

HAWEMAT



3000 GRANIT

NUM-FLEXIUM+

Innovative 5-axis technology for tool grinding



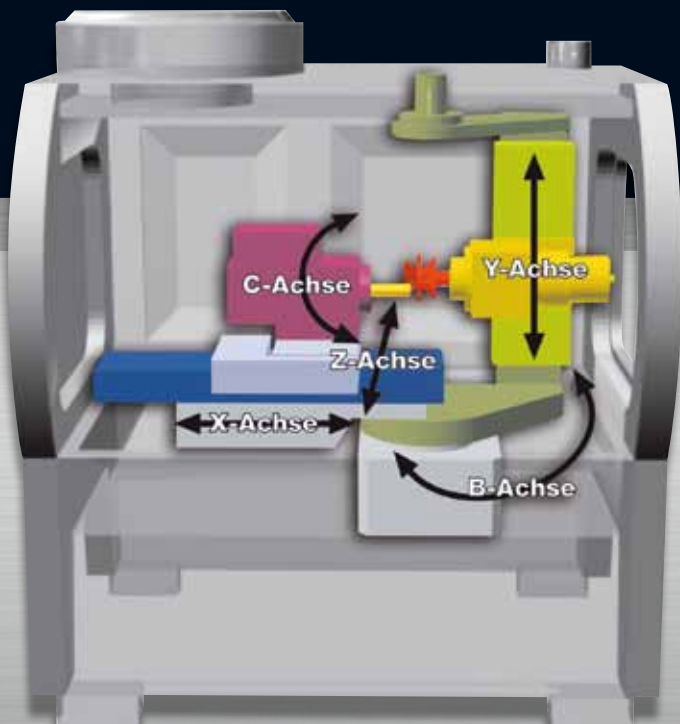
GRANITE WE GUARANTEE PRECISION

HAWEMAT 3000 GRANITE

- TOOL MANUFACTURE FOR METAL- AND WOODWORKING
- GENERAL METALWORKING PLANTS
- TOOL-GRINDING SERVICE
- MACHINE AND TOOL MANUFACTURE
- MEDICAL TECHNOLOGY
- AUTOMOTIVE INDUSTRY



HAWEMA KINEMATICS patented worldwide



- Short travel paths
- Optimal cycle times
- Compact design
- Modular construction
- High rigidity
- Highest precision
- Excellent grinding facilities

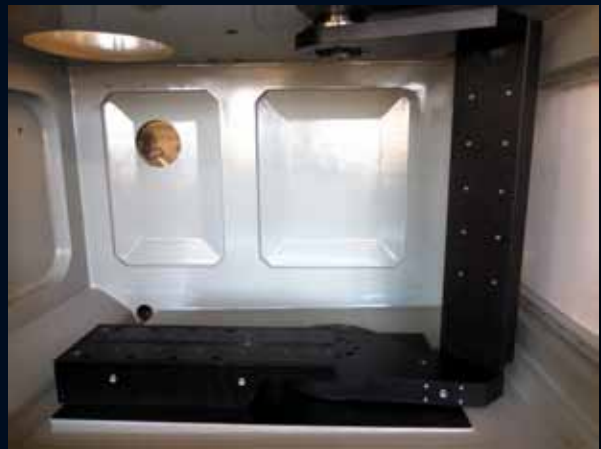
THE HAWEMAT 3000 CNC IS THE FIRST FULL MINERAL COMPOUND BASE CONCEPT WITH INTEGRATED CABIN IN THE FIELD OF GRINDING TECHNOLOGY

The compact mineral casting body is reinforced by granite elements in the axes X, Y, and B. This ensures a low thermal expansion and high rigidity of the whole machine system. This provides the fundamental basis for a broad range of applications, particularly in the manufacture of highprecision tools and other special componets. The double bearing of the grinding column (Y- and B-axes) has made it possible to achieve a maximum of rigidity. This guarantees a very high degree of precision throughout the entire rotational movement of the Y-axis in conjunction with the grinding spindle.

DOUBLE BEARING

Grinding column Y-axis combined with B-axis

- Highest precision
- High loading possible due to enormous rigidity
- Great versatility (also milling and drilling)
- Precision
- High degree of rigidity
- Minimum thermal expansion
- High shock absorption
- Great versatility
- Optimal sealing



EXTERNAL LOADING SYSTEMS PLS 3 / PLS 8 and LS 122

Operator-free and low-cost grinding is possible using loading systems PLS 3 with up to 1000 parts and PLS 8 with up to 3500 parts. Further external loader available on request.



PICK-UP-LOADER ILS 35

For automatic changing of 35 tools and components. It features a fully fledged CNC axis permitting chaotic loading in conjunction with hydraulic expandable clamping systems. Sleeves KM 22 Ø/KM 32 Ø. High degree of processing safety due to the controlled CNC axes in the machine. This loading system is an extremely effective and economical solution. Various loading discs can be used for producing small and medium-sized tools enabling fully automatic manufacture.

TECHNICAL DATA

Complete machining max. tool length	300 mm
Complete machining max. diameter	150 mm

Measurement system	tool measurement	3-D measurement probe (Marposs)
Optional	grinding wheels or grinding wheel package	3-D measurement probe (Marposs)

Grinding spindle (direct drive)	14,5 kW / S6 oil cooled	0-10000 rpm
HSK 50 A grinding wheel clamping system		

Grinding wheels		
Max. diameter	125 mm	
Grinding wheels per clamping arbour	1-4 wheels	
Cooling via cooling valve	program-controlled	3 valves
3-package wheel changer	HSK 50	for wheel max. 125 mm Ø
Optional 6-package wheel changer	HSK 50	for wheel max. 125 mm Ø

Workpiece holder C-axis		
Standard	spindle taper	SK 50
Clamping system	mechanical/manual	
Optional	clamping system	pneumatic/automatic
Optional indexing head ISO 50	direct drive	torque motor 1000 rpm
B-axis (pivot axis)	backlash-free HarmonicDrive system	
Optional	direct drive	(torque motor with brake)

Control unit		
CNC control unit	NUM-Flexium+	
TFT colour monitor	19-inch	

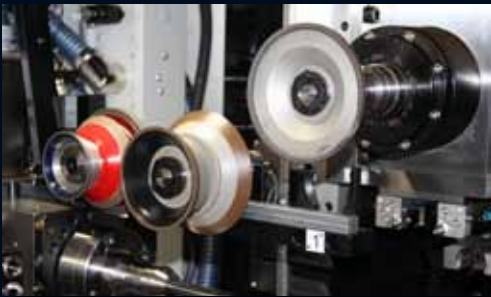
User software		
NUMROTOplus® milling cutters, drills, special tools, 3-D simulation, 3-D collision monitoring		

Coolant plant	external	
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Oil-cleaning units		
Cartridge filter system	manual cleaning	HAWEMA OC 12
Cartridge filter system	automatic cleaning	HAWEMA OC 20

Interface		
Oil mist exhaust unit	Ø 150 mm	

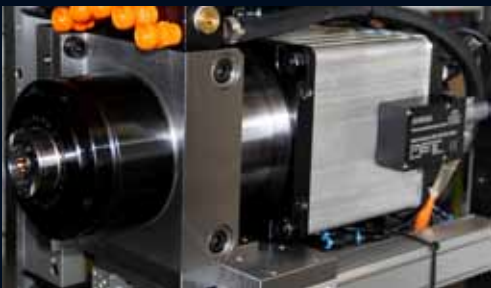
Axis travel		
Longitudinal	X-axis	350 mm – optional 420 mm
Lateral	Z-axis	230 mm
Vertical	Y-axis	350 mm
Resolution	X-Y-Z-axis	0,0001 mm
Speed	X-Y-Z-axis	15 m/min. rotational movement
Rotational movement	C-axis	360°
Resolution	C-axis	0,0001°
Speed	C-axis	1000 rpm
Axis of rotation	B-axis	195°
Speed	B-axis	112°/sec
Axis drives	high-output AC servo motors NUM servo motors	



FULLY AUTOMATIC
3-PACKAGE WHEEL CHANGER



FULLY AUTOMATIC
6-PACKAGE WHEEL CHANGER



HIGH-PRECISION GRINDING SPINDLE

14,5 kW / S6, direct drive with automatic clamping system HSK 50-A.

Machine dimensions					
Height width depth	2200	3000	2000	mm	
Weight	approx. 5000 kg				
Power supply	3x400 V – 50/60 Hz				
Power input	27 kW				
Air supply	6-8 bar				
Colour	RAL 7035 light grey				

Total space requirement			
Height width length	2400 4000 3000 mm		



PRECISION GUIDES

The guides used in the X-, Y- and Z-axes are high-precision equipment (THK) integrated in the slide carriages, which are completely sealed on all sides. The new design of these highly stable guide elements provides the machine with both a maximum of precision and the corresponding load capacity.

Optional on request: direct measurement system (linear glass scale) and central lubrication in all axes.

CONTROL UNIT NUM-Flexium+

- digital CNC control unit for highest requirements, NUM-Flexium+ with digitally controlled axis drives
- Direct drive with highest measurement resolution (possible with torque motor)
- 19-inch TFT colour display with touch screen function
- Electrical cabinet with optimal arrangement and accessibility for easy servicing
- Swivelling service panel connected via Ether-Cut simple for simple operation
- An office PC can easily be integrated in the electrical cabinet to promote rapid replacement, even after years of service, including updates to the latest state-of-the-art without high investment costs

USER PC

- Continuous adaptation to latest PC technology
- System software: latest Windows generation
- Network connection possible
- Optional remote maintenance software, Backup-Software



NUMROTOplus®

THE WORLDWIDE LEADING USER SOFTWARE

numroto®
Total solution for tool grinding

MILLING CUTTER SOFTWARE PACKAGE

- Cylindrical and conical end mills with straight front
- Corner chamfer
- Full radius end mills and corner radius for cylindrical and conical tools

BURRS cylindrical | conical | arc | ball-end | DXF form with flat end, ball | corner radius

PROFILE TOOLS design your own profile of all types. All profiles on shank type tools or form plates. Free programming.

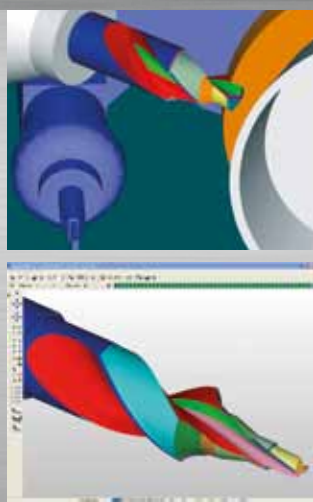
DRILL SOFTWARE PACKAGE

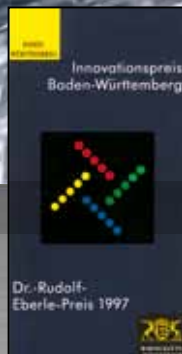
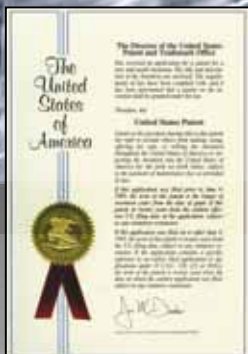
- Up to 14 different drill points
- Step drill with up to 10 steps
- Form step drills/ cylindrical grinding

SPECIAL SOFTWARE on request

CUSTOMER SUPPORT software support through tele-service via PC Anywhere and modem. You can request extensive informative material on the complete NUMROTO plus® user software (CD + brochures).

www.numroto.com





OVER 800 HAWEMAT CNC TOOL GRINDING MACHINES ARE IN USE IN OVER 20 COUNTRIES THROUGHOUT THE WORLD. Our grinding solutions have won the confidence of our customers, who include machine tool manufacturers, manufacturing companies in the medical devices, automotive and machine construction industries, and grinding services. HAWEMA accords priority to the human element in all activities. Since the company was founded, satisfying customers in every respect has been the top priority for our employees. In order for us to be able to respond flexibly to the needs of our customers throughout the world, we attach importance to personal contact. This approach is a hallmark of our company in its dealings with business associates at all levels. The HAWEMA philosophy involves reconciling generic solutions and specific requirements.

We guarantee quality and service.



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