

SLOVENSKI STANDARD

SIST EN ISO 19085-1:2017

01-december-2017

Lesnoobdelovalni stroji - Varnost - 1. del: Splošne zahteve (ISO 19085-1:2017)

Woodworking machines - Safety - Part 1: Common requirements (ISO 19085-1:2017)

Holzbearbeitungsmaschinen - Sicherheit - Teil 1: Gemeinsame Anforderungen (ISO 19085-1:2017)

Machines à bois - Sécurité - Partie 1: Exigences communes (ISO 19085-1:2017)

STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: EN ISO 19085-1:2017

<https://standards.iteh.ai/catalog/standards/sist/0d73a488-c609-4236-a975-85c6827c72dc/sist-en-iso-19085-1-2017>

ICS:

13.110	Varnost strojev	Safety of machinery
79.120.10	Lesnoobdelovalni stroji	Woodworking machines

SIST EN ISO 19085-1:2017

en,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 19085-1:2017

<https://standards.iteh.ai/catalog/standards/sist/0d73a488-c609-4236-a975-85c6827c72dc/sist-en-iso-19085-1-2017>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 19085-1

August 2017

ICS 13.110; 79.120.10

English Version

Woodworking machines - Safety - Part 1: Common requirements (ISO 19085-1:2017)

Machines à bois - Sécurité - Partie 1: Exigences communes (ISO 19085-1:2017)

Holzbearbeitungsmaschinen - Sicherheit - Teil 1: Gemeinsame Anforderungen (ISO 19085-1:2017)

This European Standard was approved by CEN on 12 September 2016.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

<https://standards.iteh.ai/catalog/standards/sist/0d73a488-c609-4236-a975-85c6827c72dc/sist-en-iso-19085-1-2017>



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 19085-1:2017](https://standards.iteh.ai/catalog/standards/sist/0d73a488-c609-4236-a975-85c6827c72dc/sist-en-iso-19085-1-2017)

<https://standards.iteh.ai/catalog/standards/sist/0d73a488-c609-4236-a975-85c6827c72dc/sist-en-iso-19085-1-2017>

European foreword

This document (EN ISO 19085-1:2017) 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 February 2018, and conflicting national standards shall be withdrawn at the latest by February 2018.

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 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 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

SIST EN ISO 19085-1:2017

<https://standards.iteh.ai/catalog/standards/sist/0473e488-c609-4236-a975-85c6827c72dc/sist-en-iso-19085-1-2017>
Endorsement notice

The text of ISO 19085-1:2017 has been approved by CEN as EN ISO 19085-1:2017 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 Mandate to CEN and CENELEC for standardisation in the field of machinery" to provide one voluntary means of conforming to essential requirements of Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery.

Once this standard is cited in the Official Journal of the European Union under that Directive 2006/42/EC, 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 2006/42/EC, and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Article(s) of Directive 2006/42/EC

Essential Requirements of Directive 2006/42/EC	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
	<p style="text-align: center;">iTech STANDARD PREVIEW (standards.itech.ai)</p> <p style="text-align: center;">SIST EN ISO 19085-1:2017 https://standards.itech.ai/catalog/standards/sist/0d73a488-6009-4236-a973-85c6827c72dc/sist-en-iso-19085-1-2017</p>	<p>To confer a presumption of conformity with the relevant essential requirements of Directive 2006/42/EC, this standard (providing common requirements for a whole machine family) has to be applied together with one of those standards as specified in the scope (providing specific requirements for a particular category of machinery within this family), once this standard is cited in the Official Journal of the European Communities under Directive 2006/42/EC.</p>

This part of EN ISO 19085 is intended to be used in conjunction with the other parts of EN ISO 19085, applicable to specific machine types, as stated in the Scope. This means that the requirements of this part alone may not be enough to fulfil the Essential Requirements of the Machinery Directive 2006/42.

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
19085-1**

First edition
2017-07

Woodworking machines — Safety — Part 1: Common requirements

Machines à bois — Sécurité —

Partie 1: Exigences communes

**iTeh STANDARD PREVIEW
(standards.iteh.ai)**

[SIST EN ISO 19085-1:2017](https://standards.iteh.ai/catalog/standards/sist/0d73a488-c609-4236-a975-85c6827c72dc/sist-en-iso-19085-1-2017)

<https://standards.iteh.ai/catalog/standards/sist/0d73a488-c609-4236-a975-85c6827c72dc/sist-en-iso-19085-1-2017>



Reference number
ISO 19085-1:2017(E)

© ISO 2017

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 19085-1:2017

<https://standards.iteh.ai/catalog/standards/sist/0d73a488-c609-4236-a975-85c6827c72dc/sist-en-iso-19085-1-2017>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, 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
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	3
4 List of significant hazards	6
5 Safety requirements and measures for controls	9
5.1 Safety and reliability of control systems	9
5.2 Control devices	10
5.3 Start	10
5.4 Safe stops	11
5.4.1 General	11
5.4.2 Normal stop	11
5.4.3 Operational stop	11
5.4.4 Emergency stop	11
5.5 Braking function of tool spindles	12
5.6 Mode selection	12
5.7 Spindle speed changing	13
5.7.1 Spindle speed changing by changing belts on the pulleys	13
5.7.2 Spindle speed changing by incremental speed change motor	13
5.7.3 Infinitely variable speed by frequency inverter	13
5.8 Failure of any power supply	14
5.9 Manual reset control	14
5.10 Enabling control	14
5.11 Machine moving parts speed monitoring	14
5.12 Time delay	15
6 Safety requirements and measures for protection against mechanical hazards	15
6.1 Stability	15
6.1.1 Stationary machines	15
6.1.2 Displaceable machines	15
6.2 Risk of break-up during operation	15
6.3 Tool holder and tool design	15
6.3.1 General	15
6.3.2 Spindle locking	16
6.3.3 Circular saw blade fixing device	16
6.3.4 Flange dimension for circular saws blades	16
6.4 Braking	16
6.4.1 Braking of tool spindles	16
6.4.2 Maximum run-down time	16
6.4.3 Brake release	17
6.5 Safeguards	17
6.5.1 Fixed guards	17
6.5.2 Interlocking movable guards	17
6.5.3 Hold-to-run control	18
6.5.4 Two-hand control	18
6.5.5 Electro-sensitive protective equipment (ESPE)	18
6.5.6 Pressure-sensitive protective equipment (PSPE)	19
6.6 Prevention of access to moving parts	19
6.6.1 General	19
6.6.2 Guarding of tools	19
6.6.3 Guarding of drives	20
6.6.4 Guarding of shearing and/or crushing zones	20

ISO 19085-1:2017(E)

6.7	Impact hazard	20
6.8	Clamping devices	20
6.9	Measures against ejection	21
6.9.1	General	21
6.9.2	Guards materials and characteristics	21
6.10	Work-piece supports and guides	22
7	Safety requirements and measures for protection against other hazards	22
7.1	Fire	22
7.2	Noise	22
7.2.1	Noise reduction at the design stage	22
7.2.2	Noise emission measurement	22
7.3	Emission of chips and dust	24
7.4	Electricity	24
7.4.1	General	24
7.4.2	Displaceable machines	25
7.5	Ergonomics and handling	25
7.6	Lighting	25
7.7	Pneumatics	26
7.8	Hydraulics	26
7.9	Electromagnetic compatibility	26
7.10	Laser	26
7.11	Static electricity	26
7.12	Errors of fitting	26
7.13	Isolation	26
7.14	Maintenance	27
8	Information for use	27
8.1	Warning devices	27
8.2	Marking	28
8.2.1	General	28
8.2.2	Additional markings	29
8.3	Instruction handbook	29
8.3.1	General	29
8.3.2	Additional information	33
	Annex A (informative) Performance level required	34
	Annex B (normative) Test for braking function	35
	Annex C (normative) Stability test for displaceable machines	37
	Annex D (normative) Impact test for guards	38
	Annex E (normative) Noise emission measurement for machines not in ISO 7960:1995	41
	Bibliography	46

iTeh STANDARD PREVIEW
(standards.iteh.ai)

<https://standards.iteh.ai/catalog/standards/sist/0d73a488-c609-4236-a975-856827c72dc/sist-en-iso-19085-1-2017>

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 on 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 the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 39, *Machine tools*, Subcommittee SC 4, *Woodworking machines*.

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

ISO 19085-1:2017(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 this document, to the extent specified in the Scope of the applicable part of ISO 19085.

For woodworking machines not covered by an applicable part, this document can be used as a guide. However, the designer will then need to perform a full risk assessment according to ISO 12100 and design the means for reducing the risks arising from relevant hazards.

As far as possible, in parts of ISO 19085 other than this document, safety requirements have been treated by way of reference to the relevant sections of this document, to avoid repetition and reduce their length. The other parts contain replacements and additions to the common requirements given in this document.

NOTE Requirements for tools are given in EN 847-1:2013 and EN 847-2:2013.

Woodworking machines — Safety —

Part 1: Common requirements

1 Scope

This document gives the safety requirements and measures to reduce risks related to woodworking machines arising during operation, adjustment, maintenance, transport, assembly, dismantling, disabling and scrapping and which are common to machines used in the woodworking industry. It is applicable to woodworking, stationary and displaceable machines when they are used as intended and under the conditions foreseen by the manufacturer.

NOTE 1 For relevant but not significant hazards, e.g. sharp edges of the machine frame, see ISO 12100:2010.

It is intended to be used in conjunction with the other parts of ISO 19085, applicable to specific machine types.

It is not applicable to machines intended for use in potential explosive atmospheres or to machines manufactured prior to the date of its publication.

NOTE 2 Machines for capturing and extracting dust are covered by EN 12779 and EN 16770.

2 Normative references

[SIST EN ISO 19085-1:2017](https://standards.iteh.ai/catalog/standards/sist/0d73a488-c609-4236-a975-85c6827c72dc/sist-en-iso-19085-1-2017)

<https://standards.iteh.ai/catalog/standards/sist/0d73a488-c609-4236-a975-85c6827c72dc/sist-en-iso-19085-1-2017>

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 3746:2010, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Survey method using an enveloping measurement surface over a reflecting plane*

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 7960:1995, *Airborne noise emitted by machine tools — Operating conditions for woodworking machines*

ISO 9614-1:1993, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 1: Measurement at discrete points*

ISO 9614-2:1996, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 2: Measurement by scanning*

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 19085-1:2017(E)

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 13850:2015, *Safety of machinery — Emergency stop function — Principles for design*

ISO 13851:2002, *Safety of machinery — Two-hand control devices — Functional aspects and design principles*

ISO 13855:2010, *Safety of machinery — Positioning of safeguards with respect to the approach speeds of parts of the human body*

ISO 13856-1:2013, *Safety of machinery — Pressure-sensitive protective devices — Part 1: General principles for design and testing of pressure-sensitive mats and pressure-sensitive floors*

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 14118:2000, *Safety of machinery — Prevention of unexpected start-up*

ISO 14119:2013, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

ISO 14120:2015, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards* <https://standards.iteh.ai/catalog/standards/sist/0d73a488-c609-4236-a975-85c6827c72dc/sist-en-iso-19085-1-2017>

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

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

IEC 60529:2013, *Degrees of protection provided by enclosures (IP Code)*

IEC 60825-1:2014, *Safety of laser products — Part 1: Equipment classification and requirements*

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

IEC 61439-1:2011, *Low-voltage switchgear and controlgear assemblies — Part 1: General rules*

IEC 61496-1:2012, *Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and tests. Corrected by Cor. 1:2015.*

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 61496-3:2008, *Safety of machinery — Electro-sensitive protective equipment — Part 3: Particular requirements for Active Opto-electronic Protective Devices responsive to Diffuse Reflection (AOPDDR)*

IEC 61800-5-2:2007, *Adjustable speed electrical power drive systems — Part 5-2: Safety requirements — Functional*

IEC 62477-1:2016, *Safety requirements for power electronic converter systems and equipment — Part 1: General*

EN 847-1:2013, *Tools for woodworking — Safety requirements — Part 1: Milling tools, circular saw blades*

EN 847-2:2013, *Tools for woodworking — Safety requirements — Part 2: Requirements for the shank of shank mounted milling tools*

EN 847-3:2013, *Tools for woodworking — Safety requirements — Part 3: Clamping devices*

EN 50370-1:2005, *Electromagnetic compatibility (EMC) — Product family standard for machine tools — Part 1: Emission*

EN 50370-2:2003, *Electromagnetic compatibility (EMC) — Product family standard for machine tools — Part 2: Immunity*

EN 50525-2-21:2011, *Electric cables — Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) — Part 2-21: Cables for general applications — Flexible cables with crosslinked elastomeric insulation*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100:2010, ISO 13849-1:2015 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

woodworking machine

machine designed to machine and/or process wood and material with similar physical characteristics to wood

3.2

material with similar physical characteristics to wood

wood-based material such as chipboard, fibreboard and plywood, including when covered with plastic or light alloy laminates/edges, as well as cork, bone, rigid rubber or plastics

Note 1 to entry: Examples for plastics are thermoplastic materials and thermoplastic resins, thermosetting resins, expanded plastic materials, polyurethane, phenol and polyvinylchloride (PVC).

3.3

easily machinable material

material, which, upon unexpected contact with a running tool, will not mechanically generate sparks and will not result in a damage of the tool

EXAMPLE Material with similar physical characteristics to wood or light alloy.

3.4

stationary machine

machine designed to be located on or fixed to the floor or other parts of the structure of the premises

3.5

displaceable machine

machine, stationary during use and equipped with a device, e.g. wheels, which allows it to be moved between locations

3.6

drive

machine actuator

power mechanism used to effect motion on the machine