

DIN EN ISO 19085-9:2020-08 (E)

Woodworking machines - Safety - Part 9: Circular saw benches (with and without sliding table) (ISO 19085-9:2019)

Contents		Page
European foreword		4
Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered		5
Foreword		8
Introduction		9
1	Scope	10
2	Normative references	11
3	Terms and definitions	11
4	List of significant hazards	12
5	Safety requirements and measures for controls	14
5.1	Safety and reliability of control systems.....	14
5.2	Control devices.....	14
5.3	Start.....	15
5.4	Safe stops.....	16
5.4.1	General.....	16
5.4.2	Normal stop.....	16
5.4.3	Operational stop.....	16
5.4.4	Emergency stop.....	16
5.5	Braking function of tool spindles.....	16
5.6	Mode selection.....	16
5.7	Spindle speed changing.....	16
5.7.1	Spindle speed changing by changing belts on the pulleys.....	16
5.7.2	Spindle speed changing by incremental speed change motor.....	16
5.7.3	Infinitely variable speed by frequency inverter.....	16
5.8	Failure of any power supply.....	16
5.9	Manual reset control.....	16
5.10	Enabling control.....	17
5.11	Machine moving parts speed monitoring.....	17
5.12	Time delay.....	17
5.13	Power-operated adjustment of the saw blades and/or fences.....	17
6	Safety requirements and measures for protection against mechanical hazards	18
6.1	Stability.....	18
6.1.1	Stationary machines.....	18
6.1.2	Displaceable machines.....	18
6.2	Risk of break-up during operation.....	18
6.3	Tool holder and tool design.....	18
6.3.1	General.....	18
6.3.2	Spindle locking.....	18
6.3.3	Circular saw blade fixing device.....	18
6.3.4	Flange dimension for circular saw blades.....	18
6.3.5	Fixing device for milling tools.....	18
6.4	Braking.....	19
6.4.1	Braking of tool spindles.....	19
6.4.2	Maximum run-down time.....	19
6.4.3	Brake release.....	19

6.5	Safeguards.....	10
6.5.1	Fixed guards.....	19
6.5.2	Interlocking movable guards.....	19
6.5.3	Hold-to-run control.....	19
6.5.4	Two-hand control.....	19
6.5.5	Electro-sensitive protective equipment (ESPE).....	19
6.5.6	Pressure-sensitive protective equipment (PSPE).....	20
6.6	Prevention of access to moving parts.....	20
6.6.1	General.....	20
6.6.2	Guarding of tools.....	20
6.6.3	Guarding of drives.....	27
6.6.4	Guarding of shearing and/or crushing zones.....	27
6.7	Impact hazard.....	28
6.8	Clamping devices.....	28
6.9	Measures against ejection.....	28
6.9.1	General.....	28
6.9.2	Guards materials and characteristics.....	28
6.9.3	Anti-kickback devices.....	28
6.10	Work-piece supports and guide.....	32
6.10.1	Rip fence.....	32
6.10.2	Cross-cut fence.....	35
6.10.3	Machine table.....	36
6.10.4	Extension table.....	36
6.11	Safety appliances.....	36
7	Safety requirements and measures for protection against other hazards.....	38
7.1	Fire.....	38
7.2	Noise.....	38
7.2.1	Noise reduction at the design stage.....	38
7.2.2	Noise emission measurement.....	38
7.3	Emission of chips and dust.....	38
7.4	Electricity.....	38
7.4.1	General.....	38
7.4.2	Displaceable machines.....	39
7.5	Ergonomics and handling.....	39
7.6	Lighting.....	39
7.7	Pneumatics.....	39
7.8	Hydraulics.....	39
7.9	Electromagnetic compatibility.....	39
7.10	Laser.....	39
7.11	Static electricity.....	39
7.12	Errors of fitting.....	39
7.13	Isolation.....	40
7.14	Maintenance.....	40
8	Information for use.....	40
8.1	Warning devices.....	40
8.2	Marking.....	40
8.2.1	General.....	40
8.2.2	Additional markings.....	40
8.3	Instruction handbook.....	40
8.3.1	General.....	40
8.3.2	Additional information.....	41

Annex A (informative) Performance level required	43
Annex B (normative) Test for braking function	44
Annex C (normative) Stability test for displaceable machines	45
Annex D (normative) Impact test for guards	46
Annex E (normative) Noise emission measurement for machines not in ISO 7960:1995	47
Annex F (normative) Saw blade guard rigidity test	48
Annex G (normative) Minimum dimensions of machine table, extension table and table insert	52
Annex H (normative) Riving knife longitudinal and lateral stability test	54
Bibliography	56