
Woodworking machines — Safety —
Part 13:
Multi-blade rip sawing machines with
manual loading and/or unloading

Machines à bois — Sécurité —

*Partie 13: Délicieuses multi-lames à chargement et/ou
déchargement manuel*
(standards.iteh.ai)

ISO 19085-13:2020

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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 19085-1:2017, 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 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 part 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 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 and 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 13:

Multi-blade rip sawing machines with manual loading and/or unloading

1 Scope

This document gives the safety requirements and measures for stationary multi-blade rip sawing machines manually loaded and/or unloaded, hereinafter referred to as “machines”, designed to cut solid wood and material with similar physical characteristics to wood.

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.

This document does not deal with specific hazards related to the combination of single machines with any other machine as part of a line.

It is not applicable to machines:

- with all saw blades spindles mounted below the workpiece support/level only;
- intended for use in potentially explosive atmosphere;
- manufactured prior to 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 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 13856-2:2013, *Safety of machinery — Pressure-sensitive protective devices — Part 2: General principles for design and testing of pressure-sensitive edges and pressure-sensitive bars*

ISO 13856-3:2013, *Safety of machinery — Pressure-sensitive protective devices — Part 3: General principles for design and testing of pressure-sensitive bumpers, plates, wires and similar devices*

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*

ISO 19085-13:2020(E)

EN 614-1:2006+A1:2009, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

EN 894-2:1997+A1:2008, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 2: Displays*

IEC 60204-1:2005, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements*

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

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100:2010, in ISO 13849-1:2015, in 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 multi-blade rip sawing machine

machine designed to be used with circular saw blades at different positions on the spindles which are fixed in position during cutting, where the work-piece is fed to the tools by an integrated power feed, i.e. rollers or chain conveyor

Note 1 to entry: The saw blades can be mounted on one or more saw spindles which can be capable of vertical adjustment. The saw blades can be capable of axial adjustment either relative to the spindle or together with the spindle. The saw blade spindles can be arranged so that they are all mounted above the work-piece support or mounted both above and below the work-piece support.

Note 2 to entry: The cutting can be “against the feed” or “climb cutting” (see ISO 19085-1:2017, Figure 1) or a combination of both.

Note 3 to entry: Examples of machines configurations as of feed technology and spindles number and position are shown in [Figure 1](#):

- Saw blades spindles: single-spindle machines are shown in a), b), c); double-spindle machines in d), e), f), one above and one below the work-piece level.
- Work-piece support and integrated feed: by feed rollers shown in a), d); by chain conveyor in b), c), e); by a combination of the two in f).

3.2 anti-splinter finger

moveable element mounted in a row at the infeed of the machine to prevent the ejection of splinters

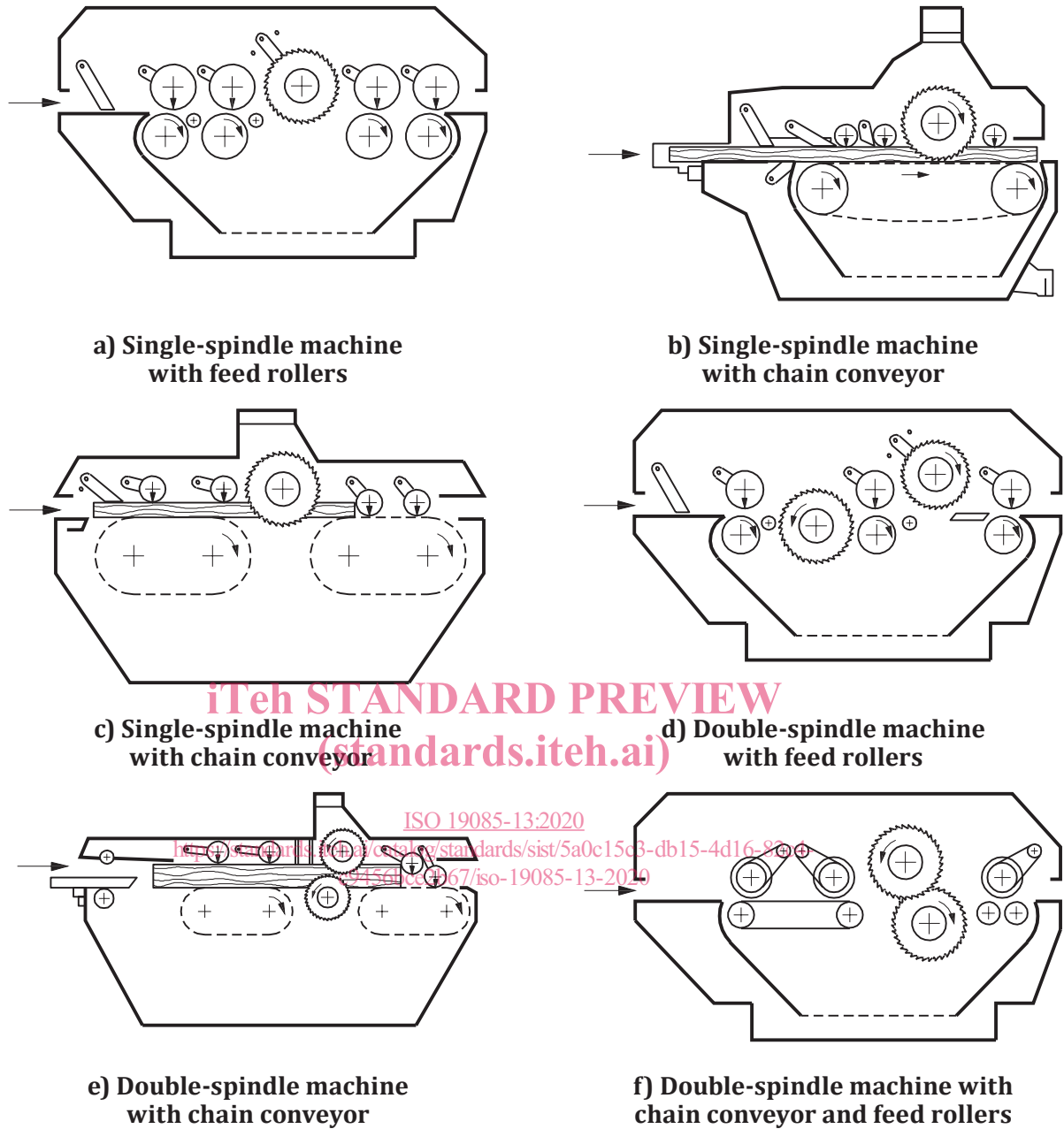


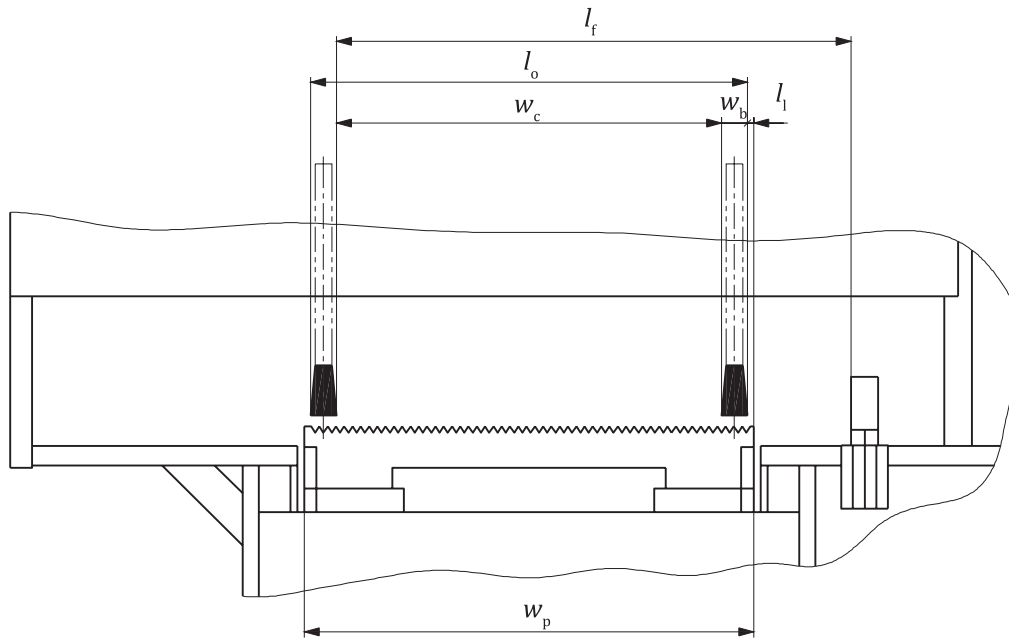
Figure 1 — Examples of machines configurations

3.3

cutting width capacity

maximum distance between inner cutting surfaces of the two outside saw blades mounted at extreme positions on the saw spindle

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



Key

- l_f maximum distance between saw blade and fence
- l_1 distance between the inner surface of the outside saw blade and the lateral limitation given by the feed system
- l_o maximum distance between the two outer cutting planes of the outside saw blades
- w_b cutting width of the saw blade
- w_c cutting width capacity
- w_p width of the work-piece conveyor

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Figure 2 — Cutting width capacity

3.4 manual loading

placement of the work-piece by the operator directly onto the machine integrated feed, e.g. rotating feed rollers or chain conveyor, without any intermediate loading device to receive and transfer the work-piece from the operator to the integrated feed

3.5 manual unloading

removal of the work-piece by the operator directly from the machine outfeed, without any intermediate unloading device to receive and transfer the work-piece from the machine outfeed to the operator

4 List of significant hazards

This clause contains all the 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 events	ISO 12100:2010	Relevant subclause in this document
1	Mechanical hazards related to — machine parts or work-pieces due to		
	a) shape	6.2.2.1, 6.2.2.2, 6.3	6.2 , 6.3 , 6.9 , 6.6 , Annex F
	b) relative location		5.2 , 5.4.4 , 5.9 , 6.9 , 6.6 , 7.5
	c) mass and stability (potential energy of elements which can move under the effect of gravity)		5.15
	d) mass and velocity (kinetic energy of elements in controlled or uncontrolled motion)		5.13 , 5.9 , 6.9 , 6.10
	e) mechanical strength — accumulation of energy inside the machinery by		6.2 , 6.9
	f) liquids and gases under pressure	6.2.10, 6.3.5.4	6.9 , 7.8 , 7.9
1.1	Crushing hazard		6.10 , 6.6
1.2	Shearing hazard		6.10 , 6.7
1.3	Cutting or severing hazard		6.3 , 6.4 , 6.9 , 6.10 , 6.6
1.4	Entanglement hazard		6.10 , 6.6
1.5	Drawing-in or trapping hazard		6.10 , 6.6
1.6	Impact hazard		6.2 , 6.9
1.7	Stabbing and puncture hazard		6.2 , 6.10
1.9	High pressure fluid injection or ejection hazard	6.2.10	6.10 , 7.8 , 7.9
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
2.4	Electrostatic phenomena	6.2.9	7.11
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.		8.3
6	Hazards generated by radiation		
6.5	Lasers		7.10
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 related to		
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	5.2 , 7.5
8.4	Local lighting	6.2.8	8.3
8.5	Mental overload and underload, stress	6.2.8	8.3

Table 1 (continued)

No.	Hazards, hazardous situations and events	ISO 12100:2010	Relevant subclause in this document
8.6	Human error, human behaviour	6.2.8, 6.2.11.8, 6.2.11.10, 6.3.5.2, 6.4	5.1 , 7.5 , 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	5.10 , 7.7 , 7.8
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
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	5.2 , 5.4.2 , 5.4.4
12	Variations in the rotational speed of tools	6.2.2.2, 6.2.3	5.13
13	Failure of the power supply	6.2.11.1, 6.2.11.4	5.9
14	Failure of the control circuit	6.2.11, 6.3.5.4	5.10
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 , Annex F
18	Loss of stability/overturning of machinery	6.3.2.6	6.1

5 Safety requirements and measures for controls

5.1 Safety and reliability of control systems

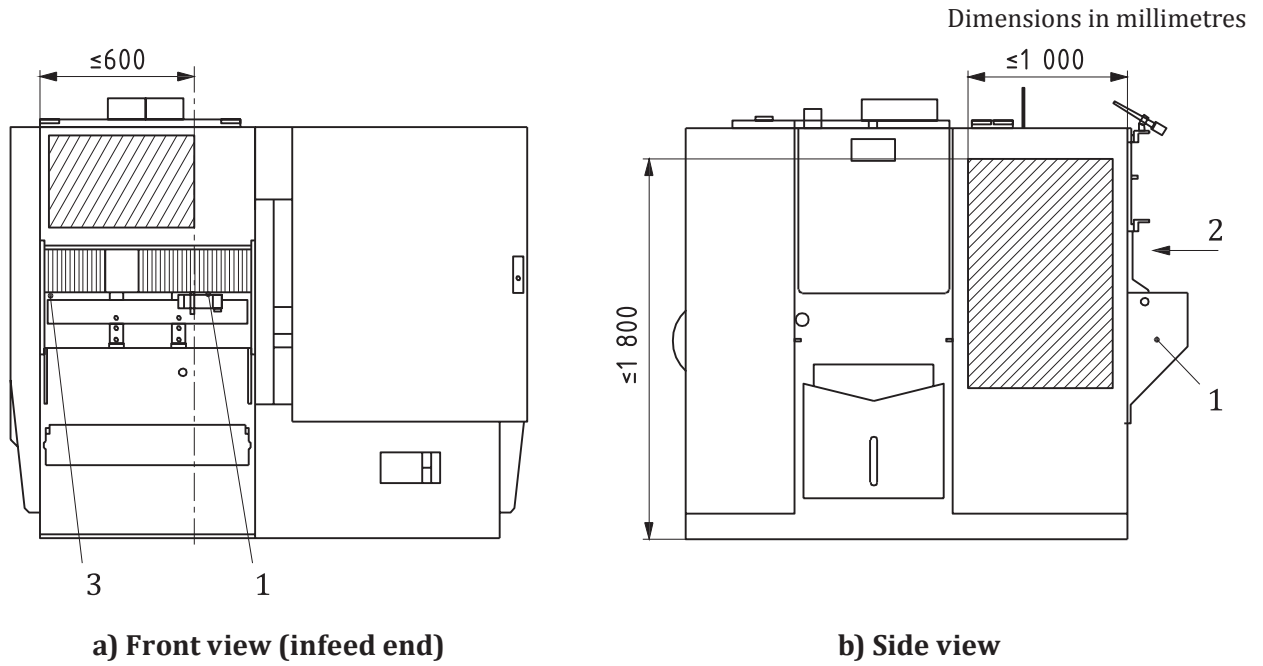
ISO 19085-1:2017, 5.1, applies.

5.2 Control devices

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

Hand operated control devices for start and stop of the drives for the saw spindles, for the feed and for the height adjustment of the upper roller support shall be positioned in one or more of the shaded areas shown in [Figure 3](#) or on a moveable control panel at the loading position.

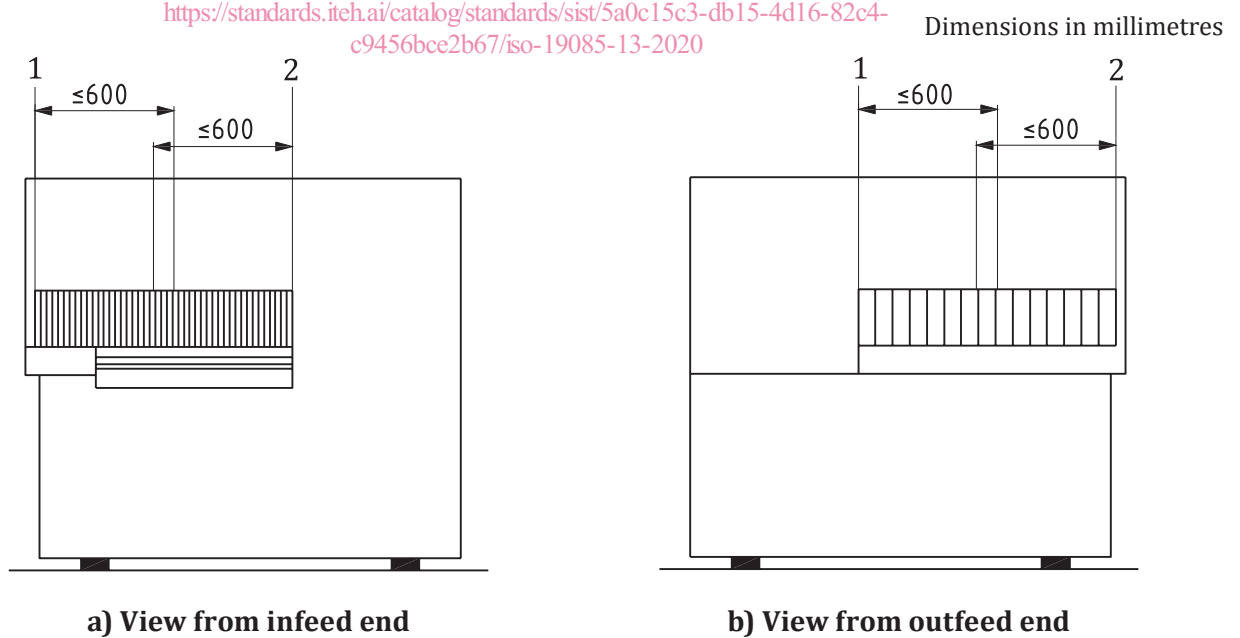
Emergency stop control devices shall be positioned at the infeed end and, on machines with manual unloading, at the outfeed end of the machine, not more than 600 mm from the opening edges (see [Figure 4](#)), and in addition on any moveable control panel.



Key

- 1 infeed table
- 2 feed direction
- 3 left side of the infeed opening

Figure 3 — Position of control devices except emergency stop
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Key

- 1 left edge of infeed/outfeed opening
- 2 right edge of infeed/outfeed opening

Figure 4 — Position of emergency stop control devices