



CHY LASER

FIBER LASER CUTTING MACHINE TECHNICAL SPECIFICATION

HY-3015CS-1500W

CHYLASER
HY-3015CS-1500W

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WWW.CHYLASER.COM

ZHEJIANG HUYUN OPTOELECTRONIC EQUIPMENT CO., LTD.

LASER INTELLIGENT EQUIPMENT

Founded in 2016, Chylaser has a total registered capital of 70 million RMB, with plant area of more than 20,000 square meters and more than 100 employees. It is a well-known enterprise specializing in laser intelligent equipment and related solutions.



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Chylaser Group includes

ZHEJIANG HUYUN OPTOELECTRONIC EQUIPMENT CO., LTD.,

JIANGSU MIKE LASER EQUIPMENT CO., LTD.

JIANGSU HUYUN LASER EQUIPMENT CO., LTD.



CHYLASER PATENT



CHYLASER HONOR



江苏省双创人才
2019-2022

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WORKSHOP VIEW



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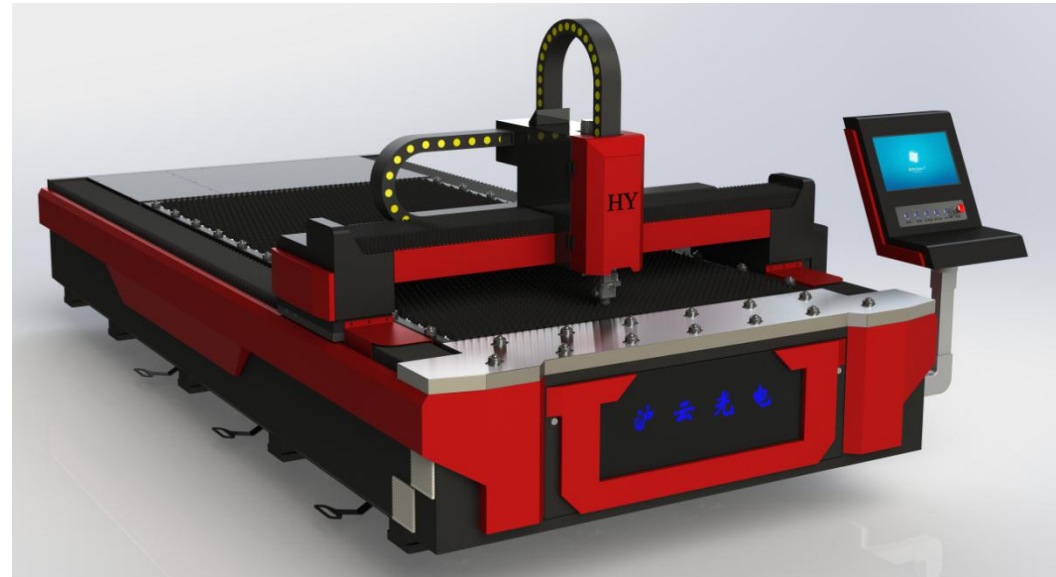
MAIN PRODUCTS

- ① HIGH POWER LASER CUTTING MACHINE
- ② SINGLE TABLE LASER CUTTING MACHINE
- ③ ROLLED COIL LASER CUTTING MACHINE
- ④ SHEET & PIPE LASER CUTTING MACHINE
- ⑤ PIPE LASER CUTTING MACHINE
- ⑥ HIGH PRECISION LASER CUTTING MACHINE
- ⑦ AUTOMATIC FIBER LASER WELDING MACHINE
- ⑧ MANUAL LASER WELDING MACHINE
- ⑨ LASER MARKING MACHINE
- ⑩ CO2 LASER CUTTING MACHINE
- ⑪ LASER ENGRAVING MACHINE

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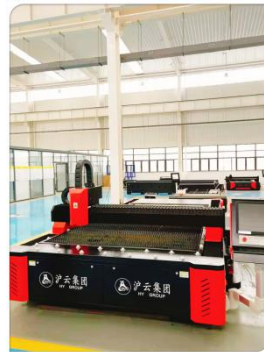
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- Use high strength integral plate welding bed and aviation grade cast aluminum beam, stable and durable
- High temperature heat treatment, high precision processing of guide surface, stress relief and strong deformation resistance
- Use international well-known components cutting head, servo motor, etc., high precision and high speed operation
- Advanced intelligent numerical control system, stable and easy to learn, efficient and complete in function
- Equipped segmented dust cleaner with concentrated suction, smoke exhaust smoothly
- By independent research and development the dual exchange platform performs faster exchange speed, European standard design, easy to operate, stable

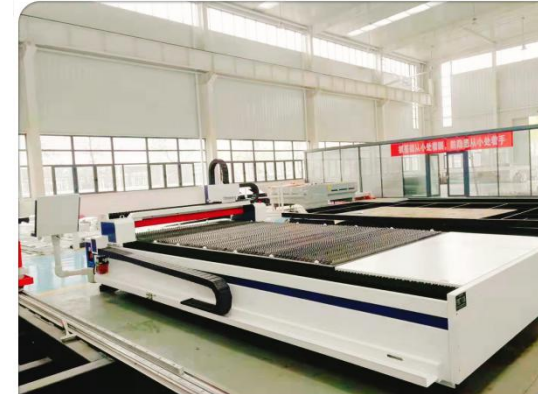


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MACHINE VIEW



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MAIN COMPONENTS & PARTS

	Components	Specification	Quantity	Supplier
#1	Laser generator	1500W	1 pcs	Raycus, IPG, MAX
#2	Laser cutting head	manual focusing	1 pcs	Raytools
#3	CNC system	special cutting system CYPCUT, height adjustment system BCS100, Industrial Personal Computer (IPC)	1 set	Cypcut
#4	Machine tool	machine tool body, beam, metal sheet, exchange platform	1 set	Chylaser
#5	Transmission system	reducer & gear rack	3 set	Motoreducer & Lean
		guide rail	4 set	Hiwin
#6	Servo system	driver & motor	4 set	Fuji
#7	Cooling system	1500W	1 pcs	Hanli
#8	Lubrication device	electric lubricating pump	1 set	Duanrun
#9	Gas circuit	proportional valve, solenoid valve, check valve	1 set	SMC, AirTAC
#10	Electric circuit	contactor, circuit breaker, electric relay	1 set	CHNT, Schneider

TECHNICAL PARAMETER

Processing format	Length and width	3000mm×1500mm
	X-axis travel	1520mm
	Y-axis travel	3020mm
	Z-axis travel	100mm
Precision	X/Y-axis	±0.05mm/m
	X/Y-axis repetitive position	±0.03mm
	Maximum acceleration	0.8G
Cutting parameter	Cutting thickness	Stainless steel ≤6mm Carbon steel ≤12mm
	transmission	Servo gear rack

Dimensions & weight	Weight	>3000kg
	Maximum load	1000kg
	Dimension	5500×2800×2200mm
	Covered area	15 m ²
Power parameter	Power type	3+1 phases
	Rated voltage and frequency	380V 50Hz
	Total installed power consumption	12KW
	Protection grade of power supply	IP40

A. FIBER LASER CUTTING HOST MACHINE

The main machine is composed of machine tool body, crossbeam, exchange platform, z-axis device, operation control part, air circuit and water circuit.

• MACHINE TOOL BODY

The machine tool body is made of integral welding structure, rough machining after annealing to eliminate internal stress, and finish machining after secondary vibration aging treatment. The stress caused by welding and processing is better solved, and the stability of the machine tool is greatly improved.

X, Y, Z axis use well-known servo motor, equipped with high rigid precision reducer, precision rack and pinion, high precision linear guide rail and other high-efficiency transmission mechanism, which effectively ensures the transmission accuracy, the machine tool is equipped with automatic lubrication device, and the waste truck is installed at the bottom of the cutting area, which can be pulled out and cleaned regularly.

• MACHINE TOOL BEAM

After tempering to eliminate the internal stress, rough machining is carried out, and after secondary vibration aging treatment, finish machining is carried out, which ensures the overall strength, rigidity and stability of the beam.

• **AIR & WATER CIRCUIT SYSTEM**

The gas circuit of fiber laser cutting machine has two parts, one part is the cutting gas provided to the cutting head including clean and dry compressed air, nitrogen, oxygen, the other part is the auxiliary compressed air, which is used for the partition cylinder and the workbench clamping cylinder when the partition ventilation.

Cutting gas is divided into three gases: nitrogen, oxygen and compressed air, and these three gases can be freely switched through the electromagnetic proportional valve.

The water system of the fiber laser cutting machine mainly includes two parts: the cooling water comes out of the water cooler and enters into the laser generator in two ways; one enters the cutting head of the laser generator to cool its QBH; the other enters the fiber laser to cool it; after circulation, it returns to the water cooler.

B. LASER GENERATOR

With modular design, MFSC 700-1500w single-mode CW fiber laser generator is highly integrated, maintenance free and reliable. The laser power is continuously adjustable, with high laser quality and stability. It is an ideal laser source for high precision laser cutting, precision laser welding and other applications. Optical fiber with QBH head output, can cooperate with laser processing head, galvanometer and robot, machine tool system integration, widely used in 3C, hardware, medical, automotive, aviation and other industries.

We can supply and use other brands of laser source just like Reycus, MAX, IPG, JPT as buyer's request.

Laser generator	Reycus, MAX, IPG, JPT
Laser generator type	Fiber laser generator
Operating mode	Continuous, pulse
Fiber diameter	50 μ m
Output power	1500w, standard QBH
cooling	Water cooling
Output power stability	± 1
Central radiation wavelength	1080nm (± 10)
Power supply	Three phases 400 \pm 40
Cutting material	Stainless steel, carbon steel, aluminum, brass, copper and other materials
Energy output regulation	10%-100%

C. LASER CUTTING HEAD

Cutting head has strong advantages in the application of medium power and large format fiber laser cutting.

The internal structure of the laser cutting head is completely sealed to prevent the optical part from being polluted by dust.

Cutting head is adjusted by two points to adjust. The cam structure is used for focusing, and the adjustment is precise and convenient.

The protective lens use drawer type installation, which is convenient to replace.

It can be equipped with various lasers with QBH connectors.

Maximum air pressure	25 Bar
Collimator focal length	75mm/100mm
Focusing lens length	125mm/150mm/190mm
Nozzle hole	Single layer, double layers
Horizontal adjustment range	±1.5mm

Vertical focusing range	±5mm
Applicable power	≤1500W
Effective aperture	25mm
Weight	3.1KG

D. COOLING SYSTEM

Specially developed for fiber laser equipment, perfectly compatible with all brands of laser generators

Full range of environmental friendly refrigerants

Professional laboratory comprehensive testing before shipment

Stable and reliable performance, low failure rate, energy saving.

Type	HL-1500
Operating voltage and frequency	220V 50HZ
Working current	11A
Power supply	2.4KW
Environment	Temperature \leq 45°C Humidity \leq 95%
Electric auxiliary heating power	800W+400W

Refrigerant	R410a
Rated flow of water pump	33L/min
Pump power	0.55KW
Dimensions	600×500×910mm(L*W*H)

E. CNC CONTROL SYSTEM

CYPCUT system is the pioneer of laser cutting system in China. The software interface is friendly, easy to learn, easy to operate, and the CNC program is easy to edit and readable.

The cutting parameters can be adjusted in real time to achieve the best cutting quality.

It supports various editing functions of CAD and cam, such as micro connection, bridge, break, sort, layout, chamfer, cooling angle, etc.

The system supports automatic calibration function, and the z-axis response speed is greatly improved.

The cutting system has the functions of leapfrog, laser power control, flight cutting and multi axis synchronous control.



CUTTING PROCESS PARAMETERS (FOR REFERENCE ONLY)

MAX -1500W single mode continuous laser (50 μm)							
Materials	Thickness (mm)	Velocity (m/min)	Focus location (mm)	Cutting height (mm)	Gas	Nozzle	Laser power (W)
Q235B	1	32~35	0 to -1	0.5	N2	Single layer :1.0	1500
	2	9~10	4.5 to 5.5	0.8	O2	Single layer :1.0	1500
	3	2.9~3.2	4.5 to 5.5	0.8	O2	Double layer :1.0	1500
	4	2.4~2.6	4.5 to 5.5	0.8	O2	Double layer :1.0	1500
	6	1.6~1.8	2 to 3	1.5	O2	Double layer :3.0	1500
	8	1.1~1.3	2 to 3	1.5	O2	Double layer :3.0	1500

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	10	0.9~1.0	2 to 3	1.5	O2	Double layer :3.0	1500
	12	0.8~0.9	2 to 3	1.5	O2	Double layer :3.0	1500
SUS304	1	32~35	0 to -1	0.5	N2	Single layer :1.0	1500
	2	9~10	-1.5 to -2	0.5	N2	Single layer :1.5	1500
	3	4.2~4.5	-2.5 to -3	0.5	N2	Single layer :2.0	1500
	4	2.1~2.3	-3.5 to -4	0.5	N2	Single layer :3.0	1500
	5	1.6~1.8	-3.5 to -4	0.5	N2	Single layer :3.5	1500
AL(6061)	1	19~21	-0.5 to -1	0.5	N2	Single layer :1.0	1500
	2	4.5~5	-1 to -1.5	0.5	N2	Single layer :1.5	1500
	3	3.8~4.2	-2.5 to -3	0.5	N2	Single layer :2.0	1500

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	4	2~2.2	-3.5 to -4	0.5	N2	Single layer :3.0	1500
Brass	1	25~27	0 to -0.5	0.5	N2	Single layer :1.0	1500
	2	7~8	-1 to -1.5	0.5	N2	Single layer :1.5	1500
	3	2.7~3	-2 to -2.5	0.5	N2	Single layer :2.0	1500
	4	1.5~1.7	-3 to -3.5	0.5	N2	Single layer :3.0	1500

EQUIPMENT INSTALLATION AND AFTER-SALES SERVICE

A. PERSONNEL REQUIREMENTS

The operator should have a college degree (including technical college) in NC or electromechanical major

General machine tool G code, proficient in the operation of computers, a certain understanding of the machinery industry

Able to operate computer office software, Auto-CAD software, machine tools need to be equipped with a programming computer.

B. ELECTRICITY REQUIREMENTS

Power specifications (including mainframe, laser, chiller, dust collector)		
1	Connect power	3 phases & PE
2	Frequency	50Hz
3	Rated voltage	3 x 380V
4	Allow voltage fluctuations	±10%
5	Maximum power	33.5 kW

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6	Installed capacity	50KVA
7	Power factor	0.7-0.9
8	Protection level	IP54
Power supply voltage does not allow sudden jump and sudden power failure, otherwise easy to cause damage to the laser; Good grounding (grounding resistance less than 4 ohms)		

C. GAS REQUIREMENTS

Cutting auxiliary gas: oxygen O2		
1	Gas purity	Vol.% \geq 99.95
2	Dynamic Pressure at Machine Tool Entrance	10Bar
3	Maximum dynamic flow	600L/Min
4	Pipe diameter	Φ 12(outer diameter)
Cutting auxiliary gas: nitrogen N2		
1	Gas purity	Vol.% \geq 99.999
2	Dynamic Pressure at Machine Tool Entrance	25Bar
3	Maximum dynamic flow	1600L/Min
4	Pipe diameter	Φ 10(outer diameter)

Cutting auxiliary gas: compressed air Air		
1	Compressed air quality standards	GB/T 13277-1991
2	Maximum particle size	0.1 um (Class 1)
3	Maximum particle density	0.1 mg/m ³ (Class 1)
4	Maximum pressure dew point	-40°C(Class 2)
5	Maximum oil content	0.01 mg/m ³ (Class 1)
6	Dynamic Pressure at Machine Tool Entrance	15Bar
7	Maximum dynamic flow	40 m ³ /h
8	Pipe diameter	Φ10(outer diameter)
<p>Cutting auxiliary gases (oxygen, nitrogen, air), pipes from the gas source to the entrance of the machine tool, the user and installed;</p> <p>The size and pressure requirements of the trachea are shown in the table;</p>		

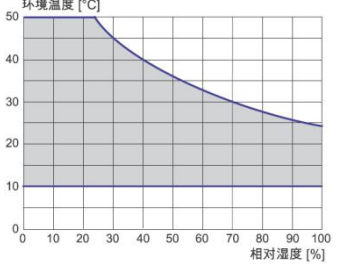
D. COOLING WATER REQUIREMENTS

Cooling water		
1	Circulating cooling water inside laser	deionized water 250 L (conductivity <10 uS/cm)
2	Water cooler water tank circulating water	200 L purified water

E. ENVIRONMENTAL REQUIREMENTS

Temperature and humidity requirements		
1	Working environment temperature of machine tool	+5°C-45°C

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2	Ambient temperature at which the laser operates	+10°C-45°C
3	Ambient temperature of laser shutdown	+5°C-45°C
4	Ambient humidity during laser operation	
The laser is suggested to be placed in the air conditioning room		

F. SITE REQUIREMENTS

Site requirements		
1	Concrete thickness of foundation	$\geq 200\text{mm}$
2	Concrete quality	C25/30 intensity level
3	Floor flatness	$\pm 5 \text{ mm}/5\text{m}$
4	Maximum amplitude	1 m/s ²

G. INSTALLATION DEBUGGING AND SERVICES

RANDOM ANNEXES

Serial No.	Random annexes	Quantity
1	Dustless cloth, dustless cotton swabs	One pack
2	Paper, tape, raw material	1 roll for each
3	Trachea	6m of Oxygen tube and nitrogen tube
4	Water mains	12m
5	Paper	1 pcs
6	Inner hexagon, word, cross screwdriver	1 set for each
7	Limit switch	4 pcs
8	Toolbox	1 pcs
9	Ceramic rings	1 pcs

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10	Protective lenses	Top 2 pcs, bottom 2 pcs
11	No nozzle	1.2~3.0 Single and double 1pcs for each

RANDOMIZED TECHNICAL DATA

Technical information	Quantity
Software Description: About Laser Cutting Machine	1 copy
Factory Certificate	1 copy
Warning signs, notices KT boards	1pcs for each

INSTALLATION AND DEBUGGING

After signing the contract, the customer determines that the equipment is placed in a specific "installation location "

10 days before the launch of our company to provide "cutting machine before the installation of preparatory work" document

After the goods arrive at your delivery site, our engineers will carry out the installation and commissioning of the equipment with their own tools, and will be responsible for the installation, commissioning, technical index testing, training, acceptance and delivery of the equipment within 10 days

Installation and commissioning and personnel related costs to be borne by our company

(Affected by CV-19 epidemic, our company cannot assign technical engineers to overseas on time in the near future. Before delivery, we will provide qualified video of equipment detection, and provide online technical guidance and support after equipment delivery to customers, so as to help users complete installation and commissioning of equipment)

EQUIPMENT ACCEPTANCE

A. acceptance criteria

Acceptance in accordance with the technical agreement in our contract with your company

B. final acceptance

After the installation, commissioning and self-inspection of the equipment, our company carries on the acceptance at the site of the buyer, including: the quantity, model specification, function and technical index of all the goods are inspected and accepted; the typical samples approved by both parties are processed by laser cutting

Both sides do a good record of the acceptance, and the results of the acceptance evaluation, signed by both sides before the performance assessment

Additional description

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C. final acceptance

If the acceptance interruption is caused by the failure of the site auxiliary facilities (power supply, surrounding environment, etc.) or the environment does not meet the normal working requirements of the equipment, the buyer shall immediately repair it to ensure that the equipment should work properly.

In the process of acceptance, if the equipment is found to be lacking, damaged or not in accordance with the terms of the contract and quality standards, our company will be responsible for filling and replacing, and the related expenses arising therefrom shall be borne by our company.

TRAINING

The company is responsible for free technical training. After installation and commissioning, conduct no less than 3 days of technical guidance training for your company's operators until the operators can master the technical principles of the equipment structure and the correct programming, operation, inspection, repair and maintenance of the equipment.

The main training elements are as follows:

- ① Structure and principle of equipment
- ② Equipment programming, operation, maintenance and general fault diagnosis
- ③ Laser processing technology
- ④ Troubleshooting and troubleshooting of equipment (including mechanical, electrical, pneumatic parts)
- ⑤ Laser processing safety education, etc.

AFTER-SALES SERVICE

After the final acceptance of the equipment, the quality assurance period of the whole machine is 3 years.

If there is a quality problem in the system parts during the warranty period, our after-sales engineer will provide telephone or site service at any time. Our company is responsible for the free replacement of parts and services due to any damage or damage caused by the quality of the equipment itself, except for conventional consumables (such as external operation of optical fibers, optical lenses, cutting nozzles) and accidents that belong to the user's responsibility for illegal operation.

During the warranty period, after receiving the notice of maintenance from the buyer, we provide online technical support by our technical service and salesman and response within 24 hours.

Outside the warranty period, our company still provides extensive and preferential technical support service, regular maintenance and spare parts supply for the whole machine and auxiliary machine, provides the whole process maintenance service to the products provided, and provides the equipment related daily consultation and guidance, equipment improvement and maintenance technical information and information at any time.

Our company has sufficient spare parts, can provide technical and spare parts services to the buyer in time to meet the equipment operation and maintenance needs.

Our company regularly arranges the project engineer to carry on the free technical return visit service to the user site.

In the process of developing new varieties and utilizing new technologies, the company provides free technical services and technical support (such as software upgrade services).

Note: the data source of this technical scheme is that the parameters of each manufacturer are only "for reference ", and the actual equipment configuration shall be based on the" sales contract "signed by both parties.

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