



2024

RELIABLE MANUFACTURER & SERIOUS PARTNER

GS Series Gantry Laser Cutting Machine Solution



01 COMPANY PROFILE

Lonwill is specialized in CNC Cutting & Welding automation solutions, we having started to design and production CNC controller for Plasma & Oxy-fuel cutting since 2004.

With professional engineer team from HYD.CNC, R&D center in Shenzhen and machine factory in Foshan, Provide customers with a one-stop solution for fiber laser machine such as tube cutting machine, plate cutting machine, and robot cutting machine with different power and size.

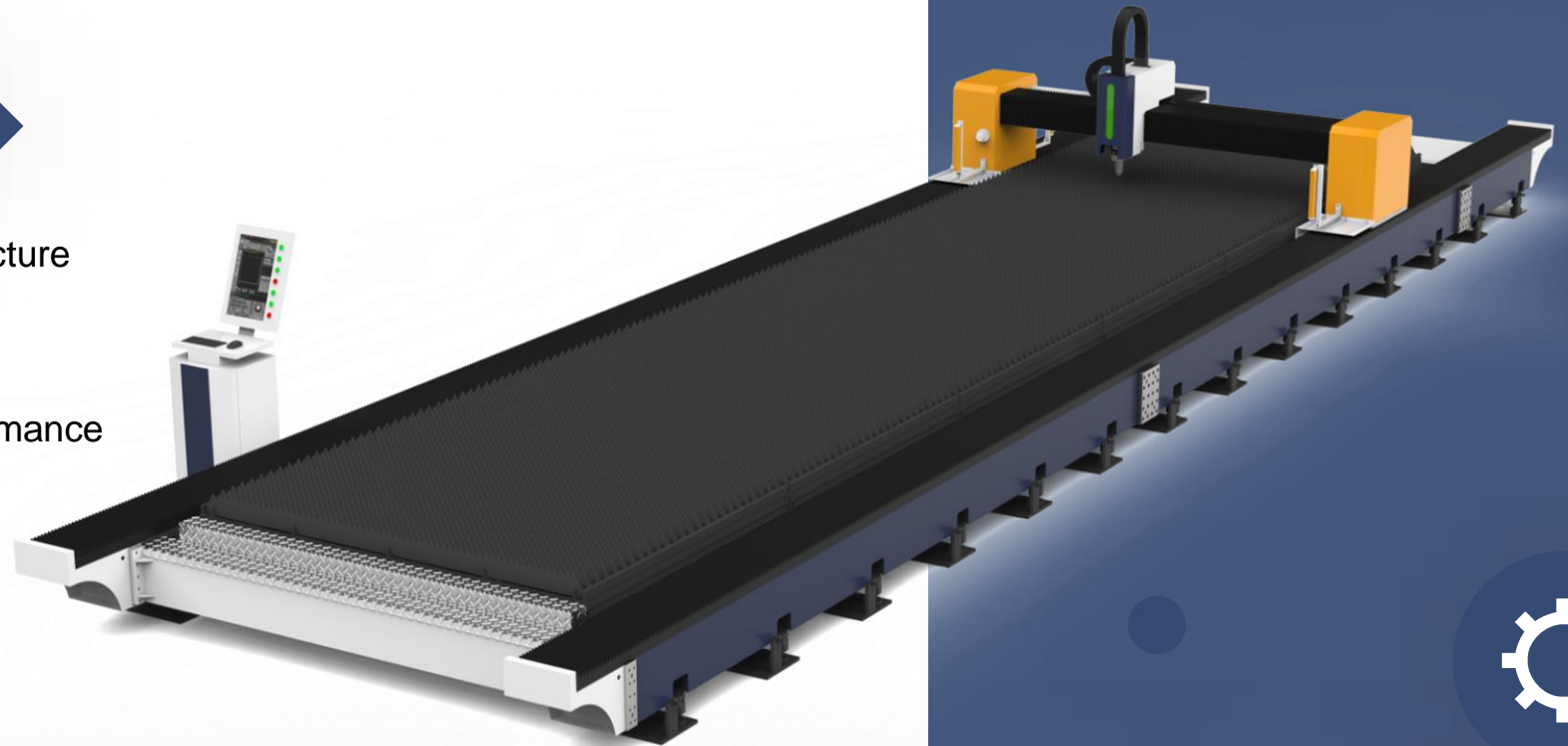


02 Configuration and Parameters

Our cutting machines mainly focus on optimizing the design of tracks, cutting tables, crossbeams, dust exhaust, and electrical components, and selecting core components reasonably according to requirements.

Optimization features

- ✓ Optimize the design of machine structure
- ✓ Optimization design of dust exhaust
- ✓ Optimization design of crossbeam
- ✓ Optimization design of motion performance



02 Configuration and Parameters

MACHINE PARAMETERS

Items		Model		
		GS-6025	GS-12025	GS-12031
Effective stroke	X axis(mm)	6100	12100	12100
	Y axis(mm)	2550	2550	3150
	Z axis(mm)	200		
Position accuracy	X axis(mm)	±0.05		
	Y axis(mm)	±0.05		
	Z axis(mm)	±0.05		
Repeated accuracy	X axis(mm)	±0.03		
	Y axis(mm)	±0.03		
	Z axis(mm)	±0.03		
Max jog speed(m/min)		90m/min		
Acceleration (G)		0.8G		
Machine weight (KG)		9000	14000	16000
Size L*W*H(mm)		8000*4200*2100	14000*4200*2100	14000*4800*2100
Shipping method		40HQ	40HQ	40HQ

Machine size can be customized according to requirements

MACHINE CONFIGURATIONS

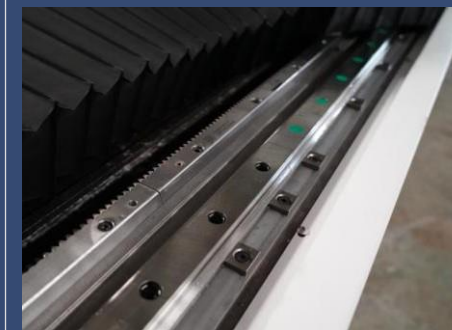
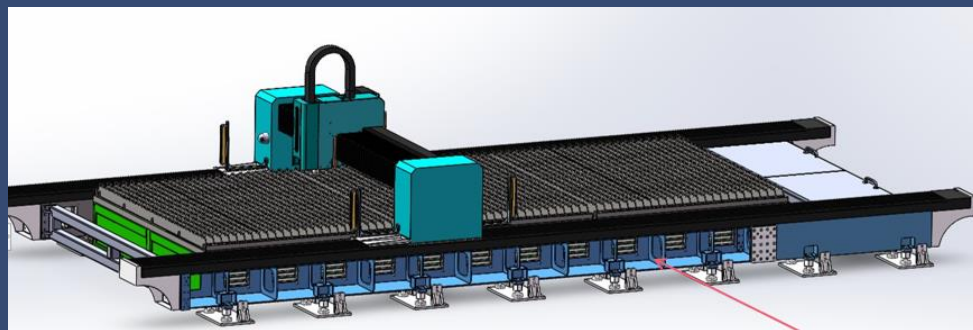
Items	Brand
Machine cutting table	Lonwill
Laser power	12~60KW Raycus/IPG/Max
Laser head	BLT Series
Chiller	Hanli/S&A/Tongfei
CNC controller	Fscut6000/8000
Gear rack	SMAGIC
Rail guide	SMAGIC
X/Y/Z axis servo	Inovance
Planetary Gearbox	TECHMECH
Proportional Valve	SMC
Air/N2 Valve	SMC
Relay	Schneider
Voltage regulator	Jingbao/Xinwen

03 Introduction and Advantages

Separately Ground Rail for Both Sides

Ensure the safety and accuracy

When cut the thick plates with high power laser cutting, guide rail is integrated with machine bed. So both of them will deform because of constantly high temperature. When you choose gantry type, ground rail is separately from machine bed. So machine bed deformation will not influence accuracy of both side guide rail. Ensure long-term high power laser cutting safety & accuracy & stability.



03 Introduction and Advantages

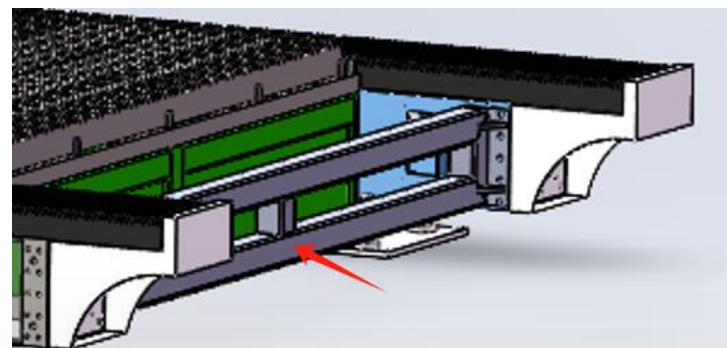
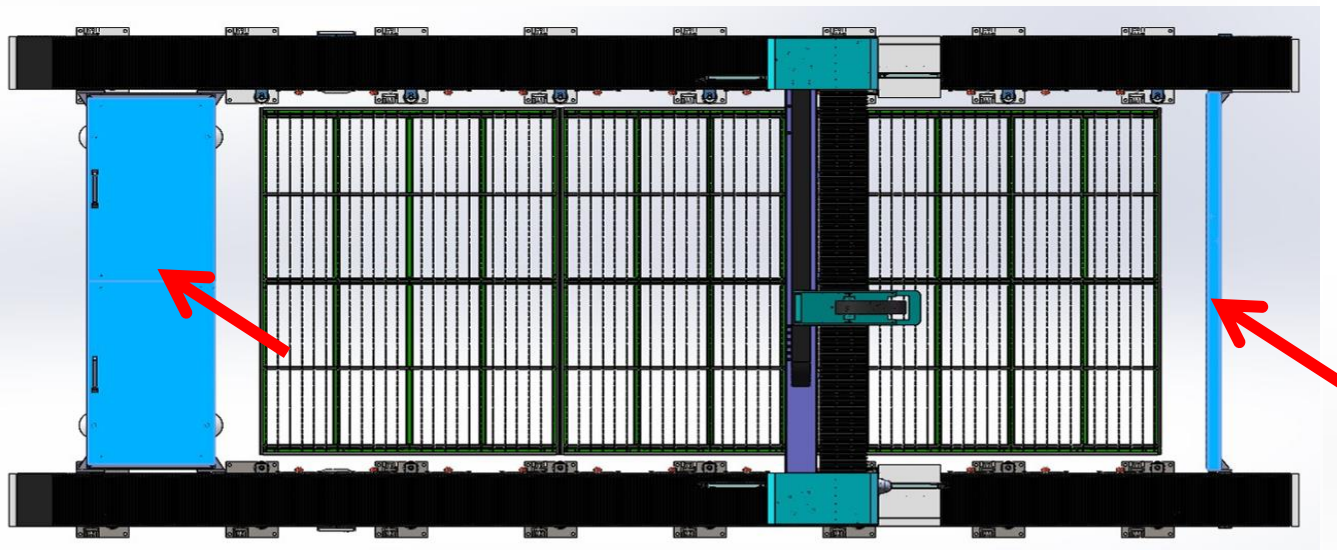
Integrated gantry and cutting structure as a single table cutting machine



Integrated gantry and tracks

No need to disassemble the beam for transportation, and installation can be shortened to less than half day. CNC milling machine can ensure the accuracy of the machine structure. The gantry machine is like a single table type cutting machine. The installation accuracy at the customer's site is the same as our factory.

03 Introduction and Advantages



Double beam design, easy to transport and install

Retain the aluminum crossbeam structure

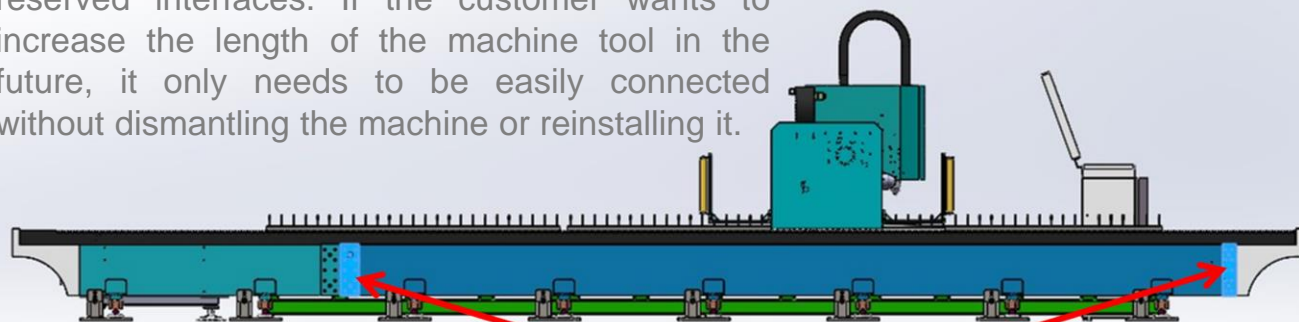
Use aluminum crossbeams to improve stiffness. The crossbeam is welded with aluminum alloy as a whole, including the reducer base, lifting slider, etc., all of which are processed by integral welding.



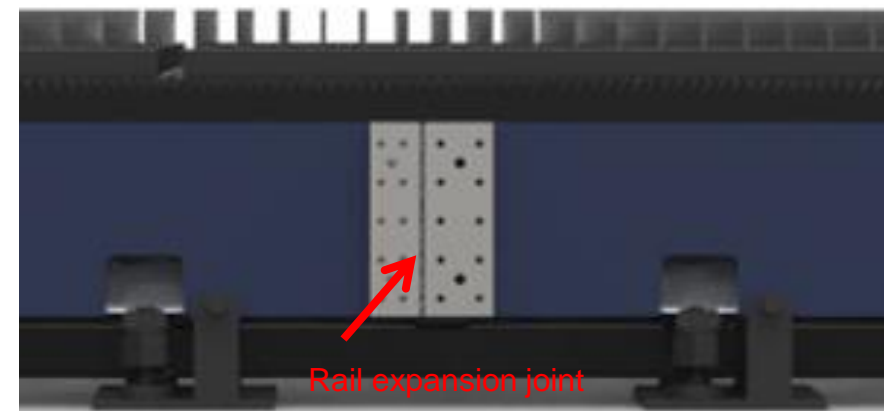
AL

03 Introduction and Advantages

The ground rail adopts a symmetrical design with reserved interfaces. If the customer wants to increase the length of the machine tool in the future, it only needs to be easily connected without dismantling the machine or reinstalling it.



Increase length reservation design



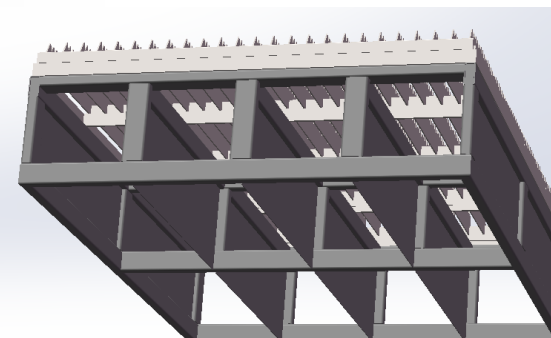
Rail expansion joint

Expansion joints were designed between two ground rail beams to cope with the bending deformation of the entire track caused by thermal expansion and contraction of the ground rail beams.



Foundation plate

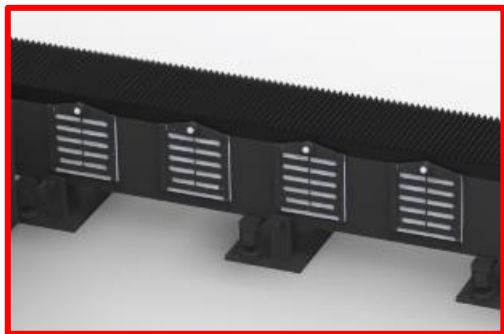
Due to the heavy weight of the ground rail beam, it is completely impossible to locate the accurate position manually with minor errors. So our foundation plate is designed with dual foundation support, and the function of the left and right adjustable ground rail beams. Although this has increased the cost significantly, it allows customers to quickly complete the installation work.



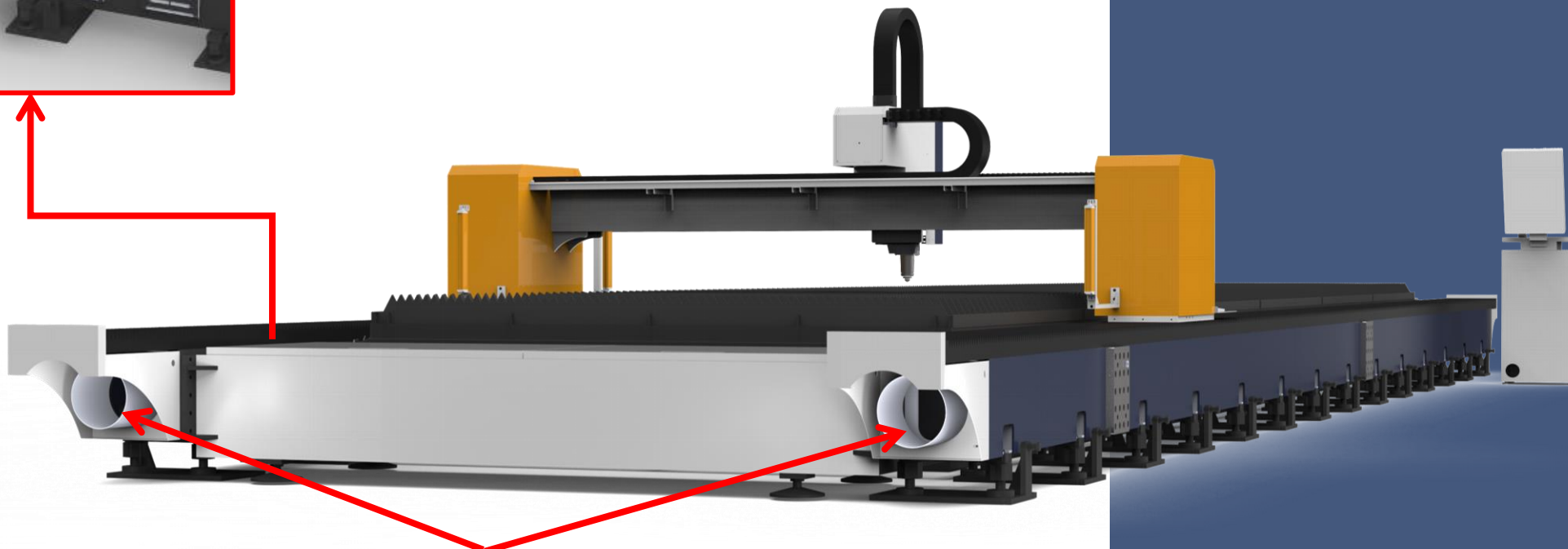
Customers can make cutting tables themselves, greatly saving equipment & shipping costs

03 Introduction and Advantages

Mechanical follow-up segmented dust exhaust



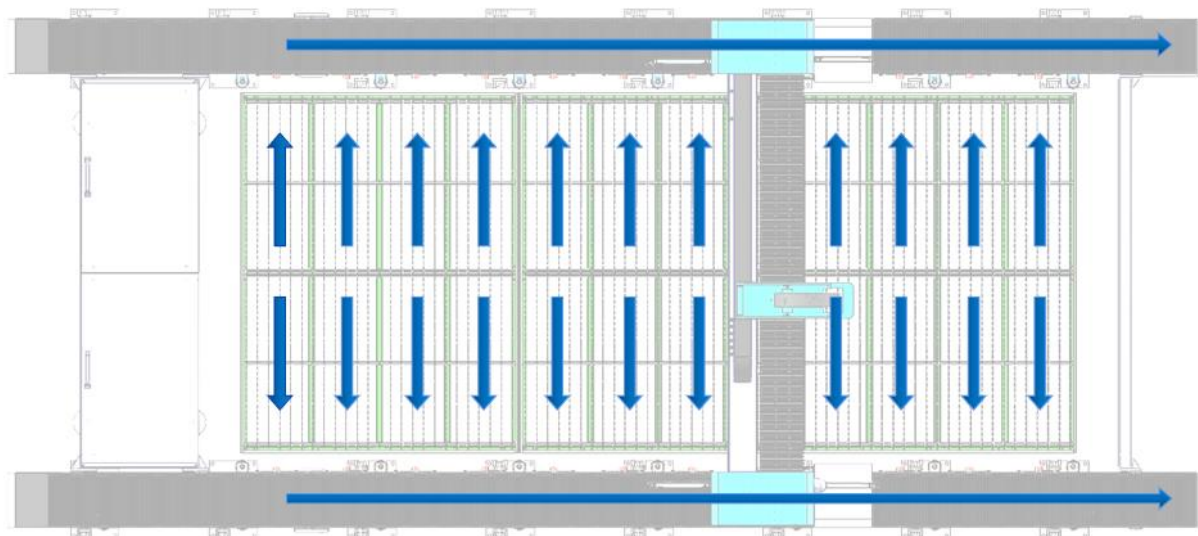
The dust exhaust ports are more dense, with one dust exhaust port on both sides of the track every 500mm, which has a good suction effect. It adopts its own patented technology and special design, which is maintenance free.



Air ducts are integrated into the ground rail beams on both sides, increasing the density of air doors. Optimized dust extraction effect

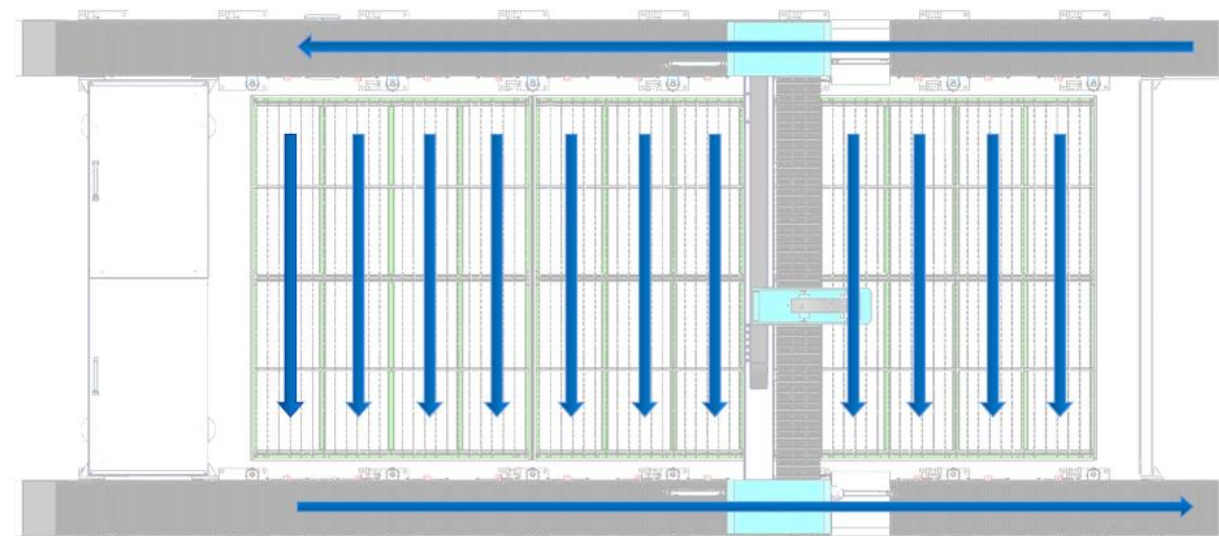
03 Introduction and Advantages

Multiple dust exhaust solutions are available, with simple switching of dust extraction solution.



Double sided dust exhaust

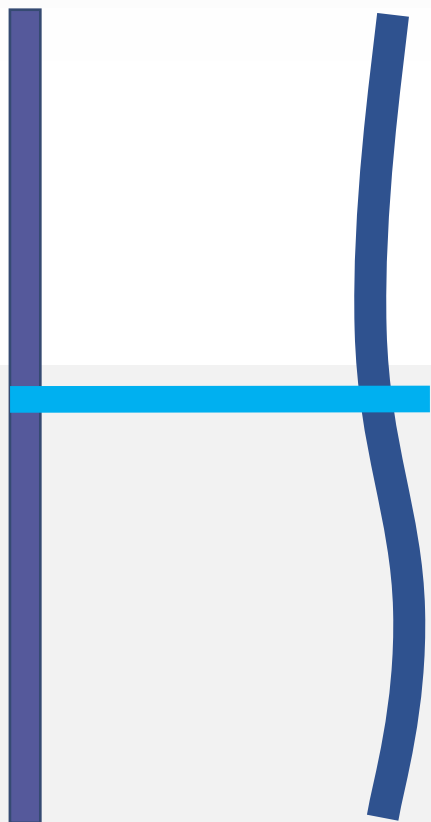
dust exhaust equipment simultaneously extracts dust from both sides of the machine.



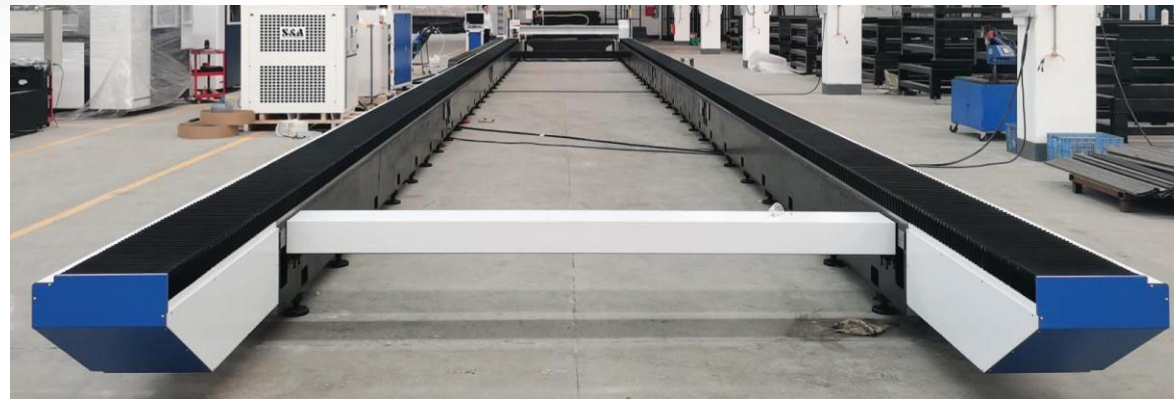
Blow suction dust exhaust

Blowing and drawing air at the same time creates strong lateral air convection, improving dust exhaust efficiency.

03 Introduction and Advantages



Schematic diagram of beam straightness issue



Optimizing track design to adapt to track deformation

Our company's unique technology ensures that the machine has long-term automatic compensation deformation function
(The slider will not get stuck or damaged)



03 Introduction and Advantages

WHY CHOOSE GS SERIES LASER CUTTING MACHINE?

1

The advantages of medium and heavy plates are particularly obvious, saving time for loading and unloading

2

The wireless extension guide rail is suitable for various board lengths and widths, and can cut multiple boards at one time

3

The thermal effect of high-power cutting on the frame is almost zero

4

The mechanical structure is more simplified to maintain the stability of the machine tool and reduce the failure rate

5

Segmented dust exhaust design, with a separate design of dust suction air duct valve per meter, to optimize the cutting and dust exhaust effect

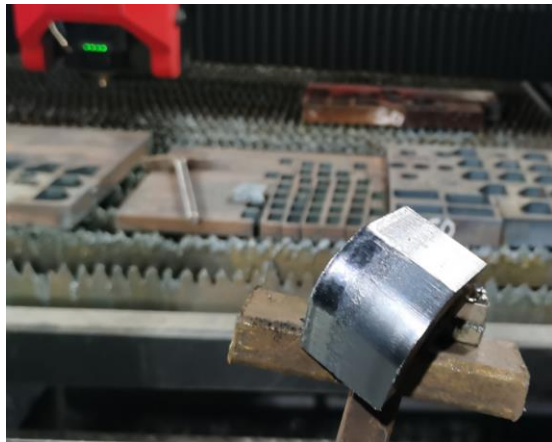
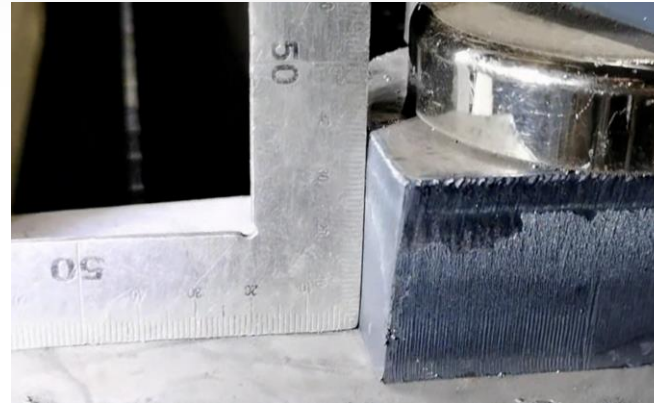
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The segmented tabletop design allows the machine to be loaded into standard containers, saving a lot of freight costs



03 Introduction and Advantages

Cutting Sample



03 Introduction and Advantages



04 Main Parts-System

FSCUT8000 is EtherCAT bus system designed for ultra high power fiber laser above 8kw, featured by out of box service, easy to install and adjustable solution functions. It supports customization, automation and informatization solutions, is the leading edge EtherCAT laser cutting control system on the market.



Adopting a bus system for faster response. And through calculation, select the appropriate motor and reducer. Make the machine tool work within the optimal speed and acceleration range, and maximize the electrical performance of the machine tool.

Benefits

- ❑ Technique: multiple piercing solutions for metal sheet of different thickness: piercing slags removal: vibration suppression; close-loop gas control;
- ❑ separate layer technique for large, medium and small contour cutting, all to expand your machine production capability.
- ❑ Vision remnant reuse: capture remnant sheet by your phone camera or machine camera to reuse the material with high efficiency.
- ❑ Find edge: up to 500mm/s high speed with precision find sheet edge. also provide optional find edge patterns to meet your production needs.
- ❑ File formats: support direct production of DXF and G code: support fast process of LXDS and NRP file generated by CypNest.



04 Main Parts- Laser source



Fiber Lasers

The fiber laser series products have the characteristics of high electro-optical conversion efficiency, good beam quality, high energy density, wide modulation frequency, high reliability, long service life, maintenance free operation, customizable output fiber length, QBH with protective window, safety and reliability, small size, and easy installation. Its fiber optic output characteristics make it easier to integrate into flexible manufacturing equipment, fully meeting the needs of 3D machining.

The fiber optic series laser generator has multiple advantages: high electro-optical conversion efficiency; Wide modulation frequency range; Small size, easy to install; Simple process settings; Industry leading beam quality; An electro-optical conversion efficiency greater than 35%; Featuring a long lifespan, with a lifespan of up to 100000 hours; Low power consumption and maintenance free product.

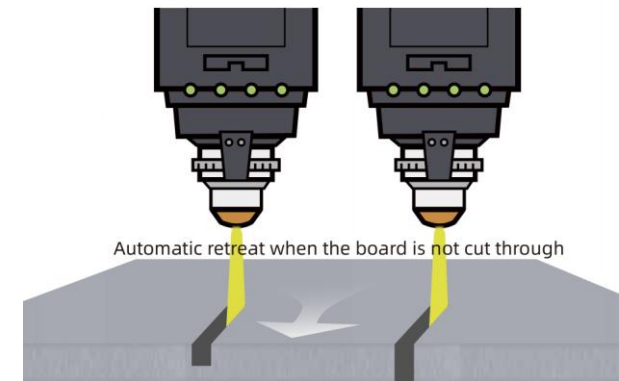
04 Main Parts- Laser cutting head



- **Modularization design**
Problem-solving in 5 mins
- **Anti-explosion Monitoring of Protective Lens**
Ensure the in-time cutting stability under high power

BOCI BLT Modular Smart Laser Cutting Head

- **Anti-collision Protection**
reduces the depot-repair probability



- **Close-loop cutting process Monitoring**
Real-time monitoring, quick responding and in-time question finding

04 Main Parts- Reducer



- **DIN6** Level Precision
- **IP65** Protective Level
- **Italian** Technology



MAF



MVD



5MVB



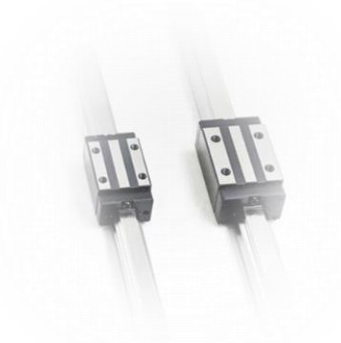
04 Main Parts- Guide Linear, rack and pinion



The difference between SMG and Taiwan brand

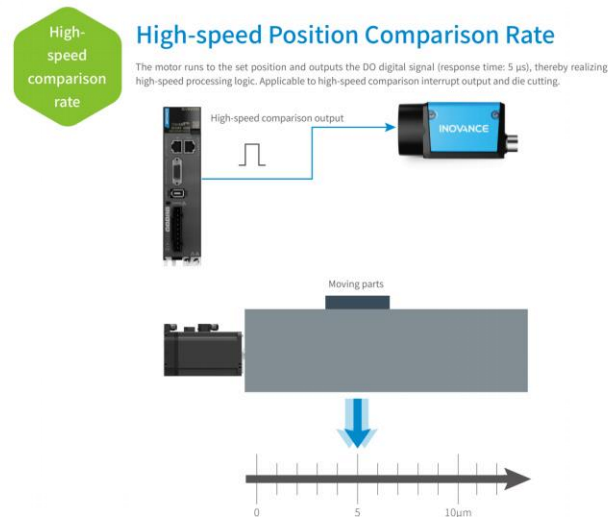
Japanese brand	The SMG slider is double dust-proof, and the oil is scraped four times in one walk.	Accuracy Class P , four meters long straight line accuracy 0.025mm, parallel accuracy 0.02mm	Lifetime free warranty
Taiwan brand	Taiwan brand twice	Taiwan brand Class C	1 year warranty

- ✓ Japanese brand
- ✓ High precision
- ✓ Wear-resistant,
- ✓ ultra-quiet
- ✓ **Lifetime free warranty**



04 Main Parts- Servo Motor

- Highest market share **90%** in China, **like Raycus in China**
- **3kHz** speed frequency response
- The controller enables to integrate equipment turn data into movement
- Cooperate with Beckhoff with own control system



INOVANCE

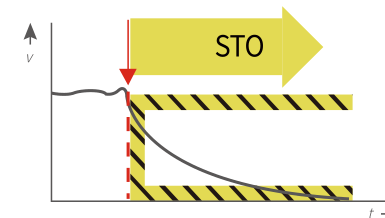
Security

Effectively Protect Personal and Equipment Safety

Functional safety

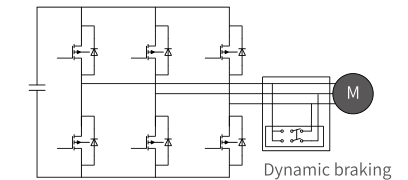
IIEC61508-1 SIL-3 standard

Safe Torque Off (STO) function: no output-side contactor is required to prevent electric shock or mechanical damage in fault state.



Dynamic braking

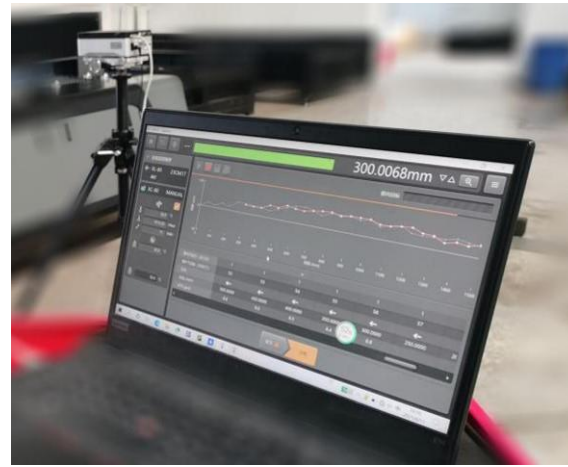
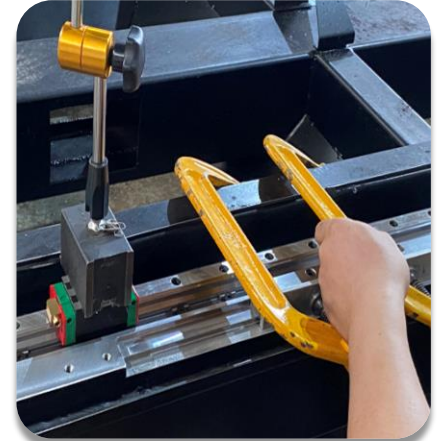
Dynamic braking can be activated in case of servo drive failure, emergency stop or shutdown, and motor brake failure to prevent equipment loss or personal injury caused by rapid motor rotation.



05 Production Process

Production and installation

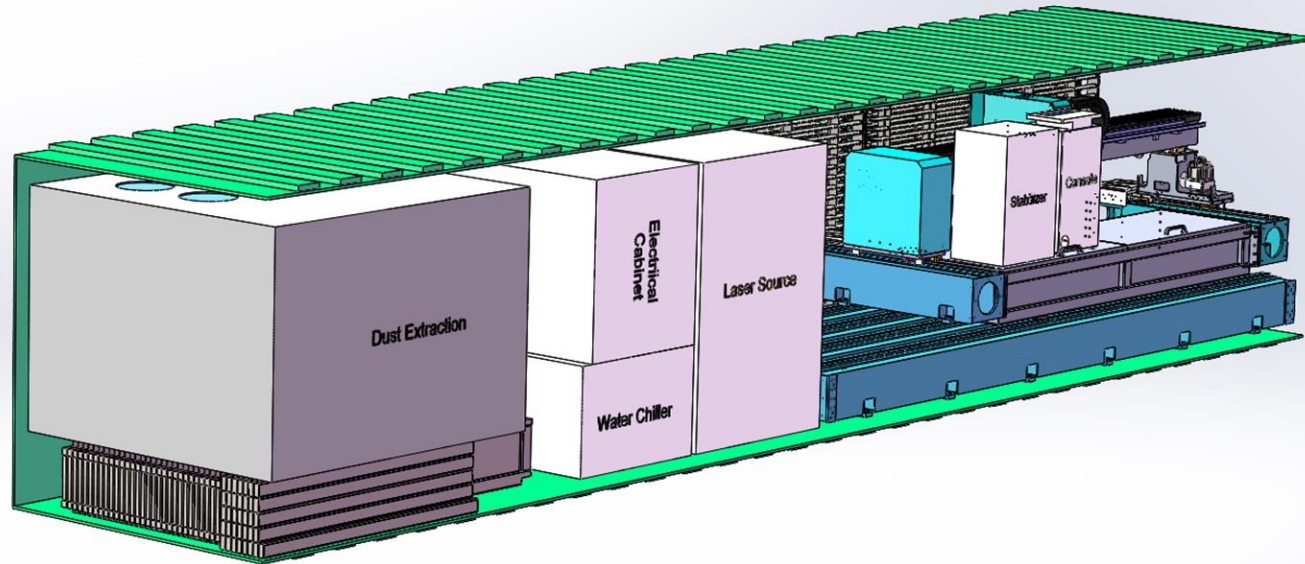
- Datum Plane milling is vital for installation & running accuracy of motion parts, we adopt large gantry milling machine, error under 0.01mm/m, which comply with international standard ensuring parallelism and perpendicularity.



Machine accuracy inspection

- In strict accordance with the mechanical installation standards and requirements, ensure that each part is installed within the design scope, and ensure the high accuracy of the whole machine after assembly.

05 Production Process



Packing and Shipping

The detachable design allows one machine to fit into a 40HQ container, saving on shipping costs.

