

HALLER M1

NUM-CONTROL



HALLER

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Suzhou Haller Intelligent Manufacturing Co., Ltd.

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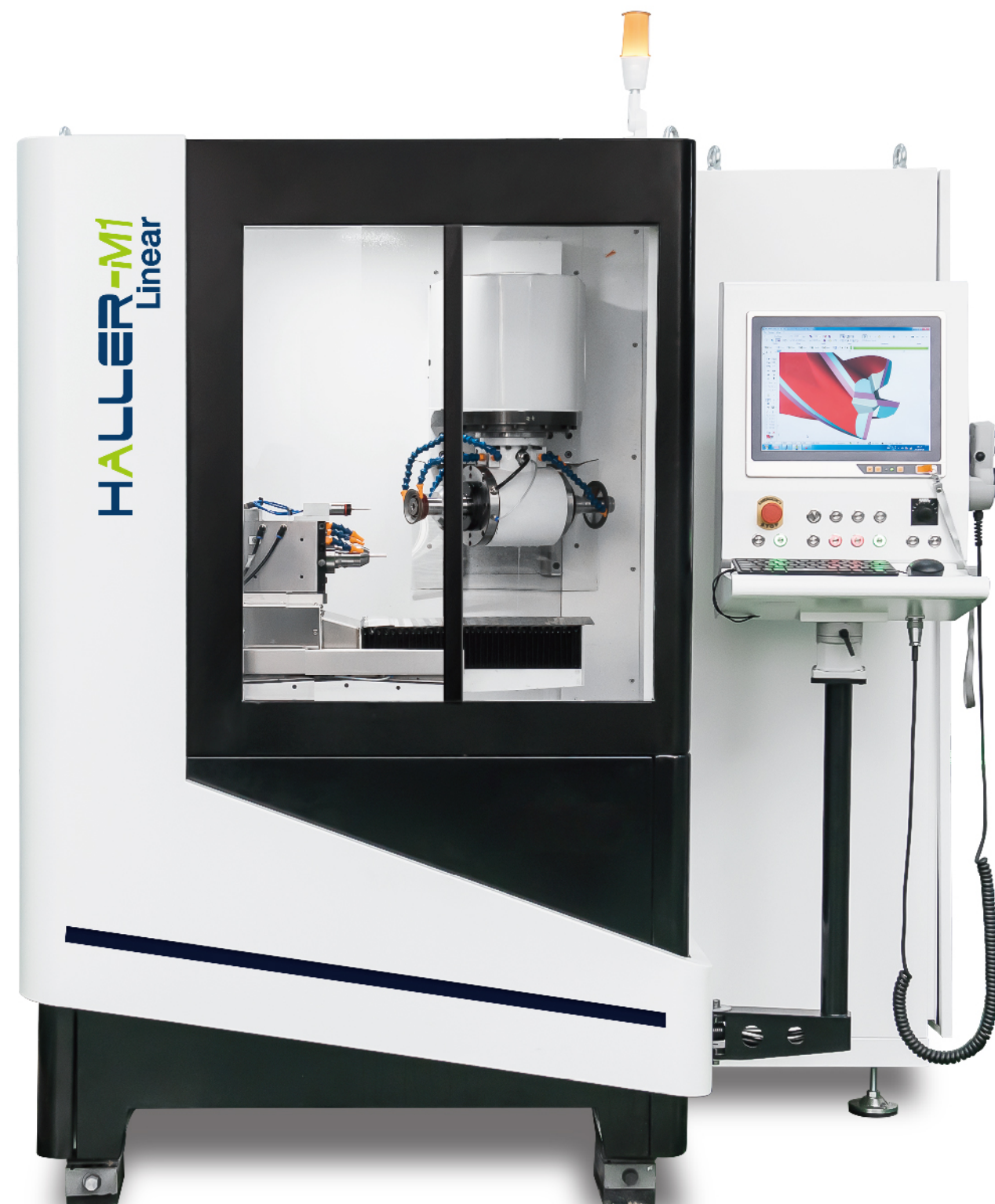


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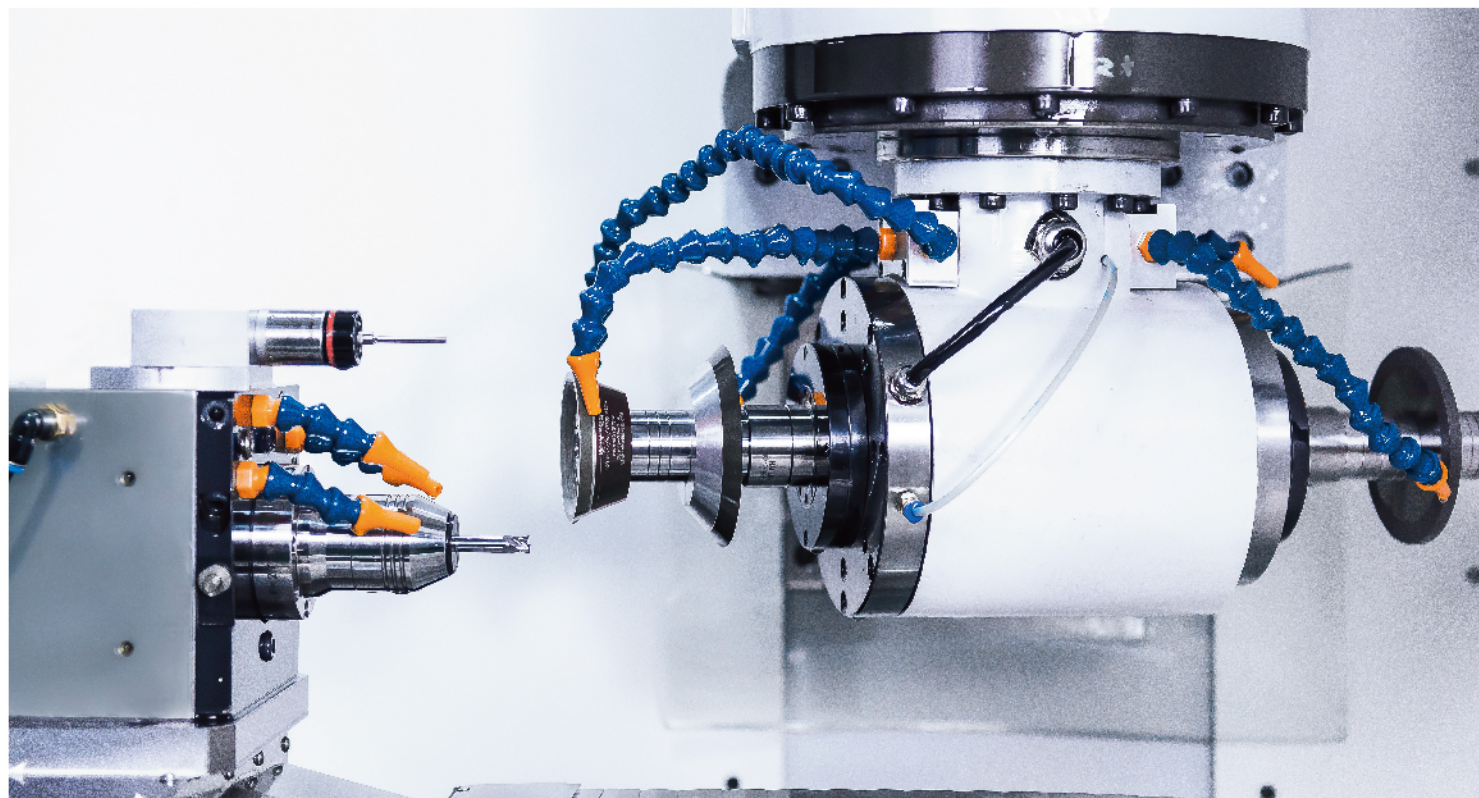
NUM-CONTROL

苏州哈勒智能制造有限公司是一家从事5轴数控智能设备设计、研发与生产的公司。2014年成立之初，哈勒智能引进德国高端5轴数控装备技术，在中国组装消化吸收，智能更迭，升级换代，以适应中国本土化方式为用户提供工具磨削整体解决方案。随着公司的不断发展与业务增长，研发设计与生产装配工艺日趋成熟，以及国家对依赖进口的高端卡脖子设备的扶持，哈勒智能开始涉足于工具磨削设备、医疗机械、传动机械、辅助配套设备以及相关应用软件领域的自主研发与制造。现有成熟5轴数控磨床PG系列和M系列以及医疗、传动等多个领域的系列产品，并已获得多项国内专利。哈勒智能不仅为客户提供多元化的解决方案，专业的应用培训，优质的售后服务，更能帮助客户解决产品加工难点，全方位满足客户定制化需求。

Suzhou Haller Intelligent Manufacturing Co., Ltd. is a company engaged in the design, R&D and manufacturing of 5-axis CNC intelligent equipment. Since its establishment in 2014, Haller brought in high level 5-axis CNC machine technology from Germany, doing machine assembly in China, upgrading and optimizing to provide local customers with complete tool grinding solutions. As the company developing, business growing, R&D and assembly technology getting mature and government encouraging policy of high level import-dependent machines, Haller has started the innovative development and manufacturing of tool grinding machine, medical machine, transmission machine, auxiliary equipment and programming of application software. Haller now has mature 5 axis grinding machine PG series and M series as well as series products in multi-fields like medical and transmission with domestic patents obtained. Haller not only provides customers with diverse solutions, professional application training, excellent after-sales service, but also can help customers solve production difficulties to satisfy all-round customized demands.



内部概览 Inside Overview



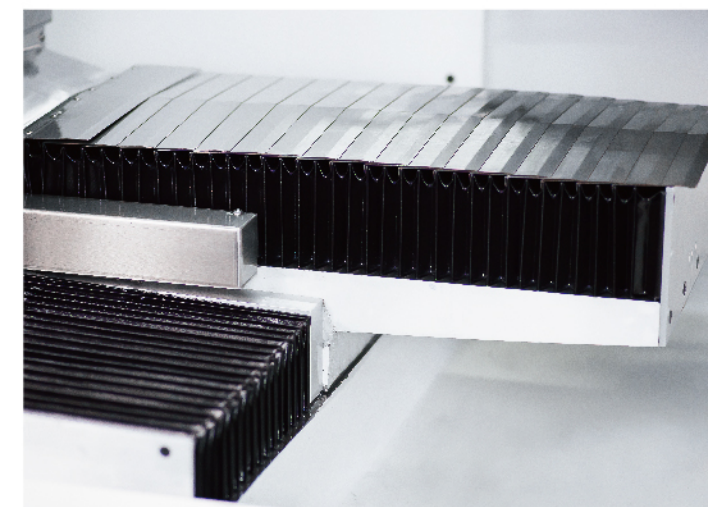
功能优势 Function Advantages

- 机床外形精致美观，床身小巧节省空间。
- 天然花岗石床身具有良好的减震性和耐热性，硬度高，耐磨性强。
- 独特的结构设计，行程短，加工效率高。
- X、Y轴高精度直线电机，超高推力密度；配有全闭环高精度直线光栅尺，稳定性持久。
- 双头磨削主轴，加工快捷，稳定性高；配有永磁电机，扭力大，低损耗。
- 工件、砂轮全方位自动在线测量系统高效准确，保证了加工刀具的稳定性。
- 采用全球领先的NUM控制系统与NUMROTO磨削软件，简单易学。
- 个性化操控面板，直观简便。
- The machine looks beautiful, exquisite and space-saving.
- Natural granite body has a good shock absorption and heat resistance ability, high-hardness and strong anti-abrasion property.
- The unique structure design is in short travel, bringing high processing efficiency.
- X, Y axis high precision linear motors have super-high thrust density, equipped with full closed-loop high precision linear scale, durably stable.
- Double-ended grinding spindle, fast processing, high stability, equipped with PM motor of high torque and low power loss.
- Automatic full-directionally internal measuring system for both work piece and grinding wheel are efficient and accurate, which ensure the tool machining stability.
- The worldwide leading NUM control system and NUMROTO grinding software are easy to learn.
- Individualized control panel is visually simple, operating easily.

高精度直线电机 High-precision Linear Motor

X、Y轴直线电机，具有超高推力密度，低顿力，配有海德汉全闭环高精度直线光栅尺。直线光栅尺具有测量方向上的高刚性，热特性好等特点，全闭环控制模式能消除潜在的多个误差源，从而保证了机床高精度定位和高速加工时的稳定性，且长期持久。Z轴采用高扭矩输出NUM伺服电机，可配直线轴光栅尺。

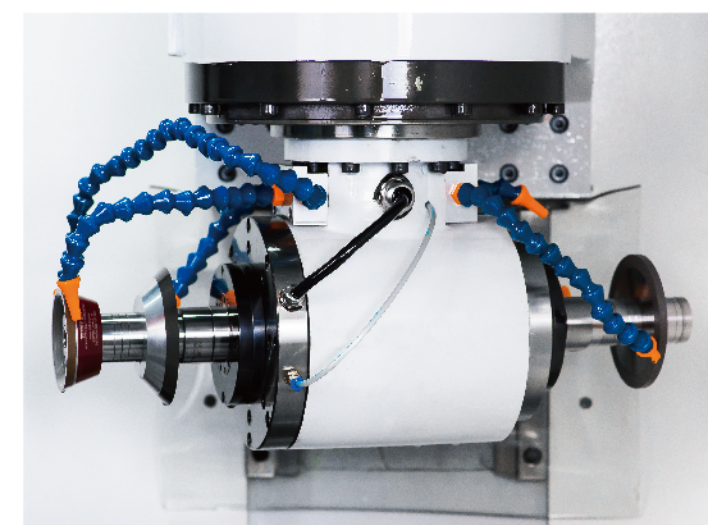
The X and Y axis linear motors with super-high thrust density, equipped with HEIDENHAIN closed-loop high precision linear scale. The linear scale has the characteristics of high rigidity in measurement direction and good thermal property. The full-closed-loop control mode can eliminate potential multiple error sources, thus ensuring the stability of high precision positioning and high speed machining during tool machining in long term stability. Z axis is with high-torque output NUM servo motor, optionally equipped with linear scale.

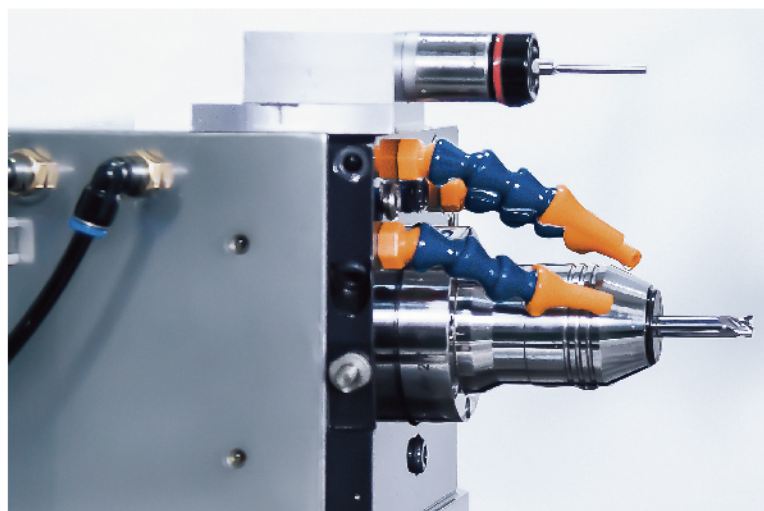


双头磨削主轴轻松实现快捷加工 Double-ended Grinding Spindle Realize Fast Machining

双头磨削主轴，HSK40E接口，峰值功率7.5kw，满载恒定功率5kw，恒定扭矩12N·M，采用高扭矩永磁电机，扭力大，能耗损耗低。双头磨削过程中，每头各装一个砂轮杆，每个砂轮杆最多可装3片砂轮（双头最多装载6片砂轮），砂轮最大直径125mm，轻松实现快捷加工。

Double-ended grinding spindle, HSK40E interface, peak power 7.5kw, full-load constant power 5kw, constant torque 12 N·M, using high torque permanent magnet motor, large torque force, low power loss. In the grinding process with double ends, a grinding wheel adaptor is mounted in each end. The grinding wheel adaptor can be equipped with up to three grinding wheels (both ends up to six grinding wheels). The maximum diameter of the grinding wheel is 125 mm. It is easy to realize fast processing.



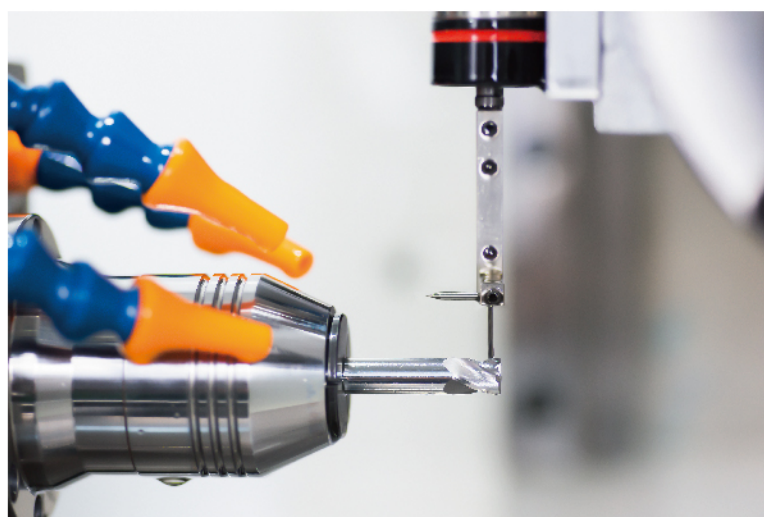


SK40工件轴

SK40 Workpiece Axis

SK40工件轴（A轴）采用高扭矩直驱电机，分辨率可达0.0001°，最高转速1000rpm，为在线外圆磨削提供可能。A、C轴配置独立油冷系统，保证精度的可靠性。

SK40 workpiece axis (A axis) uses torque motor with resolution of 0.0001°, maximum speed of 1000rpm, making it possible for cylindrical grinding. A, C axis are equipped with separate oil cooling system to ensure the precision reliability.

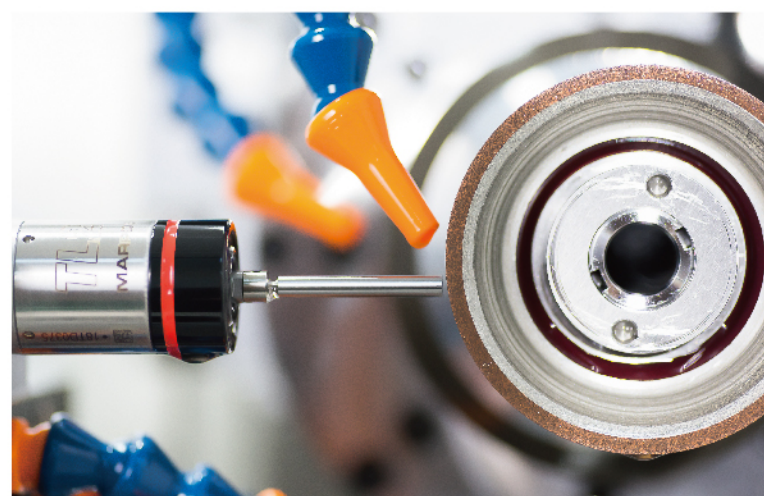


工件测量系统

Workpiece measuring system

在线对工件进行迅速定位，在刀具加工过程中测量并修整工件参数，保证了刀具加工的质量。

The workpiece is internally rapid-positioned, and the workpiece parameters are measured and adjusted in the process of tool machining to ensure the tool quality.



砂轮测量系统

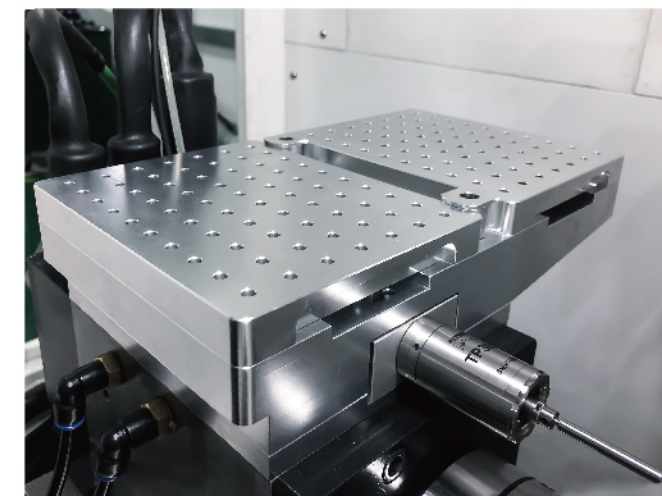
Grinding wheel measuring system

机床在线测量砂轮参数，迅速便捷，有助于减少机外测量检测时间，避免人工检测错误，准确高效，从而保证刀具加工稳定性，提高加工效率。

Machine automatic internal measurement of grinding wheel parameters is fast and convenient, to helpfully reduce the measuring time outside the machine, avoid manual checking errors, accurately and efficiently, so as to ensure the stability of the tool machining and efficiency is improved as well.

自动装载系统

Auto-loading System



料盘

Loader

更换产品更加便捷，批量化生产效率提高
Easy to change, high efficiency in mass production



机械手

Pick up device

内置式设计，高效灵活，可实现无人化生产
Built-in type, highly efficient and flexible, enable the unmanned production

稳定可靠的控制系统

Reliably Stable Control System



NUM-Flexium⁺⁶⁸

- 新一代NUM-Flexium⁺⁶⁸数控轴系统；
- 高分辨率直驱电机；
- 17寸TFT彩色显示屏，个性化操控面板，直观简便；
- 优化设计的电器柜易于修理；
- 通过光纤链接的可旋转操作面板方便操作；
- 直接安装在机床电器柜里的电脑为今后的维护、更换、升级提供了便利从而节省了费用。

- New generation NUM-Flexium⁺⁶⁸ digital CNC control unit;
- High resolution direct drive motor;
- 17-inch TFT colour display with uniquely simple operating panel;
- Electrical cabinet with optimal arrangement and accessibility for easy servicing;
- Rotatable panel connected via Ether-cut simple for operation;
- An office PC can easily be integrated in the electrical cabinet to promote maintenance, rapid replacement and updates without high investment costs.

实用的操控面板

Utility control panel

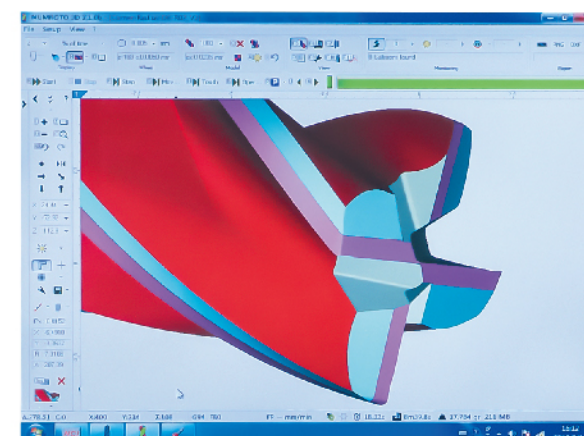
- 不断适应最新的PC技术；
- 最新Windows 系统软件；
- 可连接网络；
- 可选远程软件维护及软件备份；
- 个性化操控面板，操作便捷舒适。

- Continuous adaptation to latest PC technology;
- System software: latest Windows generation;
- Network connection possible;
- Optional remote software maintenance and back-up;
- Individualized control panel, operating conveniently and comfortably.



简单的磨削软件

Easy Grinding Software



NUMROTOplus® 是全球领先的用户软件，多年来成为高精度刀具磨削中的成功引领者。NUMROTOplus® 软件简单易学，普通工人即可在短时间内迅速学会并熟练操作，大大降低工人培训难度，为客户降低培训成本。

NUMROTOplus® is the worldwide leading user software, successful trendsetter in high-precision tool grinding for many years. NUMROTOplus® software is simple and easy to learn, ordinary workers can quickly acquire grinding skills and operate proficiently in a short time, greatly reducing the difficulty of training workers, and reducing training costs for customers.

应用范围

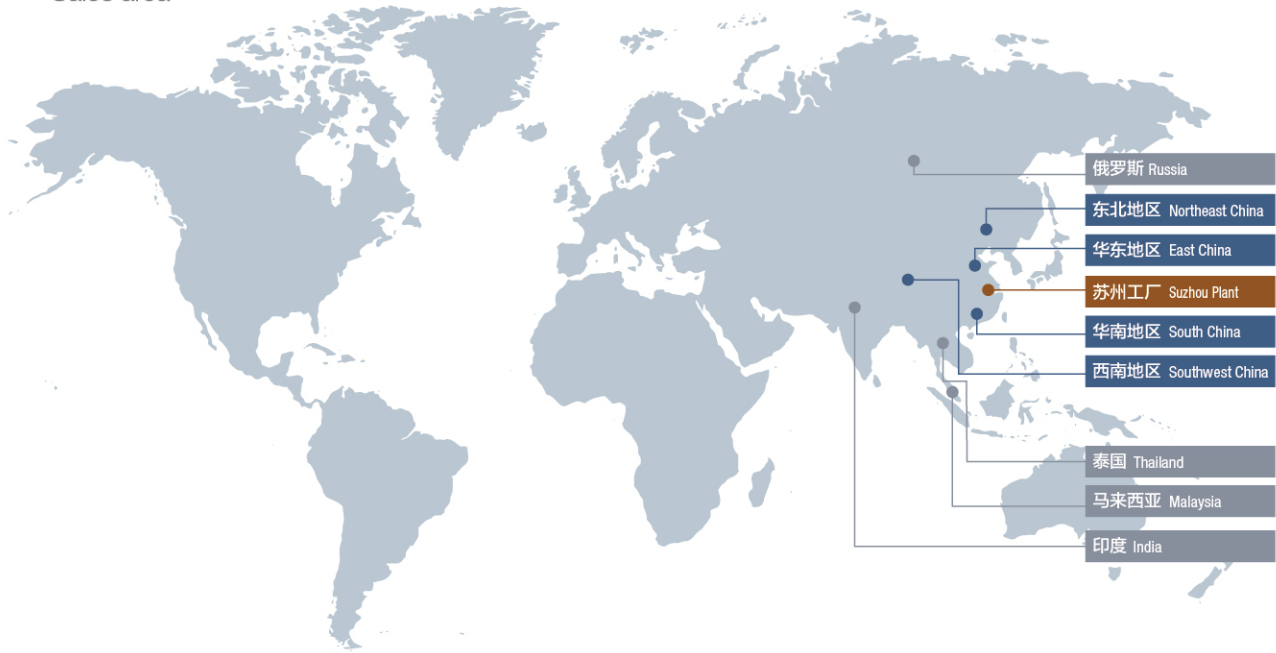
Application

- 标准刀具的制造与修磨
- 高精度复杂类木工刀具
- 金属陶瓷刀具
- 陶瓷氧化锆类刀具
- 医疗齿科、骨科类工具

- Manufacturing and Regrinding of Standard Cutting Tools
- High Precision Complex Woodworking Tools
- Cermet Tools
- Ceramic Zirconium Oxide Tools
- Medical Dental and Bone Tools

客户服务
Customer Service

销售区域
Sales area



售后服务
After-sales service

配件：苏州工厂备有大量的、齐全的配件库存，可快速、高效提供配件。

服务人员：中国各销售区域与海外各地区配有服务团队。

响应时间：收到客户报障信息最迟3小时内做出响应。

Spare parts: Suzhou plant has a large and complete spare parts inventory to provide spare parts in a short time.

Service: China sales areas and overseas areas are assigned with service teams.

Response time: Response within 3 hours on the receipt of customer's information.

应用培训
Application training

- ◆ 提供交货前为期1周在苏州哈勒厂内的免费应用培训。
- ◆ 提供交货后为期1周在客户现场进行的免费安装调试及应用培训。
- ◆ 不定期举办各区域专场应用技术培训。

- ◆ Provide one-week free application training in Suzhou Haller plant before delivery.
- ◆ Provide one-week free installation&commissioning and application training at customer site after delivery.
- ◆ Irregularly organize technical application training for each sales area.

技术参数
Technical Data

磨削范围 Grinding range		冷却方式 Cooling	
刀具加工直径范围 Diameter range for tool production	1-10mm	工件轴(A轴)及砂轮旋转轴(C轴) Workpiece axis(A axis) and grinding wheel rotation axis(C axis)	独立油冷 Separate oil cooling
最大刀具修磨直径 Max. diameter for tool regrinding	50mm	油雾分离装置 Oil mist separation device	静电式 Electrostatic
最大加工槽长 Max. processing flute length	110mm	接口 Interface	Φ 150mm
控制系统 Control System		轴行程 Axis travel	
CNC 控制部分 CNC control unit	NUM-Flexium®68	横向（X轴） Transverse X axis	375mm
TFT液晶显示器 TFT liquid crystal display	17寸 inch	纵向（Y轴） Longitudinal Y axis	320mm
磨削软件Grinding software		垂直（Z轴） Vertical Z axis	160mm
NUMROTOplus® 铣刀，钻头，非标刀具，3D模拟软件 NUMROTOplus® milling cutters, drills, special tools, 3D simulation software		速度（X-Y轴） Speed X-Y axis	25m/min旋转运动 Rotational Movement
测量系统 Measurement system		速度（Z轴） Speed Z axis	15m/min旋转运动 Rotational Movement
刀具测量 标配 Tool measurement (standard)	3-D 探针（ Marposs ）	工件旋转轴（A轴） Workpiece rotational movement A axis	360°
砂轮测量 选配 Grinding wheel measurement (Optional)	3-D 探针（ Marposs ）	分辨率（A轴） Resolution A axis	0.0001°
高精度磨轴电机 High precision grinding spindle motor	0-8000rpm	速度（A轴） Speed A axis	1000rpm
电机直驱HSK40E手动夹紧系统 Direct drive motorHSK40E manual clamping system	峰值7.5kw, 满载恒定5kw,12N·M Peak 7.5kw, full load constant 5kw,12N·M	砂轮旋转轴（C轴） Grinding rotation axis C axis	310°
砂轮 Grinding wheels		速度（C轴） Speed C axis	110°/秒
最大直径 Max diameter	125mm	分辨率（C轴） Resolution C axis	0.0001°
每个砂轮连杆可装 Grinding wheels per clamping arbour	1-3片砂轮 1-3 pcs grinding wheels	轴驱动（X,Y轴） Axis drives X Y axis	直线电机 Linear Motor
冷却阀（程序控制） Cooling via cooling valve（Program-controlled）	3组 3 valves	轴驱动(Z轴) Axis drives Z axis	高扭矩输出NUM伺服电机 High torque output NUM servo motor
砂轮夹紧系统（高精度） Grinding wheels clamping system(High precision)	HSK40E	机床尺寸 Machine dimensions	
A轴（工件轴）A-axis (Workpiece axis)		长度/宽度/高度 Length/Width/Height	1990mm*1660mm*2080mm
标准A轴（锥度） Standard A-axis(Spindle taper)	SK40	重量 Weight	Appr.2500kg
夹紧系统（标配） Clamping system(Standard)	手动 Manual	电源 Power supply	3×400V-50HZ/32A
夹紧系统（选配） Clamping system (Optional)	自动 Automatic	功率输入 Power input	19kw
驱动形式（直驱） Drive(Direct drive)	力矩电机最大1000rpm Torque motor max.	压缩空气 Air Supply	≥6bar
		颜色 Colour	RAL9005/RAL9003

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