LASER

SF1530G
TECHNICAL SOLUTION

Supplier: Gentronics
Buyer:

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I. Product introduction

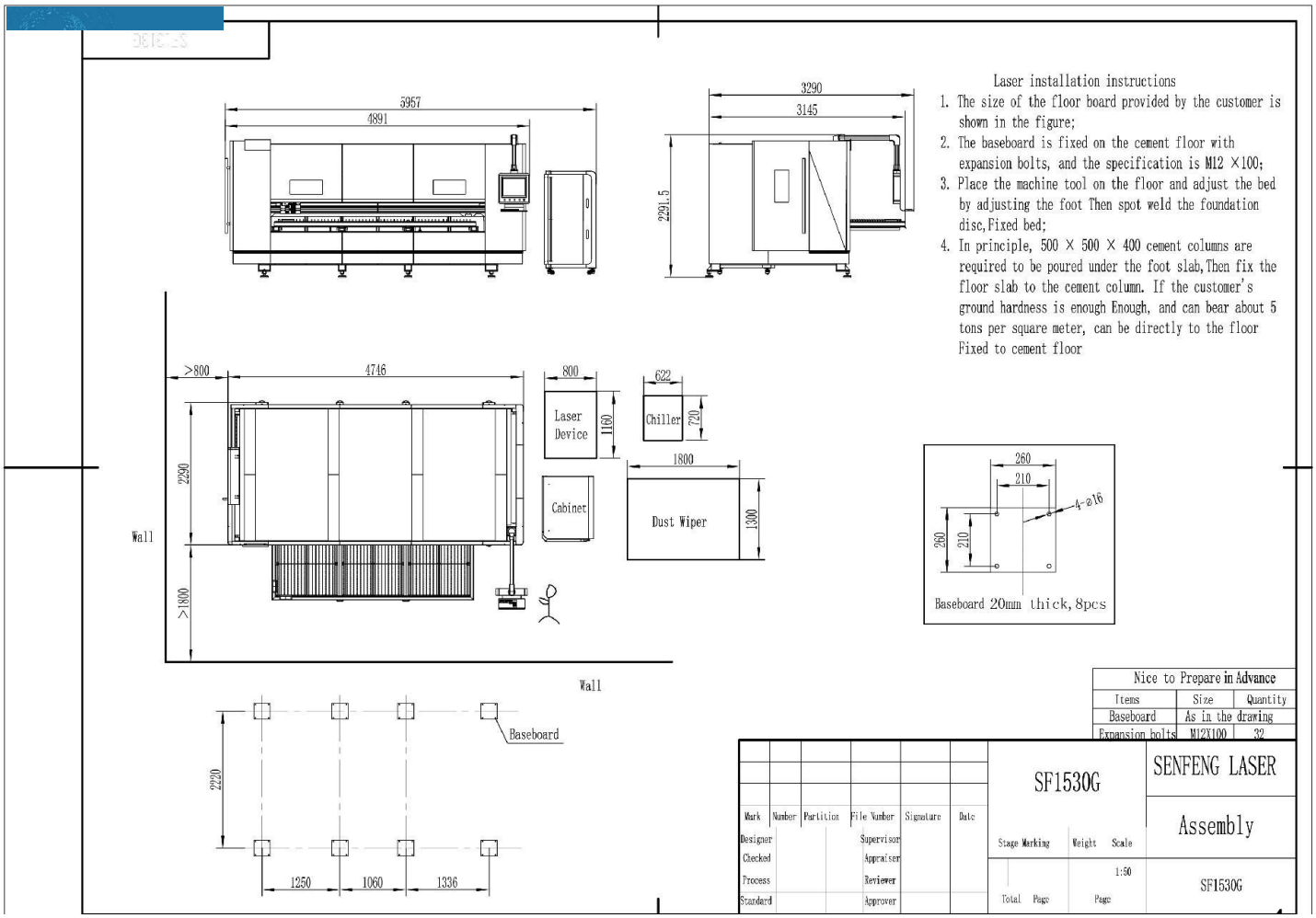
SF1530G

Fiber laser cutting machine

- SF1530G is a single table fiber laser cutter machine for cutting metal sheet. The fiber laser power 1000w to 3000w.
- It is with full-protection cover, which can prevent the laser radiation and protect the worker safety, reduce the environment pollution; and it is also with the pull-out platform, which is more convenient for loading and unloading materials.
- The machine bed is welded with high-quality steel plate and pipe, which ensures that the bed has sufficient structural stability, shock resistance and no deformation for long time.
- The partitioned dust removal system can automatically open and close the air outlet to achieve smokeless cutting.

II.Technical Parameter

Item	Parameter
	1000W-3000W
Work Area	3050*1530mm
X-axis Travel	3050mm
Y-axis Travel	1530mm
Z-axis Travel	120mm
Positioning accuracy	±0.05mm
Repeated positioning	±0.02mm
Maximum speed	80m/min
Maximum acceleration	0.8G
Machine Total weight(KG)	3000
Table maximum load(KG)	700
Outline size（mm）	4890x2300x2290
Power parameters	Three-phase AC380V 50Hz
Protection Level of Total Power Supply	IP54

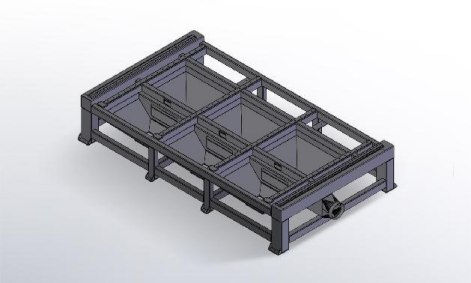


III.Configuration

NAME	NO.	BRAND
Fiber Laser	1 set	Raycus/IPG/Max
Laser head	1 set	Raytools/WSX
Transmission	4 set	LAPPING/PEK
Rack	3 set	SENFENG
Machine bed accessories	1 set	LEIMING
Motor reducer	3 set	EREFAT
Electrical and pneumatic	1 set	SIEMENS/SCHNEIDERSMC/AIRTAC
Server motor and driver	5 set	DELTA/SCHNEIDER
Water cooling	1 set	HANLI
Laser system	1 set	Cypcut (FSCUT2000)

IV.Main Features

Honeycomb Carbon Structural Steel Welding Bed

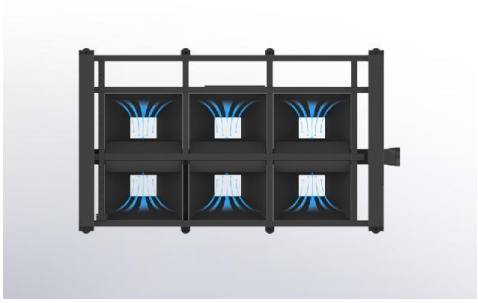


- The bed is welded by high-quality steel plate and pipe. After welding, it undergoes stress relief annealing, secondary aging treatment, and ultra-large gantry milling machine precision processing to ensure that the bed has sufficient structural stability and shock resistance. The bed will not be deformed after long-term use, which improves the service life of the equipment.

Strong Aviation Aluminum Beam

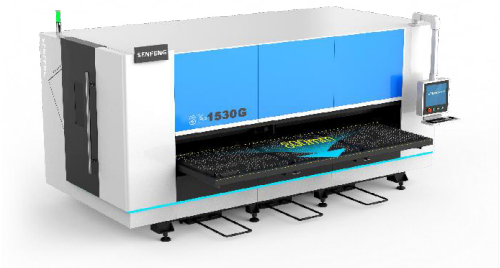
- SF1530G Fiber Laser Cutter adopts aviation-grade high-strength aluminum alloy beam, which has the characteristics of light weight, low inertia, strong rigidity and good shock absorption.
- Rough machining after annealing to eliminate internal stress and fine machining after secondary vibration aging treatment ensure the overall strength and stability of the beam.

Intelligent Spiral Surrounding Vacuum Dust Removal System



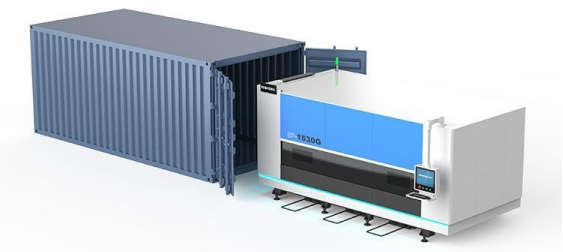
- Intelligent spiral surrounding negative pressure partition dust removal system, according to the current cutting position, intelligently switch the air outlet, time-sharing, partition, and sectional air exhaust, At the same time, it cooperates with the back-shaped sealing structure design at the bottom of the base to realize smokeless cutting.

Pull-out Platform



- The worktable can pull out the bed 800mm, and at the same time it can use auxiliary equipment to load and unload materials.

Packing



- Save freight cost.Save installation time. Whole machine can fit into a 20-foot container.

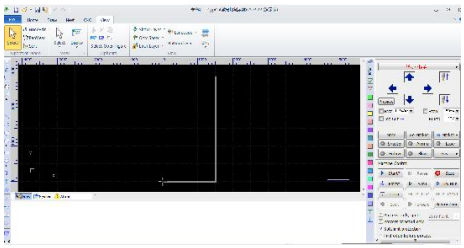
WXS laser cutting head

- The internal structure of the laser head is completely enclosed, which can prevent the optical part from being polluted by dust.
- The laser head adopts two-point centering adjustment, and the focusing adopts servo drive, which significantly improves the efficiency in perforation.
- The protective mirror adopts drawer type installation for easy replacement.
- Compatible with all QBH connector lasers of 3000 watts and below.
- Focal length: 125mm, 150mm.
- The maximum thickness of carbon steel can reach 20mm， The maximum thickness of stainless steel can reach 12mm.

Raycus RFL-C3000S Laser Device

- 25nm fiber core quasi-single mode output.
- 50nm fiber core quasi-single mode output.
- The electro-optical efficiency is as high as 35%.
- Multi-level security and high anti-protection.
- Power monitoring accuracy up to 3.

FSCUT2000 medium and high power laser cutting system

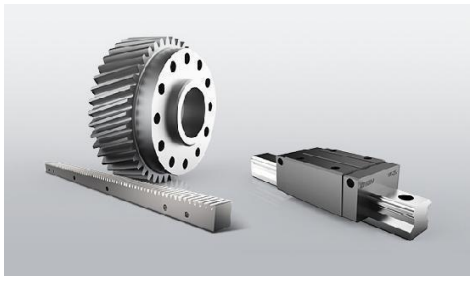


- Convenient installation, easy debugging, excellent performance, complete solutions, stable and reliable, easy deployment, easy debugging, safe production, rich functions, excellent performance, etc.
- support and provide modular, personalized, automated, and information solutions that can be realized Memory cache, powerful cutting process database, all kinds of cutting parameters of different thicknesses and different plates, fast operation and efficient cutting.

Metal Wheel Exchange Table

More durable and stable,ensuring the fast exchanging time

Transmission System



- High precision, long life, can provide rigorous support for quenching helical gears and grinding helical gears, so that the load drive structure is compact, can effectively reduce the driving torque.

Circuit board

Water Cooling System

- Large cooling capacity, stable performance, trouble-free, clean water quality, good heat exchange effect with fiber laser, and linkage signal to protect the laser

Height Controller

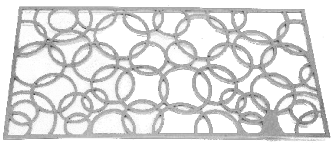
Automatic Lubrication System

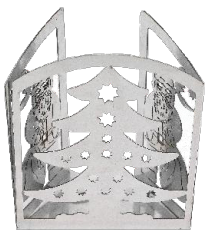
- Lubricating the guide rails of X axis, Y axis, Z axis automatically, which could reduce maintenance cost and save time significantly.
- Oiling time can be adjusted according to processing amount, which is more humanized.

V.Cutting Capability and Application

Cutting Materials

Carbon steel, stainless steel, aluminum alloy, brass, copper, galvanized sheet, silicon steel sheet, electrolytic sheet, titanium alloy, manganese alloy, etc.





Application Industry

Manufacturing industry

Refrigeration equipment

Mechanical processing

Sheet Metal Fabrication

SENFENG

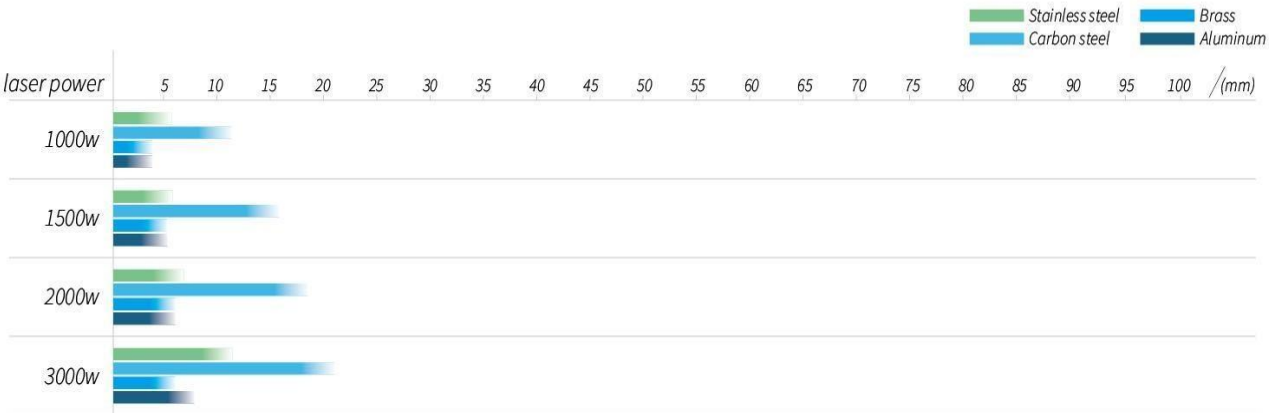
Cutting I Cladding I Cleaning I Welding I Bending I Automation

Elevator production

Advertising industry

Petroleum machinery

Cutting Capacity



The above data and pictures are for reference only

Cutting Parameters

Material	Thickness（MM）	1KW	1.5kw	2KW	3KW
		Cutting Speed（m/min） （gas）			
Stainless Steel	1	18-20(N_2)	23-30(N_2)	30-35(N_2)	30-45(N_2)
	2	6.0-8.0(N_2)	7.0-13(N_2)	10-15(N_2)	20-25(N_2)
	3	2.8-3.5(N_2)	4.5-5.5(N_2)	5.0-6.5(N_2)	8.0-10(N_2)
	4	1.5-2.0(N_2)	2.0-2.5(N_2)	4.0-5.0(N_2)	6.0-9.0(N_2)
	5	0.8-1.0(N_2)	1.4-1.8(N_2)	2.0-2.3(N_2)	
	6		1.0-1.2(N_2)	1.5-2.0(N_2)	3.0-3.5(N_2)
	8			0.8-1.2(N_2)	1.0-1.5(N_2)
	10				0.6-1.0(N_2)
	12				0.4-0.6(N_2)
Carbon Steel	1	15-18 (N_2)	25-28 (O_2)	25-35(O_2)	30-40(N_2/Air)
	2	5.0-7.0 (O_2)	6.2-8.5 (O_2)	10-15(O_2)	15-17(N_2/Air)
	3	3.0-4.0 (O_2)	3.5-5.0 (O_2)	3.5-5.5(O_2)	4.5-5.0 (O_2)
	4	2.0-3.5 (O_2)	3.5-4.0 (O_2)	3.8-4.5(O_2)	2.8-3.5 (O_2)
	5	1.8-2.5 (O_2)			
	6	1.5-2.2 (O_2)	1.7-2.5(O_2)	2.0-2.7(O_2)	2.8-3.5(O_2)
	8	1.0-1.5 (O_2)	1.2-1.6(O_2)	1.3-1.7(O_2)	2.3-2.5(O_2)
	10	0.8-1.0 (O_2)	1.0-1.2(O_2)	1.0-1.6(O_2)	1.8-2.1(O_2)
	12	0.6-0.8 (O_2)	0.8-1.0(O_2)	0.8-1.2(O_2)	1.4-1.6(O_2)
	14		0.6-0.7(O_2)	0.8-1.0(O_2)	1.0-1.3(O_2)
	16		0.5-0.6(O_2)	0.7-1.0(O_2)	0.7-1.2(O_2)
	18			0.5-0.6(O_2)	
	20				0.5-0.7(O_2)

Material	Thickness（MM）	1KW	1.5kw	2KW	3KW
		Cutting Speed（m/min） （gas）			
Brass	1	10.0-12.0 (N_2)	12.0-13.0 (N_2)	15-25 (N_2)	25-35 (N_2)
	2	4.5-5.0 (N_2)	5.0-6.0 (N_2)	8.0-11 (N_2)	12-18 (N_2)
	3	1.0-1.2 (N_2)	1.5-2.0 (N_2)	3.0-4.5 (N_2)	6.0-8.0 (N_2)
	4			1.3-1.7 (N_2)	3.0-4.0 (N_2)
	5		0.5-0.7 (N_2)		1.8-2.0 (N_2)
	6			0.6-0.8 (N_2)	0.8-1.0 (N_2)
Aluminum	1	13-17 (N_2)	15-23 (N_2)	20-25(N_2)	30-35(N_2)
	2	4.8-5.2 (N_2)	6.0-8.0 (N_2)	10-15(N_2)	14-20(N_2)
	3	1.2-1.6 (N_2)	2.0-3.0 (N_2)	4.0-5.0(N_2)	8.0-10(N_2)
	4		1.0-1.7 (N_2)	2.0-2.5(N_2)	5.0-7.5(N_2)
	5		0.5-0.8 (N_2)		3.0-3.5(N_2)
	6			0.6-1.0(N_2)	1.2-1.5(N_2)
	8				0.7-1.0(N_2)

VI.Cost

Mode		1000W			1500W			2000W			3000W		
		Air Compress	O2	N2	Air Compress	O2	1N2	Air Compress	O2	N2	Air Compress	O2	N2
Electricity Consumption (Peak Power Consumption)	Laser Device		4KW			6KW			7KW			10.5KW	
	Chiller Power		2.6KW			3.3KW			3.6KW			7.37KW	
	Air Compressor Power	11KW	/	/	11KW	/	/	11KW	/	/	11KW	/	/
	Main Body		7KW			5KW			5KW			5KW	
	Dust Removal Equipment		1.5KW			1.5KW			1.5KW			1.5KW	
	USD/H					0.0777(1USD ≈ 6.4388RMB)							
Consumable Parts&Gas Consumption	RMB/H	0.5	4.5	60	0.5	4.5	60	0.5	4.5	60	0.5	4.5	60
	USD/H	0.0777	0.69	9.32	0.0777	0.69	9.32	0.0777	0.69	9.32	0.0777	0.69	9.32
Total Power(KW)		26.1	15.1	15.1	26.8	15.8	15.8	28.1	17.1	17.1	35.37	24.37	24.37
Total Power Consumption(KW/H)		15.7	9	9	16	9.5	9.5	16.9	10.3	10.3	21.2	14.6	14.6
TotalOperation Cost1RMB/KWH	RMB	16.2	13.5	69.5	16.5	14	70	17.4	14.8	70.8	21.7	19.1	75.1
	USD	2.51	2.09	10.79	2.56	2.17	10.87	2.7	2.29	10.99	3.37	2.96	11.66

VII.Bed body processing process

01

Metal Cutting

The raw materials for machine bed welding are all cut by laser.

02

Machine Bed Welding

Machine bed welding adapts mixed gas (80% argon 20% carbon dioxide) which can better ensure the formation ,firmness and smoothness of the welding, to improve the overall quality of the bed.

03

Natural Aging Treatment

The bed will be placed outdoors for 1 to 6 months after welding,under the overload caused by thermal stress, the residual stress is relaxed and the dimensional accuracy is stabilized.

04

Heat Treatment

It takes about 24 hours for the overall heat treatment of a bed,achieving the purpose of eliminating residual stress, stabilizing size, reducing deformation and cracks, making our bed more durable and longer in service life.

05

Shot Blasting

It can clear the excess rust layer, oxide skin and oil stains on the bed, which can greatly improve the cleaning efficiency and strengthen the surface quality of the bed.

06

Spray

We adopt automatic process, which is safe and stable, and efficient; the high temperature paint baking room can heat up quickly, dry quickly, and make the surface of the bed smooth and without impurities.

07

Machining

The final finishing of the bed and beam can completely eliminate the stress caused by welding and processing, ensuring the stability and high precision of the bed,which will run for a long time without deformation.

08

Accuracy Detection

We use CMM and other instruments to test the accuracy of the bed.