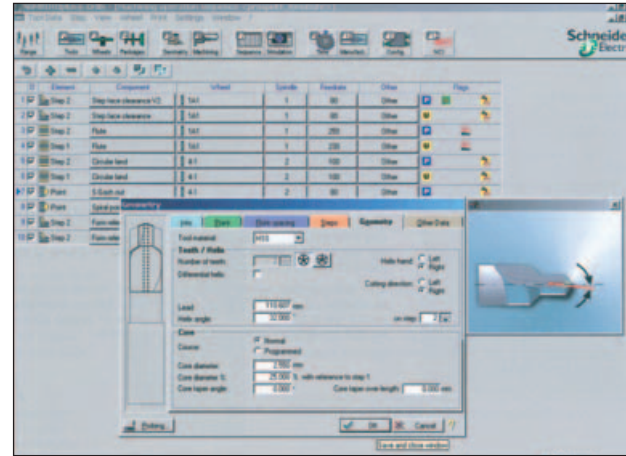
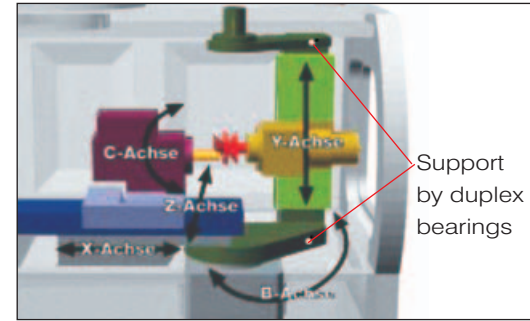


### PICK-UP-LOADING SYSTEM

The accurate and practical pick-up-loading system for 20 pcs tools loading can satisfy one operator to control several machines; with highly cost-effective and save the cost of tools-changing by manual, also without defect of easy damage on numerous tools loading.

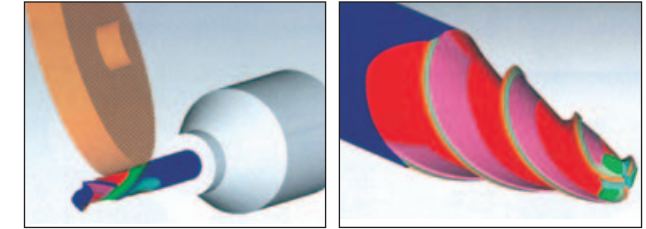


Filled-in software operation provides easy-learning and comprehension



International patent: Supported by duplex bearings. Y-Axis (column) was supported by duplex bearings, to provide excellent rigidity, good stability in grinding head, high precision and long life in machine.

Machine base is made of cast mineral.



2D - 3D simulative operation, shorten the time of setting work pieces

- Equipped with the top quality NUM POWER 1060 Controller in CNC Tool Grinder, and Industrial PC.
- Equipped with the first class software NUMROTO plus® in CNC Tool Grinder. With the most perfect software of the world, the grinding of tools is like art, all of the simple normal tools, complex formed cutters, and non-regular tools can be solved easily, to throw off the competitors behind.
- Using 2D Software (3D is of option) to simulate the grinding of tools to let operator produce the most perfect tools within the shortest time.
- With function of memory stocking over ten thousands, the cutting data that ground previously can be shown on monitor in a few seconds for re-utilizing, saving the time of re-setting.
- In addition to standard equipped grinding software, there are still several hundreds of special tool software can be chosen and can be provided for customers any time even 5 or 10 years after.

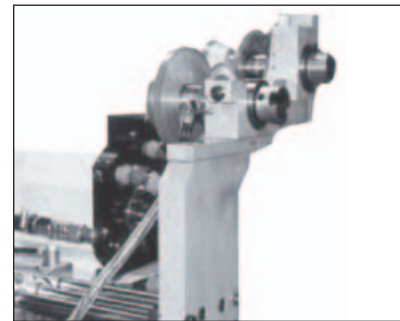
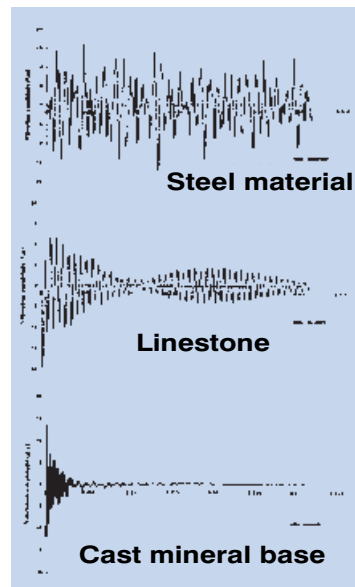
# HAWEMAT 5 AXIS CNC TOOL GRINDING MACHINE

## MACHINE FEATURES

Machine base is made of cast mineral, which is the construction of high precision grinding machine up-to-date. It's merits are as below :

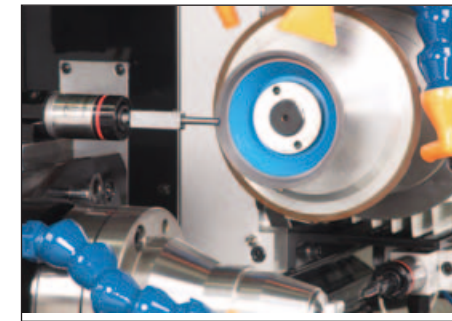
- Good feed damping, high motion precision, and the finish of the processed workpieces surface is better.
- With low heat resistance, low influence by environmental temperature changing and good rigidity, so machine's stability can be maintained, and the workpieces accuracy stability be promoted also.
- The international patent - upper & lower portion of rotary column are supported by high-rigidity bearings to provide high-rigidity and excellent stability on Grinding Head.
- The gap between workpiece worm gear and worm wheel can be adjusted to zero.
- Grinding wheel spindle is direct drive, results in sufficient power, high rigidity, low vibration and long-life spindle, and without the defect caused by belt-transmission .
- Grinding wheel spindle with water cooling.
- High precision grinding spindle with HSK; complete set of rapid & high precise wheel clamping system, as well as outstanding concentricity accuracy values of 1 to 2 μm with high stability.
- Equipped with (Marposs) 3D automatic tool measuring system, no matter new-made tools or regrinding tools can be automatically measured for grinding.
- (Option) Grinding wheel and Grinding wheel sets measuring system (Marposs 3D)

## COMPARISON ON DAMPING



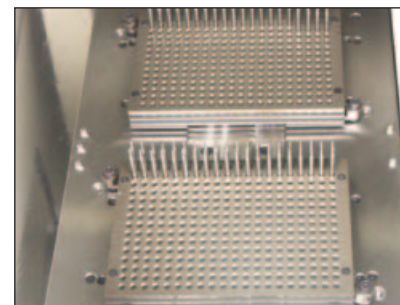
### Automatic-Change System on Grinding Wheel Adaptor

Fully automated HSK 50, two sets grinding wheel changer offers the advantages of a double spindle system with substantially improved accuracy and quick-change

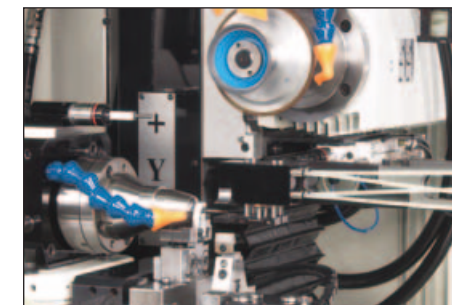


### Measuring probe for online measuring of grinding wheel

Key-in the data of grinding wheel packages into the computer directly, precisely & efficiently to avoid the error of manual-measuring and not to waste the time.



300 pcs tool cassettes



Pick-up loading system



H-3000 C-axis direct driver system



**Specifications:**

Tools length.....260 mm (optional: 350 mm)  
 Tools diameter .....150 mm  
 Wheel spindle .....12 Kw (16 HP) motor direct drive  
 Wheel Adaptor.....HSK50  
 Wheel spindle drive ...0~10,000R.P.M. (infinitely variable)  
 Wheel max. diameter.....150 mm  
 Wheel inner hole diameter.....20 mm  
 Grinding wheels per mount .....1~3 pcs (or 1~4 pcs )  
 Program controlled cooling with coolant valves ...3 valves  
 Workhead spindle inner taper .....BT50  
 PC-Control.....NUM POWER 1060 & Industrial PC  
 Monitor.....15" color  
 Machine dimension ....3,000mm(L)x 2,000mm(W)x 2,200mm (H)  
 Electrical control cabinet .600mm(L)x1,200mm(W)x2,000mm(H)  
 Machine weight.....5,000 kgs  
 Air compressor Power .....5 kg/cm<sup>2</sup>  
 Electricity required.....22 Kw (30 HP)

**OPTIONS:**

- 3D measuring system (Marposs) for grinding wheel measurement.
- Automatic changeover system for dual grinding wheel sets.
- Tools automatic clamping system (include one pc BT50 KM22 straight collet type hydraulic expansion chuck).
- Pick-up loading system (loading of 20 or 300 tools).
- Straight type collets (3~20mm).
- Tools software for special tools, formed tools...etc.

**STANDARD ACCESSORIES:**

- Tool automatic measuring system (Marposs) 3D
- Pneumatic wheel adaptor HSK50 - 2 pcs
- Oil-mist exhaust system one set
- One set NUMROTO plus® basic package, can grind the following tools:

<b>NUMROT Oplus® - for milling standard cutters:</b>	<ul style="list-style-type: none"> <li>• Body from: parallel and tapered</li> <li>• Face form: flat, full radius, corner radius, chamfer</li> <li>• Heliex: right-hand helix /right-hand cutting, left-hand helix/left-hand cutting</li> </ul>
<b>NUMROTO plus® - for standard drills/step drills</b>	<ul style="list-style-type: none"> <li>• Points: spiral point, 4-facet, S4 (SUMITOMO POINT) S6 (SANDVIK POINT), T3 (3 flute POINT)</li> </ul>

- Flute and body machining
- Single flute up to 3 diameters
- Straight step transitions with variable angle

- C-axis direct driver system (Workhead can be rotation 800rpm for cylinder grinding)
- Manual type BT50 KM22 straight collet hydraulic expansion chuck operation by hand.
- Extra grinding wheel adaptor HSK-50.
- Large cooling filter system, with tank capacity 700 liters, can filter automatically, the oil temperature automatically cooling control and powder be clean off automatically also to save filter material; the fluid can be maintained very clean for long time without needing maintenance to assure machine's life and tools quality.



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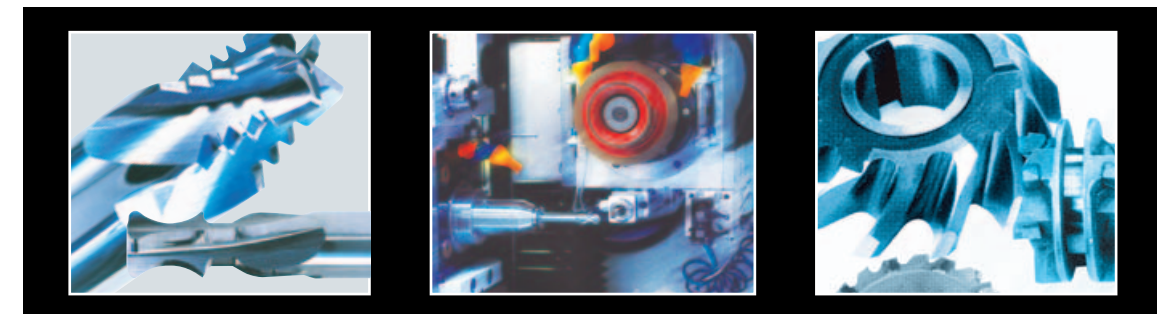
Specialize in High-precision Tool Grinders

171-2009.02 05-ES 04-23227907

**3000 series**



**HAWEMAT 5 AXIS CNC TOOL GRINDING MACHINE**



The new choice of the mechanical construction - Cast mineral base

Good damping & motion characteristic

Low heat resistance