

EAGLE – Fiber Laser Cutting Metal Machine –X-6060



Why choose Fiber Laser over CO2 Laser?

Fiber laser light is created by banks of diodes. The light is channeled and amplified through flexible optical fiber cable. This design does not require mirrors or optics to align or adjust. Creation of the light is 200% more efficient than Via a traditional CO2 laser, and delivery is far simpler with no expensive optical mirrors. The focusing lens, unlike on a CO2 laser machine, is sealed in the cutting head and thus not required extra maintenance on cleaning.

The benefits of a true fiber laser source include:

1. No moving parts or mirrors in the light-generating source, unlike a conventional CO2 resonator or disk laser. This has a distinct advantage in terms of reducing maintenance requirements and operating costs.
2. Much higher electrical efficiency, resulting in considerably lower running costs. A 3 kW fiber machine uses one third of the power of a 4 kW CO2 machine of average across-the-board performance.
3. Higher speeds when cutting thin material. Compared with the same 4 kW CO2 machine, the fiber laser is three times quicker in a straight line cutting of 1 mm mild, galvanized, or stainless steel and twice as fast when cutting 2 mm.
4. An ability to cut reflective materials without fear of back reflections damaging the machine. This allows copper, brass, and aluminum to be cut without problems.
5. 50% longer servicing intervals and 50% lower servicing costs.
6. The machine's door will be equipped with interlocking, enhancing safety.

EQUIPMENT CONFIGURATION LIST

NAME	SPECIFICATION	PLACE OF ORIGIN
Laser	Max(3000w)	China
Cutting Head	Raytools	Switzerland
Reducer (Including Gears)	Motovario	France
Fast Speed Servo Motor	YASKAWA	Japan
High Precision Linear Guide Rail (Tool)	Hassfall	Taiwan
Motion System	HIWIN	Taiwan
Precise Rack	Hassfull	Taiwan
Numerical Control System	Cypcut	China
Electric Control	Schneider	France
Gas Circuit Control	SMC	Japan
Water Chilling Unit	Tofly	China

TECHNICAL PARAMETERS

Name	Parameter
Laser power	3000W
Working area	600×600x120 mm (23.5×23.5x4.7inch)
Machine dimension	1900×1390×1850 mm (74.8×54.7×72.8inch)
Positioning accuracy	±0.02 mm/m (±0.00024 inch/feet)
Repeatability	±0.02 mm/m (±0.00024 inch/feet)
Max. speed	40000 mm/min (1575inch/min)
Max. accelerated speed	0.8 G
Control system	Cypcut
Max. load	150 kg (331 lbs)
Number of phases	3
Working voltage	380V/50-60Hz
Machine weight	1000 kg (2205 lbs)



Eagle Fiber Laser Cutting Machine – X-6060

1. Fiber Laser Source:

Max Laser is a global leader of the high power laser source, it has ultra-high beam quality, output power and photoelectric conversion rate, lower maintenance cost, and consumption. It also has a series of outstanding characters: high reliability, compact structure, durability, and mobility.



MFSC 3000W single-mode continuous fiber laser with modular design, highly integrated system, to make maintenance-free and highly reliable come true. The laser power is continuously adjustable, with high beam quality and high laser stability, which is the ideal laser source for laser fine cutting, precision welding and other applications. With fiber with QBH head output, it can be integrated with laser processing head, oscillator and robot, machine tool, etc. It is widely used in 3C, hardware, medical, automotive, aviation and other fields.

Models	MFSC-3000W
Nominal Power	3000W
Mode of Operation	CW/Modulated
Polarization	Random
Power Tunability	10 to 100%
Wavelength	1080 ± 10 nm
Power Stability	±1 %
Laser Beam Quality, BPP	3.1 to 3.5 mm x mrad (100µmQBH)
Modulation Frequency	≤20 kHz
Preview Red Light Power	150 µW
Interface	QBH (LOC)
Length	15m standard, other lengths optional
Diameter	100 µm
Bending Radius	7.87 inch (200 mm)
Supply Voltage	400VAC (-15% to +10%) 3-phase
Operating Temperature	+10 to +40°C (+50 to 104°F)
Storage Temperature	-10 to +60°C (+50 to 140°F)
Humidity	10 to 85%
Cooling Method	Water Cooling
Cooling Medium	Distilled water/ Glycol Antifreeze
Dimension	482.6×950×193mm (19.00×37.4×7.60inch)
Weight	80(±3) kg

2. Raytools Cutting Head:



The BM111 series is an auto-focus fiber optic cutting head from RAYTOOLS AG, Switzerland. It has a built-in motor drive unit that drives the focusing mirror to automatically change position within 22mm through a linear mechanism, and users can program continuous focus to complete rapid piercing of thick plates and automatic cutting of plates of different thicknesses and materials. The product is equipped with D30's composite lens set to integrate the beam, optimized optics and water cooling design makes the laser head can work continuously and stably for a long time at high power.

BM111	
Power level	3300W
Range	+10~-12mm(+0.39~-0.47inch)
Acceleration	≤10m/s ² (≤22.37 mph/s)
Speed	≤10m/min (≤393.70inch/min)
Accuracy	≤50μm
Focal length of collimating mirror	100mm (3.94")
Focusing mirror focal length	125mm, 155mm, 200mm
Nozzle hole specifications	single-layer, double-layer, non-standard
Fiber interface	QBH, QD
Nozzle aperture	0.8mm, 1.0mm, 1.2mm, 1.5mm, 2.0mm, 2.5mm, 3.0mm, 3.5mm, 4.0mm, 4.5mm, 5.0mm
Light through aperture	28mm
Collimation protection lens	φ24.9mm*1.5mm
Focusing protection lens	φ27.9mm*4.1mm
Auxiliary gas pressure	≤30bar

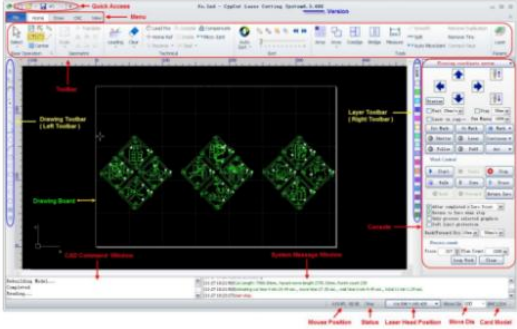
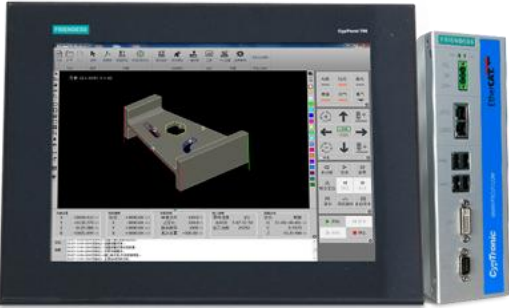
Weight	~5.7kg
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3. Integrated Reliable System Components in One:

Through our partnership with top system component manufactures in the world, we deliver the reliable fiber laser cutting system in the market for your business. In Eagle’s fiber cutting laser system, several critical control components are chosen carefully. The Cutting head is from Switzerland RayTools; Servomotor is from Japan YASKAWA ; Motion system is from Taiwan Hiwin; Linear Guide Rail is from Taiwan Hassfall; Electricity control is from France Schneider and etc.



4. Excellent Software Control System:



Cypcut system could independently control the shutter or set an energy-following mode. Control the power generated by the laser generator by changing the simulation and PWM to adapt different cutting material, thickness, speed and auxiliary gas, which could evenly cut the material without scorch. What’s more, Cypcut system supports the function of continue cutting after the interruption from the origin position, it could satisfy the diversified requirements of laser cutting.

Particular air pressure calibration function: The air pressure calibration function with simple and convenient operation platform could ensure the consistency of cutting parameters.

Multistage punching: With coordination of the gas circuit system, Cypcut may control the gas category, pressure switching and punching time and change the mean laser power by changing the laser pulse width and frequency at the same time, so as to obtain very good punching effects and connection of punching and cutting.

Adaptive edge search: For finding the frame and angle of inclination of the sheet material.

Leapfrog function: Leapfrog function could adjust the jump height and choose the movement mode for the next graphic.

Automatic corner acceleration and deceleration: The automatic corner acceleration and deceleration function combines with the laser energy follow-up mode, Cypcut control system could effectively prevent the phenomenon of corner over cutting and scorch.

Fly-cutting: Scanning and cutting the metal sheet along with the straight and circular path would maximize the utilization of material, down the waste rate and improve the production rate of return.

5. Water Chiller Included:



X-6060 Fiber Cutting Machine is using water cooling laser source. Each machine is equipped with one water chiller to keep the unit under best performance.

The "dual-temperature" water cooler provides stable and real-time water temperature control for the laser while providing a water temperature similar to the ambient temperature for lens cooling, solving the problem of lens damage caused by condensation when using low-temperature water cooling, making it the best choice for laser equipment cooling.

6. Easy Maintenance and Safe Laser System:

Fiber energy is transferred through flexible optical fiber cable from laser source to cutting head. Unlike CO2, it doesn't require any mirrors for optical reflection, also there is no optical path alignment issue. Also, the lens at cutting head is sealed inside the mechanism chamber. Therefore, there is no dust or particle accumulated on the lens after jobs. In general speaking, mirror and lenses are the most expensive consumable items in CO2 Laser System. Unless the optical path is covered, otherwise the invisible laser light may have the chance to burn any careless user. On the contrary, Fiber Cutting laser system not only eliminates the trouble of optical light alignment, but also removes optical mirrors. That save a lot of expense as well as labor hours.

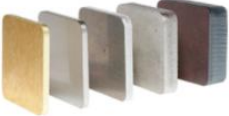
7. Machine Capacity-3000W:

Materials	Maximum Thickness	Suggested Cutting Thickness
Mild Steel	0.87" (22mm)	0.71" (18mm)
Stainless Steel	0.39"(10mm)	0.31" (8mm)
Aluminum	0.31" (8mm)	0.24" (6mm)
Brass	0.24" (6mm)	0.16" (4mm)
Copper	0.16" (4mm)	0.08" (2mm)

8. Applications & Samples:

Application Industries includes Metal cutting, electrical switch manufacturing, elevator manufacturing, household appliances, kitchen utensils and appliances manufacturing, tool processing, and other mechanical processing manufacturing industry.

Sample



9. Warranty:

Mechanical, electronic components and Fiber Laser Source:

2 year against manufacturing defects. Parts and components damaged due to improper usage and operation of the equipment are not covered under warranty. The complete warranty shall be available once the customer has accepted and received the training program and the purchase agreements are signed by the customer.

6 months against manufacturing defects. Laser optical components, like focus lens are considered consumables and are therefore not covered during the warranty period. In order to ensure the customer experience, the best performance of the equipment and the complete warranty policy of our company, we urge following the instructions on the Safety Notice in the Operation Manual and following the instructions of our technician on the installation of the laser machine. Failure to do so may render the warranty null and void.

Technical support is offered via telephone, e-mail and other means. Instruction of installation will be written (emailed). A video with the installation of the Laser Machine is available. Until 8 hours of training (2 days of 4 hours) in the Installation Maintenance & Operation of the Laser Machine, as well as software included is available Free of charge in our premises in Los Angeles, California.

