

# HAWEMAT



PRÄZISA GRANITE  
NUM-FLEXIUM+

Innovative 5-axis technology for tool grinding

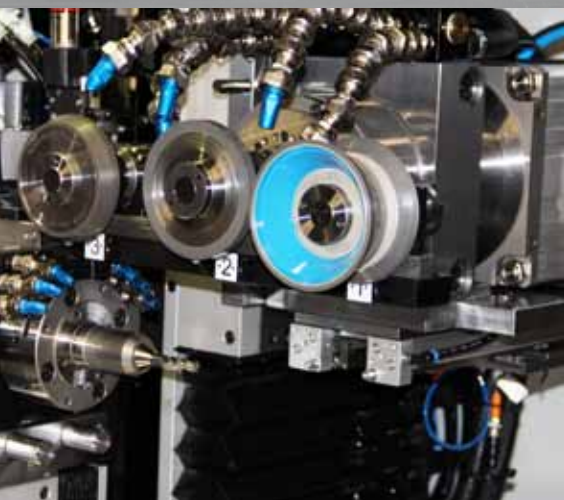


GRANITE WE GUARANTEE PRECISION

# HAWEMAT

## PRÄZISA GRANITE

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



### HIGH-PRECISION MACHINE COMPONENTS

Precision in every detail: mature machine components from HAWEMA. The chain is only as good as each individual link. For this reason, HAWEMA attaches particular importance to high-quality machine components. Our motor spindles have a runout of less than 2  $\mu\text{m}$ . The precision guides are prestressed for maximum rigidity and precision, and are permanently lubricated. The kinematic action, patented worldwide, with grinding column in double bearings (y- and b-axes) assures maximum rigidity and precision with exceptional freedom of movement.





## TECHNICAL DATA

Complete machining max. tool length	210 mm
Complete machining max. diameter	120 mm

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

<b>High-precision spindle drive</b>	14,5 kW	water cooling	0-10000 rpm
• direct drive with pneumatic/automatic wheel-clamping system HSK 50			

### Grinding wheels

Max. diameter	125 mm	
Grinding wheels per clamping arbour	1-4 wheels	
Cooling via cooling valve	program-controlled	3 valves
Grinding wheel clamp	high-precision	HSK 50 system
<b>Option</b>	autom. 2-3 package wheel changer	

### Workpiece holder

Direct drive 2000 rpm	SK 40	
Clamping system	Standard	mechanical/manual
<b>Option</b>	pneumatic/automatic	

**Controls:** fully digital NUM-Flexium+CNC controller with digitally controlled servos, 19-inch TFT colour display with touch screen functions.

**User software:** NUMROTOplus® milling cutters, drills, Special tools, 3-D simulation (picture: tool and grinding wheel)

**Optional filter unit:** interfaces for various filters and coolant plants. Hawema band filter, HAWEMA 12/OC 20 and OC 30 or other manufacturer types possible.

**Interface:** oil mist exhaust unit Ø 150 mm

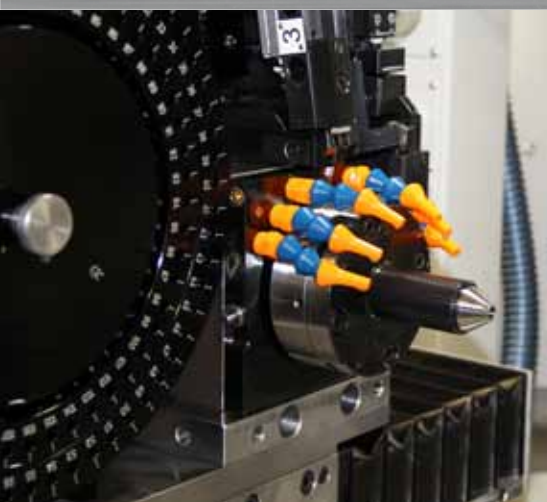
**Optional:** Internal Pick-up-Loader ILS 35 35 tools or components  
 • External loading systems PLS 3, PLS 8 and LS 122 for automatically loading tools or components  
 • Fully-fledged CNC axis with AC servo motor combined with automatic clamping system

### Axis travel

Longitudinal	X-axis	310 mm
Lateral	Z-axis	190 mm
Vertical	Y-axis	220 mm
Resolution	X-Y-Z-axis	0,0001 mm
Speed	X-Y-Z-axis	15 m/min.
Rotational movement	C-axis	360°
Resolution	C-axis	0,0001 mm
Speed	C-axis	2000 rpm
Axis of rotation	B-axis	195°
Speed	B-axis	112°/sec.
Axis drives	high output NUM servo motors	

### Machine dimensions

Height   diameter   weight	2000 mm   1500 mm   2800 kg
Air supply	6-8 bar
Power supply	400/380 V - 50 Hz/40 A
Control voltage	24 V unter Anschluß 15 kW
Colour	RAL 9002 grey-white



### High-Precision grinding spindle

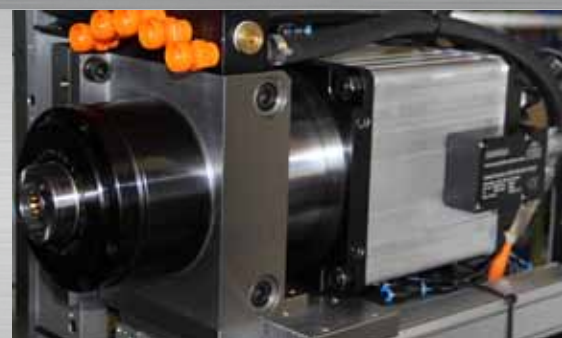
14,5 kW S6, direct drive with  
 HSK 50 clamping system (oil cooled)

### C-axis direct drive

Torque-motor 2000 rpm

### B-axis direct drive

(Torque-motor)



# 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 function keys
- Control cabinet with optimal arrangement and accessibility for easy servicing
- Swivelling service panel connected via Ether-Cut for simple operation
- An office PC can easily be integrated in the control 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

#### DRILL SOFTWARE PACKAGE

- Up to 19 different drill points
- Step drill with up to 10 steps
- Form step drills/ cylindrical grinding

**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.

**SPECIAL SOFTWARE** on request

**CUSTOMER SUPPORT** software support through internet connection and TeamViewer.

You can request extensive informative material on the complete NUMROTOplus® user software.

[www.numroto.com](http://www.numroto.com)





# VANTAGES

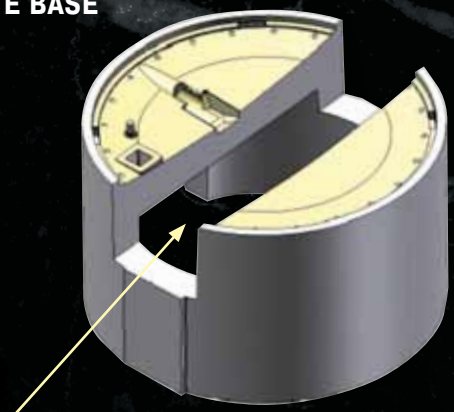
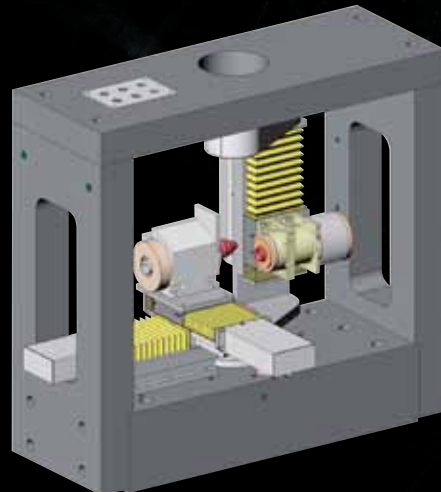
which convince

**WORLD-WIDE FIRST CNC TOOL GRINDING MACHINE  
BUILD ON GRANITE**

**COMPLETE GRANITE BASED MACHINE FRAME FULLY INTEGRATED  
IN THE MINERAL COMPOUND MACHINE BED,**  
this causes highest rigidity and lowest thermal expansion of the whole system

**ALL AXES BUILD ON GRANITE BASE PLATE**  
with direct measuring system (X,Y and Z-axes) and high precision guides,  
direct drives in the rotation axes.

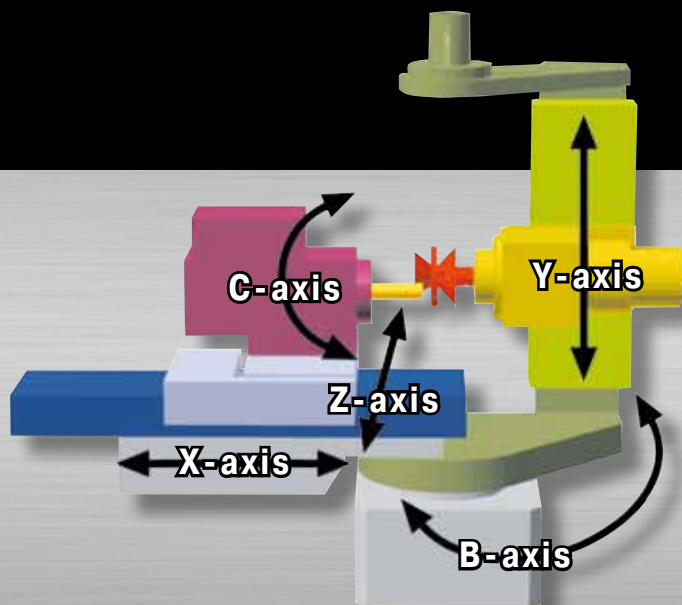
**DOUBLE SUPPORTED GRINDING SPINDLE AXIS  
INTEGRATED IN THE GRANITE BASE**



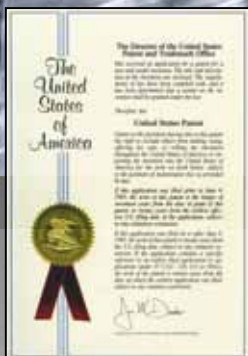
Complete granite machine body with  
entire integrated mechanical structure  
of all 5 axes in a closed system, thus  
very small heat course.

# HAWEMA KINEMATIK

patented worldwide



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



## OVER 600 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.



**HAWEMA WERKZEUGSCHLEIFMASCHINEN GMBH**

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