

STN	Drevárske stroje Bezpečnosť Časť 11: Kombinované stroje (ISO 19085-11: 2020)	STN EN ISO 19085-11 49 6115
------------	---	---

Woodworking machines - Safety - Part 11: Combined machines (ISO 19085-11:2020)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 09/20

Obsahuje: EN ISO 19085-11:2020, ISO 19085-11:2020

Oznámením tejto normy sa ruší
STN EN 940+A1 (49 6129) zo septembra 2012

130974

EUROPEAN STANDARD

EN ISO 19085-11

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2020

ICS 13.110; 79.120.10

Supersedes EN 940:2009+A1:2012

English Version

**Woodworking machines - Safety - Part 11: Combined
machines (ISO 19085-11:2020)**Machines à bois - Sécurité - Partie 11: Machines
combinées (ISO 19085-11:2020)Holzbearbeitungsmaschinen - Sicherheit - Teil 11:
Kombinierte Maschinen (ISO 19085-11:2020)

This European Standard was approved by CEN on 17 November 2019.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

EN ISO 19085-11:2020 (E)

Contents	Page
European foreword.....	3
Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered	4

European foreword

This document (EN ISO 19085-11:2020) has been prepared by Technical Committee ISO/TC 39 "Machine tools" in collaboration with Technical Committee CEN/TC 142 "Woodworking machines - Safety" the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2020, and conflicting national standards shall be withdrawn at the latest by October 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 940:2009+A1:2012.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZA, which is an integral part of this document.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 19085-11:2020 has been approved by CEN as EN ISO 19085-11:2020 without any modification.

Annex ZA (informative)

Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered

This European standard has been prepared under a Commission's standardisation request "M/396" to provide one voluntary means of conforming to essential requirements of the new approach Machinery Directive 2006/42.

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Directive 2006/42/EC

Essential Requirements (ERs) of Directive 2006/42/EC	Clause(s)/subclause(s) of this EN	Remarks/Notes
1.1.2 Principles of safety integration		
a) fitted for its function	Clause 5, 6, 7, 8	
b) eliminate or reduce the risks, give measures, inform	Clause 5, 6, 7, 8	
c) intended use and reasonably foreseeable misuse	Clause 5, 6, 7, 8	
d) constraints in use	7.5, 8.3	
e) equipment	6.1, 8.3	
1.1.3 Materials and products	6.2, 7.3	
1.1.4 Lighting	8.3	
1.1.5 Design of machinery to facilitate its handling	7.5	
1.1.6 Ergonomics	7.5	
1.2.1 Safety and reliability of control systems	5.1, 5.6, 5.7, 5.8, 5.10, 5.11, 5.12, 5.13, 6.5, 6.6, 7.7, 7.8	
1.2.2 Control devices	5.2, 5.3, 5.4, 5.6, 5.7	
1.2.3 Starting	5.3	
1.2.4 Stopping	5.2, 5.5, 6.4	
1.2.4.1 Normal stop	5.4.2	
1.2.4.3 Emergency stop	5.4.4	
1.2.5 Selection of control or operating mode	5.6	
1.2.6 Failure of the power supply	5.8, 7.7, 7.8	

1.3.1 Risk of loss of stability	6.1, 8.3	
1.3.2 Risk of break-up during operation	6.2, 8.3	
1.3.3 Risks due to falling or ejected objects	6.2, 6.3, 6.5, 6.8, 6.9, 8.3	
1.3.4 Risk due to surfaces, edges or angles		Not significant
1.3.5 Risks related to combined machinery	5.3, 6.12, 6.6.2	
1.3.6 Risks relating to variations in the operating conditions	5.7, 6.6	
1.3.7 Risks related to moving parts	6.5, 6.6, 6.7, 8.3	
1.3.8 Choice of protection against risks related to moving parts	6.6, 6.7, 6.8	
1.3.8.1 Moving transmission parts	6.6.3, 6.6.4, 6.7	
1.3.8.2 Moving parts involved in the process	6.6.2	
1.3.9 Risk of uncontrolled movements	6.1.1	
1.4.1 General requirements	6.9	
1.4.2.1 Fixed guards	6.5.1	
1.4.2.2 Interlocking movable guards	6.5.2	
1.4.2.3 Adjustable guards restricting access	6.6.2	
1.4.3 Special requirements for protective devices	6.5.3, 6.5.4, 6.5.6	
1.5.1 Electricity supply	7.4, 7.13	
1.5.2 Static electricity	7.11	
1.5.3 Energy supply other than electricity	7.7, 7.8	
1.5.4 Errors of fitting	7.12	
1.5.6 Fire	7.1	
1.5.8 Noise	7.2	
1.5.11 External radiation	7.9	
1.5.12 Laser equipment	7.10	
1.5.13 Emission of hazardous materials and substances	7.3	
1.6.1 Machinery maintenance	7.14, 8.3	
1.6.2 Access to operating position and servicing points	7.14, 8.3	
1.6.3 Isolation of energy sources	7.13, 8.3	
1.6.4 Operator intervention	7.14, 8.3	
1.6.5 Cleaning of internal parts	7.14, 8.3	
1.7.1 Information and warnings on the machinery	7.10, 8.1, 8.2	

EN ISO 19085-11:2020 (E)

1.7.2 Warning devices	7.10, 8.1	
1.7.3 Marking of machinery	8.2	
1.7.4 Instructions	7.10, 8.3	
2.3 Machinery for working wood and analogous materials		
a) guiding	6.10, 6.11, 6.12, 6.13	
b) ejection	6.2, 6.3, 6.5, 6.6, 6.9, 8.3	
c) brake	5.5, 6.4	
d) accidental tool contact	6.6.2, 8.3	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

**INTERNATIONAL
STANDARD**

**ISO
19085-11**

First edition
2020-03

**Woodworking machines — Safety —
Part 11:
Combined machines**

Machines à bois — Sécurité —

Partie 11: Machines combinées



Reference number
ISO 19085-11:2020(E)

© ISO 2020

ISO 19085-11:2020(E)**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2020

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
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 List of significant hazards	5
5 Safety requirements and measures for controls	7
5.1 Safety and reliability of control systems.....	7
5.2 Control devices.....	7
5.3 Start.....	7
5.4 Safe stops.....	8
5.4.1 General.....	8
5.4.2 Normal stop.....	8
5.4.3 Operational stop.....	8
5.4.4 Emergency stop.....	8
5.5 Braking function of tool spindles.....	8
5.6 Mode selection.....	9
5.7 Spindle speed changing.....	9
5.7.1 Spindle speed changing by changing belts on the pulleys.....	9
5.7.2 Spindle speed changing by incremental speed change motor.....	9
5.7.3 Infinitely variable speed by frequency inverter.....	9
5.7.4 Spindle speed limiting device for tenoning.....	9
5.7.5 Changing of the direction of spindle rotation.....	9
5.8 Failure of any power supply.....	9
5.9 Manual reset control.....	9
5.10 Enabling control.....	10
5.11 Machine moving parts speed monitoring.....	10
5.12 Time delay.....	10
5.13 Power-operated adjustments.....	10
6 Safety requirements and measures for protection against mechanical hazards	10
6.1 Stability.....	10
6.1.1 Stationary machines.....	10
6.1.2 Displaceable machines.....	10
6.2 Risk of break-up during operation.....	10
6.3 Tool holder and tool design.....	11
6.3.1 General.....	11
6.3.2 Spindle locking.....	11
6.3.3 Circular saw blade fixing device.....	11
6.3.4 Flange dimensions for circular saw blades.....	11
6.3.5 Arbor rings/fixing device for milling tools.....	11
6.3.6 Quick tool/arbor change system.....	11
6.3.7 Manual adjustment of arbor height.....	11
6.3.8 Manual adjustment of arbor inclination.....	12
6.4 Braking.....	12
6.4.1 Braking of tool spindles.....	12
6.4.2 Maximum run-down time.....	12
6.4.3 Brake release.....	12
6.5 Safeguards.....	12
6.5.1 Fixed guards.....	12
6.5.2 Interlocking movable guards.....	12
6.5.3 Hold-to-run control.....	12
6.5.4 Two hand control.....	12

ISO 19085-11:2020(E)

6.5.5	Electro-sensitive protection equipment (ESPE)	13
6.5.6	Pressure sensitive protection equipment (PSPE)	13
6.6	Prevention of access to moving parts	13
6.6.1	General	13
6.6.2	Guarding of tools	13
6.6.3	Guarding of drives	13
6.6.4	Guarding of shearing and/or crushing zones	13
6.7	Impact hazard	14
6.8	Clamping devices	14
6.9	Measures against ejection	14
6.9.1	General	14
6.9.2	Guards material and characteristics	14
6.9.3	Anti-kickback devices	14
6.10	Workpiece supports and guides	14
6.11	Safety appliances	15
6.12	Elements not in use	15
6.13	Adjustments in tenoning-sawing mode	15
7	Safety requirements and measures for protection against other hazards	16
7.1	Fire	16
7.2	Noise	16
7.2.1	Noise reduction at the design stage	16
7.2.2	Noise emission measurement	16
7.3	Emission of chips and dust	16
7.4	Electricity	16
7.4.1	General	16
7.4.2	Displaceable machines	16
7.5	Ergonomics and handling	16
7.6	Lighting	17
7.7	Pneumatics	17
7.8	Hydraulics	17
7.9	Electromagnetic compatibility	17
7.10	Laser	17
7.11	Static electricity	17
7.12	Errors of fitting	17
7.13	Isolation	17
7.14	Maintenance	17
8	Information for use	17
8.1	Warning devices	17
8.2	Markings	18
8.2.1	General	18
8.2.2	Additional markings	18
8.3	Instruction handbook	18
8.3.1	General	18
8.3.2	Additional information	18
	Annex A (informative) Performance level required	19
	Annex B (normative) Test for braking function	20
	Annex C (normative) Stability test for displaceable machines	21
	Annex D (normative) Impact test for guards	22
	Annex E (normative) Noise emission measurement for machines not in ISO 7960:1995	23
	Annex F (normative) Table dimensions	24
	Annex G (informative) Example noise declaration	26
	Bibliography	27

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*.

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 and with ISO 19085-5:2017, ISO 19085-6:2017, ISO 19085-7:2019 and ISO 19085-9:2019, which give requirements specific for the integrated working units.

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

ISO 19085-11:2020(E)

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 this document, safety requirements are referenced to the relevant sections of ISO 19085-1:2017, ISO 19085-5:2017, ISO 19085-6:2017, ISO 19085-7:2019 and ISO 19085-9:2019 to avoid repetition and reduce their length.

Specific subclauses and annexes in this document without correspondent in ISO 19085-1, ISO 19085-5, ISO 19085-6, ISO 19085-7 or ISO 19085-9 are indicated by the introductory sentence: "Subclause (or annex) specific to this document."

[Clauses 1, 2, 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 and EN 847-2:2017.

Woodworking machines — Safety —

Part 11: Combined machines

1 Scope

This document gives the safety requirements and measures for stationary and displaceable combined woodworking machines, having at least two separately usable working units and with manual loading and unloading of the workpiece, hereinafter referred to as “machines”. The integrated working units can be of these types only:

- a sawing unit;
- a moulding unit;
- a planing unit.

The machines are designed to cut solid wood and material with similar physical characteristics to wood.

NOTE 1 For the definitions of stationary and displaceable machines, see ISO 19085-1:2017, 3.4 and 3.5.

This document deals with all significant hazards, hazardous situations and events as listed in [Clause 4](#), relevant to the 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 have been taken into account.

NOTE 2 For relevant but not significant hazards, e.g. sharp edges of the machine frame, see ISO 12100:2010.

This document does apply to machines also equipped with the devices/additional working units listed in the Scopes of ISO 19085-5:2017, ISO 19085-6:2017, ISO 19085-7:2019 and ISO 19085-9:2019.

This document does not apply to:

- a) machines incorporating only a planing unit and a mortising device;

NOTE 3 Such machines are dealt with in ISO 19085-7:2019.

- b) combined machines incorporating a band saw unit;
- c) machines with a mortising unit with a separate drive other than the planing unit drive;
- d) machines intended for use in potentially explosive atmosphere;
- e) 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 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 19085-11:2020(E)

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 19085-5:2017, *Woodworking machines — Safety — Part 5: Dimension saws*

ISO 19085-6:2017, *Woodworking machines — Safety — Part 6: Single spindle vertical moulding machines ("toupies")*

ISO 19085-7:2019, *Woodworking machines — Safety — Part 7: Surface planing, thickness planing, combined surface/thickness planing machines*

ISO 19085-9:2019, *Woodworking machines — Safety — Part 9: Circular saw benches (with and without sliding table)*

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

koniec náhľadu – text ďalej pokračuje v platenej verzii STN