

DIN EN 848-3:2007-07 (E)

Safety of woodworking machines - One side moulding machines with rotating tools - Part 3: Numerically controlled (NC) boring and routing machines

Contents		Page
Foreword		4
Introduction		5
1	Scope	6
2	Normative references	6
3	Terms and definitions	9
3.1	General	9
3.2	Definitions	9
4	List of significant hazards	17
5	Safety requirements and/or measures	20
5.1	General	20
5.2	Controls	21
5.2.1	Safety and reliability of control systems	21
5.2.2	Position of controls	22
5.2.3	Starting	23
5.2.4	Normal stopping	23
5.2.5	Emergency stop	24
5.2.6	Operational stop	25
5.2.7	Mode selection switch	25
5.2.8	Speed monitoring and control	27
5.2.9	Interlocking of guards, protective devices, movements and functions	29
5.2.10	Failure of the power supply	29
5.2.11	Failure of the control circuits	30
5.3	Protection against mechanical hazards	30
5.3.1	Stability	30
5.3.2	Risk of break-up during operation	30
5.3.3	Tool holder	30
5.3.4	Braking tool spindle	31
5.3.5	Devices to minimise the risk of ejection	32
5.3.6	Workpiece supports and guides	32
5.3.7	Prevention of access to moving parts and devices to minimise the effect of ejection	32
5.3.8	Clamping device	43
5.4	Protection against non mechanical hazards	44
5.4.1	Fire	44
5.4.2	Noise	44
5.4.3	Emission of chips and dust	46
5.4.4	Electricity	46
5.4.5	Ergonomics and handling	46
5.4.6	Lighting	47
5.4.7	Pneumatics	47
5.4.8	Hydraulics	47
5.4.9	Static electricity	47
5.4.10	Electromagnetic compatibility	47
5.4.11	Lasers	47
5.4.12	Unintended movements	48
5.4.13	Supply disconnecting devices	48

5.4.14	Maintenance	48
6	Information for use	48
6.1	Warning devices	48
6.2	Marking	49
6.3	Instruction handbook	49
Annex A (informative) Use of well tried components		54
Annex B (normative) Operating conditions for noise measurement		55
B.1	General	55
B.2	Operating conditions for routing units of NC routing machines and NC combined boring/routing machines	55
B.2.1	General	55
B.2.2	Noise measurements	56
B.2.3	General data sheet	58
B.3	Operating conditions for boring units of NC boring machines and NC combined boring/routing machines	60
B.3.1	General	60
B.3.2	Noise measurements	61
B.3.3	General data sheet	63
Annex C (normative) Curtains on NC routing and NC combined boring and routing machines - Impact test method		66
C.1	General	66
C.2	Test method	66
C.2.1	Preliminary remarks	66
C.2.2	Testing equipment	66
C.2.3	Test procedure	68
C.3	Results	69
C.4	Assessment	69
C.5	Test report	69
Annex D (informative) Test equipment for impact test		70
Annex E (normative) Braking tests		71
E.1	Conditions for brake tests	71
E.2	Tests	71
E.2.1	Un-braked run-down time	71
E.2.2	Braked run-down time	71
Annex F (normative) Use of electronic components		73
F.1	General	73
F.2	SRECS	73
F.2.1	Components, hardware	73
F.2.2	Safety related software	74
F.2.3	Validation	74
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC		76
Bibliography		79