

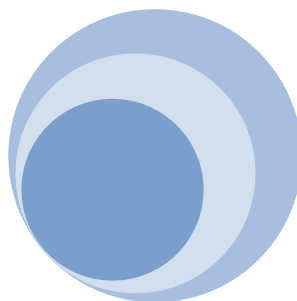


地平线激光

— HORIZON LASER —



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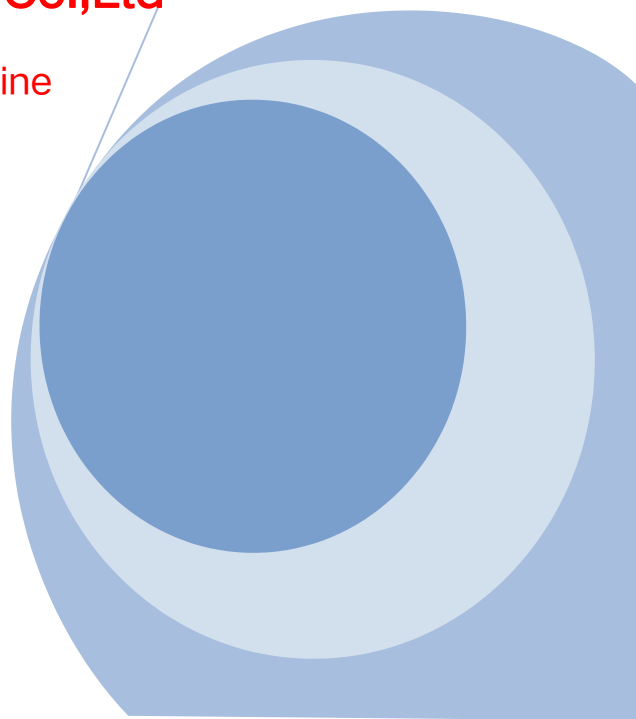


Shenzhen Horizon Laser Technology Co.,Ltd

3015 1500W single platform laser cutting machine

Technical proposal

DPX-D3015-1500W



Company profile

Shenzhen Horizon Laser Technology Co., Ltd. is a new high-tech enterprise integrating technical services, technology promotion, laser equipment modular design, sales and integration services. Shenzhen Horizon Laser has many senior technical experts (Covering machine tool design, optics, automation integration, laser process development)) from well-known laser companies. Shenzhen Horizon laser is mainly committed to promoting laser processing technology, popularizing laser applications, and reducing the asymmetry of client information through modular sales and integration services of laser equipment, and strives to achieve: give an satisfaction to customers to buy and use.

At present, company main business: laser cutting, laser welding, laser cladding and other laser equipment design, cost-effective DIY integration, pre-sale, mid-sale and after-sale technical services.

Business philosophy:

- ✧ Eliminate industry information barriers and serve customers in good faith
- ✧ Customized equipment integration to create ultra-high cost-effective new retail
- ✧ Fully transparent material display, good conscience for new domestic products
- ✧ One-on-one guidance by senior experts to precisely match needs without spending more money
- ✧

Company Vision:

Determined to become the new domestic product of the laser industry, the promoter of new retail.

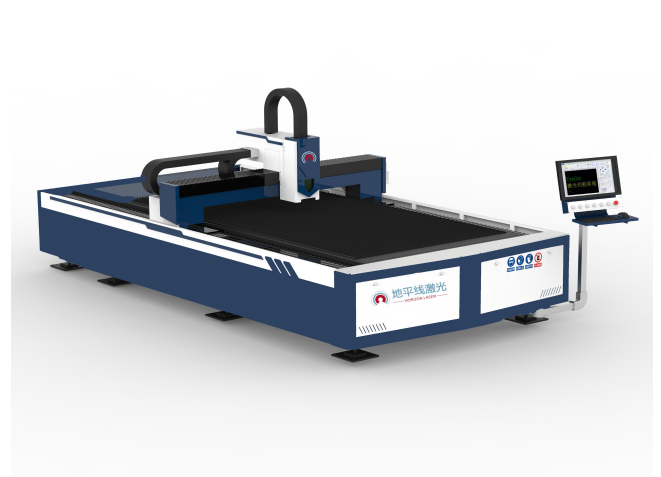
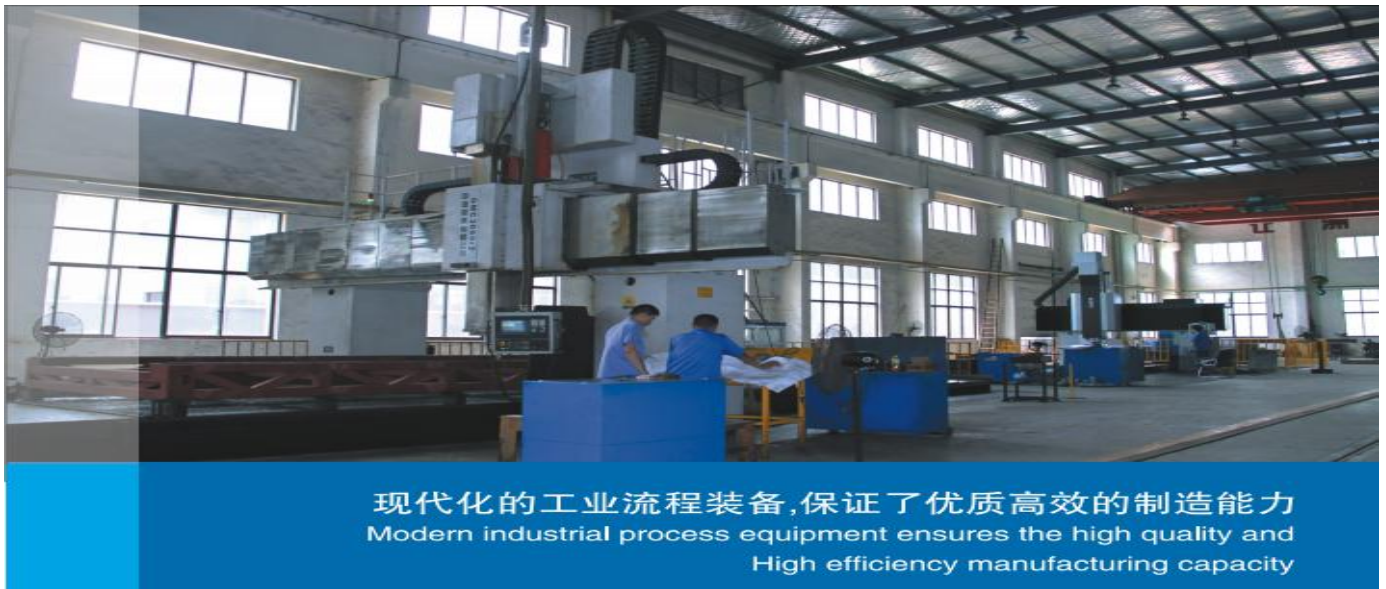
Advanced professional processing equipment

Manufacturing equipment

The company has the precision and fast specialized processing equipment and advanced test center, passes through in the product assembly line. One by the fine advanced production equipment we can make excellent product.

Quality Control System

Perfect refined management and exquisite overall-process quality control system is the fund-mental guarantee for unity HORIZON LASER to be the excellent. Our perfect exaction in details can ensure the programming, systematic and regular production management.



3015 1500W single platform laser cutting machine

1、Scientific, reasonable and cost-effective configuration

| Component | | Specification |
|---------------------|-------------------|---|
| Laser source | | IPG |
| Machine body | Machine parts | The integral profile welding bed is rough-processed after high-temperature annealing, secondary vibration aging, and finished by shot blasting and derusting treatment. |
| | Cutting head | The cutting head part adopts Swiss Raytools fiber laser dedicated cutting head and capacitive non-contact height automatic tracking system (automatic focusing) |
| | Transmission part | Imported products are used for high-precision transmission components such as servo motors, reducers, imported helical gear racks, and guide rails. |
| | Exhaust system | Adopt the closed partition structure of the lower cavity to effectively discharge the dust in the cutting area |
| | Reasonable layout | Highly integrated design, small footprint |
| Control system | | Shanghai friendess control system |
| Electrical System | | Adopt Schneider and other international brand series products |
| Accessory equipment | | Power supply, chiller |

2、IPG fiber laser source

IPG fiber laser has the characteristics of reliable performance, compact structure, long life of semiconductor pump source, maintenance-free, highest electro-optic conversion efficiency, and the beam divergence angle and beam quality are completely consistent in the full power range.

Laser source specifications

DPX-D3015-1500W Fiber laser cutting machine features

| Name | Specification | Parameter |
|---|----------------------------|---------------------------------|
| Laser source (IPG 1500W fiber laser source) | Wavelength | 1070nm |
| | Power | 1500W |
| | Laser working method | Continuous modulation |
| | Cutting capacity | Carbon steel: ≤16mm SS: ≤8mm |
| | Electric power consumption | 4 .5KW |

(1)Very high cost performance

This model is tailor-made for the sheet metal processing industry. It is positioned for sheet metal sheet cutting and has stable performance. It is mainly suitable for electrical cabinets and kitchen supplies. It is tailor-made for the sheet metal industry and has a comprehensive cost performance.

(2)Strong cutting ability (1500W)

| Terms | Description |
|------------------|---|
| Cutting capacity | High quality cutting 0.5~16mm carbon steel, 0.5~8mm stainless steel, aluminum alloy 0.5~5mm |
| Cutable material | Carbon steel, stainless steel, aluminum alloy, pickled plate, galvanized plate, silicon steel plate, electrolytic plate, titanium alloy, manganese alloy. |

Main equipment configuration

| Items | Name | No. | Manufacturer Name |
|-------------------------|--|-----|--|
| Laser source | Fiber laser source | 1 | IPG |
| Cutting head | Laser cutting head | 1 | RayTools (Auto focus) |
| Machine Tool | Machine bed | 1 | Independent design |
| | Machine tool rack and pinion | 1 | YYC (TAIWAN) |
| | Precision reducer | 1 | Motorola (France MOTOREDUCER) |
| | Drive rail | 1 | Rooster (Germany ROUST) |
| | X, Y, Z axis servo motor and driver | 1 | Panasonic (Japan)(Y-1.3 2set; X-0.75 1set; Z-0.4 1set) |
| | Machine tool accessories | 1 | Incidental |
| CNC and software system | CNC system | 1 | Cypcut |
| Control the gas path | High pressure valve, low pressure valve, check valve, proportional valve | 1 | SMC (Japan) |
| Electrical control | Control cabinet | 1 | IP54 protection level standard |

| | | | |
|----------------------|-----------------------|---|-----------------|
| | Power Supply | 1 | Matching |
| Standard accessories | Precision chiller | 1 | Worlder |
| | Slag discharge device | 1 | Incidental |
| | Energy chain | 1 | IGUS |
| | Flexible cable | 1 | DOROU |
| | Dust cover | 1 | Fire prevention |

Technical parameters

| Device model | 3015 Single platform laser cutting platform |
|---------------------------------------|--|
| Laser wavelength | 1080+-10 nm |
| Power stability | < $\pm 3\%$ (Short-term) ; < $\pm 5\%$ (Long-term) |
| Acceleration | 1.2G |
| Effective cutting range | 3050×1520mm |
| Workbench axial positioning accuracy | $\leq \pm 0.03$ mm/m |
| Worktable repeat positioning accuracy | $\leq \pm 0.02$ mm/m |
| electricity demand | 380V/50Hz |

3. Some cutting sample pictures



4. Advantages of fiber laser cutting machine

- 1) Excellent beam quality: the focus spot is smaller, the cutting line is finer, the working efficiency is higher, and the processing quality is better;
- 2) Extremely high cutting speed: 2 times of the same power CO2 laser cutting machine;
- 3) Extremely high stability: the world's top fiber laser is adopted, which has stable performance and the service life of key components can reach 100,000 hours;
- 4) Extremely high electro-optical conversion efficiency: the optical fiber laser cutting machine is 3 times higher than the CO2 laser cutting electromechanical optical conversion efficiency, energy saving and environmental protection;
- 5) Very low cost of use: the power consumption of the whole machine is only 20-30% of the same CO2 laser cutting machine;
- 6) Very low maintenance cost: no laser working gas; fiber transmission, no need for reflective lenses; can save a lot of maintenance costs;
- 7) Convenient product operation and maintenance: optical fiber transmission, no need to adjust the optical path;
- 8) Super flexible light guide effect: small size, compact structure, easy to flexible processing requirements.



5. Applicable material scope



Suitable for stainless steel, carbon steel, alloy steel, silicon steel, galvanized steel plate, nickel titanium alloy, chromium nickel iron alloy, titanium alloy and other metal materials. Widely used in aerospace, automobile and ship, machinery manufacturing, elevator manufacturing, advertising production, household appliances manufacturing, medical equipment, hardware, decoration, metal processing services and other manufacturing industries.

Main configuration and technical advantages

Fiber laser is a new type of fiber laser developed in the world. It has the advantages of large heat dissipation area, good beam quality and small volume. Compared with gas laser and solid laser, it has obvious advantages. It has gradually developed into an important candidate in high-precision laser processing, laser radar system, space technology, laser medicine and other fields.

Main features:

- excellent beam quality (BPP) 
- constant BPP over the full power range
- A very small spot can still be obtained by using a long focal distance 
- electro optic conversion efficiency > 30%

- Maintenance free operation 
- modular design, "plug and play"
- Small and easy to install
- Service life of pump source > 100000 hours 
- integrated optocoupler, or shutter
- **Accurate beam quality with small divergence angle**
- **Unparalleled product life**

The all fiber laser will have the characteristics of long life if the single core junction semiconductor pump laser is used as the pump source of the fiber laser. Therefore, the minimum service life of the fiber laser has exceeded 100000 hours.

- **Low power consumption, maintenance free**

1. **Water saving, electricity saving and cost saving**

Fiber laser has excellent thermal performance, high electro-optical efficiency, water saving and power saving, especially it can be used for a long time without maintenance and can save a lot of dimensions. Protect funds and time, improve work efficiency.

2. **Low price of follow-up operation**

The optical path of fiber laser consists of fiber and fiber components. Except for the optical path, the semiconductor pump laser is the main part of the cost of fiber laser.

2. Stable Z-axis automatic tracking system

Equipped with the most advanced capacitive non-contact automatic tracking system in China, it can automatically adjust the best focal length, ensure the best cutting effect of the whole board, and avoid the scrapping of materials caused by the problem of focal length change when the material is uneven.

Because the cutting head is equipped with a non-contact sensing device, under the control of the system, a stable Z-axis floating function can be achieved, which directly eliminates the impact of plate unevenness on cutting quality. The CNC laser cutting machine has a high cutting yield.

3. Machine tool system:

Adopt gantry structure worktable, the equipment has high precision, good rigidity and stable operation.

Machine tool base: The frame structure is welded with high-quality steel plates and pipes. The machine tool is annealed, second-aged, and precision processed by a large gantry milling machine. These design and processing methods ensure that the machine tool has excellent shock resistance, high rigidity and stability.

Slag discharge system: Equipped with a blanking trolley, no need to lift the worktable when cleaning the blanking.

4. Transmission system:

Adopt bilateral gear rack transmission and original imported linear guide rail, and use a dual-drive servo motor drive system, effectively ensuring the speed and accuracy of laser cutting.

5. Pipe cutting module:

Both the front and rear chucks use active chucks to ensure the accuracy of high-speed rotation and avoid the distortion of thin-walled pipes.

6. Control system:

Using professional PC industrial computer operation, graphical interface, easy to operate, professional cutting control software can design all kinds of graphics and text, real-time processing, support CAD, CorelDraw and other professional drawing software.

- 1) Using high-quality industrial control computer operation control
- 2) Efficient and easy to operate CNC cutting system
- 3) Z axis automatic height adjustment program

(1) CNC cutting control program

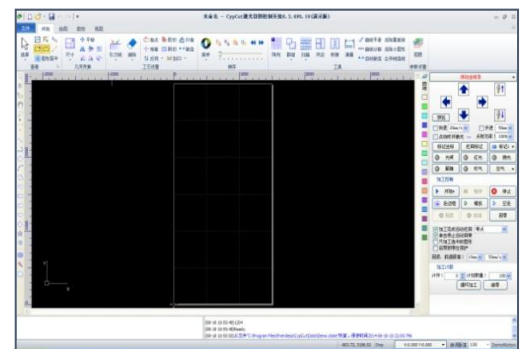
The CNC cutting control system is a high-performance control card, developed based on Windows XP Professional, and can be fully docked with the CNC control system. Therefore, real-time control of machine tools and lasers and software upgrades are more convenient and fast.

The control system has the following main features:

- 1) The system runs stably and has strong anti-interference ability
- 2) Fast air speed, stable start and stop
- 3) Good curve cutting effect and fast cutting speed
- 4) Strengthen the processing capacity of extra-large data
- 5) Output control: support unified graphics output mode, support cutting at any position, combine two output modes of NC and graphics, and modify parameters after stopping

Advantages of the system:

1. It has powerful automatic edge-finding, leapfrog, and flying cutting functions. The cutting functions of imported high-power equipment are all provided by our cutting system, which greatly improves the cutting speed and



cutting effect.

2. The cutting system can control the laser power in real time, realize the control of the punching power, cutting power and turning power. It can gradually punch, and the punching effect is better. It avoids the phenomenon of blasting, scorching or slag hanging in domestic control systems.

3. It realizes the height-layered control of the cutting head, which can realize the control of the perforation height and cutting degree to ensure the cutting effect.

4. The cutting head control is stable, and the follow-up can track to 0.2 mm cutting.

5. The gas analog quantity control is added, which can realize the perforation air pressure, the change of the cutting air pressure and the cutting of different cutting gases, avoiding the deformation of high-speed cutting parts, cutting small circles, and cutting carbon steel.

6. Equipped with wireless operating handle, easy to operate.

7. Other advantages:

The optical system adopts a fully sealed structure, with optical path preview and focus indication functions, more beautiful appearance and more convenient operation; the machine is equipped with the latest external water cooling system, the operation noise is extremely low, the temperature adjustment accuracy is high, and the machine is operated for a long time Provides a reliable guarantee.

8. Red light indicator

The fiber laser cutting machine is equipped with a red light collimator, which can help the operator to calibrate the laser cutting head at any position on the plate.

Recommended air source and air path for cutting machine

1. Nitrogen

1) It is mainly used for cutting stainless steel plate, aluminum alloy plate, galvanized plate, brass plate and other materials. Purity requirement: $\geq 99.99\%$.

2) Nitrogen: If the gas source is liquid nitrogen (Dewar canister), a carburetor must be added (generator is generally not less than 100 cubic meters). If there is no carburetor, there will be a drop in air pressure during cutting, resulting in poor cutting effect and slag scraping. It is recommended to add an air storage tank to ensure the stability of air pressure and flow rate when cutting with a large nozzle (4.0 / 5.0); before entering the cutting machine, ensure that the pressure is ≥ 16 bar;

3) If you use a combination bottle type nitrogen (used in general debugging), the pressure can be well guaranteed, but the gas has high cost, short time, and frequent gas exchange;

4) If the gas station is used: the commonly used brand is "quick and easy to cool", with sufficient air pressure and stability. It is very suitable for the economically developed areas such as the Yangtze River Delta, Pearl River Delta, Beijing, Tianjin and Tang Dynasty.

5) Nitrogen gas pipe inside the cutting machine (from the inlet of the cutting machine to the cutting head), the inner diameter of the trachea is required to be $\geq 12\text{mm}$, and then a small diameter trachea is inserted into the cutting head to the cutting head; the purpose is to ensure the stability of the gas flow at the cutting head;

2. oxygen

Oxygen is mainly used when cutting carbon steel plates, the gas source pressure is $\geq 0.7\text{Mpa}$, and the gas purity is $\geq 99.5\%$.

3. air

Air: It can be used to cut stainless steel plate, aluminum alloy plate, galvanized plate, brass plate, carbon steel plate and other materials according to the cutting effect.

1) When cutting air, the external air source requirements: air compressor + deoiling and dewatering filter + booster pump + air storage tank.

2) Air compressor: A screw type air compressor is required. The output pressure is $1.3 \sim 1.6\text{Mpa}$. After the output air is deoiled and dewatered and pressurized to 2Mpa pressure, it is used in the cutting machine. ;
The internal air trachea of the cutting machine (from the air inlet of the cutting machine to the cutting head) requires that the inner diameter of the trachea is $\geq 12\text{mm}$, and then the small diameter trachea is inserted into the cutting head to the cutting head; the purpose is to ensure the stability of the gas flow at the cutting head;

Service commitment

Pre sales service

Before signing the contract, we provide customers with various production process plans, technical consulting, sample samples, equipment selection, technical and price consulting services.

Service in sale

We will provide free technical training. After the installation and commissioning, we will provide technical training for the buyer's operators online for no less than 2 days until the operators can basically use the equipment normally. The main training contents are as follows:

- Training on operation procedures of switch machine;
- Cutting control software operation training;
- Cutting process training
- Basic cleaning and maintenance of the machine;
- Common hardware troubleshooting;
- Problems to be noticed in operation;
- In addition to this, it also provides users with technical support for the products they produce.

After sales service

To provide customers with all aspects of after-sales service.

Promise:

The whole equipment is free of charge for 1 year, with lifelong maintenance. Laser warranty 2 years

The response time of customer service is within 48 hours.

After the expiration of the warranty period, it still provides a wide range of hardware and software support and enjoys free upgrade for life.