

# 5- Axis Laser Machine For Precision Tool

Designed for PCD, PCBN tools



▶▶▶ GIVEALASER Series

## Wide Application

- Design to work on PCDs and CBNs for special cutting tools, suitable for cutting edge and chip-breaking groove
- Work for superhard materials like PCDs, MCDs and PCBNs of various brands on the market
- Maximal tool diameter is about 300 mm, Maximal tool length is about 450 mm
- Flexible interface, change with HSK, CAPTO, BT, BBT or straight shank quick and easy



Straight shank series



3C series



Flange series



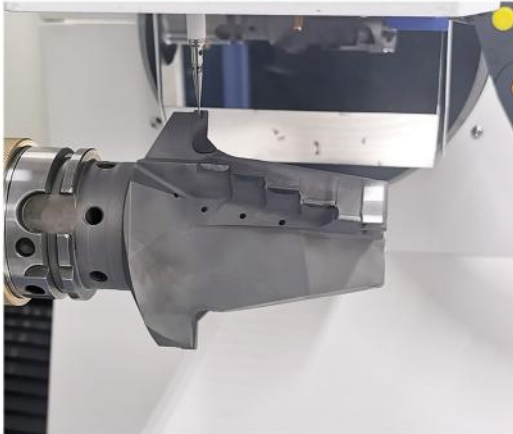
HSK63 series



HSK100 series

## Accuracy

- Horizontal layout based on center rotation, five-axis machining accuracy will hardly lose with the increase of tool diameter and length
- Closed-loop control enhances the dynamic accuracy



## Automation

- Supports both in-machine and out-machine Robot Tool Loader systems, enabling fully automated production for a wide range from round tools to HSK100 tools
- Features such as run-out compensation, automatic tool length setting, automatic calibration, and online measurement, significantly enhance production efficiency
- Compatible with various pallet solutions, supporting multiple production modes, including quantity continuous production of simple tools and mixed continuous production of complex tools



## Capabilities

- Design to work on PCDs and CBNs for special cutting tools, suitable for cutting edge and chip-breaking groove
- Work for superhard materials like PCDs, MCDs and PCBNs of various brands on the market
- Maximum tool diameter is about 160mm, It is mainly used for the production of medium and small diameter tools and solid cutting tool processing
- Manual and automatic tool holders(ER collect), with the maximum clamping tool diameter of 32mm



Drilling Cutters



Helical Milling Cutters



Form Milling Cutters



Solid Radius Milling Cutters



Solid Multi-Angle Drill



Solid Thread Milling Cutters



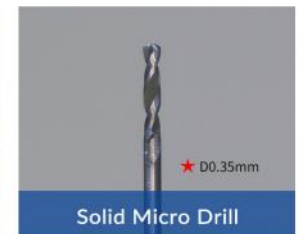
Solid Multi-Flute Ball End Mill



Solid Eccentric Chamfer Mill

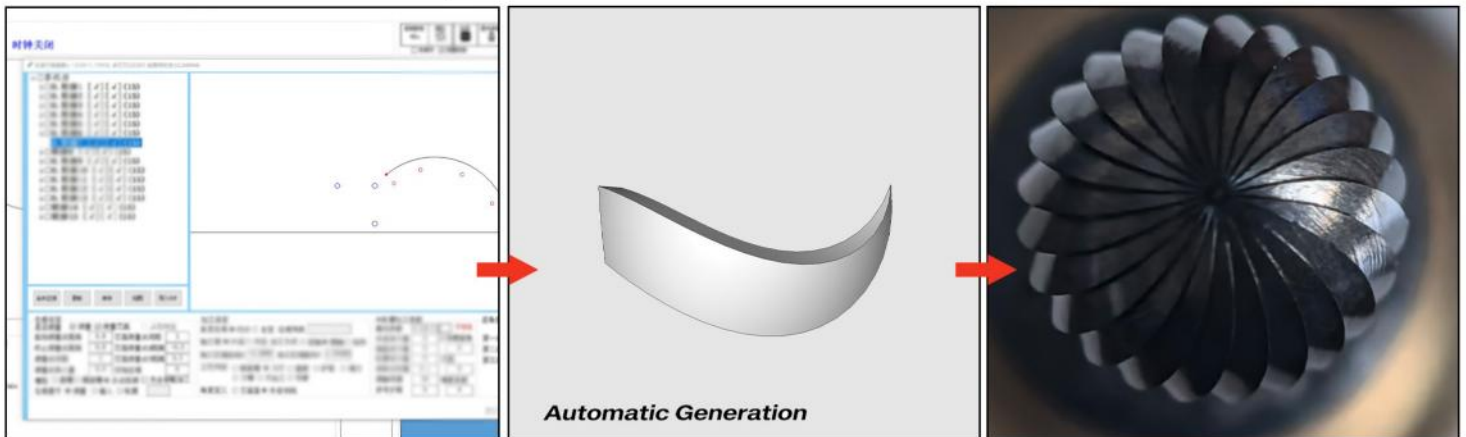


Solid Micro Tap

Solid Micro Drill  
★ D0.35mm

## A Easy Way To Solid PCD Tool

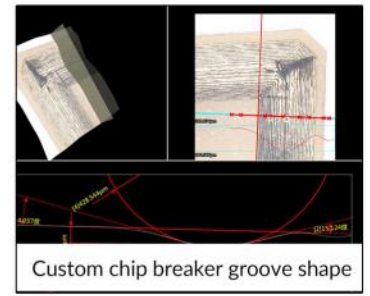
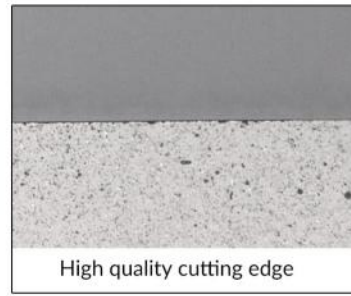
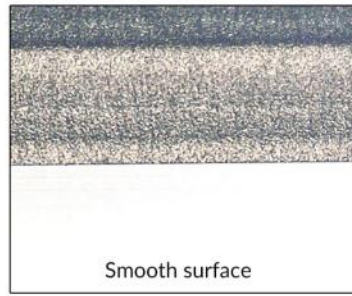
- No need to create a 3D model in advance,user-friendly for operators
- Ultrafast laser as standard, capable of processing most hard materials such as diamond, ceramics, and carbide. Ultrafast or Pulsed lasers are also available as option.



## Automation

- Dry processing, equipment can be kept clean for a long time, almost no additional maintenance
- Enclosed processing space, relatively quiet processing environment, automatic dust extraction in processing, no unpleasant dust
- Almost no industrial waste during the processing process except for cutting leftover materials and dust

## Efficiency & Quality



- Industrial Fiber pulse laser with BOOST mode achieves amazing roughing efficiency, EDM for roughing pre-cutting is no longer necessary
- Sharp cutting edge, which can be control and achieved micron-level tip arc radius, and maintain good chipping state
- Smooth relief face with roughness lower than Ra 0.2

## Stability

- Machine body is made of cast marble, compared with cast iron, which has obvious advantages in thermal stability and vibration elimination
- Active thermal manage system, can precisely senses and controls the temperature rising of mechanical components during processing
- Using optical feedback control elements, helps to maintain high positioning accuracy and repeated repeatability for a long time

## Safe Measures in Production

- Equipped with dual safety door lock and anti-laser inspection window to ensure personal and equipment safety
- Auto-monitoring of air supply, cooling system and power supply to reduce the adverse effects of external faults on equipment and workpiece
- Solutions can be provided to cover the unstable factors in the customer's factory(for compressed air, water and electricity)

## Low consumables, Environmentally friendly

- Dry processing, equipment can be kept clean for a long time, almost no additional maintenance
- Enclosed processing space, relatively quiet processing environment, automatic dust extraction in processing, no unpleasant dust
- Almost no industrial waste during the processing process except for cutting leftover materials and dust

\* The filter needs to be replaced manually

# Technical Specifications

Type	GIVEALaser 3100L	GIVEALaser 1050L	
Machinery	X/Y/Z-axis	460/320/280mm	300/460/500mm
	Maximal feed rate	15m/min	15m/min
	A/B-axis	$\infty$ /145°	$\infty$ /-45~145°
	Control mode	5-Axis Linear motor	5-Axis Linear motor
Optical System	Galvo scanning system		Galvo scanning system
Air Cleaning	Air Volume	>400m <sup>3</sup> /H	>400m <sup>3</sup> /H
	Air Pressure	>5000Pa	>5000Pa
	Filter Grade	HEPA level	HEPA level
Laser Source	Industrial Fiber pulse laser *	100W (High power available)	50W (High power available)
	Wavelength	1064nm	1030nm
	Pulse Width	<500ns	<1ns
	Frequency	<1MHz	<1MHz
Options	Robot Tool Loader Station/ Robot Tool Loader Replaceable interface with HSK, CAPTO, BT, BBT or straight Shank Additional Expandable Platform		Robot Tool Loader Station
Accuracy	Linear Axis Resolution	0.0001mm	0.0001mm
	Rotary Axis Resolution	0.0001°	0.0001°
Range of Machinable Tools	Machinable Diameter **	0.2~300mm	0.2~(65)160mm
	Machinable Length***	0~440mm	0.2~(140)200mm
Others	Total Power	18KVA @ 380V or 200V(±5%) / 50±1Hz	18KVA @ 380V or 200V(±5%) / 50±1Hz
	Voltage	AC 220V and DC 24V	AC 220V and DC 24V
	Current	63A	63A
	Weight	6000kg	5000kg
	Dimensions	2200mm×2700mm×2600mm	1652mm×2670mm×2500mm
Service	Operation and Maintenance Training Provide Tool Program to Customer		Operation and Maintenance Training Provide Tool Program to Customer

\*Option

\*\*According to the processing settings (technology and geometry) and model changes, here refers to the maximum diameter formilling cutter and maximum length for reamer.

\*\*\*Always ask our starffs for the information about newest upgrade.

# GIVEAL

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Tools Web



Equipment Web



Wechat



YouTube