

HAWEMAT



WORLD NEWS
UNIQUE GRANITE DESIGN

WSA G10

NUM-FLEXIUM+

5-Axis CNC Automatic Tool Grinder



GRANITE WE GUARANTEE PRECISION

HAWEMAT WSA G10

5-Axis CNC Automatic Tool Grinder

ONE-WAY-SYSTEM

Worldwide unique granite design in combination with the loading and unloading system in one plane

■ RANGE OF TOOLS

Production of high-precision shank tools
(Drilling and milling tools)
Ø range: 0.2 mm to 10 mm
Length max. 125 mm

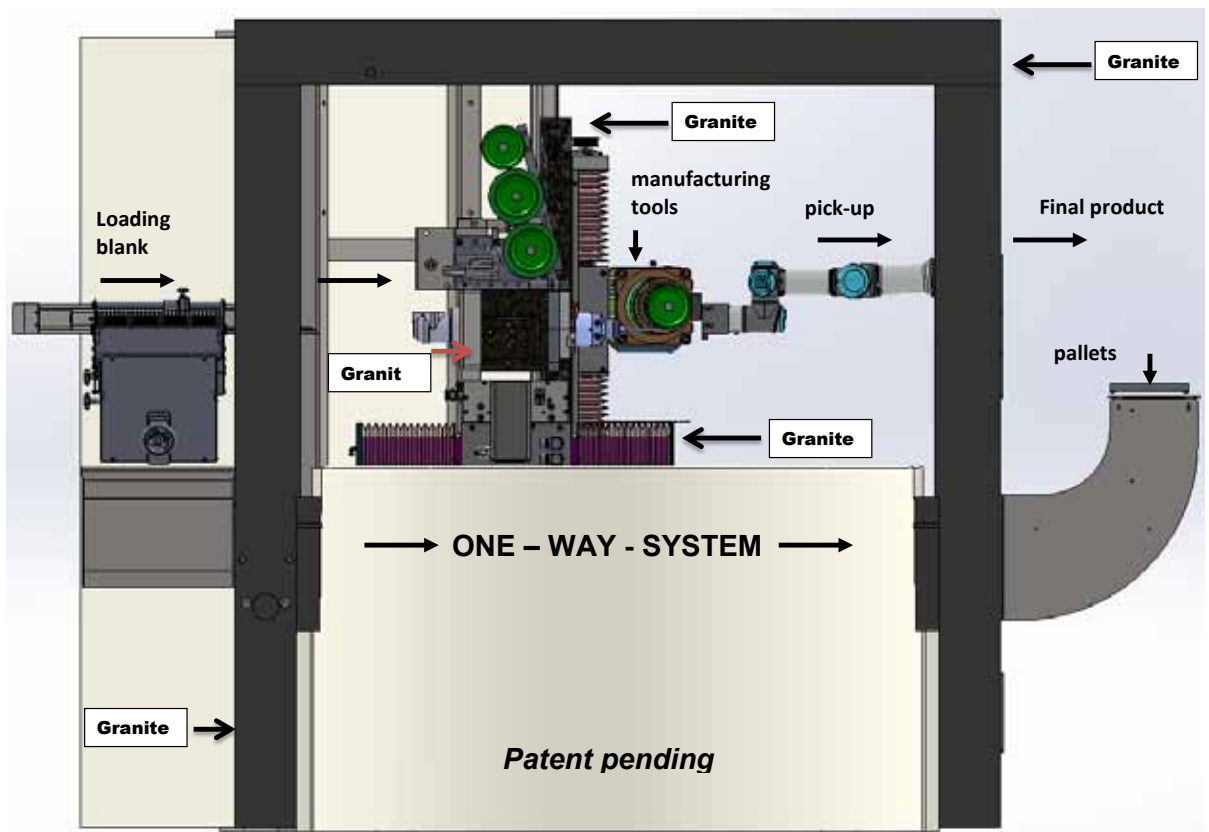
- highest precision
- fast retooling
- fast loading and unloading
- best price/performance ratio
- Patent pending

NEW: EXTREMELY FAST TOOL LOADING AND UNLOADING SYSTEM

The unique design of the machine with the closed granite body and the loading and unloading systems mounted on it in one plane makes a seamless process sequence possible. During a blank is loaded into the workpiece carrier via a supply magazine (singling conveyor), after the grinding process the finished workpiece is picked up almost simultaneously by a robot removal system and the finished tool is placed on pallets. This reduces handling times to a minimum.

The blanks or other round, cylindrical or cross-sectionally symmetrical workpieces are loaded through the workpiece carrier (C axis). The insertion of the blank through the workpiece spindle of the C axis during loading ensures high positioning accuracy (via 3D probe system). of the blank.





The tool grinding machine WSA-G/10 is designed for the production of high-precision shank tools (drilling and milling tools) in the diameter range up to max. 10 mm.

Due to the special mechanical properties of **granite**, temperature fluctuations are virtually eliminated, thus achieving the best results in the grinding process. This achieves quality conditions known from measurement technology.

Construction principle mineral casting in combination of granite components:

Machine base made of mineral casting,
thereof in **granite**:

- ▶ C-axis (workpiece axis)
- ▶ Kinematic-frame structure (portal)
- ▶ B-axis - swivel arm
- ▶ Y-axis-support (vertical axis)
- ▶ X-axis (incl. linear drive)



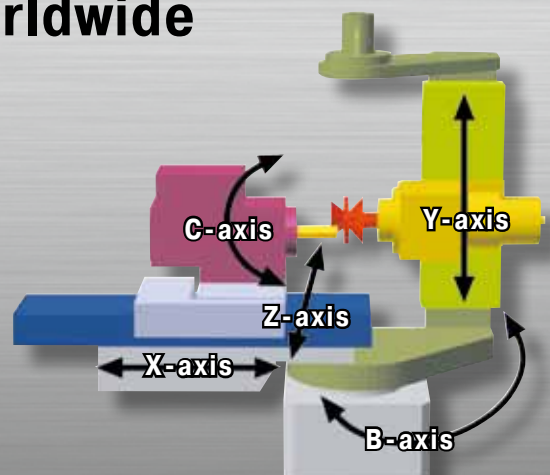
New measuring system for determining the clamping length of the tool blank using a sensor (tool probe). The position of the tool blank is determined with μ -accuracy. This significantly reduces non-productive times.



HAWEMA KINEMATIK

patented worldwide

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





GRANITE CHARACTERISTICS

- minimum thermal expansion
- extremely high stiffness
- accuracy similar to measuring machines
- vibration-damping
- approx. 50% weight reduction, has an effect on longevity
- strains on guideways and bearings are considerably lesser

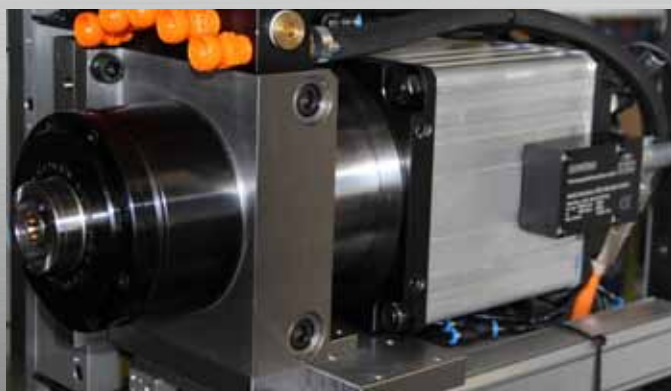
TECHNICAL DATA

Complete machining max. workpiece length		120 mm
Complete machining max. diameter		10 mm
Measuring system	Tool measurement	3D probe
Option	grinding wheels or grinding wheel package	3D probe
Grinding spindle (direct drive)	20 kW / S6 oil cooled	0-10000 rpm
• Direct drive with pneumatic/automatic HSK 50 clamping system		
Grinding wheels		
Max. Diameter		125 mm
Grinding wheels per holder		1-4 wheels
Cooling with cooling valve		program controlled 3 valves
Grinding wheel holder		high-precision HSK 50 system
Option	automatic 3-package wheel changer	
Workpiece holder C-axis - granite		
Direct drive		up to 2000 rpm
Tightening system	special WSA clamping system Schaublin, SRS flange	automatic
Option	Tool probe for determining the clamping length of blanks	
Control: Fully digital CNC control NUM-Flexium+ with digitally controlled servos, 19 inch TFT colour monitor with touch screen functions.		
User software: NUMROTOplus® milling tools, drilling tools, special tools, 3-D simulation (visualisation: tool and grinding wheel)		
Optional filter systems: Interfaces for various filter and coolant systems.		
HAWEMA belt filters, HAWEMA OC 12/OC 20 and OC 30 or other manufacturers possible.		
Interface: Oil mist extraction system		Ø 150 mm
Fully automatic loading system (singling conveyor) pneumatic		2.5 bar
Blanks		Ø 4, 6, 8 and 10 mm
Unloading system		
Universal Robot UR3	Programmable interface	Poly Scope
Axis movement		
Longitudinal	X-axis	296 mm
Lateral	Z-axis	190 mm
Vertical (Granite)	Y-axis	220 mm
Resolution	X-Y-Z-axis	0.0001 mm
Speed	X-Y-Z-axis	15 m/min.
Rotation	C-axis	360°
Resolution	C-axis	0.0001 mm
Speed	C-axis	2000 rpm
Direct drive B-axis (Granite)		
Swivel range	B-axis	-15°-195°
Speed	B-axis	112°/sec.
Axis drives	Z-Y-axis	high-performance NUM servo motors
Linear drive X-axis (Granite)		
Machine dimensions		
Height Round-Ø Weight	2000 mm 1500 mm 4500 kg	
Air supply	6-8 bar	
Power supply	400/380 V - 50 Hz/40 A	
Colour	RAL 7035 light grey	

www.numroto.com

HIGH-PRECISION MACHINE COMPONENTS

Precision in all parts: the sophisticated machine components from HAWEMA. The sum is only as good as each of the individual links in the chain. This is why HAWEMA attaches particular importance to high-quality machine components. Our motor spindles operate with concentricity accuracies of less than 2 µm. The precision guides are prestressed for maximum rigidity and accuracy and permanently lubricated. The worldwide patented kinematics with the double-bearing grinding column (Y- and B-axis) ensures maximum rigidity and accuracy with exceptional free movement.



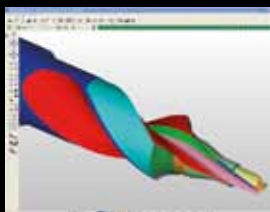
CONTROL UNIT NUM-FLEXIUM+

- 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 functions
- Control cabinet, installed on machine base with maximum arrangement and accessibility, advantageous for use during service work
- Swivelling service panel for simple operation
- Office PC integrated in the control cabinet, allowing fast exchange with adaptation to the latest technical standards without high investment costs and without problems.

USER PC

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

numroto[®]
Total solution for tool grinding



NUMROTOplus[®]

THE WORLDWIDE LEADING USER SOFTWARE

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

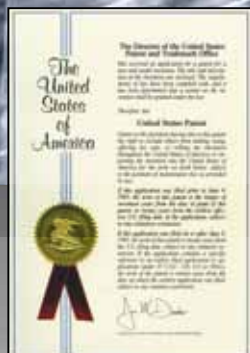
PROFILE TOOLS design your own profile of all types. All profiles on shank type tools. Free programming.

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.



Choice from tool spectrum WSA-G/10
diameter range 0.2 to 10 mm



OVER 800 HAWEMAT CNC TOOL GRINDING MACHINES ARE USED IN OVER 20 COUNTRIES WORLDWIDE.

Customers rely on our grinding solutions. This includes tool manufacturers, as well as companies in medical technology, the automotive industry, mechanical engineering and grinding services. In all its activities, HAWEMA focuses on people. Since the foundation of HAWEMA, the highest priority for our employees has been to satisfy our customers in all respects. In order to be able to react flexibly to the wishes of our customers, we are looking for personal contact. This has shaped the style of our company in dealing with our business partners at all levels. The HAWEMA philosophy is to harmonise general problem solutions with specific requirements.

We guarantee quality and performance.



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