



成为精密制造信赖的伙伴
To be your reliable in precision manufacturing

地址：深圳市宝安区福海街道展城社区和秀西路66号濠成(和平)工业园A3栋101
Room101, Building A3, Haocheng (Heping) Industrial Park, No. 66, Hexiu
West Road, Zhancheng Community, Fuhai Street, Bao' an District, Shenzhen
电话：+86-0755-23002771
邮箱：sales@roneind.com
网址：www.roneind.com



视频号



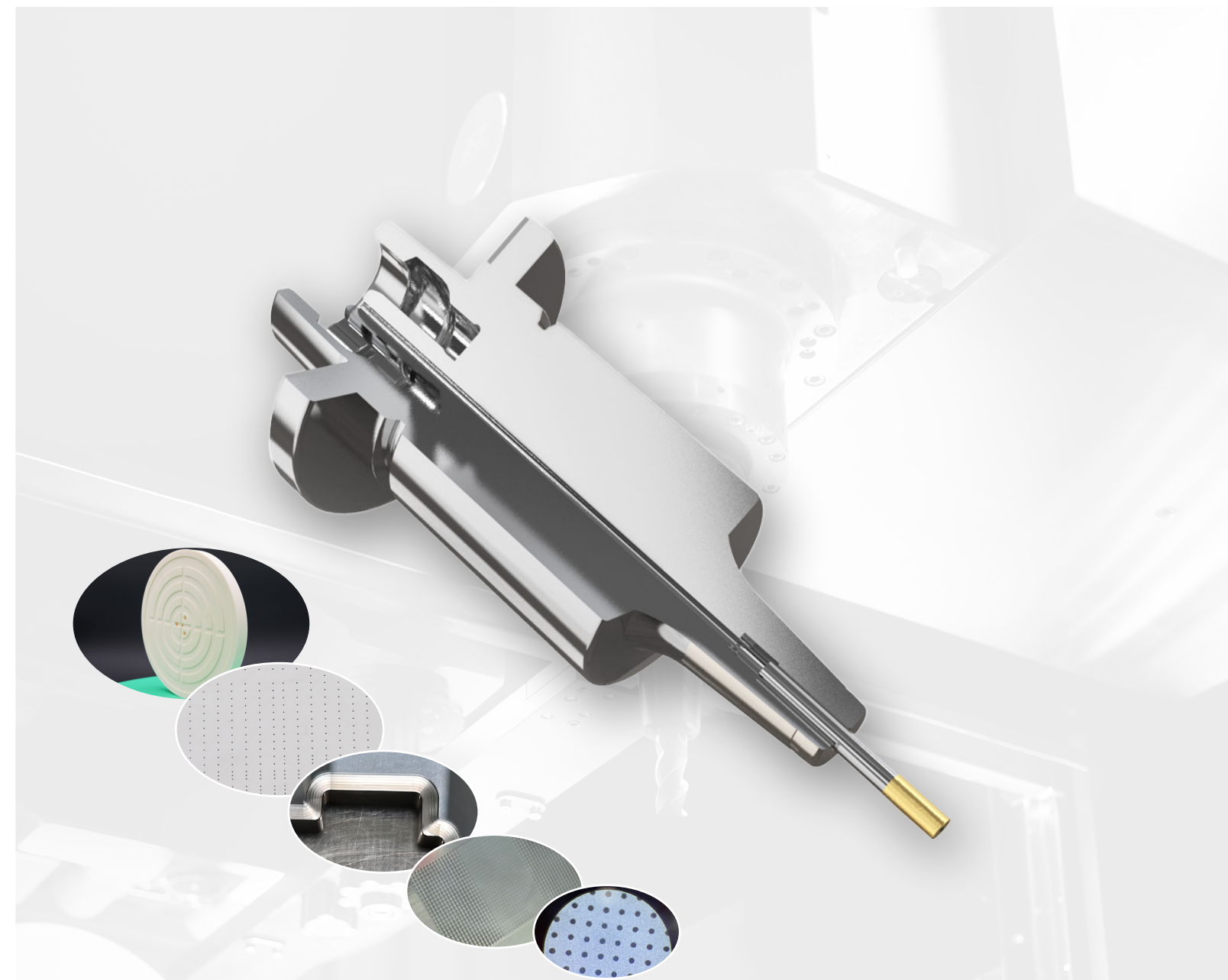
公众号

※随着研发的不断创新，本样册中所记载的产品规格、数据、外观、以及附件产品外观等也随时可能更新，恕不另行通知，敬请谅解。
With continuous innovation in research and development, the product specifications, data, appearance, and accessory product appearance recorded in this sample booklet may be updated at any time without prior notice. We apologize for any inconvenience caused.

※本样册所载加工数据均为本公司指定条件下得到的数据。
The processing data contained in this sample book are all data obtained under the specified conditions of our company.

R&D202509A

ULTRASONIC PROCESSING 朗恩精密超声波加工应用



陶瓷/碳化硅/钨钢/玻璃/铣削微孔加工

精密制造信赖的伙伴

RONEIND
朗恩精密

COMPANY
PROFILE
企业介绍

三大产品系列
Three major product series

超精密加工中心
Ultra precision machining center

五轴加工中心
5-axis machining center

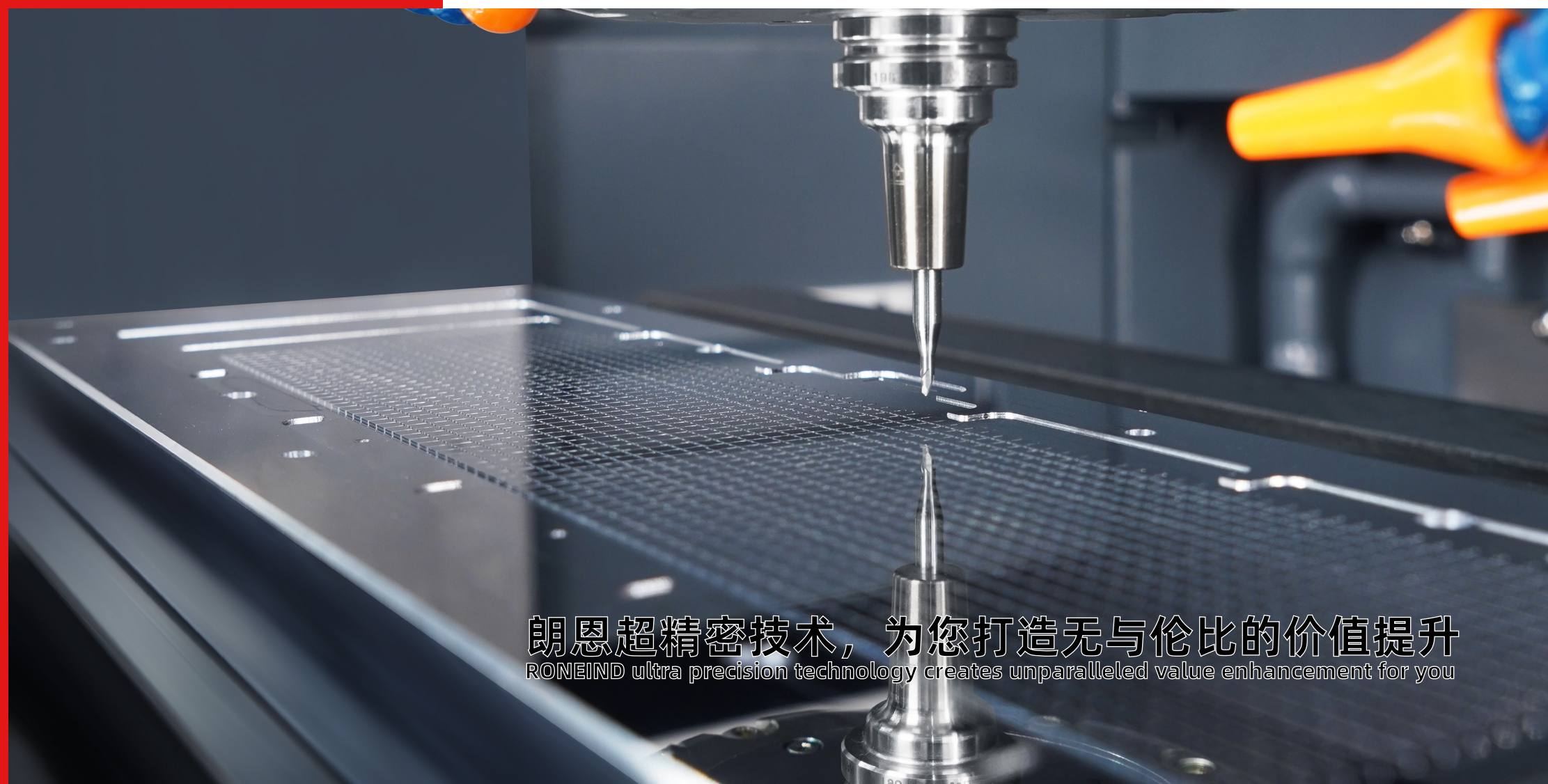
数控纵切车削中心
Swiss type - Sliding head automatic CNC lathe

20年机床行业经验
20 years of experience in the machine tool industry

10年超精密机床加工研究
10 years of ultra precision machining application research

成为精密制造信赖的伙伴
Become a trusted partner in precision manufacturing

超越同级 精度为先



朗恩超精密技术，为您打造无与伦比的价值提升
RONEIND ultra precision technology creates unparalleled value enhancement for you

COMPANY PROFILE 公司简介

朗恩精密是一家专注于高精密机械设备研发、设计、制造、销售、服务为一体的企业。公司产品“超高精度亚纳米加工中心”获评“中国深圳创新先进制造企业一等奖”。公司成立于2019年，深耕精密机床行业20余年，生产总部位于深圳宝安，目前在香港、苏州、常州、成都、武汉等地设有分支机构。公司秉承以“客户至上、科技创新、精益求精、诚信为本”为经营理念。

根据国内外高精密装备制造业发展需求，结合传统精密加工设备特点，引进和吸收国际先进技术与工艺，研发出了超高精度亚纳米级加工中心，静态端面跳动精度达到了0.0005mm，重复定位精度0.001mm，以及精密立式加工中心、五轴联动加工中心、数控纵切车床等设备。朗恩精密以设计合理，质量可靠，性能稳定深得用户信赖，可为广大客户提供定制化精密加工解决方案。

Rneind Precision is an enterprise dedicated to the research and development, design, manufacturing, sales, and service of high-precision mechanical equipment. The company's product "Ultra high precision sub nanometer machining center" has been awarded the first prize of "China Shenzhen Innovation Advanced Manufacturing Enterprise". The company was founded in 2019 and has been deeply involved in the precision machine tool industry for over 20 years. Its production headquarters is located in Bao'an, Shenzhen, and it currently has branch offices in Hong Kong, Suzhou, Changzhou, Chengdu, Wuhan, and other places. The company adheres to the business philosophy of "customer first, technological innovation, excellence, and integrity-based".

Based on the development needs of high-precision equipment manufacturing industry at home and abroad, combined with the characteristics of traditional precision machining equipment, we have introduced and absorbed international advanced technology and processes, and developed ultra high precision sub nanometer level machining centers. The static end face runout accuracy reaches 0.0005mm, the repeated positioning accuracy is 0.001mm, as well as precision vertical machining centers, five axis linkage machining centers, CNC longitudinal cutting lathes and other equipment. Langen Precision has gained the trust of users for its reasonable design, reliable quality, and stable performance, and can provide customized precision machining solutions for customers.

Ultra 500/600-超声波加工中心

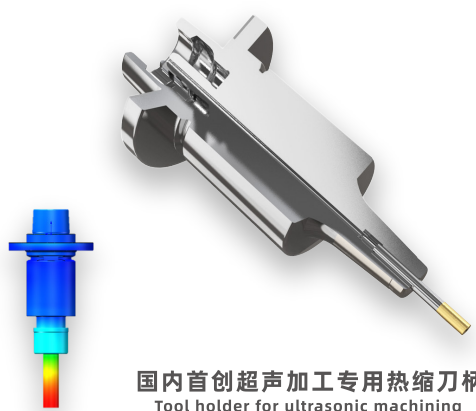
Ultra 500/600-Ultrasonic machining center

linear **DRIVE**

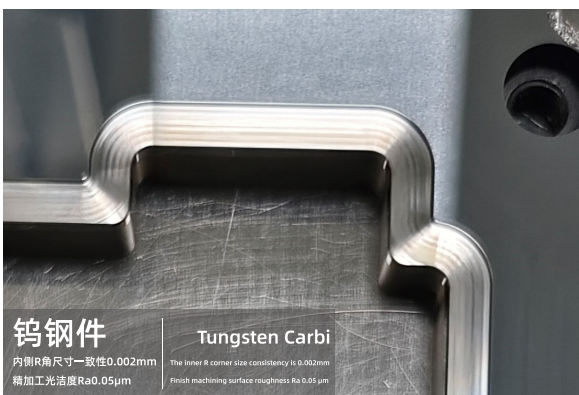
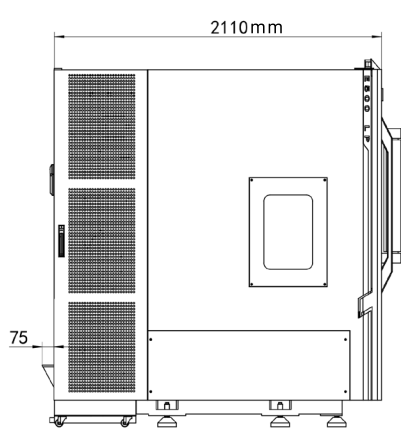
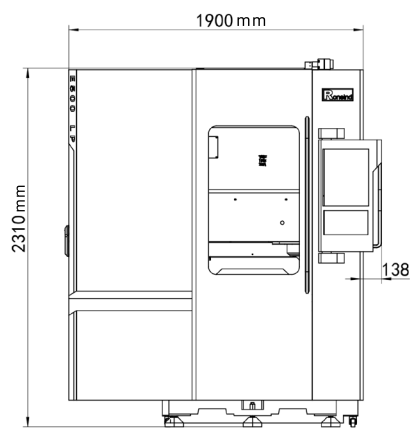


选配 Options

- ☒ 激光对刀仪
Laser tool setter
- ☒ 红外线探头
Infrared probe
- ☒ 切屑液恒温装置
Thermostatic device



国内首创超声加工专用热缩刀柄
Tool holder for ultrasonic machining



※标准机型尺寸参考图，详情以技术协议为准。
※Standard model size reference diagram, details subject to technical agreement.

产品简介 Product Description

- 采用矿物铸件床身，可选海德汉、发那科数控系统。配备超声波加工系统、超声专用热缩刀柄。
- 三轴使用高速直线电机驱动，高刚性左右对称框架结构，即使长时间运转也能实现稳定的高精度加工。
- 标配32000rpm高转速精密电主轴，可选配超精密42000rpm高性能电主轴。
- 采用G0级滚柱导轨、纳米级光栅尺，可实现Ra35nm产品表面精度加工，0.02mm微细孔加工。
- 行业应用：陶瓷、碳化硅、玻璃、光学、半导体、航天航空、精密模具、精密零件。
- Adopting mineral casting bed body, optional Heidenhain and Fanuc CNC systems. Optional ultrasonic assisted machining system.
- The three-axis system is driven by a high-speed linear motor and features a highly rigid symmetrical frame structure, ensuring stable and high-precision machining even after prolonged operation.
- Standard 32000rpm high-speed precision electric spindle, optional high-precision 60000rpm air static pressure bearing spindle.
- By using G0 grade roller guides and nanoscale grating rulers, Ra35nm product surface precision machining and 0.02mm micro pore machining can be achieved.
- Industry Applications: Optics, Lighting, Semiconductors, Aerospace, Automotive, Drones, Precision Molds, Precision Parts.

参数表 Machine Parameter

| 行程 TRAVELS | Ultra 500 | Ultra 600 |
|--|--------------------------|--------------------------|
| X轴行程 X-Axis | 500mm | 600mm |
| Y轴行程 Y-Axis | 400mm | 520mm |
| Z轴行程 Z-Axis | 220mm | 350mm |
| 工作台尺寸 Workbench size | 520mm*400mm | 600mm*520mm |
| 数控系统 CNC SYSTEM | HEIDENHAIN 620 | FANUC 3li-B Plus |
| 主轴 SPINDLE | | |
| 主轴转速 Spindle speed | 32000rpm (42000rpm) | |
| 主轴规格 Spindle taper | HSKE40 | |
| 移动速度 AXIS FEED RATES | | |
| 快速进给 Rapid traverse rate | 60/60/60m/min | |
| 切削进给速度 Cutting feed rate | 1-30000mm/min | |
| 精确度 ACCURACY | | |
| X/Y/Z轴定位精度 X/Y/Z-Axis Positioning accuracy | < 0.002mm | |
| X/Y/Z轴重复定位精度 X/Y/Z-Axis Repeatability accuracy | < 0.001mm | |
| 最小移动单位 Minimum moving unit | 0.01µm | |
| 光栅尺分辨率 Grating ruler resolution | 0.001µm | |
| 刀库 TOOL MAGAZINE | | |
| 刀库形式 Type | 圆盘式 Disc type | |
| 刀库容量 Max.pockets of tool magazine | 20 pcs | |
| 润滑冷却系统 LUBRICATION AND COOLING SYSTEM | | |
| 润滑系统 Lubrication system | 自动润滑 Automatic | |
| 冷却系统 coolant system | 油冷/水冷 Oil mist cooling | |
| 机械规格 MECHANICAL SPECIFICATION | | |
| 空气压力 Air pressure | 0.6Mpa | |
| 机床尺寸 Machine size | 2110mm x 1900mm x 2310mm | 2242mm x 2188mm x 2281mm |
| 机床重量 Machine weight | 约5400KG | 约6500KG |

※以上参数仅供参考，以技术协议为准 See technical agreement for details.

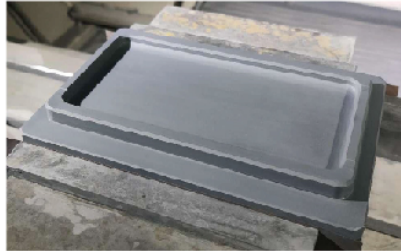
朗恩精密超声加工应用案例
Application case of Roneind precision ultrasonic machining

碳化硅
silicon carbide

※样件图片均为朗恩与客户、合作伙伴打样真实拍摄所得，禁止盗用。The sample images are all taken from real samples taken by Lang En, customers, and partners, and theft is prohibited.



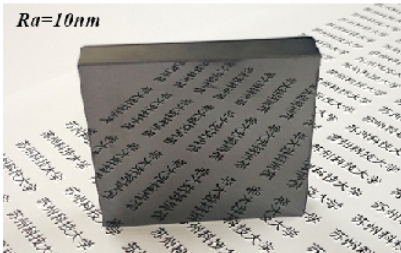
碳化硅手机曲面屏热弯模具
Silicon carbide curved mold



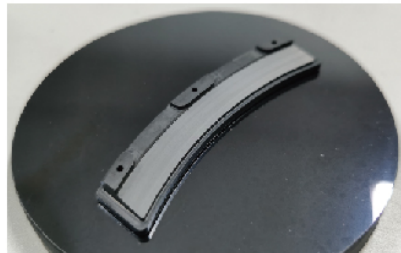
碳化硅超声振动加工
Ultrasonic vibration machining of silicon carbide



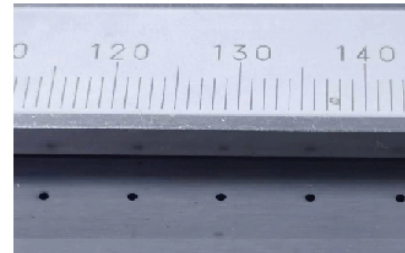
孔槽螺纹加工
Hole groove thread machining



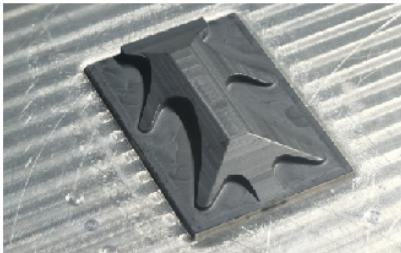
纳米镜面超声加工
Nano mirror ultrasonic processing



反射镜超声加工
Mirror ultrasonic processing



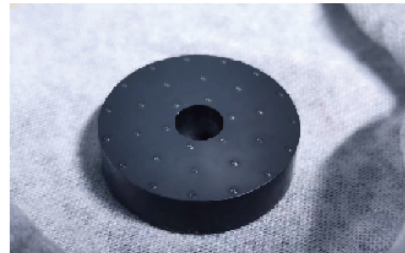
微孔超声加工
Micro porous ultrasonic processing



碳化硅结构件
Silicon carbide structural components



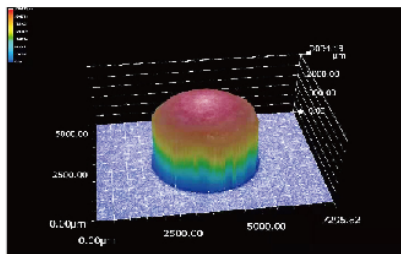
碳化硅结构件
Silicon carbide structural components



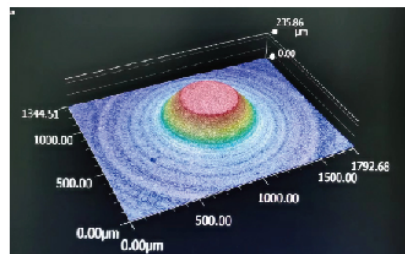
碳化硅结构件
Silicon carbide structural components



碳化硅复合材料
Silicon carbide composite material



碳化硅结构件侧视图
Side view of structural components

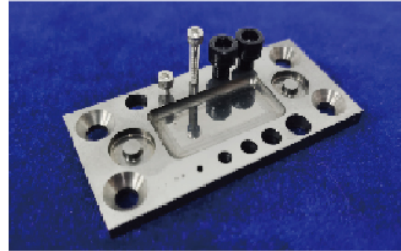


碳化硅结构件侧视图
Side view of structural components

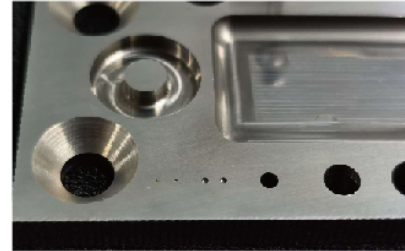
朗恩精密超声加工应用案例
Application case of Roneind precision ultrasonic machining

钨钢 - 硬质合金
Tungsten steel - hard alloy

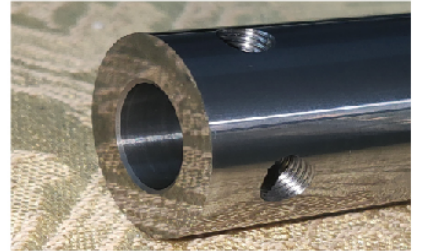
※样件图片均为朗恩与客户、合作伙伴打样真实拍摄所得，禁止盗用。The sample images are all taken from real samples taken by Lang En, customers, and partners, and theft is prohibited.



硬质合金模具
Tungsten carbide nib



螺纹/孔/槽加工
Ultrasonic vibration machining of silicon carbide



硬质合金刀杆螺纹
Hole groove thread machining



硬质合金冲头
Carbide punch



硬质合金冲头
Carbide punch



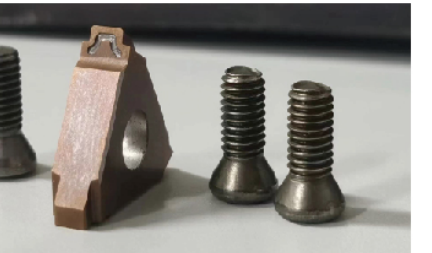
硬质合金冲头
Carbide punch



螺纹剖切面
Thread cutting surface



硬质合金模具
Tungsten carbide nib



硬质合金刀片微槽
Hard alloy blade micro groove



硬质合金丝锥加工
Hard alloy tap processing



硬质合金螺纹加工
Hard alloy thread machining

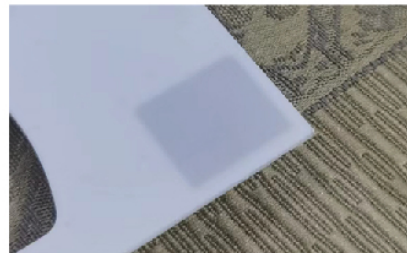

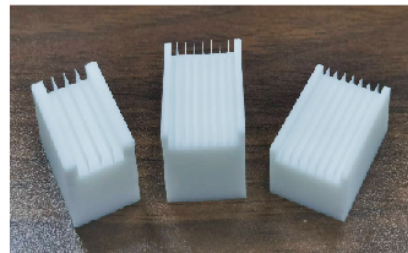
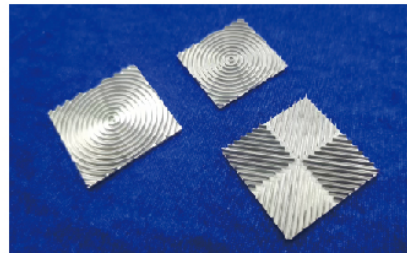

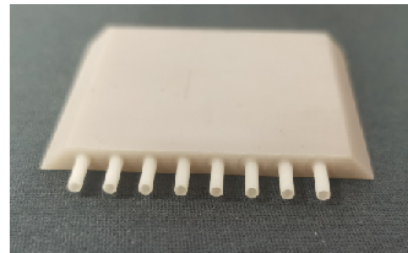
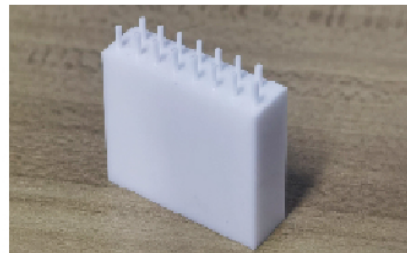
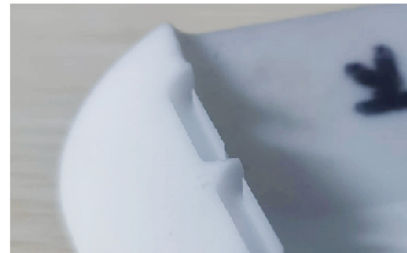

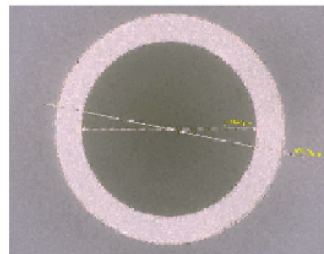

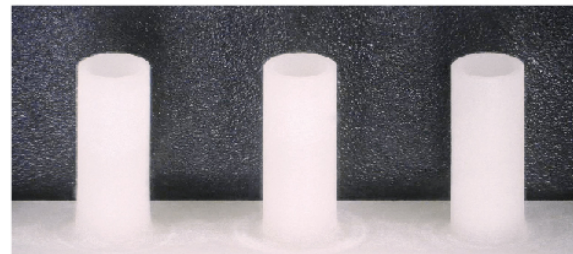
朗恩精密超声加工应用案例

Application case of Roneind precision ultrasonic machining

陶瓷 - 薄壁 - 薄板

Ceramic - thin-walled - thin plate

※样件图片均为朗恩与客户、合作伙伴打样真实拍摄所得，禁止盗用。The sample images are all taken from real samples taken by Lang En, customers, and partners, and theft is prohibited.

| | | |
|--|--|--|
|  <div>0.1mm氧化铝薄壁 0.1mm alumina thin wall</div> |  <div>0.2mm薄壁圆环 0.2mm thin-walled circular ring</div> |  <div>0.1mm氧化铝薄壁 0.1mm alumina thin wall</div> |
|  <div>0.1mm铝基碳薄壁 0.1mm aluminum based carbon thin wall</div> |  <div>0.2mm氧化铝薄壁环 0.2mm alumina thin-walled ring</div> |  <div>0.2mm薄壁管 0.2mm thin-walled tube</div> |
|  <div>0.2mm氧化铝圆柱 0.2mm alumina cylinder</div> |  <div>0.1mm氧化铝薄壁 0.1mm alumina thin wall</div> |  <div>0.2mm氧化锆薄壁 Silicon carbide structural components</div> |
|  <div>0.2mm薄壁圆环 0.2mm thin-walled circular ring</div> |  <div>0.2mm薄壁圆环 0.2mm thin-walled circular ring</div> |  <div>0.2mm薄壁圆环 0.2mm thin-walled circular ring</div> |


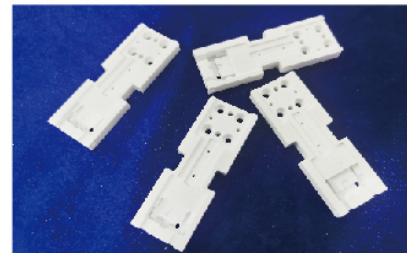
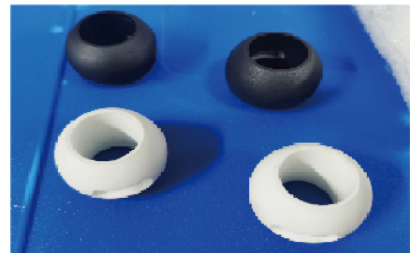
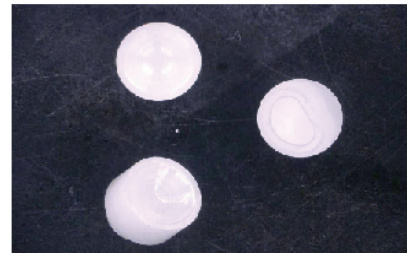
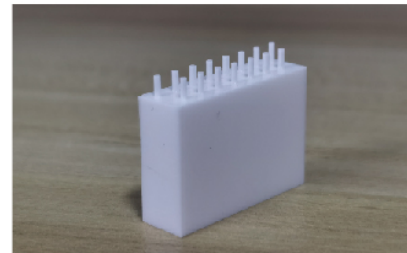

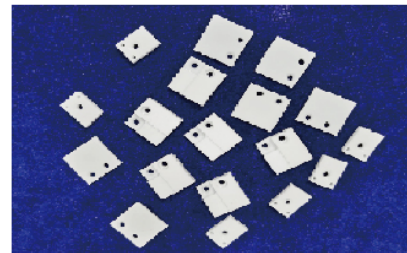
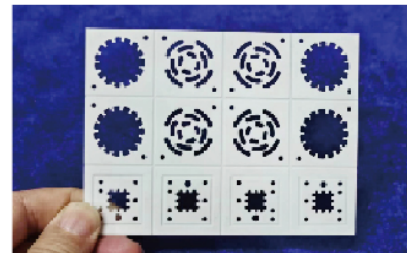
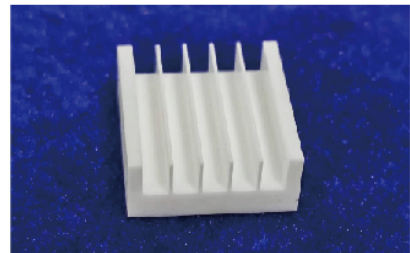
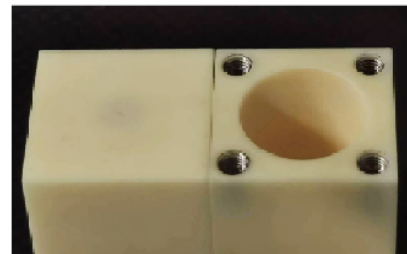
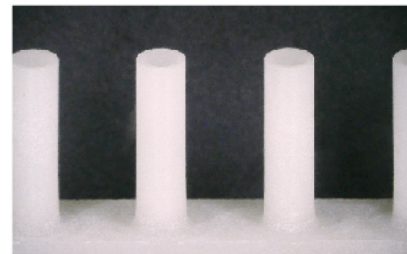
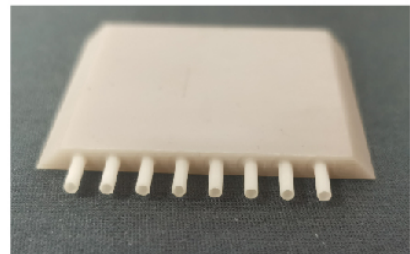
朗恩精密超声加工应用案例

Application case of Roneind precision ultrasonic machining

氧化锆 - 氧化铝 - 氮化铝

Tungsten steel - hard alloy

※样件图片均为朗恩与客户、合作伙伴打样真实拍摄所得，禁止盗用。The sample images are all taken from real samples taken by Lang En, customers, and partners, and theft is prohibited.

| | | |
|---|---|---|
|  <div>静电吸盘铣槽钻孔 Electrostatic suction cup milling groove drilling</div> |  <div>氧化锆电池裁切 Zirconia battery cutting</div> |  <div>氧化锆碳化硅 Zirconia silicon carbide</div> |
|  <div>氧化锆 Zirconia</div> |  <div>氧化锆圆柱 Zirconia cylinder</div> |  <div>牙冠和种植体 Dental crowns and implants</div> |
|  <div>氧化锆电池裁切 Zirconia battery cutting</div> |  <div>氧化锆薄壁件 Zirconia thin-walled components</div> |  <div>氧化锆薄板 Zirconia sheet</div> |
|  <div>氧化铝螺纹微孔 Aluminum oxide threaded micropores</div> |  <div>氧化铝薄壁管 Aluminum oxide thin-walled tube</div> |  <div>氧化铝薄壁管 Aluminum oxide thin-walled tube</div> |

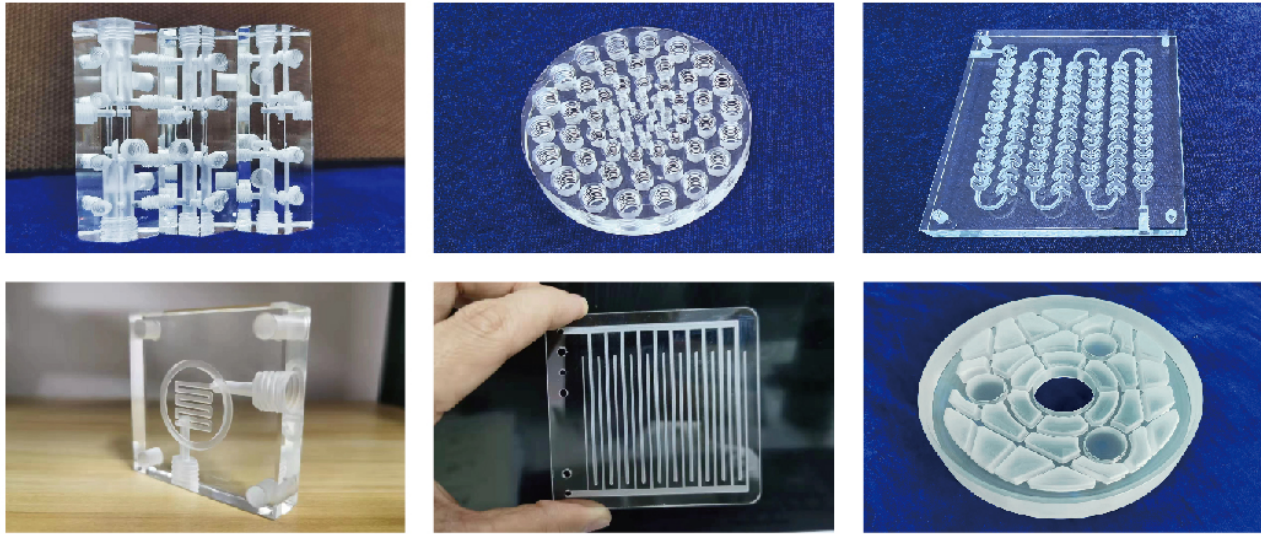
朗恩精密超声加工应用案例

Application case of Roneind precision ultrasonic machining

石英 - 蓝宝石

Quartz - Sapphire

※样品图片均为朗恩与客户、合作伙伴打样真实拍摄所得，禁止盗用。 The sample images are all taken from real samples taken by Lang En, customers, and partners, and theft is prohibited.



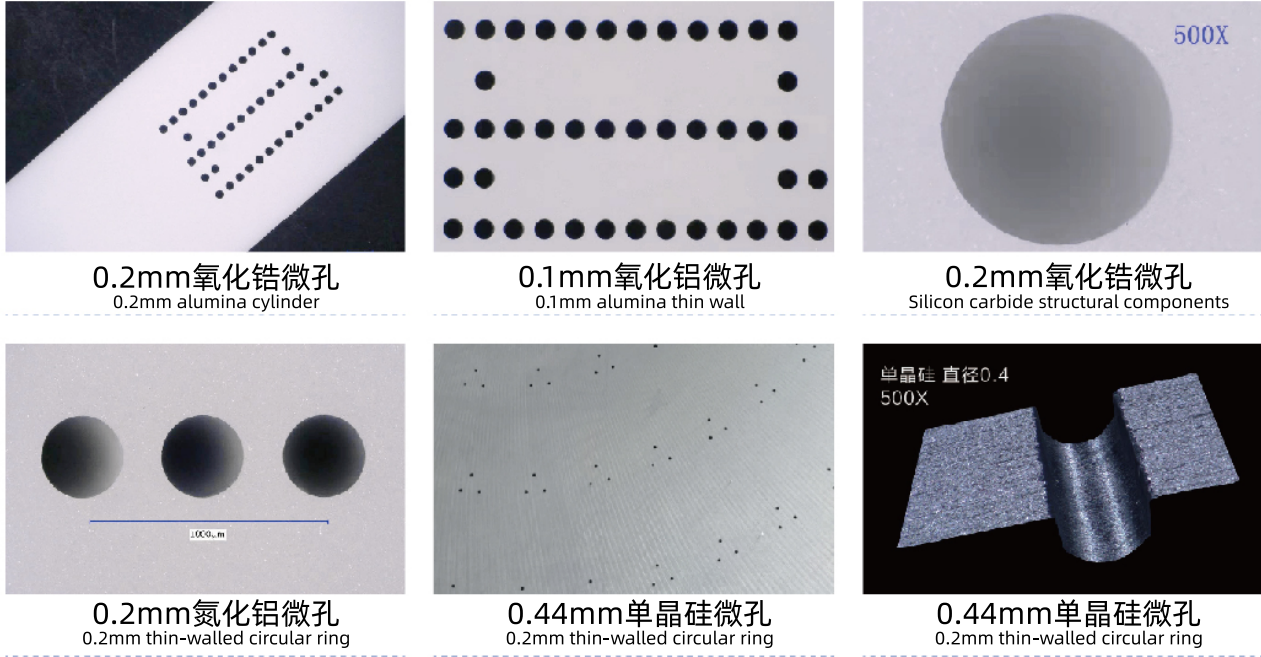
朗恩精密超声加工应用案例

Application case of Roneind precision ultrasonic machining

微孔加工

Micro hole processing

※样品图片均为朗恩与客户、合作伙伴打样真实拍摄所得，禁止盗用。 The sample images are all taken from real samples taken by Lang En, customers, and partners, and theft is prohibited.



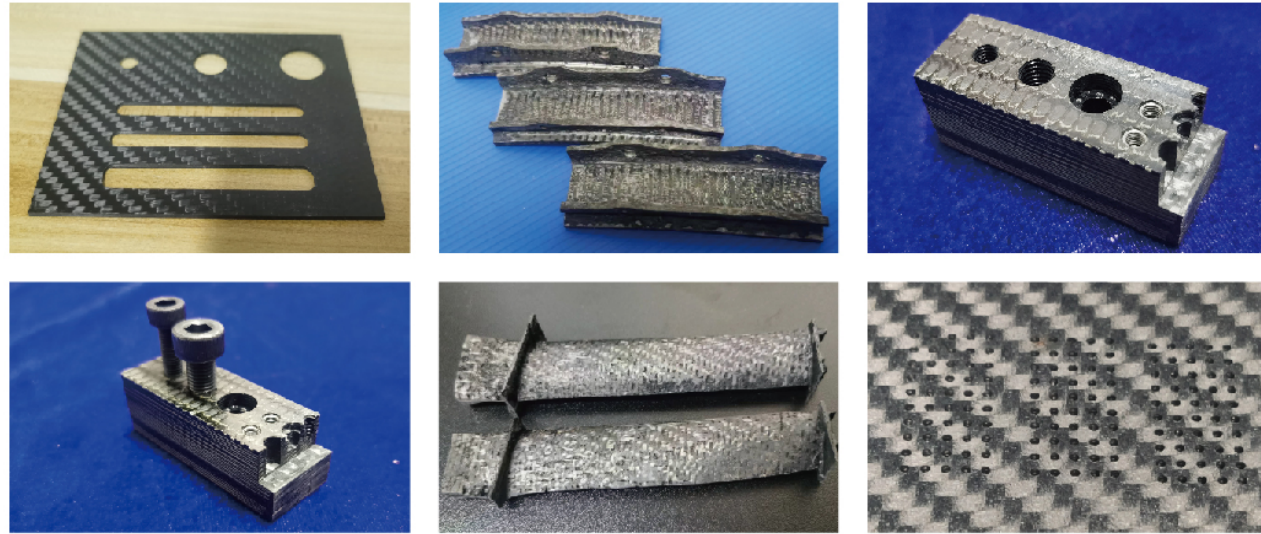
朗恩精密超声加工应用案例

Application case of Roneind precision ultrasonic machining

碳纤维复合材料

Carbon fiber composite material

※样品图片均为朗恩与客户、合作伙伴打样真实拍摄所得，禁止盗用。 The sample images are all taken from real samples taken by Lang En, customers, and partners, and theft is prohibited.



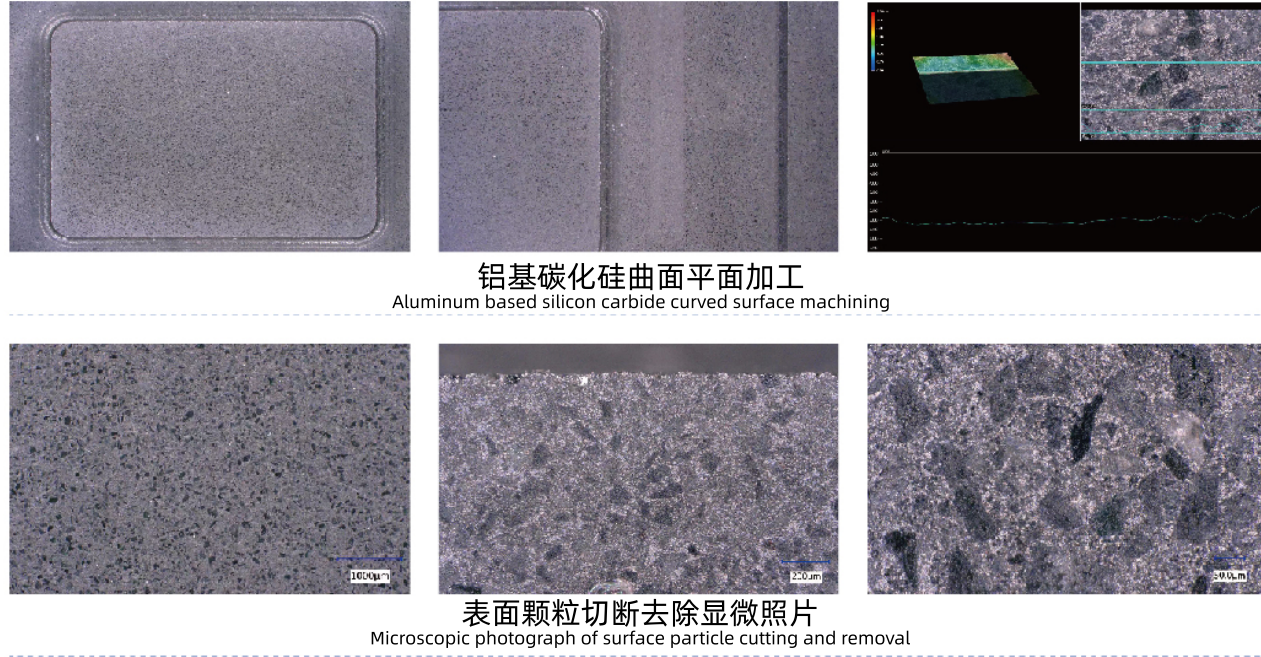
朗恩精密超声加工应用案例

Application case of Roneind precision ultrasonic machining

铝基碳化硅

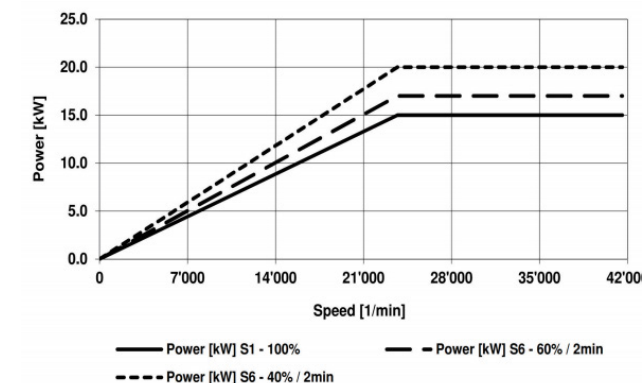
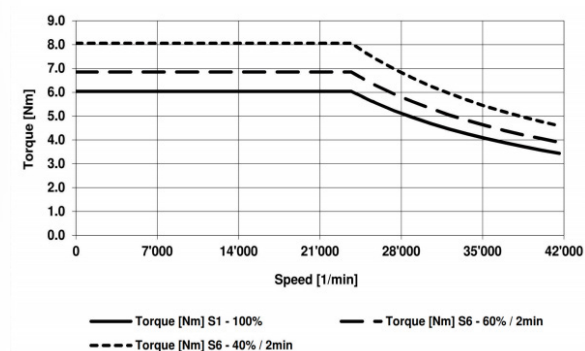
Aluminum based silicon carbide

※样品图片均为朗恩与客户、合作伙伴打样真实拍摄所得，禁止盗用。 The sample images are all taken from real samples taken by Lang En, customers, and partners, and theft is prohibited.



配备油气润滑冷却系统，主轴与旋转系统的整体热增长降低，有效保证长期的高效率、高精度、高稳定性加工。

Equipped with an oil air lubrication cooling system, the overall thermal growth of the spindle and rotating system is reduced, Effectively ensuring long-term high efficiency, high precision, and high stability processing.



国内首创超声加工专用热缩刀柄

Bed structure suitable for ultra precision&ultrasonic machining

每秒3万次高频微振



- ✓ 热缩装刀，刀具跳动 $< 1\mu\text{m}$ ，切削稳定
- ✓ 高速动平衡，G1.0/42000RPM，不伤主轴
- ✓ 中心出水，强化冷却和排屑，支持深孔铣磨钻
- ✓ 高频微振，每秒3万次，振幅 $0.1\sim 8\mu\text{m}$ 可调
- ✓ 高硬不锈钢材质，精密、稳定、耐磨、易维护
- ✓ 提高刀具寿命5~10倍，提高生产效率30%~50%，提高加工精度
- ✓ Heat shrink cutting tool, tool runout $< 1\mu\text{m}$, stable cutting
- ✓ High speed dynamic balancing, G1.0/42000RPM, Not damaging the spindle
- ✓ Central water outlet, strengthened cooling and chip removal, supports deep hole milling and grinding drilling
- ✓ High frequency micro vibration, 30000 times per second, adjustable amplitude of $0.1\sim 8\mu\text{m}$
- ✓ High hardness stainless steel material, precise, stable, wear-resistant, and easy to maintain
- ✓ Improve tool life by 5-10 times, increase production efficiency by 30%~50%, and improve machining accuracy

适用于超精密&超声波加工的床身结构

Bed structure suitable for ultra precision&ultrasonic machining

• Ultra 500/600

- The traditional manual assembly and scraping process.
- Natural mineral casting bed.



传统人工装配刮研工艺
矿物铸件床身



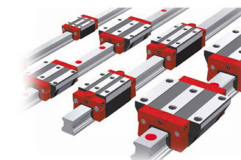
• Linear motor drive.

直线电机驱动



• 纳米级光栅尺

• Nano-grade grating ruler.



• G0级滚柱导轨

• G0-grade roller guide.

选用国际一线品牌超精密电主轴

三轴直线电机驱动

| SELECT INTERNATIONAL FIRST-LINE BRAND ULTRA PRECISION ELECTRIC SPINDLE

| THREE AXIS LINEAR MOTOR DRIVE



2002年进入机床领域。

Entered the field of machine tools in 2002.

2002



研发团队取得技术性突破，完成第一台三轴精密机床“E500 LP”，采用三轴直线电机驱动代替传统丝杆传动。

The R&D team achieved a technological breakthrough and completed the first three-axis precision machine tool "E500 LP", Adopting three-axis linear motor drive instead of traditional screw drive.

2015



研发“国内首台”三轴双直线电机驱动“超精密亚纳米立式加工中心S500”，并获评“中国深圳创新先进制造企业一等奖”，重复定位精度达到0.001mm。

Developing the "first domestically developed" three-axis dual linear motor driven ultra precision sub nanometer vertical machining center S500, And won the first prize of "China Shenzhen Innovative Advanced Manufacturing Enterprise", with a repeated positioning accuracy of 0.001mm.

2020



为开拓更多市场，提供多样化加工选择，研发出“数控纵切车削中心MX系列”，提供5+2轴、6+1轴、6+2轴三种配置，可安装多种车刀。

In order to explore more markets and provide diversified processing options, we have developed the "MX series of CNC longitudinal cutting and turning centers", We offer three configurations: 5+2 axis, 6+1 axis, and 6+2 axis, which can accommodate a variety of cutting tools.

2022



2011 成立研发团队，研究高端超精密数控机床设备。

Establish a research and development team to study high-end ultra precision CNC machine tool equipment.

2011



响应“中国制造2025”计划，成立“朗恩精密”机床品牌，注册“RONEIND”LOGO商标。立志“成为精密制造信赖的伙伴”。

In response to the "Made in China 2025" plan, establish the "Langen Precision" machine tool brand, Register the "RONEIND" logo trademark. Aspire to become a trusted partner in precision manufacturing.

2019



为了国产化高精密机床适用更多行业，开发出五轴联动加工中心X500。重复定位精度达到0.002mm。

In order to make domestically produced high-precision machine tools applicable to more industries, the five axis linkage machining center X500 has been developed. The repeated positioning accuracy reaches 0.002mm.

2021



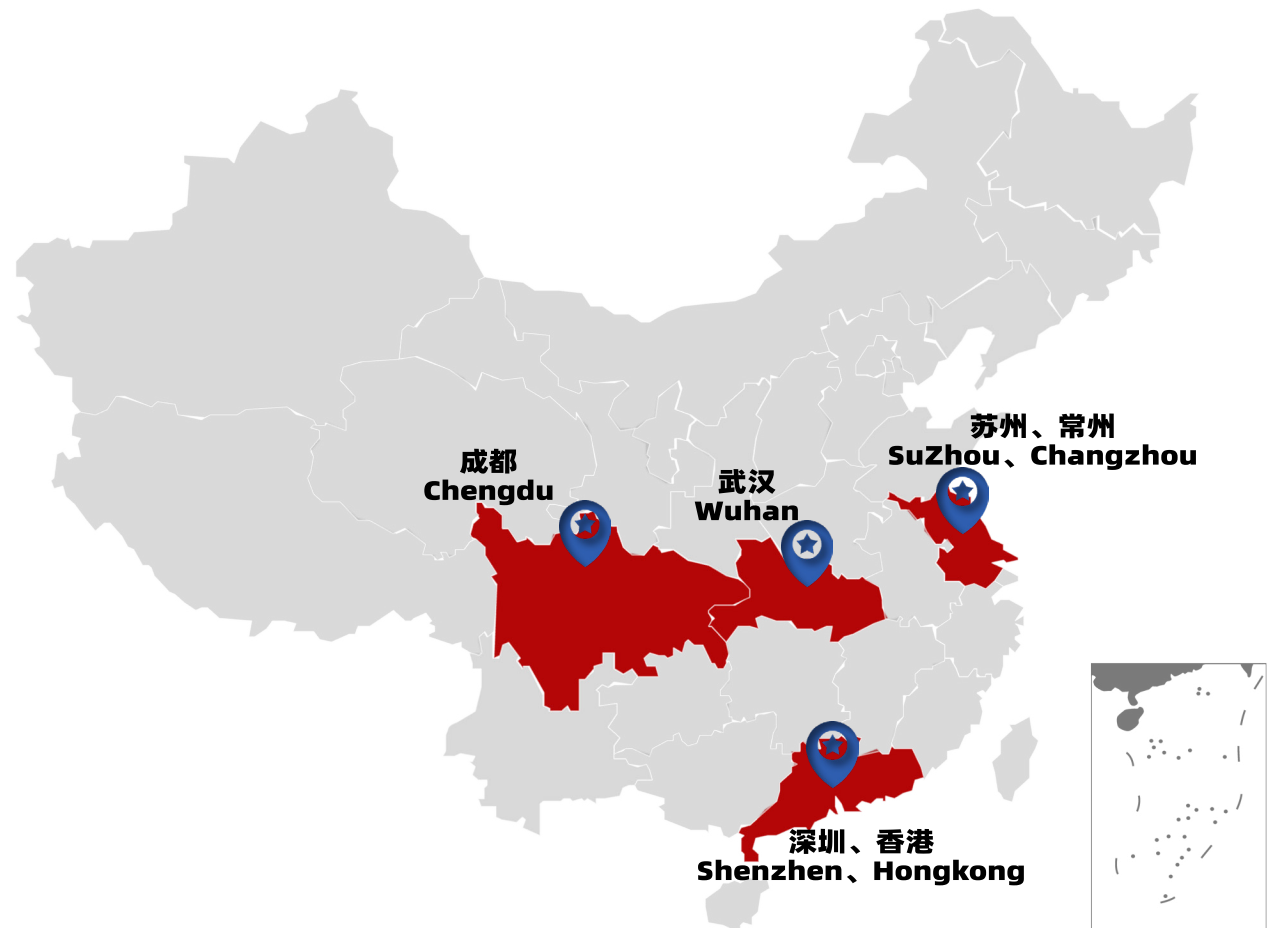
为了更好的服务于客户，在“苏州”成立华东应用技术服务中心

To better serve our customers, we have established the East China Application Technology Service Center in Suzhou.

2024

未来朗恩将通过技术创新，成为具有国际竞争力的超高精密加工设备成套方案解决商。

In the future, Roneind will become an internationally competitive provider of complete solutions for ultra-high precision machining equipment through technological innovation.



地点:深圳市宝安区福海街道濠成工业园A3栋101

Add: 101, Building A3, Haocheng Industrial Park, Fuhai Street, Bao'an District, Shenzhen

生产总部
Production Headquarters