ISO 19085-11:2024-07 (E)

Woodworking machines - Safety - Part 11: Combined machines

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Termsanddefinitions 2

4 Safety requirements and measures for controls 5
4.1 Safety and reliability of control systems 5
4.2 Control devices 5
4.3 Start 6
4.3.1 Direct start 6
4.3.2 Start via control power-on 6
4.4 Safe stops 6
4.4.1 General 6
4.4.2 Normal stop 6
4.4.3 Operational stop 6
4.4.4 Emergency stop 6
4.5 Braking function of tools 7
4.6 Mode selection 7
4.7 Tool speed changing 7
4.7.1 Speed changing by shifting the belts on the pulleys 7
4.7.2 Speed changing by incremental speed change motor 7
4.7.3 Infinitely variable speed by frequency inverter 7
4.7.4 Spindle speed limiting device for tenoning 7
4.7.5 Changing of the direction of spindle rotation 7
4.8 Failure of any power supply 7
4.9 Manual reset control 8
4.10 Standstill detection and monitoring 8
4.11 Machine moving parts speed monitoring 8
4.12 Time delay 8
4.13 Teleservice 8
4.14 Power-driven adjustments 8

5 Safety requirements and measures for protection against mechanical hazards 8
5.1 Stability 8
5.2 Risk of break-up during operation 8
5.3 Tool and tool fixing design 9
5.3.1 General 9
5.3.2 Spindle locking 9
5.3.3 Circular saw blade fixing device 9
5.3.4 Flange dimensions for circular saw blades 9
5.3.5 Arbor rings/fixing device for milling tools 9
5.3.6 Quick tool/arbor change system 9
5.3.7 Manual adjustment of arbor height 9
5.3.8 Manual adjustment of arbor inclination 9
5.4 Braking 10
5.4.1 Braking of tools 10
5.4.2 Maximum run-down time 10
5.4.3 Brake release 10

5.5 Safeguards 10
5.5.1 Fixed guards 10
5.5.2 Interlocking movable guards 10
5.5.3 Hold-to-run control 10
5.5.4 Two hand control 10
5.5.5 Electro-sensitive protection equipment (ESPE) 10

5.5.6 Pressure sensitive protection equipment (PSPE) 11
5.5.7 Enabling control device 11
5.6 Prevention of access to hazardous moving parts 11
5.7 Impact hazard 11
5.8 Clamping devices 11
5.9 Measures against ejection 12
5.9.1 General 12
5.9.2 Guards materials and characteristics 12
5.9.3 Anti-kickback devices 12
5.10 Workpiece supports and guides 12
5.11 Safety appliances 13
5.12 Elements not in use 13
5.13 Adjustments in tenoning-sawing mode 13

6 Safety requirements and measures for protection against other hazards 13
6.1 Fire 13
6.2 Noise 13
6.2.1 Noise reduction at the design stage 13
6.2.2 Noise emission measurement and declaration 14
6.3 Emission of chips and dust 14
6.4 Electricity 14
6.5 Ergonomics and handling 14
6.6 Lighting 14
6.7 Pneumatics 14
6.8 Hydraulics 14
6.9 Electromagnetic compatibility 14
6.10 Laser 14
6.11 Static electricity 15
6.12 Errors of fitting 15
6.13 Isolation 15
6.14 Maintenance 15
6.15 Relevant but not significant hazards 15

7 Information for use 15
7.1 Warning devices 15
7.2 Markings 15
7.2.1 General 15
7.2.2 Additional markings 15
7.3 Instruction handbook 15
7.3.1 General 15
7.3.2 Additional information 16

Annex A (informative)Listofsignificanthazards 17

Annex B (informative) Performance level required 19

Annex C (normative) Stability test 20

Annex D (normative) Test for braking function 21

Annex E (normative) Impact test for guards 22

Annex F (normative) Noise test code 23

Annex G (normative) Table dimensions 26

Bibliography 28