ISO 19085-14:2021-10 (E)

Woodworking machines - Safety - Part 14: Four-sided moulding machines

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 2

3 Termsanddefinitions 2

4 Safety requirements and measures for controls 6
4.1 Safety and reliability of control systems 6
4.2 Control devices 6
4.3 Start 7
4.3.1 Direct start 7
4.3.2 Start via control power-on 7
4.3.3 Integrated feed 7
4.3.4 Laser marking unit 7
4.4 Safe stops 7
4.4.1 General 7
4.4.2 Normal stop 8
4.4.3 Operational stop 8
4.4.4 Emergency stop 8
4.5 Braking function of tools 8
4.6 Mode selection 8
4.6.1 MODE 2 8
4.6.2 MODE 3 8
4.7 Tool speed changing 10
4.7.1 Speed changing by shifting the belts on the pulleys 10
4.7.2 Speed changing by incremental speed change motor 10
4.7.3 Infinitely variable speed by frequency inverter 10
4.7.4 Direction of spindle rotation 10
4.8 Failure of any power supply 11
4.9 Manual reset control 11
4.10 Standstill detection and monitoring 11
4.11 Machine moving parts speed monitoring 11
4.12 Time delay 11
4.13 Tele-service 11

5 Safety requirements and measures for protection against mechanical hazards 12
5.1 Stability 12
5.2 Risk of break-up during operation 12
5.3 Tool and tool fixing design 12
5.3.1 General 12
5.3.2 Spindle locking 13
5.3.3 Circular saw blade fixing device 13
5.3.4 Flange dimensions for circular saw blades 13
5.3.5 Spindle rings 13
5.4 Braking 13
5.4.1 Braking of tools 13
5.4.2 Maximum run-down time 13
5.4.3 Brake release 13

5.5 Safeguards ... 13
5.5.1 Fixed guards ... 13
5.5.2 Interlocking moveable guards ... 13
5.5.3 Hold-to-run control ... 14
5.5.4 Two hand control ... 14
5.5.5 Electro-sensitive protective equipment (ESPE) ... 14
5.5.6 Pressure sensitive protective equipment (PSPE) ... 14
5.5.7 Enabling control ... 14
5.6 Prevention of access to hazardous moving parts ... 14
5.6.1 Guarding of tools ... 14
5.6.2 Guarding of drives ... 16
5.6.3 Safeguarding of feed mechanisms ... 17
5.7 Impact hazard ... 18
5.8 Clamping devices ... 18
5.9 Measures against ejection ... 19
5.9.1 General ... 19
5.9.2 Guards materials and characteristics ... 19
5.9.3 Devices to minimize the possibility or effect of ejection or kickback ... 19
5.10 Workpiece support and guides ... 24
5.10.1 General ... 24
5.10.2 In-feed hopper ... 25
5.10.3 Loading magazine ... 25
5.10.4 Automatic workpiece returner ... 26

6 Safety requirements and measures for protection against other hazards ... 26
6.1 Fire ... 26
6.2 Noise ... 27
6.2.1 Noise reduction at the design stage ... 27
6.2.2 Noise emission measurement and declaration ... 27
6.3 Emission of chips and dust ... 27
6.4 Electricity ... 27
6.5 Ergonomics and handling ... 27
6.6 Lighting ... 27
6.7 Pneumatics ... 27
6.8 Hydraulics ... 27
6.9 Electromagnetic compatibility ... 28
6.10 Laser ... 28
6.11 Static electricity ... 28
6.12 Errors of fitting ... 28
6.13 Isolation ... 28
6.14 Maintenance ... 28
6.15 Relevant but not significant hazards ... 28

7 Information for use ... 28
7.1 Warning devices ... 28
7.2 Marking ... 28
7.2.1 General ... 28
7.2.2 Additional markings ... 28
7.3 Instruction handbook ... 29
7.3.1 General ... 29
7.3.2 Additional information ... 29

Annex A (informative)Listofsignificanthazards ... 31

Annex B (informative) Performance levels required ... 33

Annex C (normative) Stability test ... 35

Annex D (normative) Tests for braking function ... 36

Annex E (normative) Impact test for guards ... 37

Annex F (normative) Noise test code 38

Annex G (normative) Table lip resistance test 42

Bibliography 45