

Laser processing solutions for CNC tools

Light 5X 40V-I

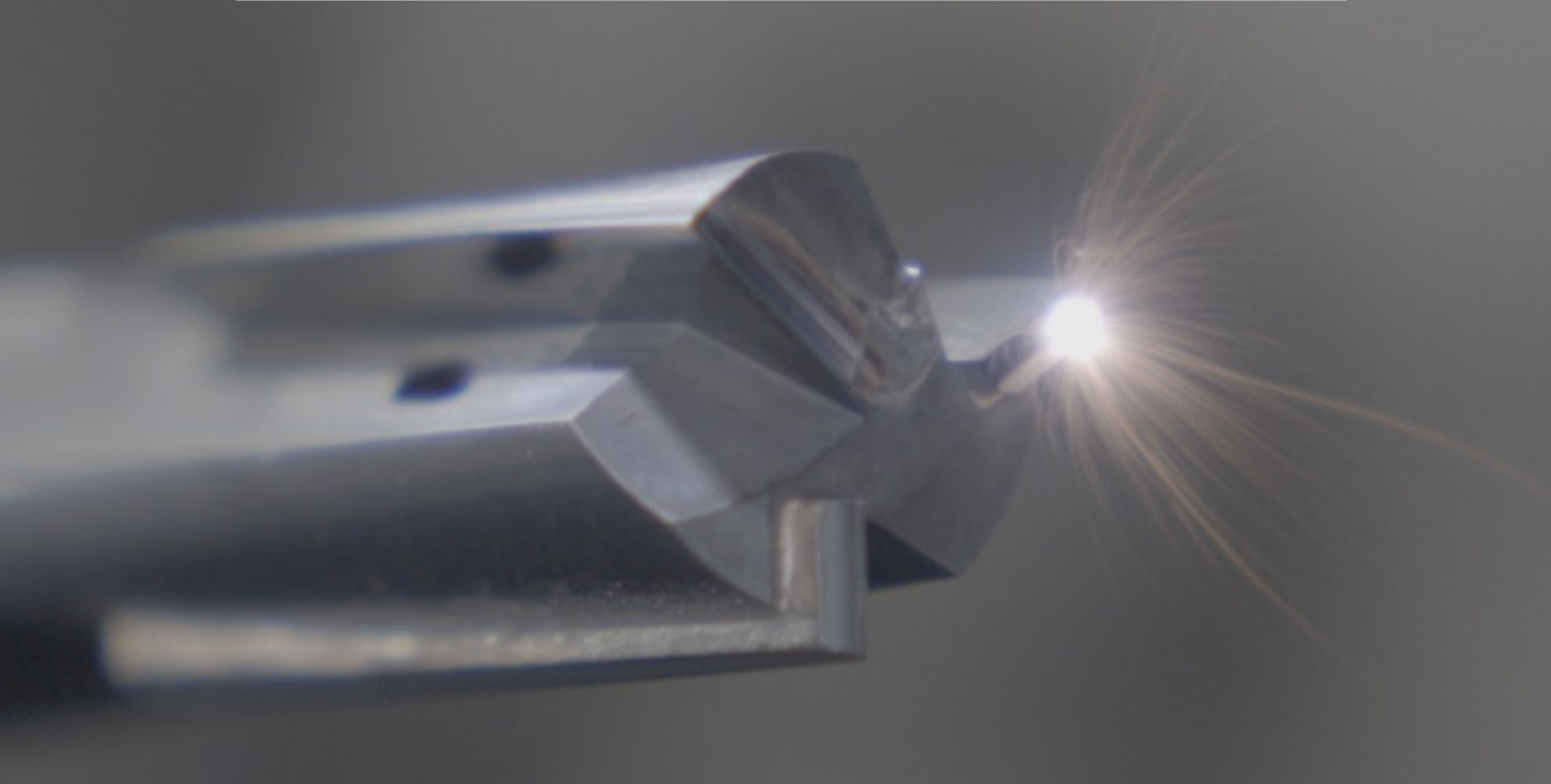
All-in-one and High-efficiency Laser Processing Solution




From origin to infinity




Machining Accuracy Indices	Light 5X 40V-I
Dimension Tolerance	±0.005mm
Straight edge taper	20mm ±0.003
Profile	0.005mm
Runout	0.005mm
Radius Tolerance	±0.005mm
Cutting edge quality	300X No chipping, 500X 3x3µm
Edge radius	≥ 4µm
Water fall difference	3-5°
Flank roughness	≤ Sa 0.3µm
Chip breaker roughness	≤ Sa 0.6µm






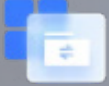
Dynamic Tool Center Point (TCP)



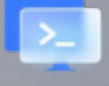
Adaptive Toolpaths



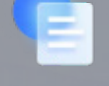
Tool Radius Compensation



High-speed Machining



Professional CAM Software Support



Numerical Control System

Applications and Parts
Machine and Technology
Technical Data

Mobile phone contour processing



PCD contour cutter

Brushed finish



PCD wire drawing milling cutter

Sapphire / Carbon fiber processing



PCD integral multi-edge cutter

Turbine Processing



PCD vortex tool

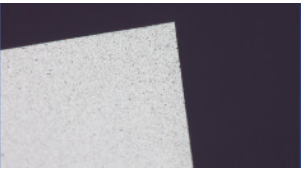
Mirror mold processing



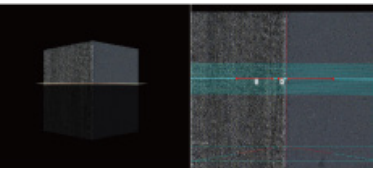
Ball end mill



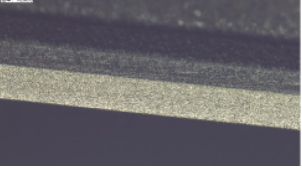
PCD contour milling cutter



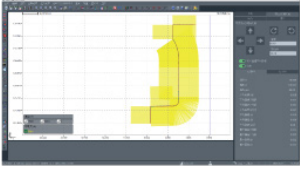
Cutting edge (magnified 300X)




Rounded radius (magnified 1500X)
≤0.004mm



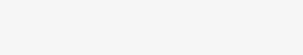
Clearance surface (magnified 200X)
Roughness Ra≤0.15µm



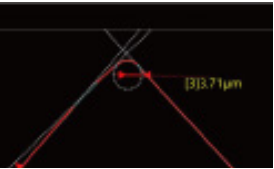
Profile
≤0.01mm




Run out
≤0.005mm



Min. Inner Dia R
≤0.04mm



3.71µm

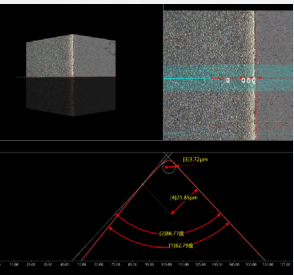
Feature	Light 5X 40V-I	
Brazed PCD cutting tools processing	Standard	
Insert processing	Optional	
Chip breaker processing	Standard	
Turning processing	Optional	
Micro tool processing	Optional	
Cylindrical margin angle	Optional	
Negative chamfering	Optional	
Automatic loading and unloading	Optional	
Online observation	Standard	
Reverse cutting processing	Standard	

300X-No chipping

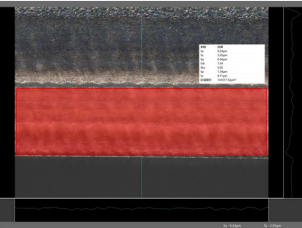
(Test piece: HAIMINGRUN HD2-850 granularity < 1μm)



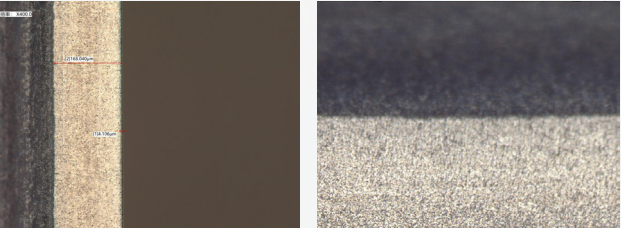
1500X-Edge radius



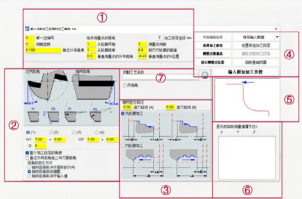
Flank roughness



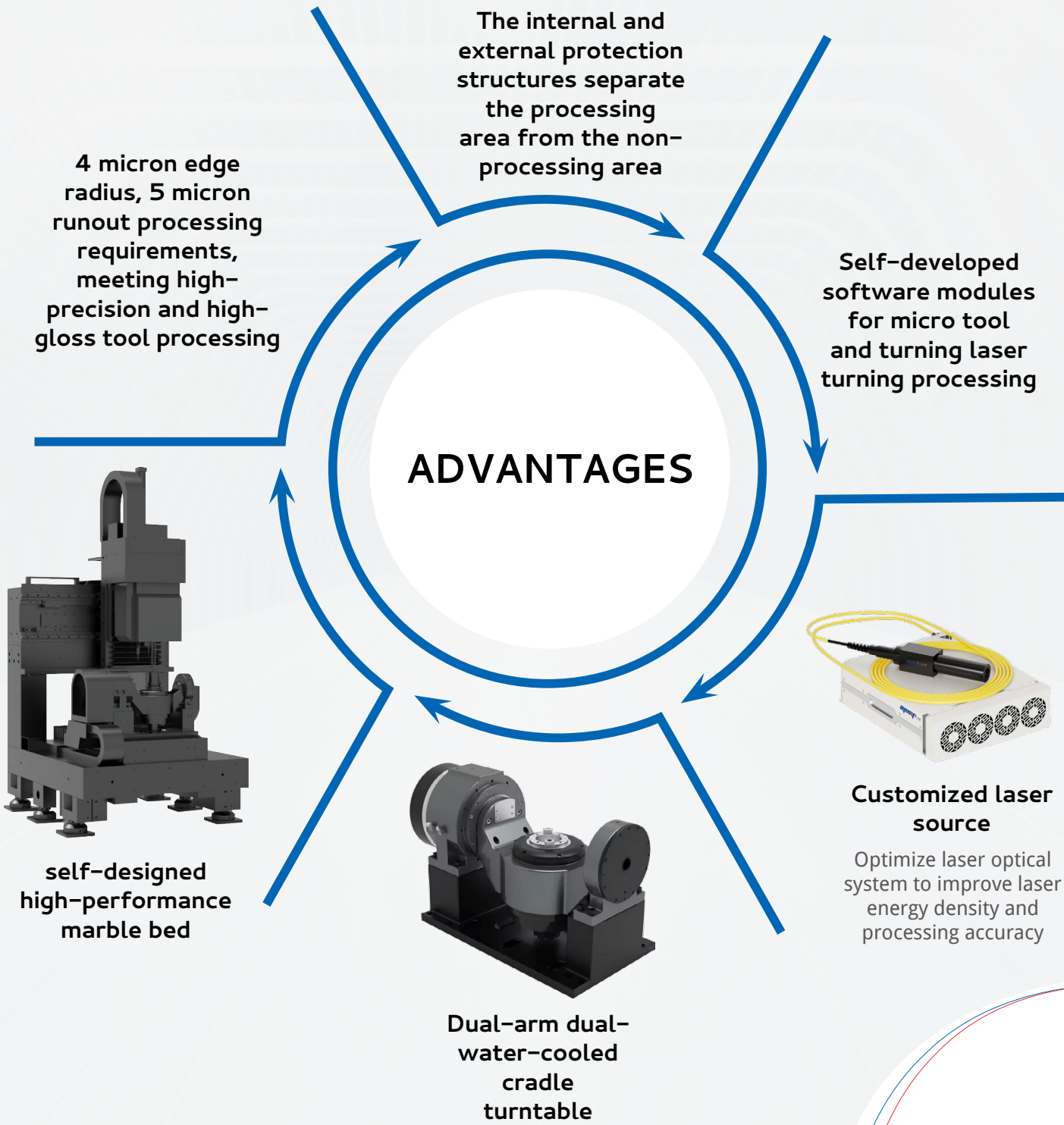
Flank surface -100X



CAM Software



GTR tool processing software adapted to NUM system, including EndMill, ChipBreaker and TurningTools software, which are used for laser processing of indexable cutting inserts, turning tools, shafts and HSK tools.



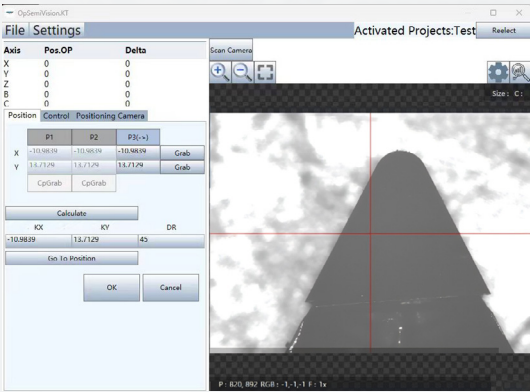
Insert machining module

- CCD is used to automatically identify workpieces, and CAM automatically generates processing programs.
- The machine tool obtains the processing trajectory and automatically processes, realizing automatic processing in one clamping, greatly reducing manual intervention and improving production efficiency.

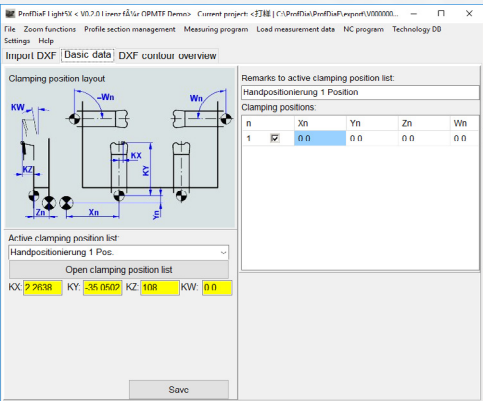


Insert cutting edge and chipbreaker processing

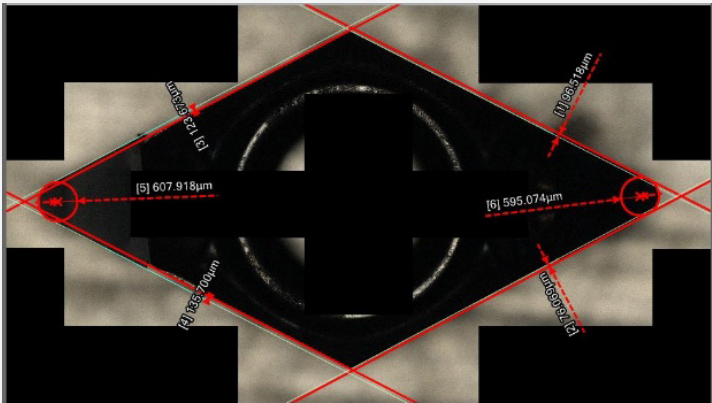
Workflow



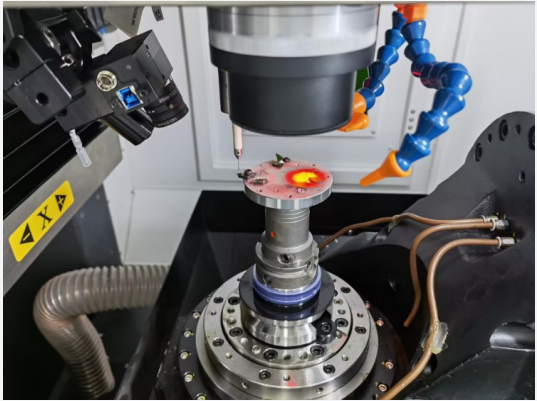
CCD positioning



CAM generation of G-code



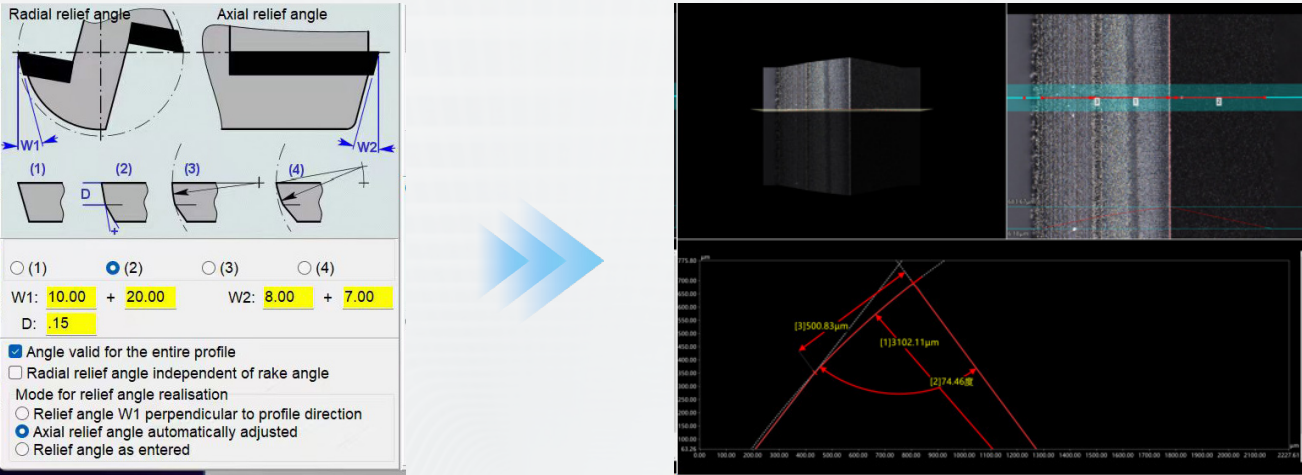
Test results



Machine tool machining

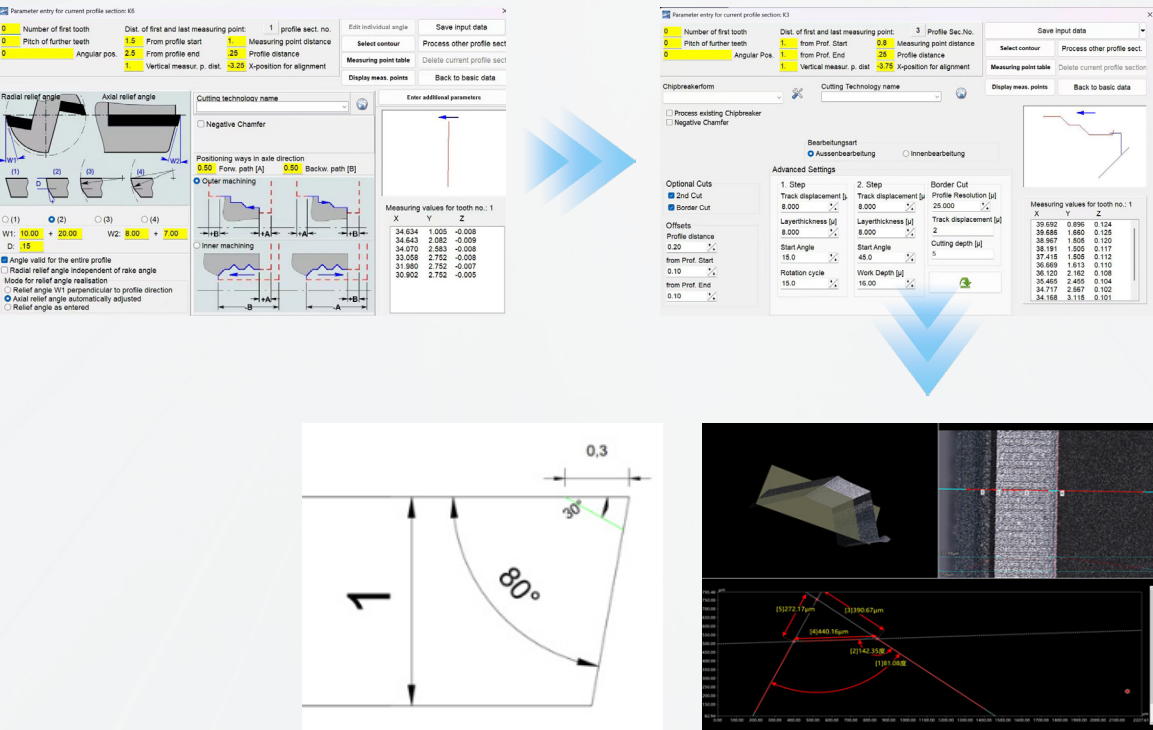
Cylindrical margin

Providing rounded/non-right-angle relief angles to reduce wear and improve PCD tool life and surface quality.



Negative chamfer

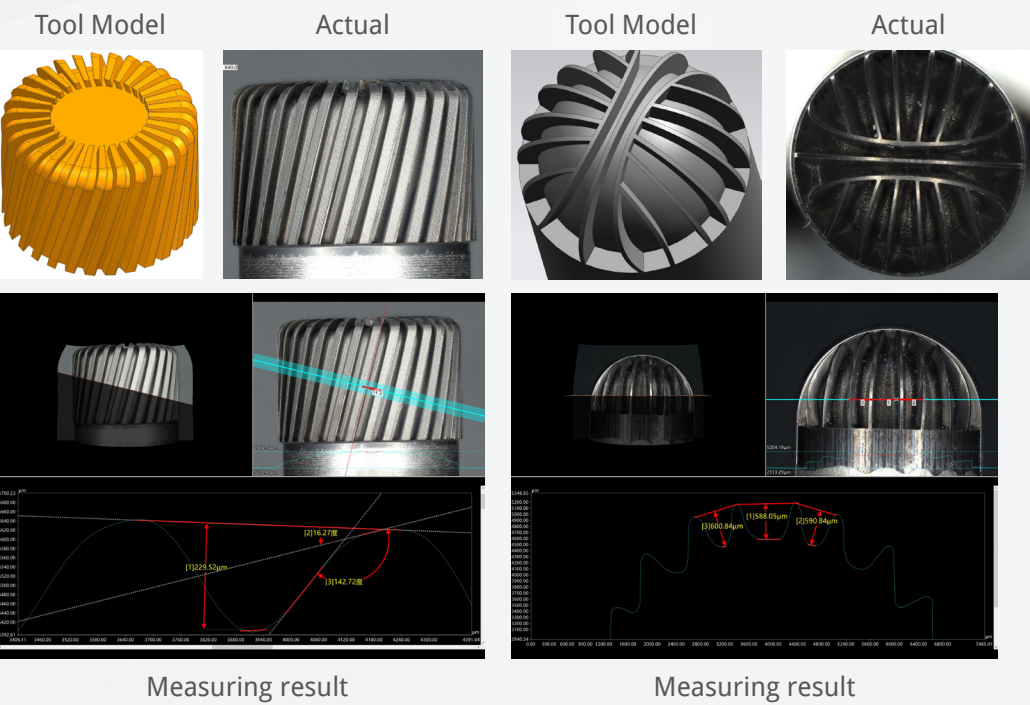
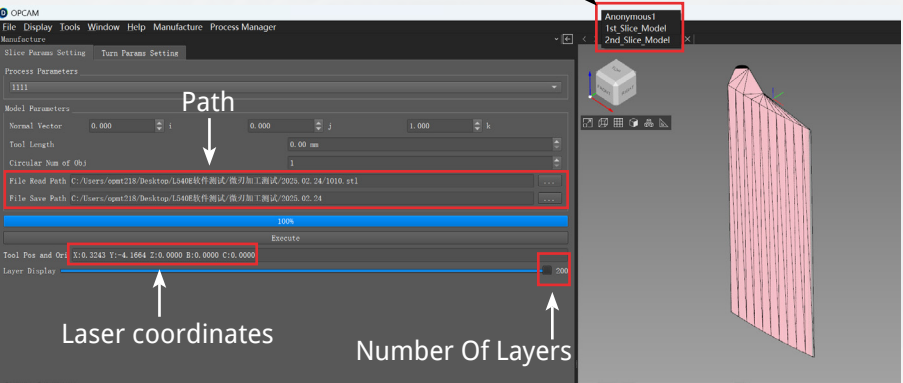
Multi-angle machined margin enhances tool durability, suitable for heavy-duty or interrupted cutting operations.



Package for precision tools with micro cutting edge

- Support tool geometry import, CAM automatically fills and generates laser processing paths
- High-precision laser scanning system can process various complex shapes (such as ball heads, cones, flat heads, etc.), micro-curved surfaces, micro-grooves, micro-holes and other complex structures
- Micro-machining of PCD and PCBN cutting edges to form sharp cutting edges.

When micro-blading is performed multiple times, the path of each processing can be viewed here



Laser turning

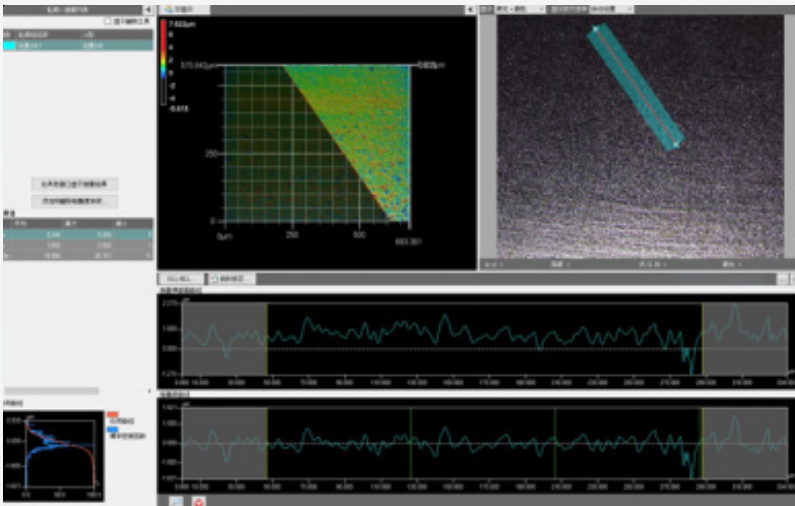
- Supports spline curve import, CAM automatically generates contours and processing paths.
- High-precision laser scanning system combined with high-precision turntable can achieve efficient and high-precision contour processing.



Turning Effect



Ball Head Machining Effect

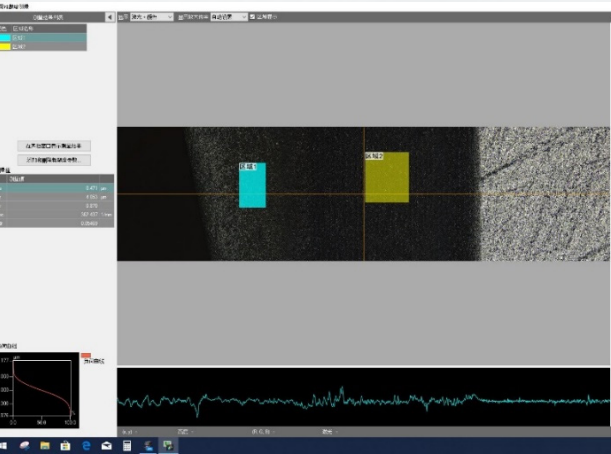


Ball Head Processing Effect: sa0.246mm

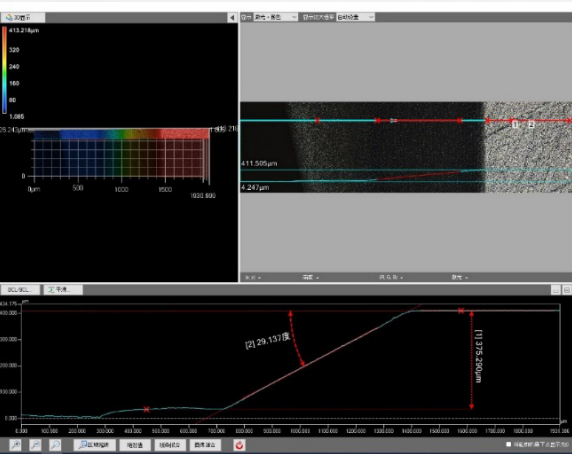
Chip breaker machining

Enabling precise control of chip groove geometry improves chip-breaking efficiency, reducing chip entanglement and tool failure.

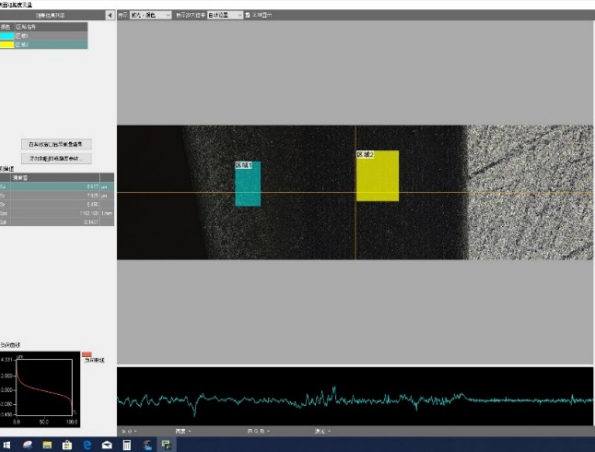
Content		Parameter
Angle		29.137°
Depth		375.29μm
Roughness	Bottom Surface	0.471μm
	Side	0.617μm
Processing Efficiency		2min/43s(single pocket)



Roughness (Bottom)



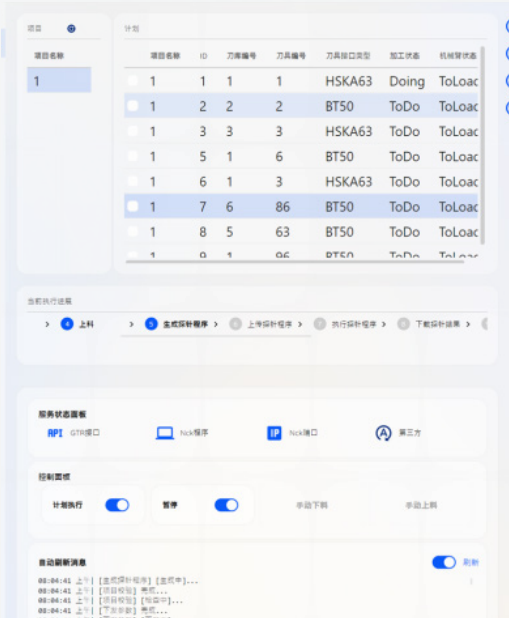
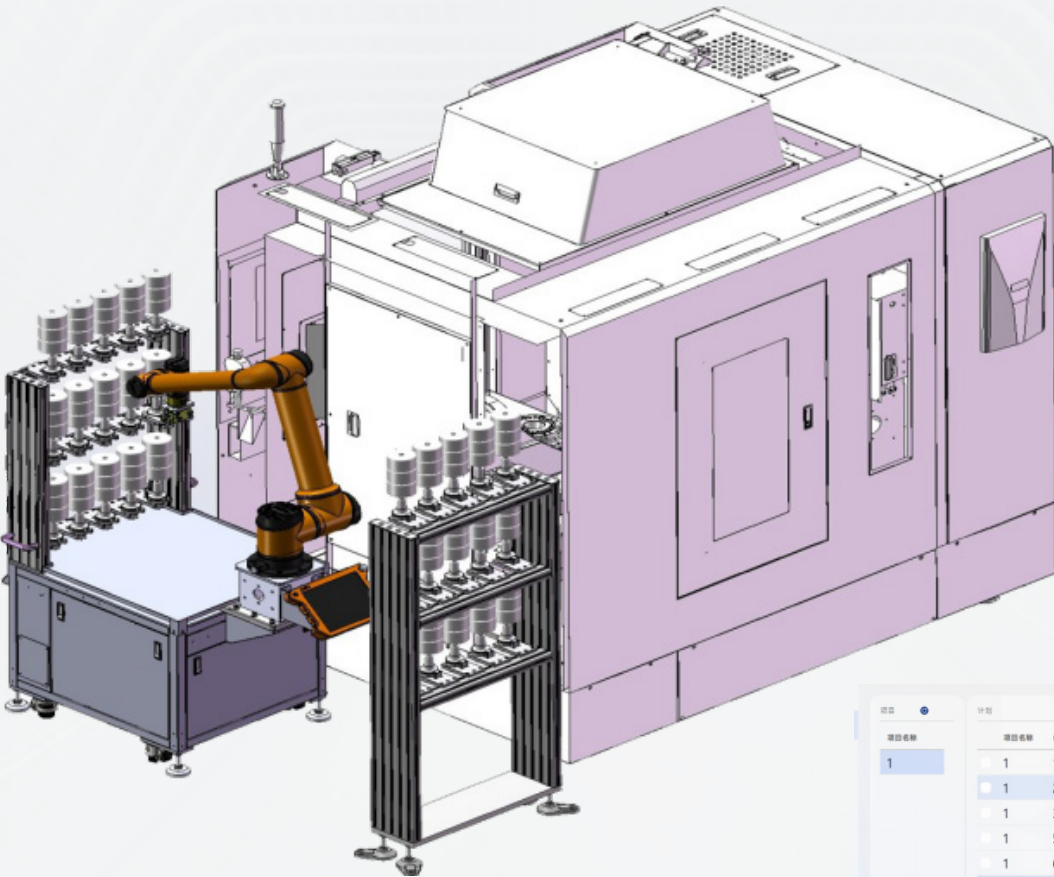
Dimensional



Roughness (Side)

Automatic Loading and Unloading Module

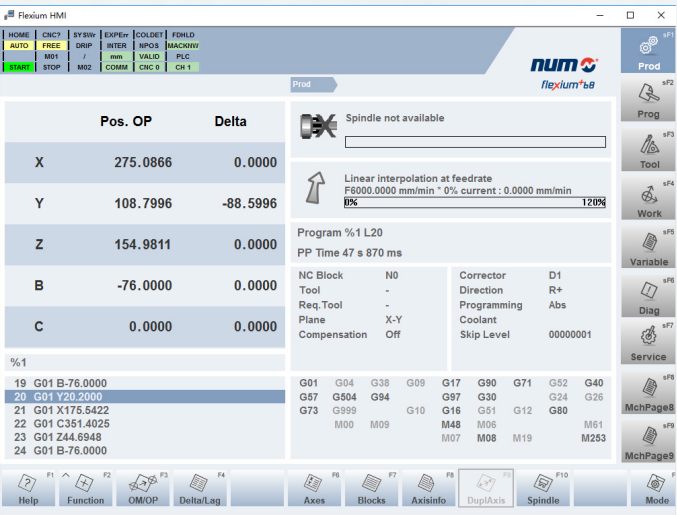
Automatic Loading and Unloading Software and Device, the Software Automatically Obtains GTR Engineering Files to Achieve Drawing and Knife Number MatchingOne Key to Realize Automatic Loading and Unloading, Automatic Detection and Processing



Five-axis Linkage CNC System Deep corporation with NUM

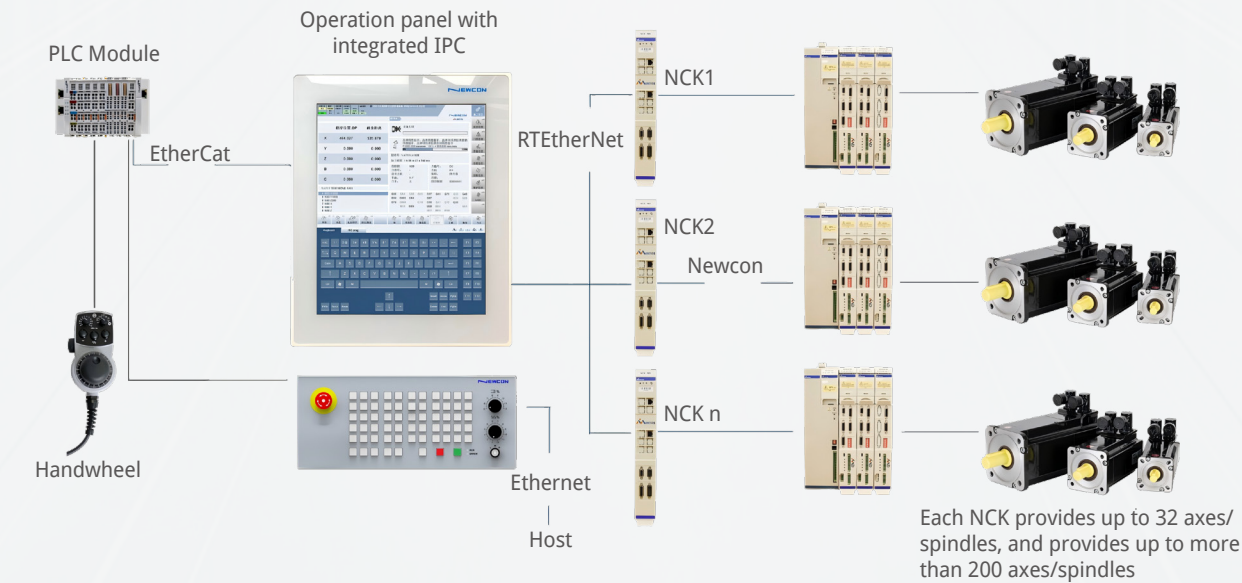
Powerful and user-friendly NUM CNC system

•Ensures maximum ease of operation and process reliability, combine high-tech performance with genuine customer benefits and ensure application-orientated, simple programming and operation



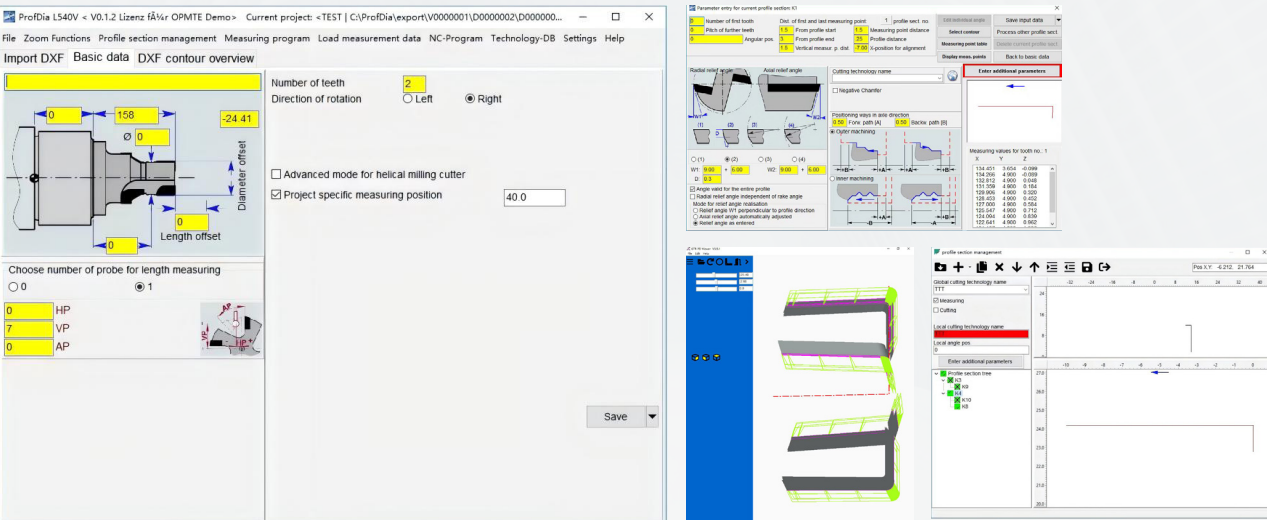
•The open universal CNC system can handle various machining applications such as turning, milling, planing, grinding, laser, water jet, etc.

•Each NUM® system composed of 8 NCKs (core of CNC system), each NCK provides up to 32 axes/ spindles, and provides up to more than 200 axes/ spindles and is compatible with RTCP.



User-friendly GTR cutting tools software – the easiest entry from EDM to laser machining

3D machining path planning CAM software



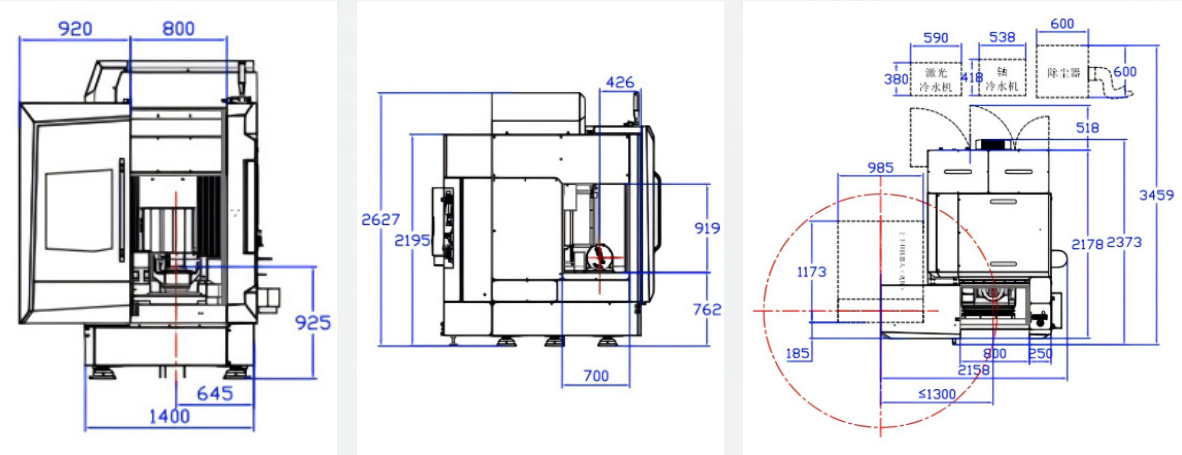
- Use of industry standards as programming solutions allows the importation of existing EDM projects
- Minimal training required when switching from EDM to laser
- Parameterized software for indexable or solid tools
- Import of tool geometry as DFX file
- Automatic 3D measuring on the PCD surface
- Automatic generate programming
- 3D simulation at the machine

Overview of the Light 5X 40V-I —Technical data

Travel		Unit	Light 5X 40V-I
X-axis (left and right along the sliding plate)		mm	450
Y-axis (forward and backward the workbench)		mm	450
Z-axis (up and down the laser head)		mm	350
Workbench			
Dimensions of the horizontal workbench		mm	620 x 500
Load capacity of the horizontal workbench		kg	300
Dimensions of the C-axis workbench		mm	φ260
B-axis swing angle		°	±125°
Max. load capacity of the C-axis workbench		kg	25
Feed rate			
B(A)-axis rated/max. speed		rpm	200/250
C-axis rated/max. speed		rpm	200/240
Cutting speed		m/min	20
X/Y/Z-axis rapid traverse speed		m/min	30
Accuracy			
X/Y/Z-axis positioning accuracy		mm	0.005
X/Y/Z-axis repeat positioning accuracy		mm	0.003
B(A)/C-axis positioning accuracy		"	8
B(A)/C-axis repeat positioning accuracy		"	4
Laser			
Pulse width		//	ns
Power		W	100
Machining range			
Max. tool diameter		mm	φ200mm(non-circular)
Max. tool length		mm	350
Max. tool weight		kg	25
Clamping interface of workpiece			BT-50/HSK-A63
Power			
Power supply voltage		V	AC380V±10%
Electric capacity		KVA	25
Air supply			
Air supply pressure		Mpa	≥0.7MPa
Air supply flow rate		L/min	≥500L/min

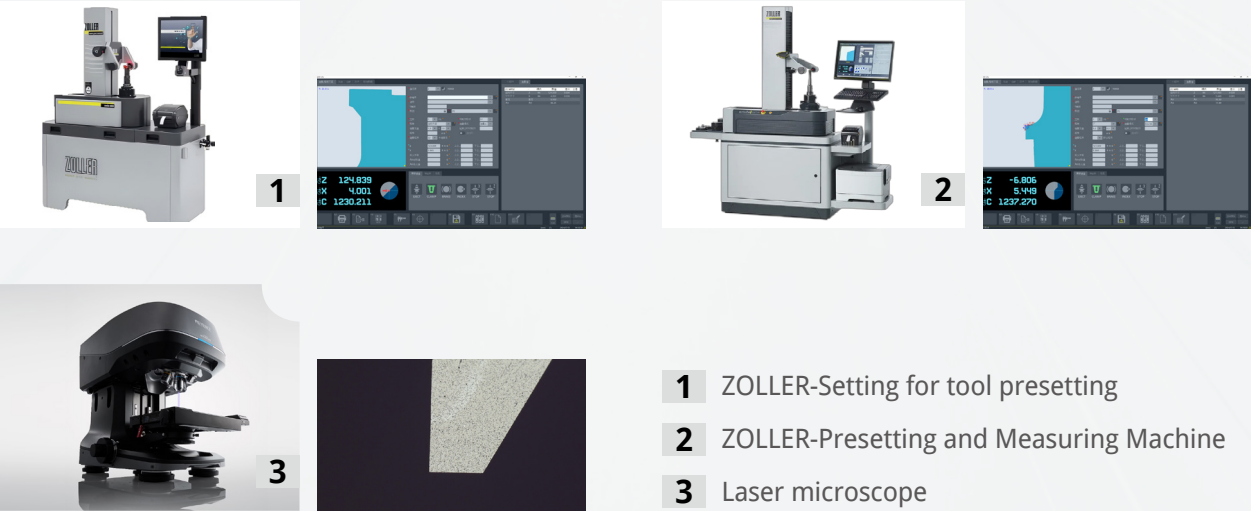
Overview of the Light 5X 40V-I

Machine dimensions	Unit	Light 5X 40V-I
Floor space (L x W x H)	mm	2400 x 1600 x 2600
Weight	kg	4500



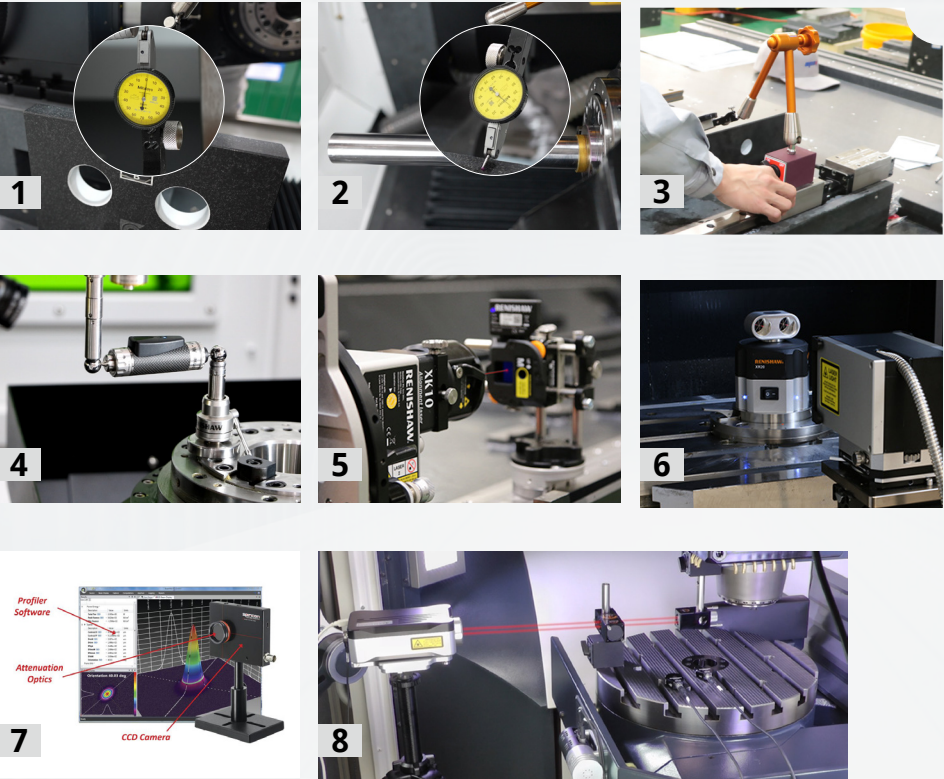
Perfect cutting edges

Complete machining including relief angle, chip breaker, defined cutting edge chamfering of extremely hard materials.



- 1 ZOLLER-Setting for tool presetting
- 2 ZOLLER-Presetting and Measuring Machine
- 3 Laser microscope

Undergoes rigorous testing and calibration to maintain high precision and reliability



- 1 X/Y/Z-axis parallelism accuracy detection
- 2 B/C-axis parallelism accuracy detection
- 3 Precision line parallelism accuracy detection
- 4 Ballbar
- 5 Alignment laser
- 6 Rotary axis calibrator
- 7 Laser beam profiler
- 8 Laser interferometer

Obtained RoHs certification, ISO14001 and ISO45001 management system certification



Turnkey provider with impressive technology expertise

Cover 30, 000 m², 210 employees, multi-axis CNC laser machine manufacturer, and provide smart factory manufacturing solution



Modern Facility



Constant temperature and humidity workshop



Dust-free laboratory



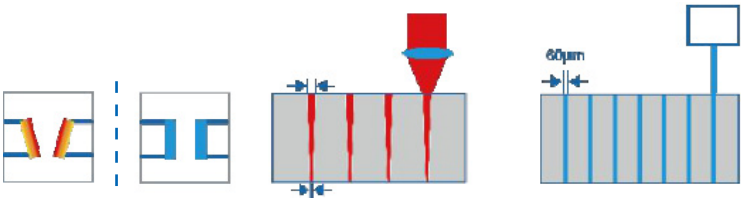
≤ 1.6m from the ground

- Dedicated protective glass**
 The machine operation interface and the protective window are in the same direction which is convenient to operate. The protective window adopts special design to prevent burns from the laser light source and facilitate monitoring of the processing process.
- Laser CNC machine tool safety lock device**
 Effectively improve the safety of operators and maintenance personnel, reduce the risk of personal injury, and reduce facility maintenance costs.
- Ergonomic structural design**
 The operator adjustment space is within 1.6m from the ground.

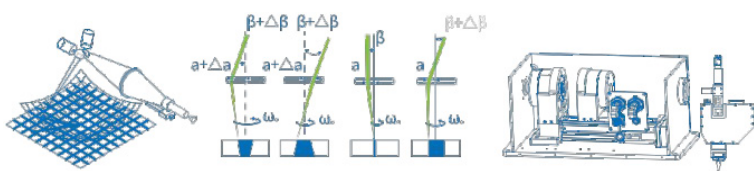
R&D and Innovation

Optical System

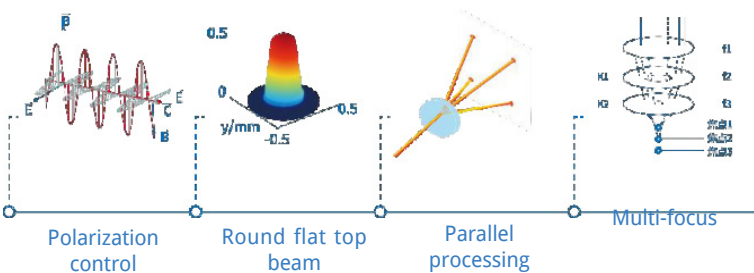
Water-jet Guided Laser



Multi-axis Optical Synchronization Control

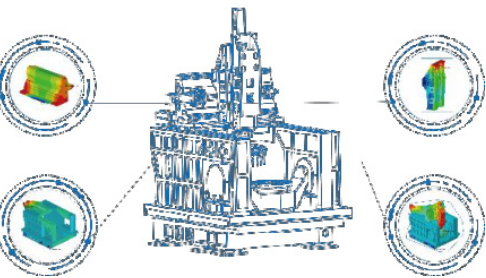


Beam Shaping



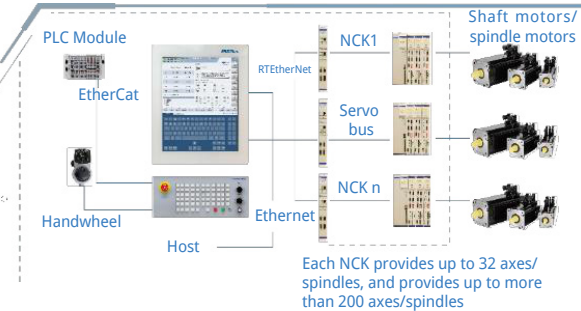
Machine tool design

Structural Design & Simulation



CNC system

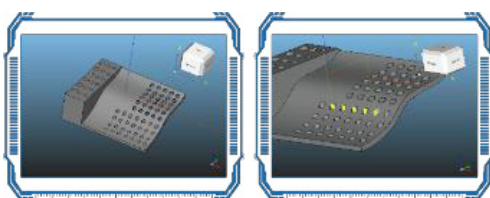
Operating Panel with Integrated IPC



The core components are independently produced and compatible with domestic and foreign brand motors.

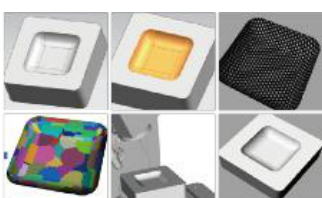
CAM Software

Five-axis cutting/drilling



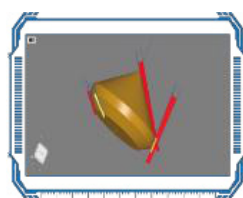
- 3D Model Display & Editing
- Feature Recognition and Process Design
- Path planning and post-processing

Texture Mould

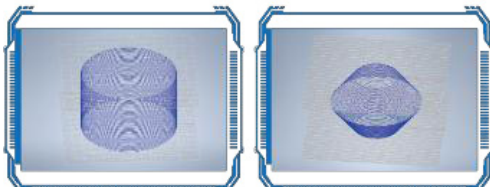


- Mould texture pre-processing
- Path planning and post-processing

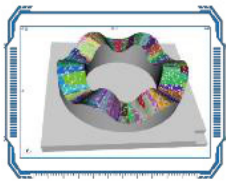
Diamond Forming Process



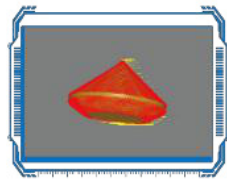
- Cutting path planning for loose diamonds



- Helical drilling process and path

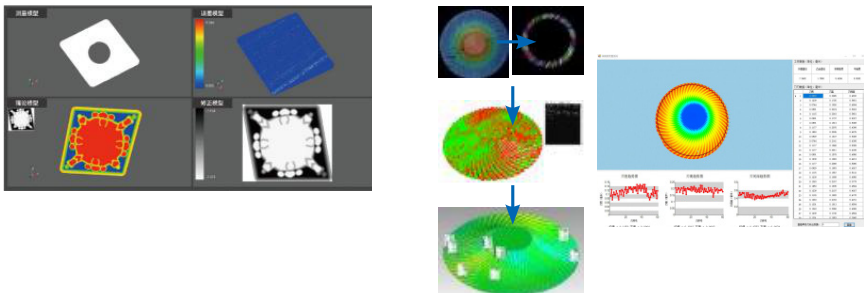


- Typical surface texture



- Machining path display and inspection

3D Visual Inspection



1,000 sets/year
Full production capacity

300⁺ Patents

302 patents for inventions, utility models, etc.

128 invention patents,

183 utility model patents,

24 exterior design,

9 software

113 R&D Employees

54% total employees

7 PH.Ds

7 Masters,

65 Undergraduates,
covering talents in various
fields such as Laser
application, Mechanics,

Electrics and Software

5 R&D Centers & Labs

Provincial Manufacturing Innovation Center,
Engineering Technology Research Center,
Ultrafast Laser Processing Joint Laboratory,
Foshan Postdoctoral Workstation,
Graduate Student Joint Training Demonstration Site

● **EASY MAINTENANCE**

Use high-end international
universal accessories

● **FLEXIBLE CUSTOMIZATION**

Customized base on customer needs

● **TRAINING PROGRAM**

Provide operation training



Guangdong Original Point Intelligent Technology Co., Ltd.

To make manufacturing smarter and intelligent manufacturing easier

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