

ISO 19085-12:2021 (E)

Woodworking machines — Safety — Part 12: Tenoning/profiling machines

Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
4	List of significant hazards
5	Safety requirements and measures for controls
5.1	Safety and reliability of control systems
5.2	Control devices
5.2.1	General
5.2.2	Additional requirements for single end tenoning machines with manual feed sliding table
5.2.3	Additional requirements for single end tenoning machines with mechanical feed sliding table
5.2.4	Additional requirements for single end tenoning and/or profiling machines with mechanical feed
5.2.5	Additional requirements for double end machines
5.2.6	Additional requirements for angular systems for tenoning and profiling with mechanical feed
5.3	Start
5.3.1	Machines with manual feed
5.3.2	Machines with mechanical feed
5.3.3	Laser marking unit
5.4	Safe stops
5.4.1	General
5.4.2	Normal stop
5.4.3	Operational stop
5.4.4	Emergency stop
5.5	Braking function of tool spindles
5.6	Mode selection
5.6.1	General
5.6.2	Adjustment mode (MODE 2)
5.7	Spindle speed changing
5.7.1	Spindle speed changing by changing belts on the pulleys
5.7.2	Spindle speed changing by incremental speed change motor
5.7.3	Infinitely variable speed by frequency inverter
5.8	Failure of any power supply
5.9	Manual reset control
5.10	Enabling control
5.11	Machine moving parts limited speed monitoring
5.12	Time delay
5.13	Tele-service
6	Safety requirements and measures for protection against mechanical hazards
6.1	Stability
6.1.1	Stationary machines
6.1.2	Displaceable machines
6.2	Risk of break-up during operation
6.3	Tool holder and tool design

- 6.3.1 General
- 6.3.2 Spindle locking
- 6.3.3 Circular saw blade fixing devices
- 6.3.4 Flange dimensions for circular saw blades
- 6.3.5 Spindle rings
- 6.4 Braking
- 6.4.1 Braking of tool spindle
- 6.4.2 Maximum run-down time
- 6.4.3 Brake release
- 6.5 Safeguards
- 6.5.1 Fixed guards
- 6.5.2 Interlocking moveable guards
- 6.5.2.1 General
- 6.5.2.2 Moveable guards with interlocking without guard locking
- 6.5.2.3 Moveable guards with interlocking and guard locking
- 6.5.3 Hold-to-run control
- 6.5.4 Two hand control
- 6.5.5 Electro-sensitive protective equipment (ESPE)
- 6.5.6 Pressure sensitive protective equipment (PSPE)
- 6.6 Prevention of access to moving parts
- 6.6.1 General
- 6.6.2 Guarding of tools
- 6.6.2.1 Single end tenoning machines with manual feed sliding table
- 6.6.2.2 Single end tenoning machines with mechanical feed sliding table
- 6.6.2.3 Single end tenoning and/or profiling machines with mechanical feed
- 6.6.2.3.1 General
- 6.6.2.3.2 Measures against access to hazard points through the opening between lower work-piece support and upper feeder rollers
- 6.6.2.3.3 Measures against access to hazard points through the opening between feed chain and top pressure beam
- 6.6.2.4 Double end tenoning and/or profiling machines with mechanical feed
- 6.6.2.4.1 General
- 6.6.2.4.2 Guarding of sanding belts
- 6.6.2.4.3 Guarding of units installed out of the integral enclosure
- 6.6.2.4.4 Access between machine halves
- 6.6.2.5 Angular systems for tenoning and profiling with mechanical feed
- 6.6.3 Guarding of drives
- 6.6.4 Guarding of shearing and/or crushing zones
- 6.6.4.1 Guarding of the chain or feed mechanisms
- 6.6.4.1.1 General
- 6.6.4.1.2 Infeed end of the machine
- 6.6.4.1.3 Outfeed end of the machine
- 6.6.4.2 Safeguarding of machine half movement on double end machines
- 6.6.4.2.1 Crushing between machine halves during closing movement
- 6.6.4.2.2 Crushing between machine halves and fixed parts of the machine during opening movement
- 6.6.4.3 Safeguarding of sliding table in angular systems for tenoning and profiling with mechanical feed
- 6.7 Impact hazard
- 6.8 Clamping devices
- 6.8.1 Single end tenoning machines with sliding table
- 6.8.2 Machines other than single end tenoning machines with sliding table
- 6.9 Measures against ejection
- 6.9.1 General
- 6.9.2 Guards materials and characteristics
- 6.9.2.1 Choice of class of guards
- 6.9.2.2 Guards of class A
- 6.9.2.3 Guards of class B
- 6.9.3 Devices to minimize the possibility or effect of ejection or kickback
- 6.10 Work-piece support and guides
- 6.10.1 Single end tenoning machines with sliding table
- 6.10.2 Single end tenoning and/or profiling machines with mechanical feed
- 6.10.3 Double end tenoning and/or profiling machines with mechanical feed
- 6.10.4 Angular systems for tenoning and profiling with mechanical feed

6.10.5 Work-piece returner

7 Safety requirements and measures for protection against other hazards

- 7.1 Fire**
- 7.2 Noise**
 - 7.2.1 Noise reduction at the design stage**
 - 7.2.2 Noise emission measurement**
- 7.3 Emission of chips and dust**
- 7.4 Electricity**
 - 7.4.1 General**
 - 7.4.2 Displaceable machines**
- 7.5 Ergonomics and handling**
- 7.6 Lighting**
- 7.7 Pneumatics**
- 7.8 Hydraulics**
- 7.9 Electromagnetic compatibility**
- 7.10 Laser**
- 7.11 Static electricity**
- 7.12 Errors of fitting**
- 7.13 Isolation**
- 7.14 Maintenance**
- 7.15 Heat**
- 7.16 Substances**

8 Information for use

- 8.1 Warning devices**
- 8.2 Marking**
 - 8.2.1 General**
 - 8.2.2 Additional markings**
- 8.3 Instruction handbook**
 - 8.3.1 General**
 - 8.3.2 Additional information**

Annex A (informative) Performance levels required

Annex B (normative) Tests for braking function

Annex C (normative) Stability test for displaceable machines

Annex D (normative) Impact test for guards

Annex E (normative) Noise emission measurement for single end profiling machines (not in ISO 7960:1995)

- E.1 General**
- E.2 Noise measurements**
 - E.2.1 Test conditions**
 - E.2.2 Microphone positions**
 - E.2.2.1 Operator's positions**
 - E.2.2.2 Other microphone positions**
 - E.2.3 General data sheet**

Page count: 55