International Standard

ISO 19085-21

First edition
2026-11

Woodworking machines — Safety —

Part 21: Double blade circular sawing machines for cross-cutting with integrated feed

Machines à bois — Sécurité —

Partie 21: Machines à scier à deux lames de scie circulaires pour tronçonnage avec avance mécanisée

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Reference number
ISO 19085-21:2026(en)

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Published in Switzerland

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Contents

Page

Foreword ..... **v**
Introduction ..... **vi**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **2**
4 Safety requirements and measures for controls **5**
4.1 Safety and reliability of control systems 5
4.2 Control devices 5
4.3 Start 6
4.3.1 Direct start 6
4.3.2 Start via control power-on 6
4.3.3 Cutting stroke 6
4.4 Safe stops 6
4.4.1 General 6
4.4.2 Normal stop 7
4.4.3 Operational stop 7
4.4.4 Emergency stop 7
4.5 Braking function of tools 7
4.6 Mode selection 7
4.7 Tool speed changing 7
4.7.1 Speed changing by shifting the belts on the pulleys 7
4.7.2 Speed changing by incremental speed change motor 7
4.7.3 Infinitely variable speed by frequency inverter 7
4.8 Failure of any power supply 8
4.9 Manual reset control 8
4.10 Standstill detection and monitoring 8
4.11 Machine moving parts speed monitoring 8
4.12 Time delay 8
4.13 Teleservice 8
4.14 Power-operated adjustments 8
4.14.1 Semiautomatic machines and automatic machines operating as semiautomatic machines 8
4.14.2 Automatic machines 9
5 Safety requirements and measures for protection against mechanical hazards **9**
5.1 Stability 9
5.2 Risk of break-up during operation 10
5.3 Tool and tool fixing design 10
5.3.1 General 10
5.3.2 Spindle locking 10
5.3.3 Circular saw blade fixing device 10
5.3.4 Flange dimension for circular saw blades 10
5.4 Braking 10
5.4.1 Braking of tools 10
5.4.2 Maximum run-down time 10
5.4.3 Brake release 11
5.5 Safeguards 11
5.5.1 Fixed guards 11
5.5.2 Interlocking moveable guards 11
5.5.3 Hold-to-run control 11
5.5.4 Two-hand control 11
5.5.5 Electro-sensitive protective equipment (ESPE) 11
5.5.6 Pressure sensitive protective equipment (PSPE) 12
5.5.7 Enabling control 12

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5.6 Prevention of access to hazardous moving parts ... 12
5.6.1 Safeguarding of the saw blades in the rest position on downwards-cutting machines ... 12
5.6.2 Safeguarding of the saw blades in the rest position on horizontal and upward cutting machines ... 15
5.6.3 Safeguarding of the saw blade during the cutting stroke on manual and semi-automatic machines ... 16
5.6.4 Safeguarding of automatic machines ... 16
5.7 Impact hazard ... 17
5.8 Clamping devices ... 17
5.9 Measures against ejection ... 17
5.9.1 General ... 17
5.9.2 Guards materials and characteristics ... 17
5.10 Workpiece supports and guides ... 18
5.10.1 Workpiece supports ... 18
5.10.2 Workpiece guides ... 19

6 Safety requirements and measures for protection against other hazards ... 19
6.1 Fire ... 19
6.2 Noise ... 19
6.2.1 Noise reduction at the design stage ... 19
6.2.2 Noise emission measurement and declaration ... 19
6.3 Emission of chips and dust ... 19
6.4 Electricity ... 19
6.5 Ergonomics and handling ... 19
6.6 Lighting ... 19
6.7 Pneumatics ... 19
6.8 Hydraulics ... 19
6.9 Electromagnetic compatibility ... 20
6.10 Laser ... 20
6.11 Static electricity ... 20
6.12 Errors of fitting ... 20
6.13 Isolation ... 20
6.14 Maintenance ... 20
6.15 Relevant but not significant hazards ... 20

7 Information for use ... 20
7.1 Warning devices ... 20
7.2 Marking ... 20
7.2.1 General ... 20
7.2.2 Additional markings ... 20
7.3 Instruction handbook ... 21
7.3.1 General ... 21
7.3.2 Additional information ... 21

Annex A (informative) **List of significant hazards ... 23**

Annex B (informative) **Performance levels required ... 25**

Annex C (informative) **Stability test ... 27**

Annex D (normative) **Test for braking function ... 28**

Annex E (normative) **Impact test for guards ... 29**

Annex F (normative) **Noise test code ... 30**

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Foreword

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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).

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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.

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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).

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This document is intended to be used in conjunction with ISO 19085-1:2021.

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

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.

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Introduction

The ISO 19085 series provides technical safety requirements for the design and construction of woodworking machinery, as well as for the content of the relevant instruction handbook. The ISO 19085 series is intended for designers, manufacturers, suppliers and importers of the machines specified in the Scope.

This document is a type-C standard as defined 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 (e.g. regulators, accident prevention organisations, market surveillance).

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, for example, 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 in the drafting process of this document.

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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 the ISO 19085 series 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 the ISO 19085 series.

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

All parts of the ISO 19085 series have the same structure, so that reference to ISO 19085-1 is made always and only from and to the same subclause number, last indent.

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

For Clauses 4 to 7 and the annexes, each subclause in ISO 19085-1, is cited as:

— 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 21: Double blade circular sawing machines for cross-cutting with integrated feed

1 Scope

This document specifies the safety requirements and measures for double blade circular sawing machines for cross-cutting with integrated feed of the cutting-stroke, with manual loading or unloading of the workpiece or both and capable of continuous production use, hereinafter referred to also as “machines”.

The machines are designed to cut solid wood and materials with similar physical characteristics to wood, and:

— aluminium profiles also filled or composed with plastic, or foam or rubber based insulating materials;

— composite materials, with core consisting of, for example, polyurethane or mineral material, laminated with light alloy;

— polymer-matrix composite materials and reinforced with thermoplastic, or thermoset or elastomeric materials;

— fibreglass;

— composite bars made from the materials listed above.

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This document deals with all significant hazards, hazardous situations or hazardous events, listed in Annex A, relevant to the machine, when it is used as intended and under conditions of misuse which are reasonably foreseeable.

This document is also applicable to the other life cycle phases of the machines: transport, assembly, adjustment, maintenance, dismantling and scrapping.

This document does not deal with specific hazards related to mechanized loading and material buffer.

This document is not applicable to:

a) machines for cross-cutting logs;

b) machines intended for use in potentially explosive atmosphere;

c) machines manufactured prior to the publication of this document.

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

2024, *Safety of machinery — Positioning of safeguards with respect to the approach speeds of parts of the* ISO 13855, *human body*

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

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

3 Terms and definitions

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

ISO and IEC maintain terminology 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
double blade circular sawing machine for cross-cutting with integrated feed
machine fitted with two saw heads, each with one saw unit, for cross-cutting with power-operated *cutting stroke* (3.5), where the workpiece is stationary during cutting

Note 1 to entry: One or both saw heads (see Figure 1 Key 1 and 2) can be manually or power-operated moveable for horizontal positioning of themselves and of the workpiece for cutting to pre-selected length.

Note 2 to entry: The saw units (see Figure 1 Key 3) can have manual or power-operated *tilting* (3.4) or *pivoting* (3.3) or both.

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3.2
workpiece positioning
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movements for placing the workpiece to the intended position for cross cutting to the desired length, performed by one or both movable saw heads together with the clamping system mounted on one of them

3.3
pivoting
<saw unit> rotation of the saw unit around a vertical axis

3.4
tilting
<saw unit> rotation of the saw unit around a horizontal axis

3.5
cutting stroke
feed movement of the saw unit incorporating the tool to perform the cut immediately followed by the return of the saw unit to its *rest position* (3.10)

Note 1 to entry: The cutting stroke can be downward, horizontal or upward. See Figure 1 a) for a *manual machine* (3.7) with downward cutting stroke, where only the saw unit feed for the cutting stroke is power-operated, Figure 1 b) for a fully power-operated machine with horizontal cutting stroke, and Figure 1 c) for a fully power-operated machine with upward cutting stroke.

3.6
cutting cycle
<automatic machine> automatic sequence of *workpiece positioning* (3.2), *pivoting* (3.3) and *tilting* (3.4) to pre-selected angles and *cutting stroke* (3.5)

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3.7
manual machine
double blade circular sawing machine for cross-cutting with integrated feed (3.1) where the saw heads are positioned manually for cross cutting the workpiece to the desired length

3.8
semi-automatic machine
double blade circular sawing machine for cross-cutting with integrated feed (3.1) with manual control of power operated *workpiece positioning* (3.2), followed by a manually controlled *cutting stroke* (3.5)

3.9
automatic machine
double blade circular sawing machine for cross-cutting with integrated feed (3.1) with automatic power operated *workpiece positioning* (3.2), followed by the rest of the *cutting cycle* (3.6)

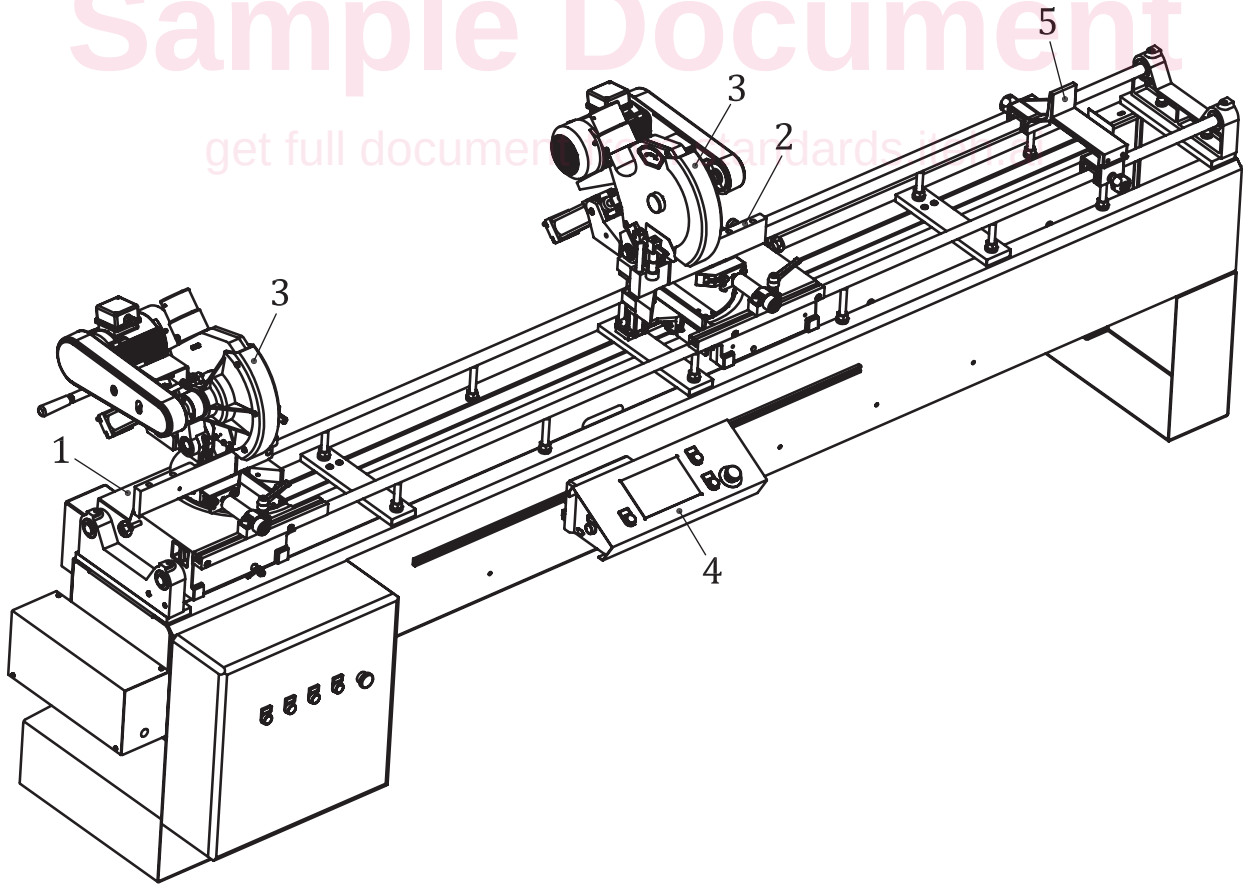
Note 1 to entry: More cutting cycles can be repeated automatically if pre-selected.

EXAMPLE An example of an automatic machine is shown in Figure 1 d).

3.10
rest position
<saw unit> position where the saw blade is fully inside the guarding and from which the saw unit starts the *cutting stroke* (3.5) and to which it returns at the end of each cutting stroke

3.11
initiation control
control which after actuation enables providing power to specific machine actuators (e.g. by a programmable logic control)

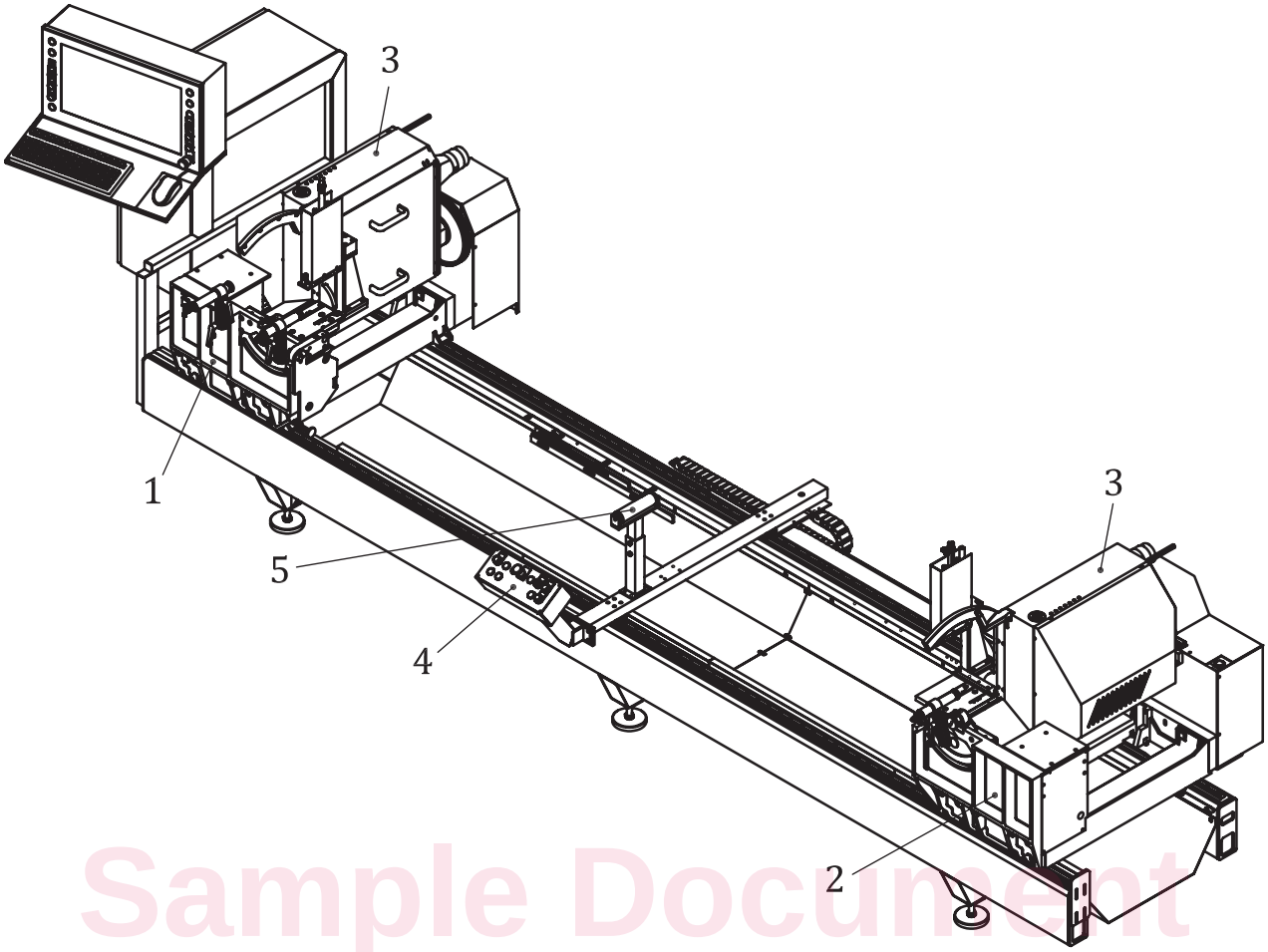
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a) Manual machine with downward cutting stroke and manually moveable saw head

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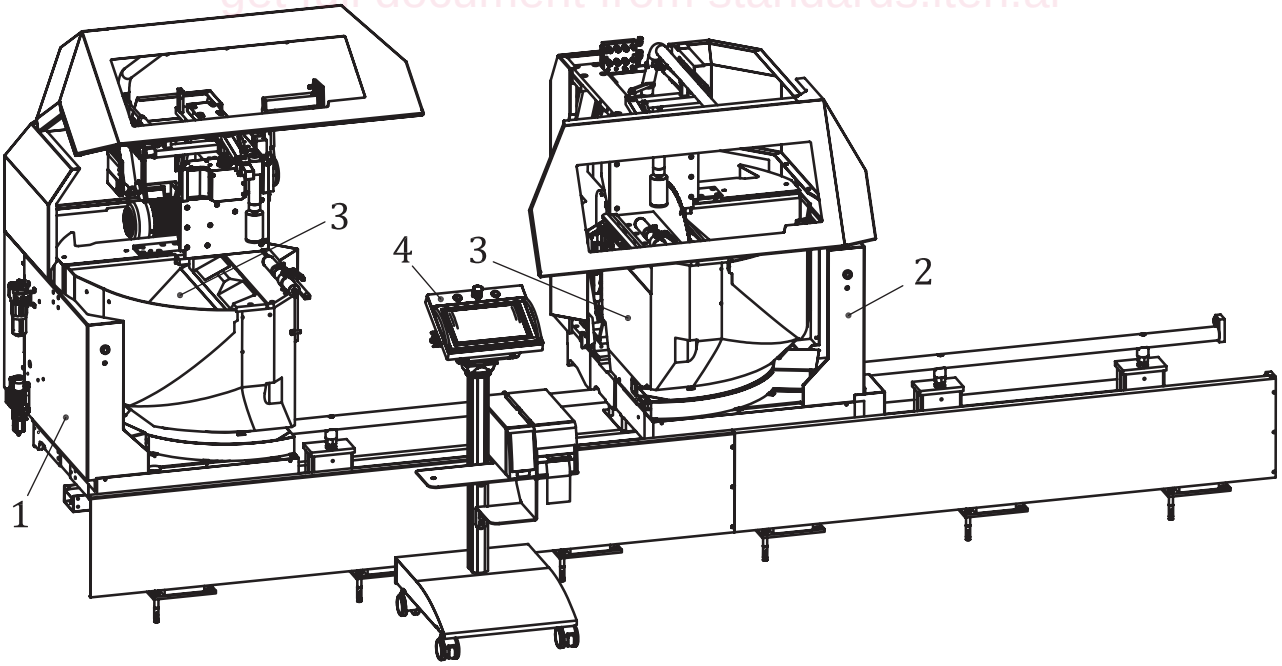
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b) Semi-automatic machine with horizontal cutting stroke and power-operated moveable saw head

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c) Semi-automatic machine with upward cutting stroke and power-operated moveable saw head

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