction handbook	30
8.3.1	General	30
8.3.2	Additional information	31
	Annex A (informative) Performance level required	32
	Annex B (normative) Tests for braking function	33
	Annex C (normative) Stability test for displaceable machines	34
	Annex D (normative) Impact test for guards	35
	Annex E (normative) Noise test code	36
	Bibliography	42

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 19085-1:2017¹⁾, which gives requirements common to the different machine types.

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

1) This document refers to ISO 19085-1:2017 because it experienced delays in preparation. A new edition of this document is under preparation, which refers to ISO 19085-1:2021.

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 to be provided 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 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 possible 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](#) and [4](#) replace the corresponding clauses of ISO 19085-1:2017, with no need for indication since they are specific to each part of the series.

This document refers to ISO 19085-1:2017 because it experienced delays in preparation. A new edition of this document is under preparation, which refers to ISO 19085-1:2021.

Woodworking machines — Safety —

Part 15: Presses

1 Scope

This document gives the safety requirements and measures for stationary manually loaded and unloaded:

- cold presses;
- hot presses;
- bending presses;
- edge/face gluing presses;
- membrane presses;
- embossing presses;

where the pressing force is applied by hydraulic actuators pushing two flat or shaped surfaces against each other, hereinafter referred to as "machines".

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

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

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

- a) device for hot gluing;
- b) device for high-frequency gluing;
- c) device for high-frequency shaping;
- d) automatic work-piece loading and unloading system;
- e) intermediate additional platens;
- f) work-piece extractor;
- g) work-piece clamping pressure beam;
- h) split moveable platens.

The machines are designed to process work-pieces consisting of:

- 1) solid wood;
- 2) materials with similar characteristics to wood (see ISO 19085-1:2017, 3.2);
- 3) honeycomb board.

This document does not deal with any hazards related to:

- specific devices that differ from the list above;
- hot fluid heating systems internal to the machine other than electrical;
- any hot fluid heating systems external to the machine;
- operation of taking intermediate platens out and in again;
- the combination of a single machine being used with any other machine (as part of a line).

It is not applicable to:

- frame presses;
- membrane presses where the pressing force is applied by vacuum only;
- presses for producing chipboard, fibreboard, OSB;
- machines intended for use in potentially explosive atmosphere;
- machines manufactured before the date of its publication as an international standard.

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 3744:2010, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering methods for an essentially free field over a reflecting plane*

ISO 11201:2010, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections*

ISO 11202:2010, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections*

ISO 11204:2010, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying accurate environmental corrections*

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

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

IEC 60204-1:2016, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements*

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

IEC 61800-5-2:2016, *Adjustable speed electrical power drive systems — Part 5-2: Safety requirements — Functional*

ISO 7010:2019, *Graphical symbols — Safety colours and safety signs — Registered safety signs*

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 19085-1:2017, 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 <https://www.electropedia.org/>

3.1

cold press

machine used to laminate and/or join together flat panels, in which the pressing force is applied by hydraulic actuators pushing two cold flat platens against each other

Note 1 to entry: The moveable platen can be the top or the bottom one or both. Examples of different machine designs are illustrated in [Figures 1](#) and [2](#) (safeguarding devices are not fully illustrated).

Note 2 to entry: The following devices can be provided:

- automatic panel loading and unloading;
- split moveable platens (see [Figure 14](#)).

3.2

hot press

machine used to laminate and/or join together flat panels, in which the pressing force is applied by hydraulic actuators pushing two hot flat platens against each other

Note 1 to entry: The moveable platen can be the top or the bottom one or both. Examples of different machine designs are illustrated in [Figures 1](#) and [2](#) (safeguarding devices are not fully illustrated).

Note 2 to entry: The following devices can be provided:

- automatic panel loading and unloading;
- intermediate additional platens (see [Figure 3](#)).

Note 3 to entry: Platens heating systems can be by electrical resistance or hot fluid (e.g. diathermic oil, water). Fluid heating system can be internal to the machine or external.

3.3

bending press

machine with manual loading and/or unloading used to assembly and/or shape flat panels, in which the pressing force is applied by hydraulic actuators pushing two shaped surfaces against each other, and hot gluing process is by hot dies or high-frequency system

Note 1 to entry: An example of a bending press is illustrated in [Figure 4](#) (safeguarding devices are not fully illustrated).