



TECHNICAL PROPOSAL

FP-6020HE fiber laser cutting machine

-- Open type , pallet exchange

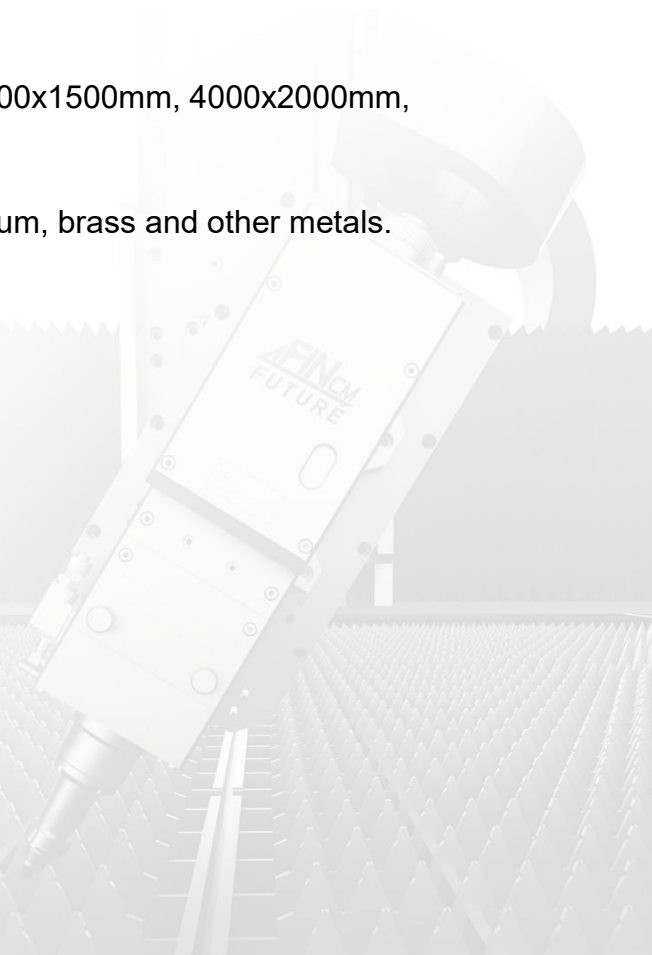


Product Overview

- FP-6020HE is a multi-purpose CNC laser cutting machine. This model is designed for minimizing space engagement meanwhile economical and effective.
- Laser Power available from 3000w to 60000w
- Table Size 6000*2000mm, optional to update to 3000x1500mm, 4000x2000mm, 6000x2500mm.
- Capable to cut carbon steel, stainless steel, aluminum, brass and other metals.

Main advantage

- Compact design
- Easy maintenance
- Heavy duty



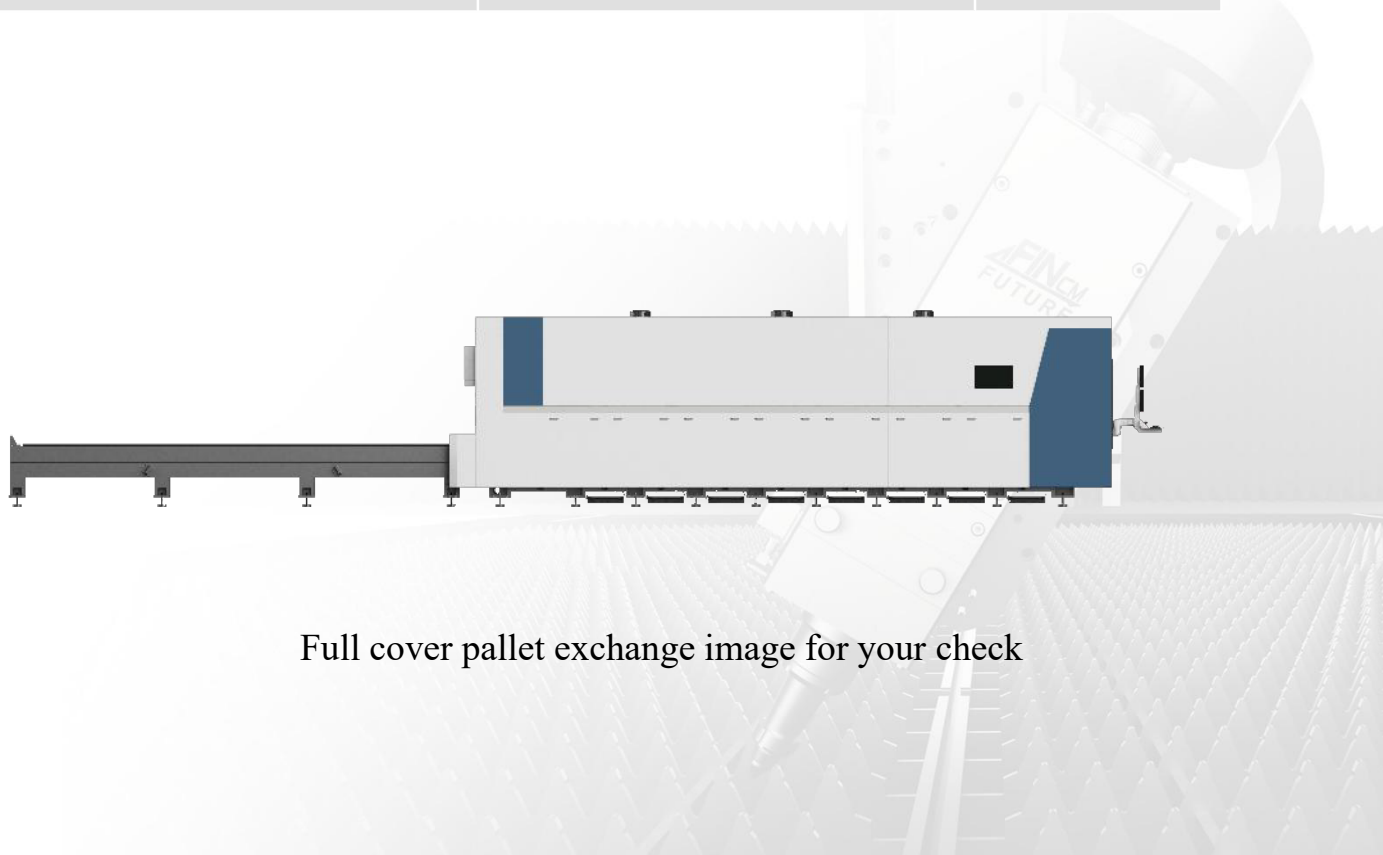
Main Configuration

Model	Brand
Laser source	Raycus/ Max Photonics
Control System	FSCUT 8000C
Laser head	BOCI
Servo motor	Delta
Reducer	Shimpo
Linear Guides	Fulex GMBH
Rack and pinion	LEITESEN Germany
Water chiller	HANL
Main electrical component	Chint
Machine body	FINCM
Pneumatic system	AIRTAC



Main Specification

Item	Parameters	Remark
Table size	6050x2050mm	
Laser Power	20000w	
X/Y Positioning Accuracy	$\pm 0.05\text{mm/m}$	
X/Y Repeat Positioning Accuracy	$\pm 0.05\text{mm/m}$	
Maximum moving speed	170 m/min	
Maximum Acceleration	1.5G	
CNC control system	EtherCAT BUS FSCUT8000C	
Power Supply	380v 50Hz Three Phase	
Power Consumption	According to laser power	
Power Supply Protection	IP54	



Full cover pallet exchange image for your check

Core-Parts Advantages

● Hollow heavy plate welding structure

Full plate welding design, high mechanical strength, high temperature resistance, not easy to deformation.

The hollow bed design ensure the machine structure won't be influence by heat even cut very thick metal, ensure the long lifetime.



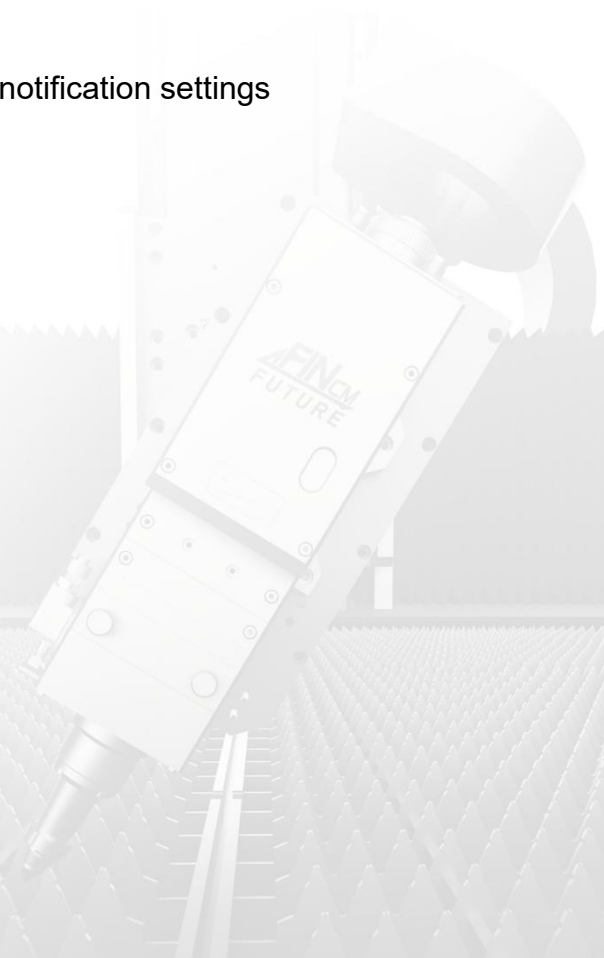
● Segmented matrix ventilation

The bed segmented smoke exhaust device has double rows and multiple rows of high-sealing partitions, 360 ° strong adsorption, adaptive control, and filters out harmful gases, smoke and dust.



● Intelligent bus system HYPCUT

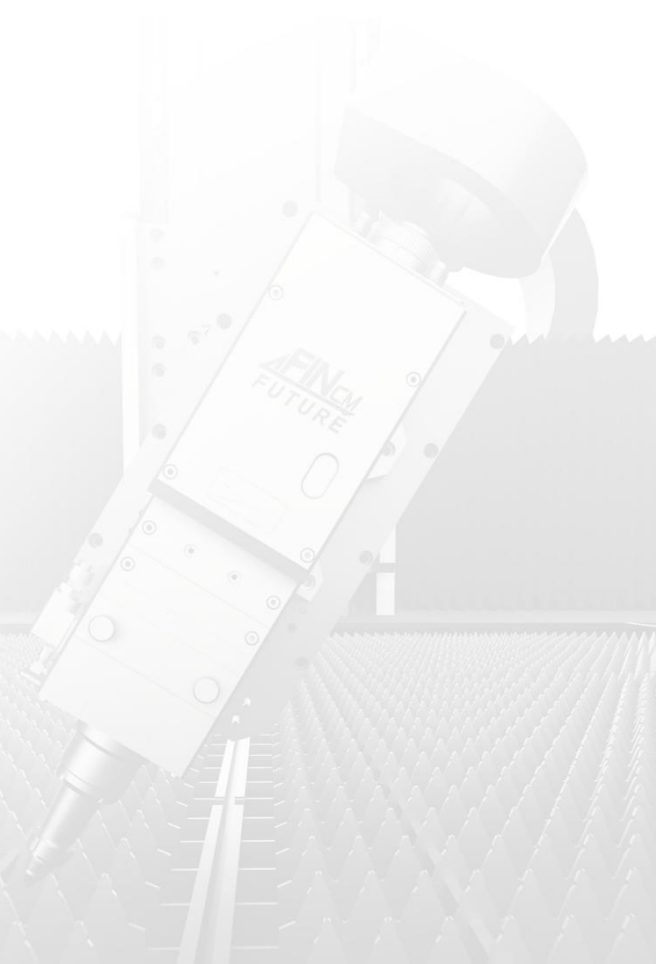
- FScut 8000 is a high-power dedicated bus system, which is developed based on EtherCAT bus technology.
- The bus system responds FINCMly and the machine runs smoothly.
- EtherCAT technology is adopted for great compatibility.
- Support MES management system access.
- Intelligent path optimization, convenient debugging, stable and reliable. Perforated slag removal, dual-drive torque protection, multi-plate edge inspection, air pressure DA correction, greatly improving cutting efficiency.
-
- PLAN: Pre-import drawings, Preview processing plan and manage
- Production: standard operation procedures for cutting, easy and simple
- Debug: easy for engineers to adjust machine motion performance and techniques
- TECH: cutting parameter management
- Diagnosis: monitor multiple core modules, easy to do troubleshooting
- Settings: machine configurations for motion, gas etc.
- Maintenance: add maintenance items for machine and notification settings





● Laser head

BLT 6 series, cost-effective smart cutter that focuses on 2D, 3D and bevel cutting machine, delivers a great performance with stable cutting, simple installation and setup, available for power levels below 30KW. Find more details in technical parameters



Collision Protection



Protective Screws keep cutting head from damage.

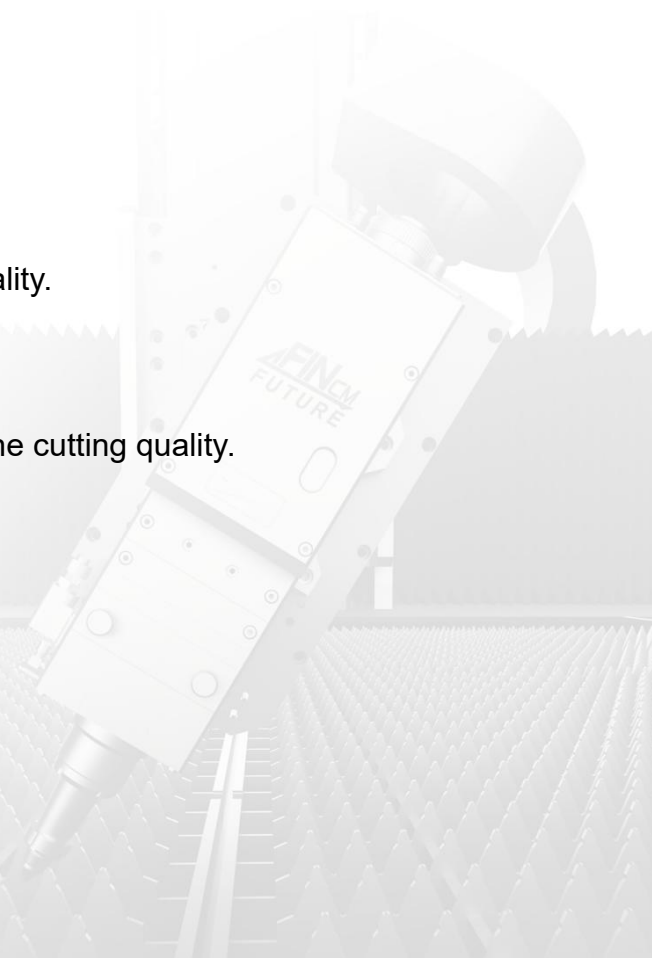
No time wasting on Depot Repair

Protective Window Monitoring

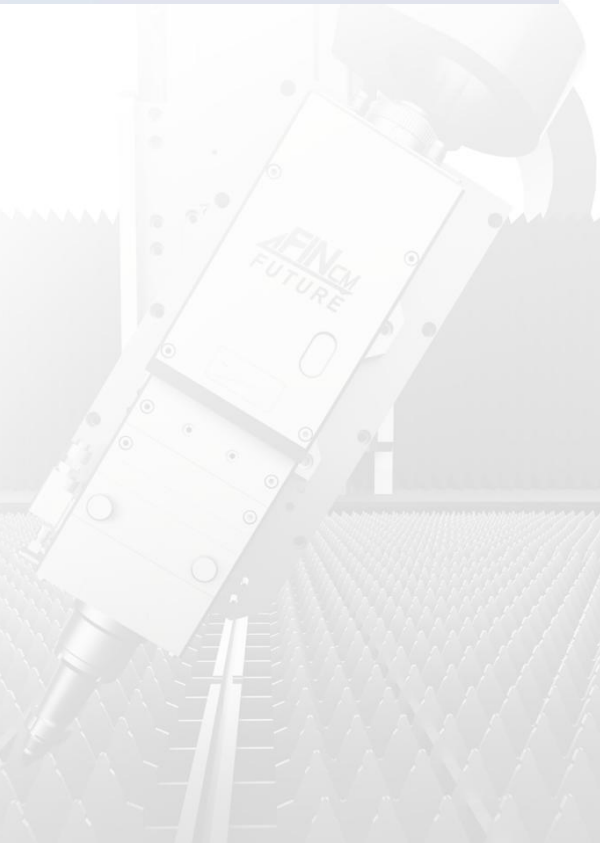
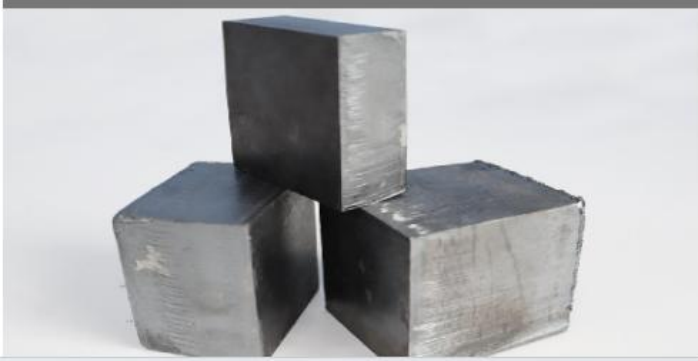
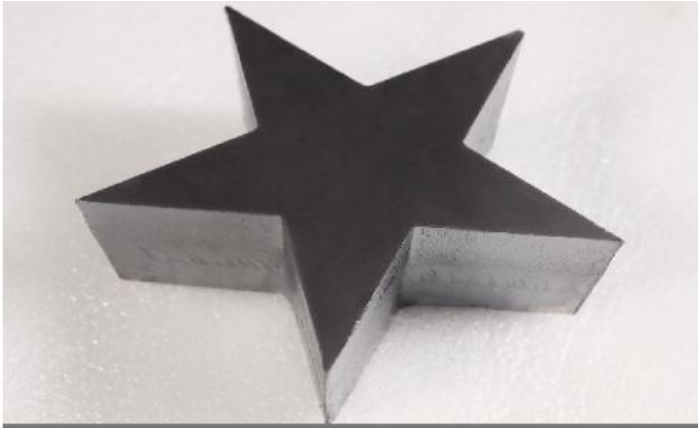
Monitor the contamination to avoid its impact on cutting quality.

Gas Pressure Monitoring

Real-time monitor the gas output to reduce the impact on the cutting quality.



Cutting Samples



20000w Cutting Parameters for reference

Fiber source		RFL-20000 (100u)		Optical alignment of the cutting head	
Materials	Thickness [mm]	Speed [m/min]	Power [W]	Gas	Pressure [bar]
Carbon steel	5	23-28	20000	N ₂ /Air	8
	6	18-20			8
	8	14-16			8
	10	9-12			8
	12	8-10			8
	14	6-8			8
	16	5-6			8
	18	3.2-4			10
	20	2.7-3.2			10
Carbon steel	10	2-2.3	6000	O ₂ positive focus	0.6
	12	1.8-2	7500		0.6
	14	1.6-1.8	8500		0.6
	16	1.5-1.6	9500		0.6
	20	1.3-1.4	12000		0.6
	22	1.2-1.3	20000		0.7
	22	1.4-1.5			0.7
	25	1.2-1.4			1.0
	30	1.2-1.3			1.2
	40	0.6-0.9			1.4
	40(not Q235)	0.3-0.6			1.6
	50	0.2-0.3			1.6
	60	0.2-0.25			1.6
Carbon steel	12	3.2-3.5	20000	O ₂ negative focus	1
	14	3-3.2			1
	16	3-3.1			1
	20	2.8-3			1.2
	25	2.4-2.6			1.3
	30	1.7-1.9			1.4
	35	1.4-1.6			1.4
	40	1-1.2			1.5
	45	0.8-0.9			1.6
Stainless steel	1	50-60	12000	N ₂	8
	2	50-60	20000		8
	3	40-45			8
	4	30-35			8
	5	22-24			8
	6	18-22			8
	8	13-16			8
	10	10-12			8

	12	8-10			8
	14	6-8			8
	16	5-6			8
	18	3. 2-4			8
	20	3-3. 2			12
	25	1. 5-2			12
	30	1-1. 2			12
	40	0. 5-0. 8			16
	50	0. 2-0. 3			16
	60	0. 15-0. 2			20
Stainless steel	1	50-60	12000	Air	8
	2	50-60	20000		8
	3	40-45			8
	4	30-35			8
	5	22-24			8
	6	18-22			8
	8	13-16			10
	10	11-13			10
	12	9-11			10
	14	7-9			10
	16	6-7			10
	18	3. 5-4. 5			10
	20	3. 5-4. 5			10
	25	1. 8-2. 5			10
	30	1. 4-1. 6			10
	40	0. 5-0. 8			16
	50	0. 2-0. 3			16
	Aluminium	1	55-60		12000
2		40-45	20000	8	
3		30-35		10	
4		25-30		12	
5		18-20		14	
6		16-18		14	
8		10-12		14	
10		9-10		14	
12		5-6		16	
14		4-5		16	
16		3-4		16	
18		2-3		16	
20		1. 5-2		18	
25		1-1. 2		18	
30		0. 8-1		20	
40		0. 5-0. 8		20	

Remark: Carbon steel and stainless steel, such as air, nitrogen cutting, efficiency and stability will be improved, bearing the increase of thickness, but also prone to hanging slag phenomenon, the above data parameters in actual bulk cutting, machine tool, system, cutting head, air pressure, materials and other factors, there may be changes, the data in the table **red mark parameters** for proofing, greatly influenced by various factors in the actual processing, It is only suitable for small batch production. Mass production is not recommended. Higher power lasers are recommended. Copper needs to be cut with high pressure oxygen, air or nitrogen are easy to cause damage to the laser.

Laser source Parameter

MODELS	MFMC-6000W	MFMC-12000W	MFMC-15000W	MFMC-20000W
OPTICAL SPECIFICATIONS				
Nominal Power	6000W	12000W	15000W	20000W
Mode of Operation	CW/Modulated			
Polarization	Random			
Power Tunability	10 to 100%			
Wavelength	1080 ± 5 nm			
Power Stability	±1 %			
Laser Beam Quality, BPP	3.5 to 4.5 mm x mrad (100µmQBH)			
	5 to 6.5 mm x mrad (150µmQBH)			
	6.5 to 9 mm x mrad (200µmQBH)			
Modulation Frequency	≤5kHz			
Preview Red Light Power	200 µW			
FIBER DELIVERY SYSTEM				
Interface	QBH	LOE		
Length	20m standard, other lengths optional			
Diameter	100/150/200 µm			150/200 µm
Bending Radius	200 mm			
ELECTRICAL RATINGS				
Supply Voltage	400 (-15% to +10%) VAC 3-phase			
OTHER SPECIFICATIONS				
Operating Temperature	+10 to +40°C			
Storage Temperature	-10 to +60°C			

Humidity	10 to 80%
Cooling Method	Water Cooling
Cooling Medium	Distilled water/ Glycol Antifreeze

Certification



GROUP PROFILE & Workshop

Shandong FINCM Future Intelligent Manufacture Co.,Ltd. located in Jinan, a core subsidiary of Shanghai Huaming Power Equipment Co., Ltd.(stock code 002270). The company was founded in 1995 and is industry-recognized as a world-renowned international leader in tap regulators and machinery.

Shanghai Huaming Equipment Group was established in 1995 and is mainly engaged in the research and development, manufacturing, sales and service of laser cutting, CNC milling machines, drilling machines and gantry machining centers. After 20 years, it has independently developed a variety of products, which are safely operating in nearly 100 countries around the world. It is the leading supplier of intelligent processing equipment in China. As a leading company in CNC manufacturing in China, Shanghai Huaming has presided over or participated in the drafting, formulation and revision of a number of national and industry standards, and has nearly 300 patents of various types and multiple overseas patents. The domestic market share reaches 80%, and the products are exported to 100 countries and regions.



Quality Control

✓ Incoming Inspection

Incoming material inspection mainly includes the preparation before inspection, the acceptance process of materials, and then the storage and placement of materials after passing the inspection, as well as the treatment of unqualified products.

✓ Process quality control

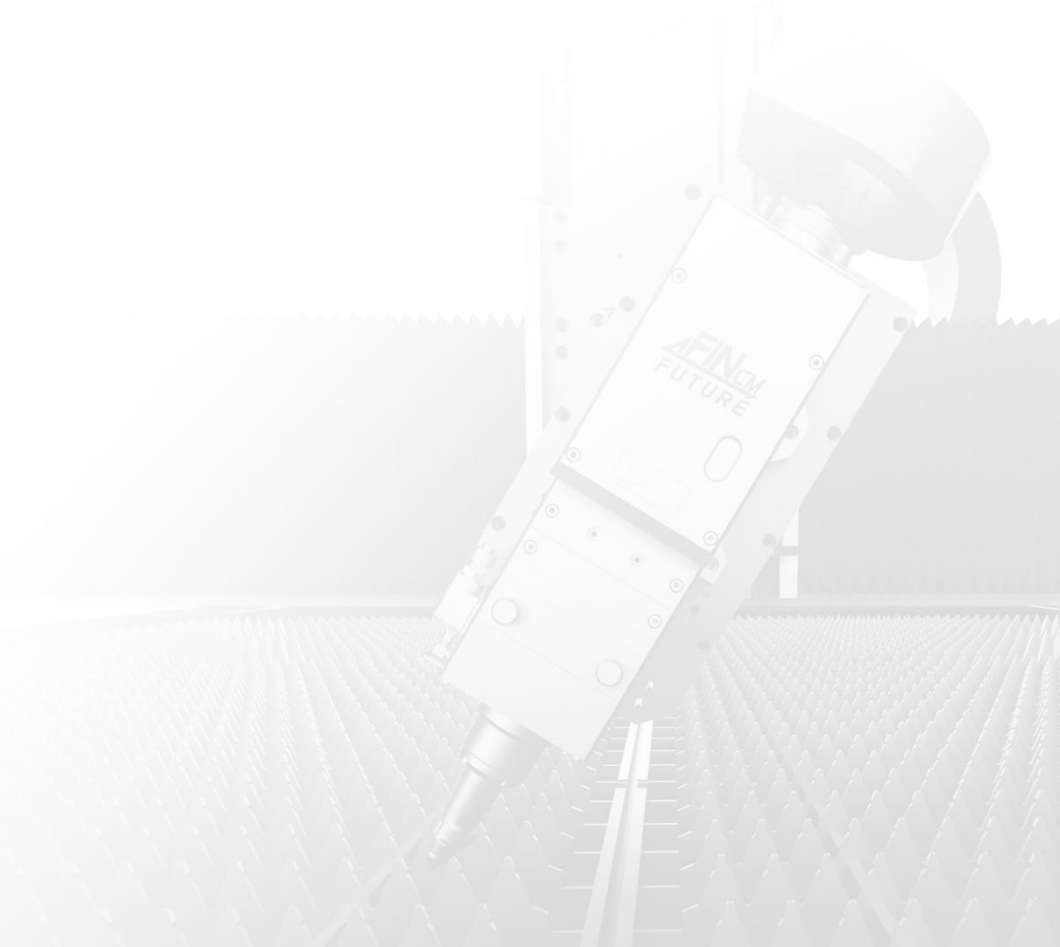
Process quality control is the quality control work of the whole production process from the material into production to the final packaging of the product into the warehouse. Through process quality control, the product quality can reach the specified standards.

✓ Quality exception handling

Quality anomalies are mainly divided into product quality anomalies and process anomalies. Abnormal product quality means that the characteristics of the product (appearance, size, etc.) are out of control; Process anomaly is mainly the process elements do not meet the control requirements

✓ Quality exception handling

Quality anomalies are mainly divided into product quality anomalies and process anomalies. Abnormal product quality means that the characteristics of the product (appearance, size, etc.) are out of control; Process anomaly is mainly the process elements do not meet the control requirements



After-sale service

General Principles

1. We are responsible for the maintenance of machines that are within the Warranty conditions.
2. Users must keep the machine's integrity and independence during operation. In the following situation, our company will not take any direct, indirect, or joint liability. Furthermore, if any equipment is damaged or there are any losses in either economic or reputation to our company due to the following situation, we, FINCM company, reserve the right to investigate any legal liability.
 - Using the equipment in an environment that it was not designed for.
 - Altering the machines privately, including adding parts, reducing parts, dismounting, using another brand's parts, etc.
 - Human damage or doing operations and maintenance without following the requirements in the instructions.
 - Damage caused by movement or transportation.

On the condition of not influencing the machine's performance, our company reserves the right to change the product's specifications and name the products before informing the customer. Our company is responsible for the quality and performance of the machine we sell. However, we are not responsible for other indirect obligations and responsibilities.

Detailed Principles

1. Equipment Warranty: **2 years** excluding any additional agreements made.
Calculated from the production date on the machine's nameplate. Specific details are as below:
2. Laser module Warranty:
 - Laser source warranty: **2 years**, except the optical elements.
 - Machine bed and gantry, guide rails etc.: **2 years**
 - Laser cutting head: **2 years**, except lens etc.
 - (Note: Laser module's warranty date is calculated from the production date on the laser module tag. Improper use will cause the front lens to breakdown. Any breakdown of the front lens and an incomplete laser tube will not be guaranteed)
3. The warranty does not include consumable parts, such as glass mirrors, belts, switches, gas nozzles, foots/wheels, keys/press boards, fiber cables etc.
4. Warranty of peripheral devices (if the machine has them): Warranty of peripheral devices is 1 year, calculated from the production date on the device's tag. Maintained by device's manufacturers as standard, Our company assists maintenance. Peripheral devices include water-chillers, fans, air pumps, water pumps, etc. (If the machine has them).

Accessories Repair and Shipping Cost

- Within the warranty period:
 - For free repair or replacement of accessories, the buyer should bear the shipping costs from their local place to our company if it needs to be tested, repaired, or replaced.

- If the failure is caused by the parts' quality after testing (non-human factors and use environment, etc.), it will be repaired or replaced free of charge, and FINCM company will bear the return shipping cost. If the failure doesn't cause by the parts' quality, the buyer should pay the repair fees and round-trip shipping cost.

- (Note: The repaired parts should be returned to our factory. If the buyer is in arrears of spare parts, FINCM company will cancel the warranty terms of the machine).*

- Outside the warranty period:

- The buyer should pay for repairs and round-trip shipping.

Door to Door Service Policies

FINCM supplies door to door services all over the world. Charging standards and service processes are as below:

(A) Charging standards:

1. Technician visa fees, domestic travel expenses (including transportation cost occurred during handling documents).
2. Training and maintenance fees: \$200/day/person (take the time of landing and starting off of plane in customer's country as standard).
3. International round-trip tickets (reserved and paid by the buyer, and supply the e-ticket information to our company, The buyer of the tickets need to communicate with the engineer in detail to ensure that he can board the plane and travel normally, such as visa and stopover places and other risks.).
4. Abroad accommodation and pick up etc.(arranged and paid by the buyer).

(B) Overseas training/maintenance processes:

1. FINCM company will calculate the fees of item 1 and item 2 above, and then inform the buyer. After the buyer pays the fees, FINCM company will arrange for the technician to apply for a visa.
2. We will inform the buyer after the technician gets the visa. The buyer should supply the round-trip ticket information mentioned above in item 3, and share accommodation information from item 4 before the technician departure.
3. Only after getting the approval of FINCM company, the buyer can apply for an extension for the training and maintenance. The buyers should pay for the "extend training and maintenance service fees" before the start of the extend service.



CUTTING | BENDING | WELDING | CLADDING | SMART FACTORY

