SLOVENSKI STANDARD
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Lesnoobdelovalni stroji - Varnost - 3. del: Numerično krmiljeni (NC/CNC) vrtalni in rezkalni stroji (ISO/DIS 19085-3:2026)

Woodworking machines - Safety - Part 3: Numerically controlled (NC/CNC) boring and routing machines (ISO/DIS 19085-3:2026)

Holzbearbeitungsmaschinen - Sicherheit - Teil 3: Numerisch gesteuerte (NC-/CNC-) Bohr- und Fräsmaschinen (ISO/DIS 19085-3:2026)

Machines à bois - Sécurité - Partie 3: Perceuses et défonceuses à Commande Numérique (CN/CNC) (ISO/DIS 19085-3:2026)

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13.110	Varnost strojev	Safety of machinery
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79.120.10	Lesnoobdelovalni stroji	Woodworking machines

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DRAFT International Standard

ISO/DIS 19085-3

Woodworking machines — Safety —

Part 3: Numerically controlled (NC/CNC) boring and routing machines

Machines à bois — Sécurité —

Partie 3: Perceuses et défonceuses à Commande Numérique (CN/CNC)

ICS: 79.120.10; 13.110

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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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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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.

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).

This document is intended to be used in conjunction with ISO 19085-1:2026.

This third edition cancels and replaces the second edition (ISO 19085-3:2021), which has been technically revised. The main changes are as follows:

— the way of reference from this document to ISO 19085-1:2026 has been simplified, as well as its explanation in Introduction, and aligned to ISO drafting rules;

— the verification methods at the end of each subclause have been deleted, since self-evident;

— other materials for profiles and plates have been added in the Scope;

— 4.2, 4.6, 7.2, 7.3 have been rearranged, to follow the new subdivision in ISO 19085-1:2026;

— 4.7.3, 5.10 have been subdivided, to follow the new subdivision in ISO 19085-1:2026;

— 5.4, 5.9 have been simplified in structure, for easier reading;

— requirements for boring bits change have been added in 4.6.3 and 4.6.5;

— requirements for parts that can fall due to gravity have been added to 4.8;

— requirements for machines with rotary table have been added in 5.6.3.13 and relevant example in Figure G.17;

— requirements against ejection for machines with siliding tables stationary inside enclosure during working and for machines with rotary table have been added in 5.9.1;

— new Figure G.4 of machines with siliding tables stationary inside enclosure during working has been added, and reference to it in 5.6.3.2.

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.

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. It concerns designers, manufacturers, suppliers and importers of the machines specified in the Scope.

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.

In this document, a subclause can refer to the same subclause of ISO DIS 19085-1:2026 or give specific requirements or both.

Woodworking machines — Safety —

Part 3: Numerically controlled (NC/CNC) boring and routing machines

1 Scope

This document gives the safety requirements and measures for numerically controlled (NC/CNC) boring machines, NC/CNC routing machines and NC/CNC boring and routing machines (as defined in 3.2, 3.3 and 3.4), capable of continuous production use, altogether referred to as "machines".

This document deals with all significant hazards, hazardous situations or hazardous events, listed in Annex A, relevant to the machines when used as intended and under conditions of misuse which are reasonably foreseeable. Also, transport, assembly, adjustment, maintenance, dismantling, disabling and scrapping phases have been taken into account.

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

— additional working units for sawing, sanding, assembling or dowel inserting;

— fixed or movable workpiece support;

— mechanical, pneumatic, hydraulic or vacuum workpiece clamping;

— automatic tool change devices.

It is also applicable to machines fitted with edge-banding equipment, even if the specific hazards of the edge-banding equipment have not been dealt with.

NOTE For the risk assessment needed for the edge-banding equipment, ISO 19085-17 [1] can be useful.

Machines covered in this document are designed for workpieces consisting of:

— solid wood;

— material with similar physical characteristics to wood (see ISO 19085-1:2026, 3.2);

— gypsum boards, gypsum bounded fibreboards, cardboard;

— matrix engineered mineral boards, silicate boards;

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

— polymer-matrix composite materials and reinforced thermoplastic/thermoset/elastomeric materials;

— aluminium light alloy, brass, bronze and copper profiles;

— aluminium light alloy, brass, bronze, copper and lead plates with a maximum thickness of 10 mm;

— composite boards made from the materials listed above.

This document does not deal with specific hazards related to:

— use of grinding wheels;

— ejection through openings guarded by curtains on machines where the height of the opening in the enclosure above the workpiece support exceeds 700 mm;

— ejection due to failure of milling tools with a cutting circle diameter equal to or greater than 16 mm and sawing tools not conforming to EN 847-1:2017 and EN 847-2:2017;

— the combination of a single machine being used with other machines (as a part of a line);

— integrated workpiece loading/unloading systems (e.g. robots).

This document is not applicable to:

— machines intended for use in potentially explosive atmosphere;

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

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

EN 847-2:2017, *Tools for woodworking — Safety requirements — Part 2: Requirements for the shank of shank mounted milling tools /circular saw blades*

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

IEC 61496-2:2013, *Safety of machinery — Electro-sensitive protective equipment — Part 2: Particular requirements for equipment using active opto-electronic protective devices (AOPDs)*

IEC 61496-3:2018, *Safety of machinery – Electro-sensitive protective equipment – Part 3: Particular requirements for Active Opto-electronic Protective Devices responsive to Diffuse Reflection (AOPDDR)*

ISO 2602:1980, *Statistical interpretation of test results — Estimation of the mean — Confidence interval*

ISO 4413:2010, *Hydraulic fluid power — General rules and safety requirements for systems and their components*

ISO 4414:2010, *Pneumatic fluid power — General rules and safety requirements for systems and their components*

ISO 13849-1:2023, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

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 19085-1:2026, *Woodworking machines — Safety — Part 1: Common requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100:2010, ISO 13849-1:2023, ISO DIS 19085-1:2026 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
numerical control
NC
CNC
automatic control of a process by a device that makes use of numerical data

Note 1 to entry: In the CNC ("computerized numerical control"), the numerical data can be changed with a computer.

3.2
numerically controlled boring and routing machine
NC/CNC boring and routing machine
integrated fed machine designed for the machining of workpieces by the use of milling tools and boring tools having at least two orthogonal axes programmable by the user (e.g. X, Y) for positioning or machining or both, where the axes operate in accordance with an NC/CNC work programme

Note 1 to entry: Examples of different machine designs covered by this document are illustrated, without safeguarding devices, in Figure 1 to Figure 7.

3.3
numerically controlled boring machine
NC/CNC boring machine
integrated fed machine designed for the machining of workpieces by the use of boring tools having at least two orthogonal axes programmable by the user (e.g. X, Y) for positioning or machining or both, where the axes operate in accordance with an NC/CNC work programme

3.4
numerically controlled routing machine
NC/CNC routing machine
integrated fed machine designed for the machining of workpieces by the use of milling tools having at least two orthogonal axes programmable by the user (e.g. X, Y) for positioning or machining or both, where the axes operate in accordance with an NC/CNC work programme

3.5
loading/unloading zone
area close to the machine accessible to the operator for workpiece loading or unloading or both

3.6
machine setting mode
MODE 2
condition with safeguards disabled for setting, programming, fault finding, program verification, testing and manually controlled non-sequential operation of the machine

3.7
clamping device manual positioning mode
MODE 3
condition with safeguards disabled for manual positioning of clamping devices with laser indication

3.8
boring units positioning mode
MODE 4
condition with safeguards disabled for manual change of boring bits on boring machines only

3.9
jog control
control device for momentary activation of a function or a movement

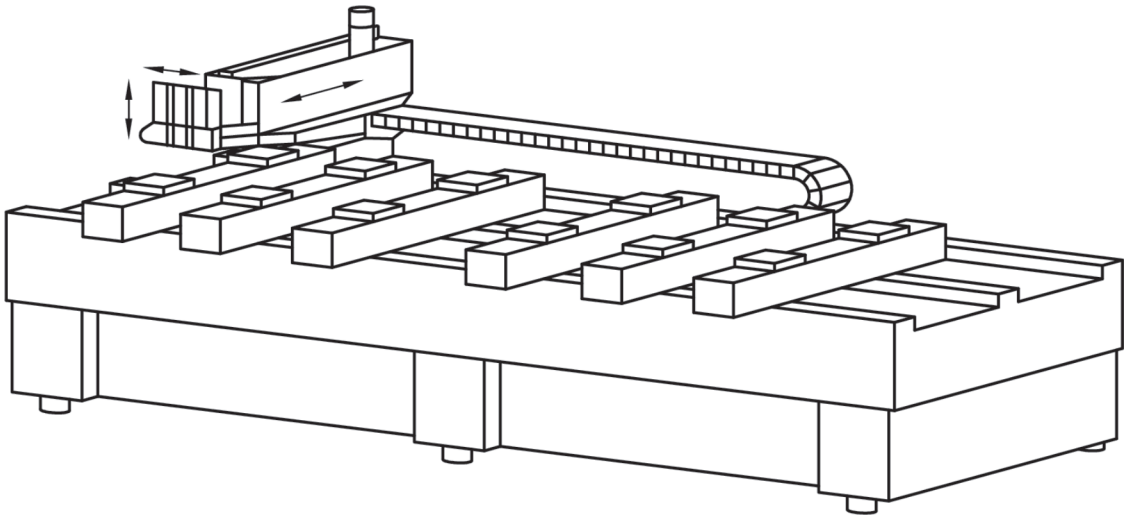

Figure 1 — Example of a C frame machine with fixed table and moving machining head

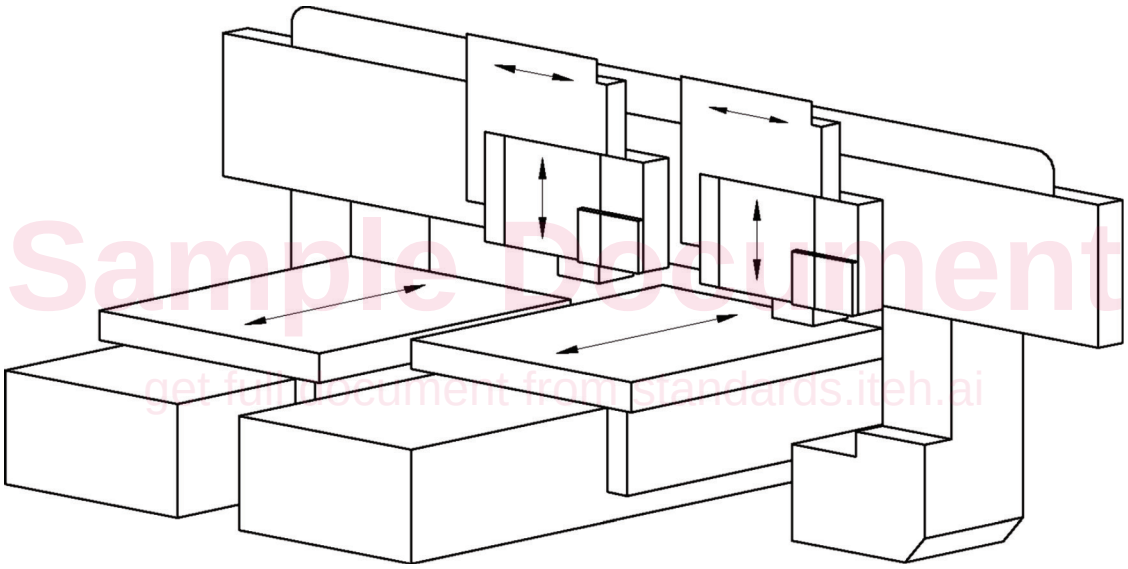

Figure 2 — Example of portal frame machine with moving tables, fixed portal, moving machining heads

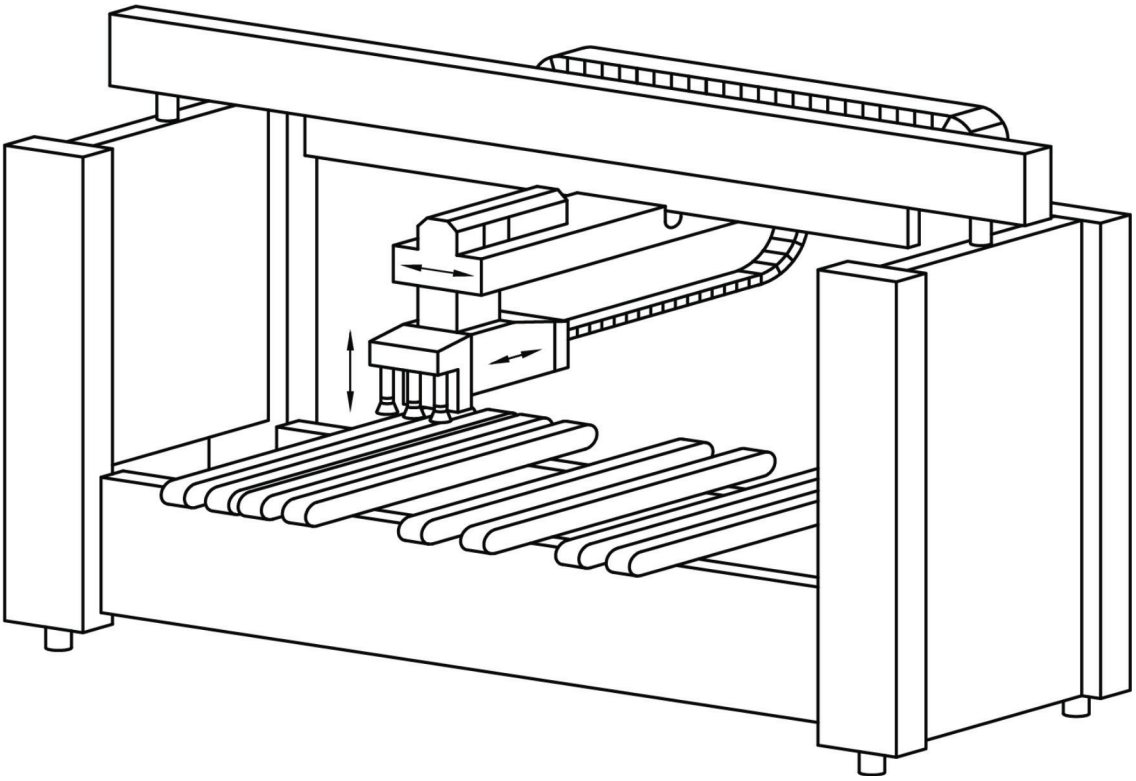

Figure 3 — Example of portal frame machine with fixed portal, feeding belts, moving machining head

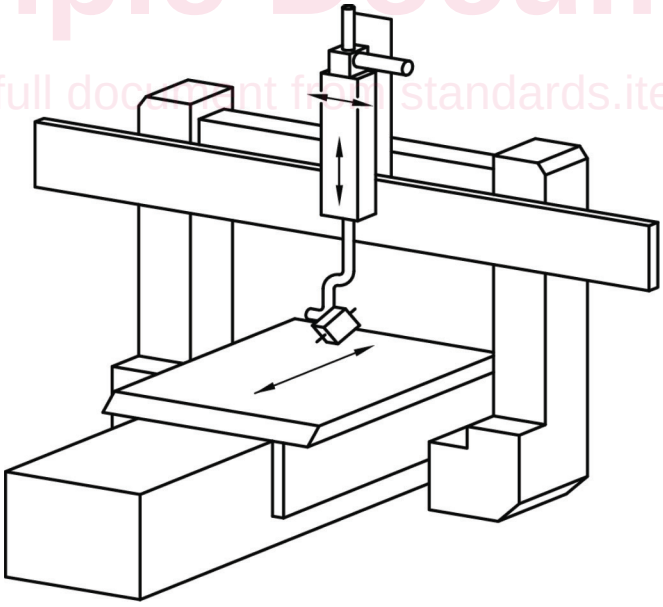

Figure 4 — Example of a machine with moving table, fixed portal, moving machining head