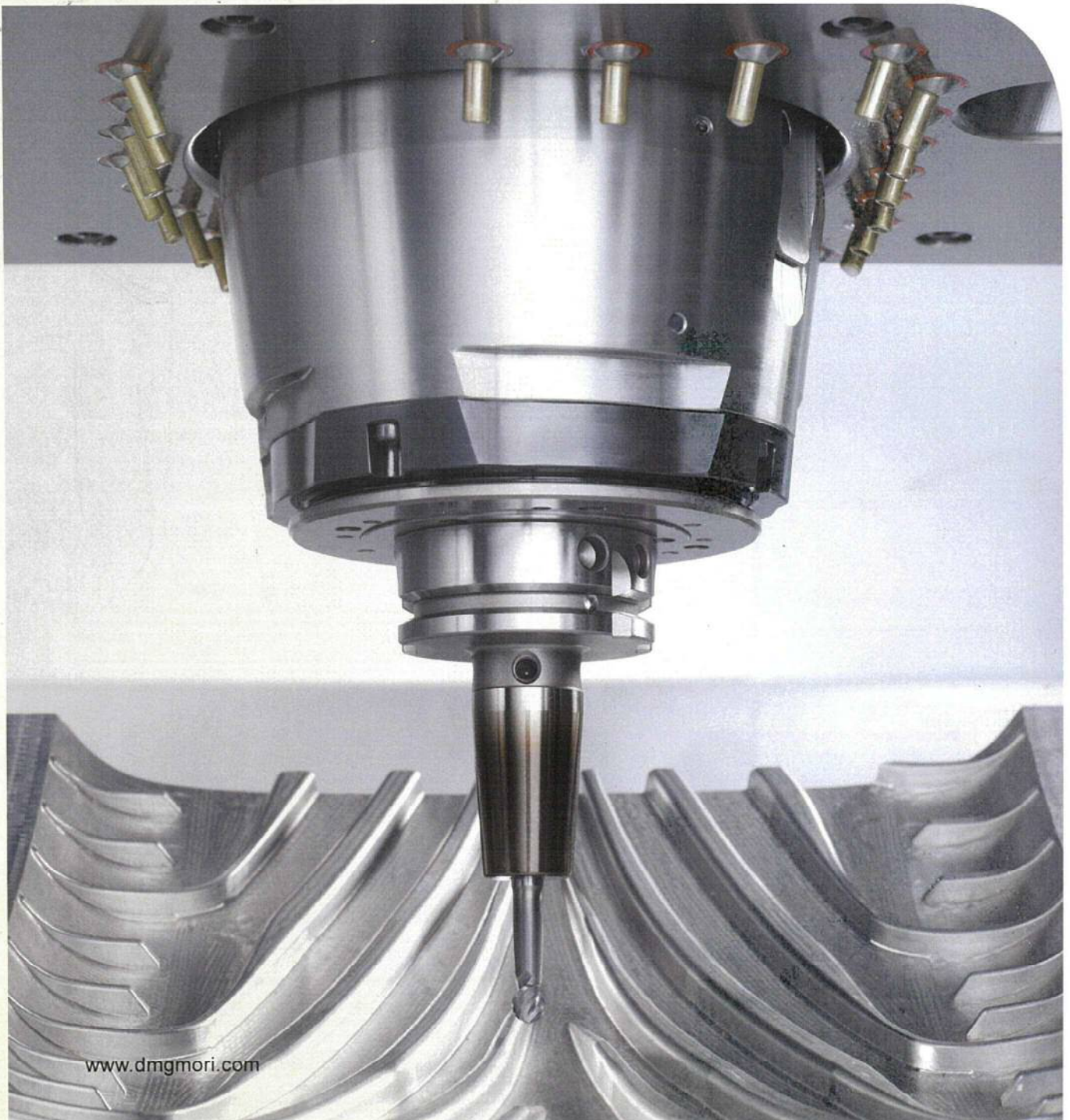




Technology » Electronics

DMC 1150 V
Milling



TECHNOLOGY / ELECTRONICS

DMC 1150 V

General information

1

Safety information

2

Layout

3

Circuit diagram

4

**Equipment list, wear parts
list**

5

6

7

8

9

10

Table of contents

1 General Notes

1.1	Basic information.....	1-4
1.1.1	Extent of documentation.....	1-4
1.1.2	Operating instructions.....	1-4
1.1.2.1	General.....	1-4
1.1.2.2	Contents	1-5
1.1.2.3	Symbols	1-5
1.1.3	Term "main switch".....	1-6
1.1.4	Basic information.....	1-6
1.1.4.1	Prerequisites.....	1-6
1.1.4.2	Environmental and water protection.....	1-7
1.1.4.3	Company responsibilities.....	1-7
1.1.4.4	Staff qualification.....	1-7
1.1.4.5	Maintenance.....	1-8
1.1.5	Warranty.....	1-8
1.1.6	Warranty exclusion.....	1-8
1.1.7	Directives, Standards.....	1-9
1.1.7.1	EC directives.....	1-9
1.1.7.2	EN Standards.....	1-9
1.1.8	Machine use.....	1-9
1.1.8.1	Materials.....	1-9
1.1.9	Declaration of conformity.....	1-10
1.2	In and on the machine.....	1-12
1.2.1	Virus scanner.....	1-12
1.2.2	Machining spindle.....	1-12
1.2.3	Periodical inspection of accumulators.....	1-13
1.2.4	Spindle warm-up.....	1-13
1.2.5	Information on continuous axis operation.....	1-14
1.2.5.1	Rotary axis in NC circular table.....	1-14
1.2.5.2	Machining spindle and linear axes.....	1-14
1.3	During production.....	1-15
1.3.1	Information on the machining accuracy	1-15
1.3.1.1	Temperature.....	1-15
1.3.1.2	Installation site.....	1-15
1.3.1.3	Warm-up of the machine.....	1-15
1.3.1.4	Tool temperature.....	1-16
1.3.1.5	Oil/emulsion mist separator.....	1-16
1.3.2	Taking over available components.....	1-16
1.3.2.1	Machining programs.....	1-16
1.3.2.2	Devices.....	1-16
1.3.3	Workpieces	1-17

1.3.4	Machine collision.....	1-17
1.3.4.1	Machine during warranty period.....	1-17
1.3.4.2	Behaviour in case of collisions.....	1-17
1.3.5	Temperature compensation of the machine.....	1-18
1.3.6	Note to be observed during short-stroke machining.....	1-18
1.4	What else is important?.....	1-20
1.4.1	Misuses.....	1-20
1.4.1.1	EC Machinery Directive.....	1-20
1.4.1.2	Definition of misuse.....	1-20
1.4.1.3	List of misuses.....	1-20
1.4.2	Disposal of the machine	1-21
2	Safety Notes	
2.1	General	2-6
2.1.1	General Safety Instructions	2-6
2.1.1.1	Hazards	2-6
2.1.1.2	Machine state	2-6
2.1.1.3	Personnel.....	2-7
2.1.1.4	Noise protection	2-9
2.1.1.5	Safety circuits	2-9
2.1.2	General occupational safety.....	2-10
2.1.2.1	Periphery of the machine.....	2-10
2.1.2.2	Walk-in machining compartment.....	2-11
2.1.3	Fire protection.....	2-12
2.1.3.1	Fire extinguishing system	2-12
2.1.4	Behaviour in case of danger situations and accidents.....	2-13
2.1.4.1	Behaviour in case of danger situations.....	2-13
2.2	In and on the machine.....	2-16
2.2.1	Safety devices.....	2-16
2.2.1.1	General.....	2-16
2.2.1.2	Cabin.....	2-16
2.2.1.3	EMERGENCY STOP button.....	2-17
2.2.1.4	SMARTkey (operating mode selection).....	2-18
2.2.1.5	Agreement key.....	2-18
2.2.1.6	Speed control.....	2-18
2.2.1.7	Tool / workpiece clamping.....	2-18
2.2.2	Operation.....	2-18
2.2.3	Operating modes (BA).....	2-19
2.2.3.1	Safety instructions as to the operating modes 2, 3 and 4.....	2-20
2.2.3.2	Operating mode 2	2-21
2.2.3.3	Operating mode 3	2-22
2.2.3.4	Operating mode 4	2-23
2.2.4	Warning on blinding.....	2-25
2.2.5	Inspection windows.....	2-25
2.2.5.1	Retention capacity of inspection windows	2-25

2.2.6	Laminated safety window.....	2-26
2.2.6.1	General.....	2-26
2.2.6.2	Operation after a collision.....	2-26
2.2.7	Standing under lift doors.....	2-26
2.2.8	Media supply	2-27
2.2.8.1	Hydraulics	2-27
2.2.8.2	Pneumatic system	2-27
2.2.8.3	Coolant lubricant system	2-27
2.2.8.4	Coolant system	2-28
2.2.9	Chip disposal	2-28
2.2.9.1	Chip disposal inside and on the machine	2-28
2.2.9.2	Chip conveyor	2-29
2.2.10	Maintenance	2-29
2.2.10.1	Vertical or slanted axes	2-31
2.2.11	Transport and installation.....	2-31
2.3	During production.....	2-32
2.3.1	Hazardous materials.....	2-32
2.3.1.1	Explosive / flammable materials.....	2-32
2.3.1.2	Emissions.....	2-32
2.3.1.3	Coolant lubricants non soluble in water.....	2-33
2.3.2	Working with magnesium.....	2-33
2.3.2.1	Notes on the machining of magnesium.....	2-35
2.3.3	Workpiece machining.....	2-37
2.3.4	Tools and tool change.....	2-38
2.3.4.1	Tools.....	2-38
2.3.4.2	Manual tool change	2-39
2.3.4.3	Automatic tool change.....	2-39
2.3.5	Working on the tool magazine.....	2-39
2.3.5.1	Working from the outside.....	2-39
2.3.5.2	Working in the magazine area.....	2-40
2.3.6	Zero point clamping system.....	2-40
2.3.6.1	Intended use.....	2-40
2.3.6.2	Safety information.....	2-40
2.3.7	Tool-dependent speed monitoring.....	2-41
2.4	What else is important?.....	2-42
2.4.1	Residual hazards	2-42
2.4.1.1	Residual hazard due to crushing.....	2-42
2.4.1.2	Residual hazard due to shearing.....	2-43
2.4.1.3	Residual hazard due to cutting, severing.....	2-43
2.4.1.4	Residual hazard due to entanglement.....	2-44
2.4.1.5	Residual hazard due to drawing in, trapping.....	2-45
2.4.1.6	Residual hazards due to impacts.....	2-45
2.4.1.7	Residual hazard due to stabbing, puncture.....	2-47
2.4.1.8	Residual hazard due to friction, abrasion.....	2-47
2.4.1.9	Residual hazard due to fluid ejection.....	2-48
2.4.1.10	Residual hazard due to whipping hoses.....	2-48
2.4.1.11	Residual hazard due to impact and crushing.....	2-48

2.4.1.12	Residual hazard due to impact, stabbing when slipping.....	2-49
2.4.1.13	Residual hazard due to falling, tripping.....	2-49
2.4.1.14	Residual hazard due to direct electrical contact.....	2-49
2.4.1.15	Residual hazard due to indirect electrical contact.....	2-50
2.4.1.16	Residual hazard due to high voltage.....	2-50
2.4.1.17	Residual hazard due to electrostatic discharges.....	2-50
2.4.1.18	Residual hazard due to short-circuit, overload.....	2-51
2.4.1.19	Residual hazard due to burns, frostbites.....	2-52
2.4.1.20	Residual hazard due to hot, cold working environment.....	2-52
2.4.1.21	Residual hazard due to scalding.....	2-52
2.4.1.22	Residual hazard due to noise causing hearing impairment.....	2-53
2.4.1.23	Residual hazard due to noise causing disturbance of acoustic signals.....	2-53
2.4.1.24	Residual hazard due to radiation, audio frequency, radio frequency, microwaves.....	2-53
2.4.1.25	Residual hazards due to radiation, infrared, visible and ultraviolet light.....	2-53
2.4.1.26	Residual hazard due to contact to or inhalation of vapours and dusts.....	2-54
2.4.1.27	Residual hazard due to fire or explosion.....	2-54
2.4.1.28	Residual hazard due to biological / microbiological dangers.....	2-54
2.4.1.29	Residual hazard due to leaking of liquids.....	2-55
2.4.1.30	Residual hazard due to neglecting ergonomic principles, unhealthy posture, excessive effort.....	2-56
2.4.1.31	Residual hazard due to careless use of personal protective equipment.....	2-56
2.4.1.32	Residual hazard due to inadequate local lighting.....	2-56
2.4.1.33	Residual hazard due to mental overload or underload.....	2-57
2.4.1.34	Residual hazard due to human behaviour / human error.....	2-57
2.4.1.35	Residual hazard due a combination of hazards.....	2-57
2.4.1.36	Residual hazard due to unexpected over-run from failure/disorder of the control system.....	2-58
2.4.1.37	Residual hazard due to unexpected start-up, unexpected over-run form external influences on electrical equipment.....	2-58
2.4.1.38	Residual hazard due to unexpected start-up, unexpected over-run due to software bugs not detected.....	2-58
2.4.1.39	Residual hazard due to unexpected start-up, unexpected over-run due to operating errors.....	2-59
2.4.1.40	Residual hazard due to breakage of components during operation, during maintenance or in case of service.....	2-59
2.4.1.41	Residual hazard due to ejected objects or liquids.....	2-59
2.4.1.42	Residual hazard due to failure to execute maintenance work.....	2-60
2.4.1.43	Residual hazard due to improper machine installation / connections.....	2-60
2.4.1.44	Residual hazard due to unintentionally or accidentally being trapped.....	2-60
2.4.1.45	Residual hazard due to power failure.....	2-61

3 Site plans

4 Wiring diagram

4.1 Electrical diagram..... 4-3

5 Device list, wear parts list