SUPERWAVE LASERSYSTEM
思博威激光

Fiber laser cutting machine



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Machine size：



SW - FLC series fiber laser cutting machine

SW - FLC series fiber optical laser cutting machine adopts the world's top fiber laser with gantry structure, high-precision bilateral drive, high strength aluminum alloy beams, precision linear rail, helical gear transmission system, and supplemented by advanced German laser cutting control system. This equipment has perfect whole rigidity, stable performance with high speed, high precision, high efficiency and high cost performance.
Fiber laser cutting machine is the newest generation laser cutting system, the fiber laser source is low energy consumption and high efficiency laser generator. The user no need do laser alignment of the laser resonator, the laser pump source is very high service life up to 100000 hours. And maintenance free.

Good configuration with high efficiency and low cost

1. Fiber Laser Source

The latest generation of fiber lasers' photoelectric conversion efficiency up to 30%, It is the traditional YAG lamp pump Laser 10 times.While electricity consumption is only one-third to one-fifth that before.The laser does not have supplies, no need to replace the lamp.

it has stable performance, and guarantee the whole machine quality.

2. Automatic Focusing System

imported Z axis configures capacitive contactless auto-tracking system, ,full-time dynamic tracking plate height,which can automatically adjust the best focus, to ensure the best cutting effect of the whole plate, and avoid material scrap caused by changing focus when the material is uneven.

3.Machine tool system

Machine tool adopts gantry structure. It has high precision, good rigidity, smooth operation. It also configures universal wheels to be energy saving, convenient and efficient.

4.Drive system

adopts imported bilateral gear-gear stripe transmission, imported linear guide, and imported double servo motor drive system,import high-precision linear module, to

effectively guarantee the cutting speed and high precision.

5.Control system

Dedicated software enables graphic or text to be instantly designed or processed,flexible and easy operation.Using professional PC industrial computer with graphical interface, professional cutting software is easy to design all kinds of graphics and text and achieve real-time processing. This software support all CAD, CorelDraw and other professional drawings.

6.Cooling system

SW-FLC is equipped with the latest 3P external water-cooling system with low running noise, high temperature control precision, to provide a reliable guarantee for a long time works.

7.Red indicator

SW-FLC is equipped with a red collimator, which can help the operator to calibrate laser cutting head flexibly.

8.Gas shielded

Industrial air conditioning is configured in laser power control cabinet, to ensure laser power supply and control system working under constant temperature environment, to reduce the ageing-failure of electronic components caused by high temperature, and extend the service life of laser power supply.

Use the appropriate auxiliary gas, making the slits neat and smooth, do not need secondary polishing.

Excellent cutting quality by high efficient metal cutting

- High processing quality, high efficiency, easy to operate and maintain
- Smooth and fine edge or surface and small distortion
- Cutting line width up to 0.05-0.1mm，high precision up to 0.01mm
- Non-contact cutting and punching on metal or nonmetal sheets or pipes

- Higher cutting speed and low cost, safe to operate and stable function
- Adjusting the cutting height automatically that prevent the collision, you can cut the uneven plate
- High stability, maintenance-free,long service life
- Small size, low energy consumption, less supplies, with compressed air can also be cut, low cost

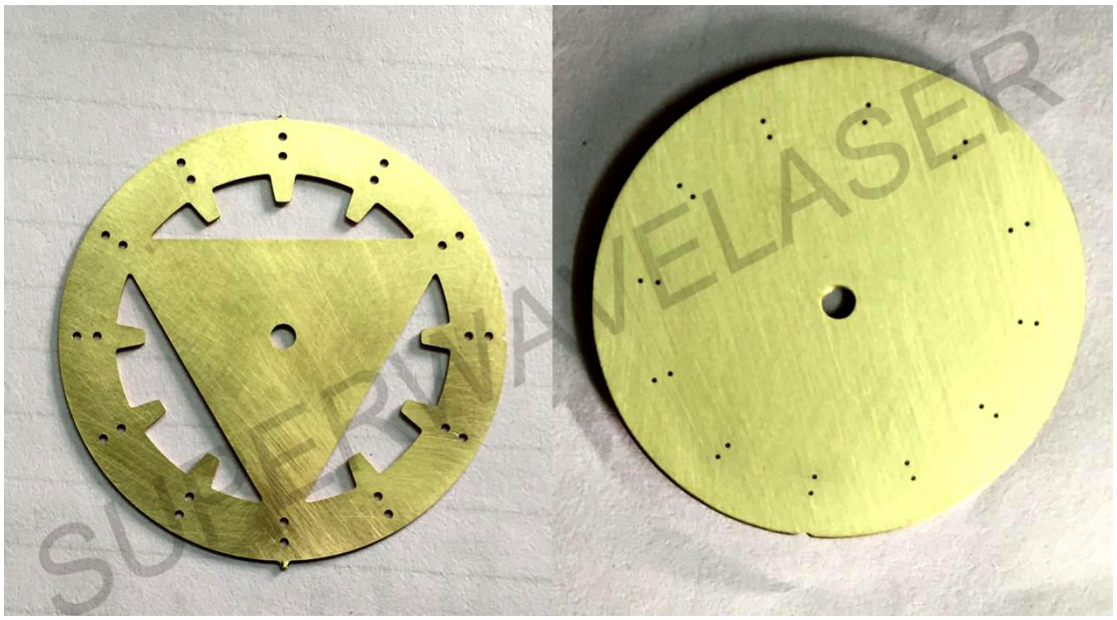
SW-FLC Advantages

- **Excellent beam quality**
  Finest focus spot and cutting, Higher productivity and efficiency
- **Extremely high cutting speed**
  2 times of CO2 laser cutting machine with similar power
- **High stability**
  adopt imported world's top fiber laser source with stable performance, the service life of key components are up to 100,000 hours
- **High electro-optical conversion efficiency**
  3 times higher than CO2 laser. It's energy conservation and environmental protection
- **Ultra-low cost-in-use**
  power consumption of fiber laser system is only 20-30% of similar CO2 laser cutting machine
- **Extremely low maintenance cost**
  Optical fiber transmission, no need laser working gas and reflection lens, saving a lot of maintenance costs
- **Easy operation and maintenance**
  optical fiber transmission, no need to adjust the light path
- **Super flexible light effect**
  small size, compact structure, suit for flexible processing

Technology Parameter：

Model Type	SW-FLC500
Laser source	Fiber laser source
wavelength	1064nm
Cutting area	300x200mm
Cutting line width	0.04-0.08mm (depends materials thickness)
Cutting thickness	≦3mm(depends different materials)
Cutting speed	500-5000mm/minute (depends materials thickness)
Cutting accuracy	0.01mm
Cutting air pressure	0.8-2.5Mpa
Rated power	5KW
Power supply	AC220V,single phase，20Amp
Cooling system	Air cooling or water cooling
environmental conditions	No vibration source, good ventilation, temperature 5 to 35 degrees .
Machine size	H 1650mm,L 1500mm,W 1230mm
Machine weight	N.W.750kg,G.W.850kg

Cutting sample：



















Running cost analysis (for reference ONLY)

Total power consumption cost

Module	Power consumption	Total	Overall consumption
Laser Source	≦4 KW·h	≦24.5	USD 2.4/h
Machine tool	≦10 KW·h		
Chiller	≦3 KW·h		
Vacuum cleaner	≦3.5 KW·h		

Gas consumption Cost

Gas Type	Gas prices	Service time	Total consumption	Edge Cutting effect	Note
O2	USD 2.5 /Bottle	1h	USD 2.5/h	Black edging	Take 1 mm carbon steel for example
N2	USD 54 /Bottle	12h	USD4.5/h	White edge	Take 1 mm SS for example
Air			USD 1/h (Electrical fee of air compressor)	Golden edge	The cutting effect is best for less than 2mm steel plates.
Laser source gas consumption	None				

Consumables cost

Consumables	Service time	Unit price	Consumption	Note
Protective plate	≧1440h	USD 25/PC	USD 0.017 /h	Good working environment make the service time longer.
Brass mouthpiece	≧720h	USD 20/PC	USD 0.028 /h	
Total			USD 0.045 /h	

Total consumption cost (using O2 cutting)

Power consumption cost	O2 consumption costs	Consumables cost	Total
USD 2/h	USD 2.5/h	USD 0.045 /h	USD 4.545/h

Total consumption cost (using N2 cutting)

Power consumption cost	N2 consumption costs	Consumables cost	Total
USD 2/h	USD4.5/h	USD 0.045 /h	USD 6.545/h

Total consumption cost (using Air cutting)

Power consumption cost	Air consumption costs	Consumables cost	Total
USD 2.4/h	USD 1/h	USD 0.045 /h	USD 3.445/h