

First edition
2017-10

Woodworking machines — Safety requirements —

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

Machines à bois — Sécurité —

Partie 3: Perceuses et défonceuses à commande numérique (CN)



Reference number
ISO 19085-3:2017(E)

© ISO 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

This is a preview of "ISO 19085-3:2017". Click here to purchase the full version from the ANSI store.

Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	2
3 Terms and definitions	2
4 List of significant hazards	8
5 Safety requirements and measures for controls	10
5.1 Safety and reliability of control systems	10
5.2 Control devices	10
5.2.1 General	10
5.2.2 Hand-held control sets	11
5.3 Start	11
5.4 Safe stops	12
5.4.1 General	12
5.4.2 Normal stop	12
5.4.3 Operational stop	12
5.4.4 Emergency stop	12
5.5 Braking function of tool spindles	12
5.6 Mode selection	12
5.6.1 General	12
5.6.2 Machining mode [MODE 1]	12
5.6.3 Machine setting mode [MODE 2]	13
5.6.4 Clamping device manual positioning mode [MODE 3]	13
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	14
5.13 Teleservice	14
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 saw blades	16
6.4 Braking	16
6.4.1 Braking of tool spindle	16
6.4.2 Maximum run-down time	16
6.4.3 Brake release	16
6.5 Safeguards	16
6.5.1 Fixed guards	16
6.5.2 Interlocking moveable guards	16
6.5.3 Hold-to-run control	16
6.5.4 Two-hand control	17

6.5.5	Electro-sensitive protective equipment (ESPE).....	17
6.5.6	Pressure-sensitive protective equipment (PSPE).....	17
6.6	Prevention of access to moving parts.....	19
6.6.1	General.....	19
6.6.2	Guarding of tools.....	22
6.6.3	Guarding of drives.....	24
6.6.4	Guarding of shearing and/or crushing zones.....	24
6.7	Impact hazard.....	25
6.8	Clamping device.....	25
6.9	Measures against ejection.....	26
6.9.1	General.....	26
6.9.2	Guards materials and characteristics.....	26
6.10	Workpiece support and guides.....	26
7	Safety requirements and measures for protection against other hazards.....	27
7.1	Fire.....	27
7.2	Noise.....	27
7.2.1	Noise reduction at the design stage.....	27
7.2.2	Noise emission measurement.....	27
7.3	Emission of chips and dust.....	27
7.4	Electricity.....	27
7.4.1	General.....	27
7.4.2	Displaceable machines.....	27
7.5	Ergonomics and handling.....	27
7.6	Lighting.....	28
7.7	Pneumatics.....	28
7.8	Hydraulics.....	28
7.9	Electromagnetic compatibility.....	28
7.10	Laser.....	28
7.11	Static electricity.....	28
7.12	Errors of fitting.....	28
7.13	Isolation.....	28
7.14	Maintenance.....	28
8	Information for use.....	28
8.1	Warning devices.....	28
8.2	Marking.....	28
8.2.1	General.....	28
8.2.2	Additional markings.....	28
8.3	Instruction handbook.....	29
8.3.1	General.....	29
8.3.2	Additional information.....	29
	Annex A (informative) Performance levels required.....	31
	Annex B (normative) Test for braking function.....	33
	Annex C (normative) Stability test for displaceable machines.....	34
	Annex D (normative) Impact test for guards.....	35
	Annex E (normative) Noise emission measurement for machines not in ISO 7960.....	36
	Annex F (normative) Impact test for curtains.....	45
	Annex G (normative) Wear test for curtains.....	50
	Annex H (normative) Dynamic test for pressure-sensitive bumpers, edges, trip bars, trip plates.....	54
	Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC.....	62
	Bibliography.....	64

This is a preview of "ISO 19085-3:2017". Click here to purchase the full version from the ANSI store.

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 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*.

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 to be provided the user by the manufacturer.

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.

This document is intended to be used in conjunction with ISO 19085-1:2017, which gives requirements common to the different machine types.

Thus, [Clauses 5, 6, 7](#) and [8](#), with their subclauses and the annexes of this document 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 clause, subclause or annex, right after the title, by one of the following statements:

- “This subclause of ISO 19085-1:2017 applies”;
- “This subclause of ISO 19085-1:2017 applies with the following additions”, or “This subclause of ISO 19085-1:2017 applies with the following additions, subdivided into further specific subclauses.”;
- “This subclause of ISO 19085-1:2017 does not apply.”;
- “This subclause of ISO 19085-1:2017 is replaced by the following text.”, or “This subclause of ISO 19085-1:2017 is replaced by the following text, subdivided into further specific subclauses.”.

This is a preview of "ISO 19085-3:2017". [Click here to purchase the full version from the ANSI store.](#)

Specific subclauses and annexes in this document without correspondent in ISO 19085-1:2017 are indicated by the introductory sentence: "This subclause (or annex) is 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 847-1:2013 and EN 847-2:2013.