No.:2021JSFA LT-6012DA 01

Manufacturer for Laser Tube Cutting Machine

LT-6012DA

Technical Scheme

Jinan Acme CNC Equipment Co., Ltd.

Date：

CONTENTS

1. COMPANY INTRODUCTION 3

HONORS & CERTIFICATE 4
R&D TEAM 5
AFTER-SALES SERVICE 5
APPLICATION 5

2. MACHINE INTRODUCTION 6

2.1 SCOPE OF APPLICATION: 6
2.2 ADVANTAGES 6
2.3 CHUCK 6
2.4 SCRAP COLLECTION 6
2.5 SYSTEM 7
2.6 SAMPLES 7

3. PROCESSING CAPACITY (2000W FIBER LASER) 8

4. MAIN CONFIGURATION 9

5. TECHNICAL PARAMETER 10

6. FEATURES OF EACH COMPONENT 11

6.1 LASER SOURCE 11
6.2 LASER HEAD 12
6.3 MACHINE BED 13
6.4 SELF-DEVELOPED INTELLIGENT FULL-STROKE CHUCK 14
6.5 PIPE SUPPORT 16
6.6 SYSTEM: ACME CLOUD SYSTEM 16
6.7 NESTING TUBEST 17
6.8 FRONT-RECEIVING PLATFORM(OPTION) 17
6.9 SEMI-AUTOMATIC LOADING(OPTION) 18

7. SPARE PARTS, SPECIAL TOOLS AND CONSUMABLES 18

7.1 RANDOM ACCESSORIES 18
7.2 CONSUMABLES 18
7.3 LIST OF DOCUMENTS WITH MACHINE 18

8. OPERATING COST ANALYSIS 19

9. COOPERATION BRAND 20

10. INSTALLATION AND COMMISSIONING 20

10.1 FACTORY INSPECTION STANDARDS 21
10.2 BUYER INSPECTION STANDARDS. 21

11. INSTALLATION 21

11.1 INSTALLATION 21
11.2 TRAINING 22

12. WARRANTY AND SERVICE 22

13. THE FLOOR PLAN/FOUNDATION PLAN 25

1. COMPANY INTRODUCTION



Corporate Vision: We are committed to becoming the leader in laser tube processing industry!

Corporate mission: We focus on laser tube cutting machine R&D and production, providing customers around the world with intelligent laser tube processing solutions.

Corporate values: Based on customer needs, we stick on continuous innovation, to share a win-win situation with both our customers and employees!

Acme laser, national high-tech enterprises, the company is mainly engaged in laser cutting machine equipment research and development, manufacturing and sales, for customers around the world to provide comprehensive solutions for laser equipment



Assembly Workshop Finishing Workshop Welding Workshop R&D Center Technology Center

Jinan Acme CNC Equipment Co., Ltd. (Acme Laser) was founded in 2016 and is a national high-tech enterprise integrating R&D, production and sales of laser cutting equipment. Based on customer needs, Acme Laser focuses on the R&D and production of laser pipe cutting machines, providing customers around the world with intelligent integrated solutions for laser pipe processing.

Our production base in Jinan covers an area of 45,000 square meters, with dozens of high-precision imported CNC machining centers and large-scale gantry milling machines. The total value of production equipment exceeds 3 million US dollars. It realizes independent research and development design and high-precision manufacturing of

the core components of the cutting machine. The company has more than 200 talents of various types and has an annual production capacity of 1,000 fiber laser cutting machines, of which more than 1,200 laser pipe cutting machines have been sold in total, and the products are sold in more than 60 countries and regions around the world.

Honors & Certificate

Our core team has more than 15 years of experience in the field of laser equipment, has core advantages in the field of laser tube cutting, and is committed to providing customers with cost-effective laser tube cutting equipment. We have obtained more than 80 product and technology patents, and more than 40 new patent applications in 2020. The company has passed ISO9001 quality system certification, and its products have obtained EU CE and US FDA certifications. We have a number of scientific research results.



























R&D Team

The professional core R&D team of Acme Laser accounts for more than 15% of the company's total employees, including professional teams such as mechanical engineers, software engineers, electrical engineers, and industrial designers. The company has a comprehensive grasp of core technologies such as precision manufacturing of chucks, software cutting technology, and numerical control systems to ensure the stability and production efficiency of the equipment.

After-Sales Service

Acme Laser high efficiency customer service team, accounts for 20% of the company’s total employees, including professional teams such as pre-sales service, in-sale service, after-sales service, customer training, etc., from technical process consultation, incoming proofing reception, installation and commissioning, and free customers In terms of personnel induction training, equipment maintenance and repair, etc., we provide 24-hour all-round quick response services.

Application

Our featured product laser pipe cutting machine is widely used in sports equipment, automobile manufacturing, steel and wood furniture, medical equipment, architectural decoration, mechanical equipment, electrical equipment, elevator equipment and other fields. Thanks to the good customer reputation and the continuous improvement of products, the market recognition of the our products is steadily increasing, and it is moving towards the goal of "becoming a global leading laser tube cutting machine manufacturer ".

2. MACHINE INTRODUCTION



(The picture is for reference only, and the appearance and size are based on the actual factory equipment)

2.1 Scope of application:

D model laser pipe cutting machine LT-6012DA is mainly used for cutting, modeling and blanking of metal pipes. It is suitable for square pipes, round pipes, rectangular pipes, elliptical pipes, flat elliptical pipes and channel steel with diameters of 16-120mm. , H steel, angle iron, triangular pipe, etc. and other special-shaped pipes and other various metal pipes of any shape.

2.2 Advantages

1. Machine Bed

- Stable and anti-vibration, good rigidity and high precision.
- The bed is specially designed to prevent it from being burnt down by high-power laser.
- Independent research and development of the bed and overall design. The imported machining center is processed as a whole to ensure that the guide rail surface and rack surface are processed and formed at one time to ensure accuracy.
- Long service life.

2.3 Chuck

Acme Laser independently designs, develops and produces the chuck. It is for small tubes in the industry. The special chuck for laser pipe cutting machines has high efficiency and good stability. With the full servo control system, the efficiency is about twice that of ordinary pipe cutting machines.

2.4 Scrap Collection

- A scrap truck is set up at the bottom of the bed to collect scrap from the production process and small parts at any time.
- The equipment is equipped with a front-receiving platform, which can be customized to the customer's needs 3-6 meters of feed-assisted platform.

2. Rails

- Taiwan linear guide, high precision and wear resistance
- Selected special metal materials, high wear rigidity

- Smooth scrolling with a small coefficient of friction minimizes wear and tear

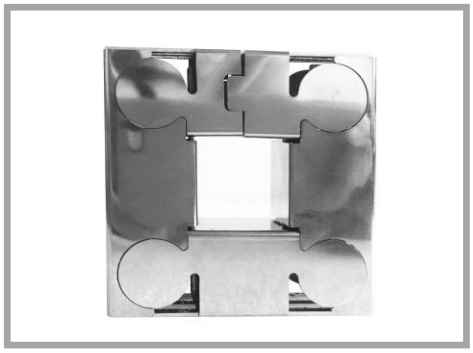
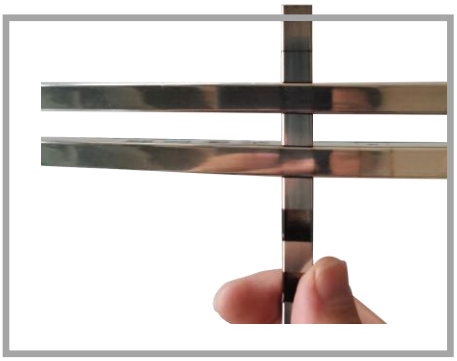
3. Transmission

- Taiwan flanks, 2M oblique teeth, grinding level 6 ensure high-precision motion under a variety of complex conditions.
- The use of state-of-the-art grinding teething process, mass production accuracy is high.

2.5 System

- Acme Laser cloud system, processing can be automatically sought, real-time acquisition of Z-axis information, high-precision processing.
- Highly accurate identifying of processing tubes, simplifying the cutting process and improving processing efficiency.
- Support for three-chuck model, you can do zero-tail processing, saving raw material costs.
- The system can simulate 3D cutting on the computer, effectively restoring the real laser cutting process, improving processing efficiency.

2.6 Samples




3. PROCESSING CAPACITY (2000W FIBER LASER)

Material	Thickness（mm）	Speed（m/min)	Gas
SS	1	23	Air
	2	8	Air
	3	4	Air
	4	2	Air
	5	0.8	Air
CS	1	17	Air
	2	8.5	Air
	3	3	Air
	4	1.8	Air
	5	1.5	O2
	6	1.2	O2
	8	1	O2
	10	0.7	O2
Alu.	1	8.8	Air
	2	5	Air
	3	3.5	Air
Co.	1	14.5	Air
	2	4.9	Air
	3	1.7	Air
	4	0.8	Air

4. MAIN CONFIGURATION

No.	Name	QTY	Brand
1	Laser Source	1	Chinese/Imported（1000W-6000W）
2	Laser Head	1	Raytools
3	Cutting System	1	TubePro
4	Front Chuck	1	Full Stroke Chuck（120mm）
5	Back Chuck	1	Acme Laser Pneumatic Chuck
6	Machine Bed	1	Acme Laser
7	Electrical Parts	1	Chint
8	Pneumatic Parts	1	Airtac
9	Rail and Ball Screw	1	Taiwan T-WIN/ Equivalent configuration
10	Helical Rack	1	Taiwan T-WIN/ Equivalent configuration
11	Other parts for Machine bed	1	adaptation
12	Servo Motor and Driver	1	Yaskawa/Fuji
13	Reducer	1	Motoreducer/ Equivalent configuration
14	Front-receiving platform	1	Acme Laser(Option)
15	Pipe Support	1	Pneumatic Wheel
16	Water Chiller	1	Standard
17	Nesting Software	1	Tubest Professional Nesting Software（Option）
18	Control System	1	FSCUT3000S
19	Loading	1	Acme Laser

Customers can choose from the following configurations

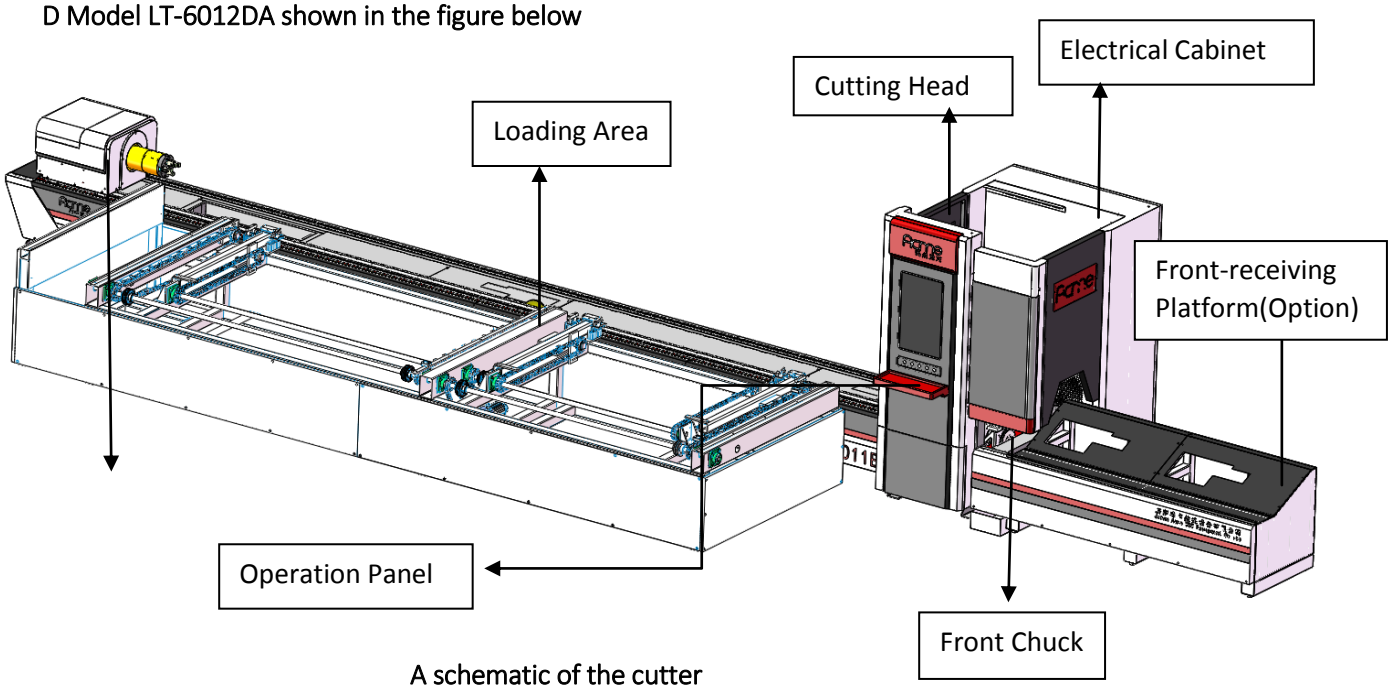
No.	Name	Optional (tick is standard)
1	Loading	With √ Without
2	Nesting	With Without √
3	Air Compressor and Dryer	Option
4	Cutting Length	6m √ 8m
5	Front-receiving Platform	With Without √
6	Chuck Diameter	□ 120mm √ □ 170mm

5. TECHNICAL PARAMETER

Technical Parameter			
Model	LT-6012DA	Size	10163×3037×2092mm（L×W×H）
Cutting Length	6100mm	Diameter	Φ 口 16-120mm
Total Power	7KW	Laser Power	1000W 1500W 2000W 3000W 4000W 6000W
Tail	≥65mm	G.W.	3 吨
Y Travel	6600mm	Power Supply	380v50Hz±10%
X Travel	380mm	G Speed	1.2G
Z Travel	250mm	Front chuck load	100kg
X,Y Positioning Accuracy	±0.05mm/1000mm	Feed rate	92m/min
X,Y Repeat Positioning Accuracy	±0.03/1000mm	Control System	FSCUT3000S
Max Rotation Speed	200r/min	Gas	O2、N2、Air
Fiber Laser Source			
Work Mode	Continuous	Laser Power	1000W-6000W
Auxiliary System			
Cooling System	Constant temperature control chiller for laser machine (external connection)		
Circuit and protection system	According to CE standard		
Software			
Software	TubesT Professional Nesting(Option)		
Support file format	Solidworks、Pro/e、UG etc.		

6. FEATURES OF EACH COMPONENT

D Model LT-6012DA shown in the figure below



A schematic of the cutter

6.1 Laser Source

D model high cost-effective laser tube cutting machine LT-6012DA adopts domestic well-known brand Maxphonics fiber laser.

The laser is a new generation of semiconductor-pumped single-mode continuous ytterbium fiber laser system in the near-infrared spectral range (1060~1080nm). It has the characteristics of high power, ideal beam quality, fiber transmission and high electro-optical conversion efficiency.

This type of laser system has unparalleled high reliability of other solid-state lasers and gas lasers. Its advantages are: a wide range of wavelength selection, extremely low signal-to-noise ratio, extremely high stability and long service life.

Main features: There is no lens in the laser generator, maintenance-free, and the light guide system is composed of optical fibers;

- No start-up wait time required;
- The beam quality is good and the power density is high.
- The efficiency of electro-optical conversion is up to 35%;
- Beam mass TEM00 (M2<1.1);
- More than 100,000 hours of pumping source life;
- Maintenance-free operation, single-mode fiber transmission;



Main Technical Parameters of Laser Source

Name	Parameter	Name	Parameter
Laser Type	Fiber Laser	Beam Quality	2 mm*mrad
Work Mode	Continuous	Laser transmission instability	≤ 5%
Wave Length	1070-1080 nm	Indicator Light Wave Length	635/658nm（Red）
Rated Output Power	2000 W	Indicator Light Parameter	1mW

6.2 Laser Head



With Raytools fiber laser cutting head, equipped with capacitive non-contact high automatic tracking system, the cutting head can automatically adjust the height with the deformation of the work piece, without affecting the cutting of the work piece. The response speed and processing efficiency of the Z-axis direction are greatly improved.

Characteristics：

- Includes linear drives, cutting systems, adjusters and lying units
- Integrated contactless capacitor sensors
- Compact appearance for easy space cutting
- Water-cooled optics and fiber optic sockets
- All water-conducting components are made of stainless steel
- Integrated collimation units

Main Technical Parameters of Laser Head

Name	Parameter	Name	Parameter
Focal Length	125 mm	Auxiliary gas input	O2, N2,Air
Cutting Head	Equipped with capacitive height adjustment system	Auxiliary gas output	Dual air source air circuit, numerical control selects proportional output

6.3 Machine Bed

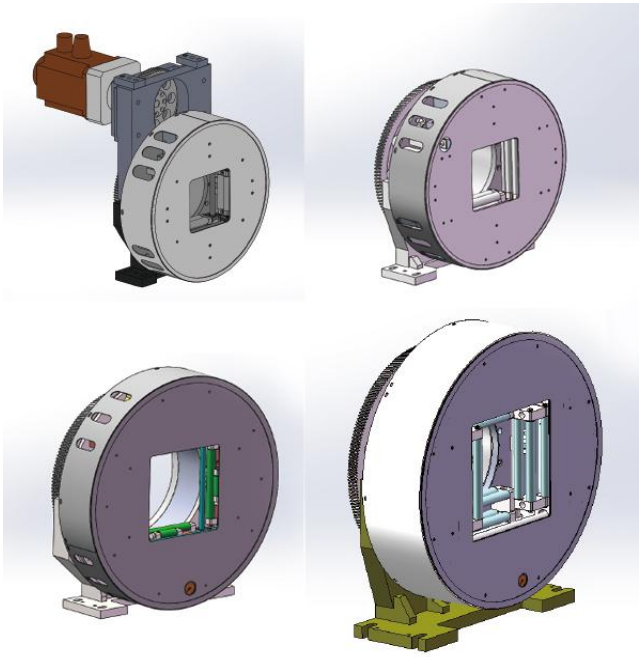


D model cost-effective laser pipe cutting machine LT-6012DA is composed of bed, chuck, transmission system, electrical system, lubrication system, optical system, cooling system, loading and unloading system and other components.

The beds used by the company's products are all independently developed and processed as a whole. The bed, which is designed with the principle of structural dynamic design and the variable analysis technology of the finite element method, has excellent dynamic and static characteristics. The frame structure welded by high-quality steel plates and steel pipes has undergone independent welding, secondary aging treatment, and precision machining by a large gantry milling machine.

The company has cooperated to introduce high-precision CNC machining centers such as HAAS from the United States, Mazak from Japan, and Yingyuan from Taiwan. The precision milling of the bed uses a large Italian gantry milling machine, and the independent research and development design and high-precision production and processing of core components have been realized. Ensure that the guide rail surface and rack surface are processed and formed at one time to ensure accuracy. These design and processing methods ensure the machine tool has excellent shock resistance, high rigidity and stability.

6.4 Self-developed Intelligent Full-stroke Chuck



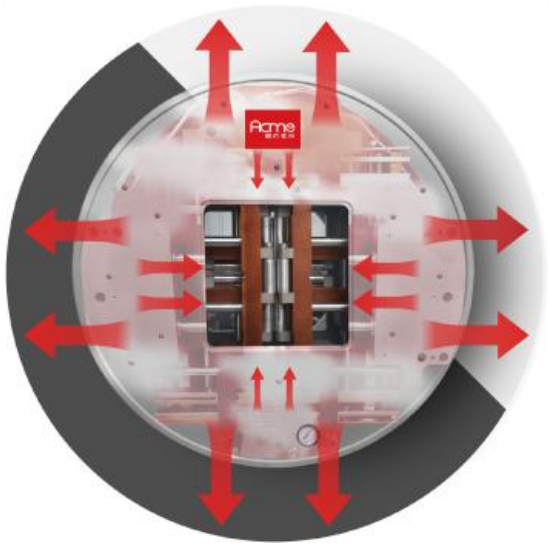
Acme laser chuck R & D team insists on independent innovation, strong R & D capabilities, obtained a number of technical patents, completely independent intellectual property rights. There are many high-precision CNC machining centers worth more than 20 million yuan, such as Haas from the United States, Mazak from Japan, Taiwan and Switzerland. Aiming at the

120mm	170mm
250mm	350mm

pain points of the current laser pipe cutting machine chuck, with great concentration, we have designed and developed a special smart chuck for the Acme laser pipe cutting machine, which is more suitable for the application of pipe cutting machines than other manufacturers.

Performance advantage

- Square hole design, stronger passing ability;
- The clamping force can be adjusted intelligently, suitable for different types of pipe processing requirements;
- The clamping range of full stroke, without manual adjustment;
- With an eight-cylinder structure, the clamping force is twice that of ordinary chucks;
- Precision grinding gear drive, stronger power and higher efficiency;
- The highest level of dustproof, stronger stability
- The lengthened design of the rear chuck allows the front chuck to achieve "zero tailing" cutting with two chucks.
- It can effectively clamp various shapes of profiles, such as: square tube, round tube, rectangular tube, oval tube, flat oval tube, channel steel, H steel, angle iron, triangle tube, etc.





Chuck Manufacturing Workshop

Self-developed Smart Chuck System

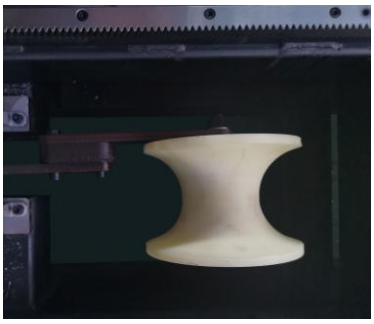
Self-developed Smart Chuck System



Technical parameters (front chuck)

Diameter	Max Hole	Repeat Positioning Accuracy	Rotarion Speedr/min	Maximum clamping forcekg	G.W.
120mm	120mm	0.05	200	100	62 kg
170mm	170mm	0.05	100	250	160 kg
250mm	250mm	0.05	85	300	300 kg
350mm	350mm	0.05	50	600	550 kg

6.5 Pipe Support



Nylon Wheel

The equipment is equipped with a lifting support mechanism with multiple rotatable nylon wheels. The lifting mechanism can realize pneumatic control and automatic lifting. When the processed pipe changes, the nylon support wheel can be adjusted to make the support wheel the same diameter as the processed pipe.

6.6 System: Acme Cloud System

Acme Laser cloud system is based on real-time data collection of laser cutting equipment, and through industrial big data analysis, it realizes processing intelligence and assists users in improving management. Acme Laser cloud system provides users with real-time monitoring, equipment digital management, processing report analysis and display, historical processing data analysis, processing efficiency comparison, abnormal working condition detection, health assessment reminder, power sheet consumption analysis, preventive maintenance reminder management and other functions . The Acme Laser cloud system helps users to dynamically grasp the health status of equipment, remotely monitor operating status and fault information, thereby improving equipment maintenance efficiency, reducing equipment unexpected downtime, and extending equipment life cycle. Ding point cloud system provides historical processing analysis and efficiency analysis functions, and helps users improve work efficiency through data analysis.


电视大看板


PAD-智联

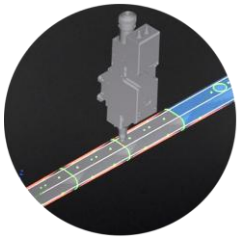

APP-机床首页

- Display of key equipment information such as total start-up time, total cutting length, start-up rate and effective cutting rate, daily work history change trend, laser, etc.
- Real-time monitoring of the real-time processing progress of the current task
-    
  Speed Height Cutting Position Processing Time
- Processing daily report to check the daily processing situation
- Efficiency analysis pays attention to the dynamics of machine tool efficiency
- Task statistics keep abreast of changes in the number of machine tool tasks
- Electricity cost analysis and basic cost information such as sheet usage
- Running statistics Check the running status of the machine tool at any time, data monitoring, processing statistics, travel statistics
- Maintenance management provides maintenance reminders based on machine tool working condition information
- Health management of core components such as lasers and cutting heads, and health monitoring of core components
- The rich knowledge of knowledge centers such as cutting software, nesting software, knowledge center, short video cutting and nesting software, etc. can be seen at a glance.

6.7 Nesting TubesT

TubePro tube cutting software is a professional cutting software for processing all kinds of tubes. Seamlessly docking with the layout software TubesT, TubesT realizes the processing of the layout, co-edge, basic process and special process of parts. After exporting the processing file, you can directly use TubePro to cut. The three-dimensional cutting function can effectively simulate the real laser cutting process and greatly improve the processing efficiency. Abundant cutting functions, realizing precision cutting of various special-shaped and complex graphics that are difficult to achieve by conventional processing, such as pipe drilling, cutting, intersecting line cutting.

Three-dimensional simulation (the nesting software model is exactly the same as the actual one):



Simulation



Real Cutting

6.8 Front-receiving Platform(Option)



The cut workpiece can be automatically transferred to the workpiece area, and the waste box is placed under the cutting area. Automatic material collection. Real-time support. Prevent pipe shaking. Ensure accuracy and cutting effect. Unique design can realize automatic separation of waste and finished products. The finished products fall into the finished product box and the waste falls into the waste box. Receiving diagram (optional)

6.9 Semi-Automatic Loading(Option)

Feeder-the most stable one

Acme Laser independently designs and produces independently, aiming at the light pipe and small pipe industries, and is suitable for round pipes, square pipes and rectangular pipes with a diameter of 30-100mm;



- The total load of the whole machine is 400kg, and the single root is the largest
- It Can support 40kg/pipe;
- Servo feeding, the feeding position is accurate, and the bed
- Close cooperation;
- Chain drive, stable structure, suitable for batch Processing;
- Compact design and high cost performance;
- One person can operate multiple devices, saving manpower,
- Improve efficiency. Schematic diagram of automatic feeding system

7. SPARE PARTS, SPECIAL TOOLS AND CONSUMABLES

7.1 Random accessories

No.	Name	QTY
1	Nozzle	5
2	Protection Lens	5
3	Ceramic Holder	2

7.2 Consumables

No.	Name
1	Nozzle
2	Focus Lens
3	Collimation Lens
4	Protection Lens
5	Ceramic Holder

7.3 List of documents with machine

Quality Certificate	Packing List	Electrical schematic diagram	Machine Manual
1	1	2	1
Consummable List	Laser Source Manual	Water Chiller Manual	Nesting Software
1	1	1	Option

8. OPERATING COST ANALYSIS

Name		Option 1: Air compressor cutting	Option 2: Oxygen cutting	Option 3: Nitrogen cutting
Power consumption (peak power consumption)	Laser Source	5KW	5KW	5KW
	Chiller	6.3KW	6.3KW	6.3KW
	Air Compressor	11KW		
	Machine	3KW	3KW	3KW
	Dust Extraction	1.5KW	1.5KW	1.5KW
Consumables		0.5CNY/H	0.5 CNY /H	0.5 CNY /H
Gas		0	15 CNY /H	60 CNY /H
Total Power (Power factor 0.8)		26.8KW	15.8KW	15.8KW
Total power consumption (if 60% cutting efficiency)		16.1KW/H	9.5KW/H	9.5KW/H
Total operating cost (if 1CNY/Kwh)		16.6 CNY	25 CNY	70 CNY

Material cutting thickness analysis (the actual cutting speed is affected by the pipe diameter)

Metal	Thickness (mm)	1000W Speed (m/min)	1500W Speed (m/min)	2000W Speed (m/min)	3000W Speed (m/min)	4000W Speed (m/min)	6000W Speed (m/min)
CS	1	15.0-22.0	18.0-25.0	25.0-33.0	28.0-38.0	30.0-44.0	35.0-48.0
	2	5.00-6.60	7.00-10.0	7.00-10.00	5.50-7.00	5.50-7.70	6.00-8.25
	3	2.50-3.85	4.00-5.50	4.00-5.60	3.60-5.00	3.70-5.50	4.00-5.50
	4	2.00-3.30	2.50-3.50	2.80-4.00	3.00-4.50	3.50-4.62	3.50-5.50
	5	1.40-2.00	2.00-2.80	2.00-2.75	2.50-3.30	2.50-4.00	2.60-3.52
	6	1.20-1.65	2.00-2.42	2.00-2.42	2.30-2.86	2.50-3.52	2.00-2.80
	8	0.90-1.32	1.20-1.65	1.20-1.65	1.80-2.20	2.00-2.80	1.80-2.30
	10	0.60-0.90	1.00-1.32	1.00-1.32	1.20-1.65	1.20-2.20	1.60-2.10
	12	0.40-0.70	0.70-1.00	0.70-1.00	1.00-1.32	1.00-1.76	0.70-1.00
	16		0.60-0.80	0.60-0.80	0.60-0.90	0.70-1.00	0.65-0.95
	20				0.50-0.80	0.60-0.90	0.60-0.77
	22					0.66-0.90	0.40-0.65
	25						
	30						

SS	1 2 3 4 5 6 8 10 12 16 20 22 25 30 35 40 45	16.5-22.0 4.50-6.10 2.00-3.10 1.00-1.65 0.40-0.70 0.20-0.45	20.0-26.0 18.0-22.0 4.50-5.50 2.00-2.50 1.50-2.00 0.70-3.10 0.20-0.45	27.5-33.0 18.0-22.0 4.50-5.50 2.20-2.80 1.50-2.00 0.70-3.10 0.35-0.60	31.0-38.5 10.0-16.5 7.00-10.0 5.00-7.20 1.80-2.45 1.00-1.65 1.20-2.00 0.70-1.00	33.0-45.0 10.0-20.0 7.50-12.0 5.50-9.00 4.00-5.50 2.60-4.50 1.60-2.80 0.70-1.65 0.50-0.90	50.0-65.0 30.0-40.0 18.0-25.0 10.0-15.5 8.00-13.5 6.00-9.00 4.00-5.50 1.80-2.80 1.20-1.65 0.80-1.20 0.60-0.90

9. COOPERATION BRAND



10. INSTALLATION AND COMMISSIONING

On-site power distribution cabinet: 380V, 50HZ, three-phase four-wire, and the capacity is not less than 60 KVA.

1. The equipment should be installed with dedicated grounding, and its grounding resistance should not exceed 4Ω.
2. Provide necessary lifting equipment and personnel, lifting and handling equipment: cranes with a minimum lifting height of not less than 3 meters and a minimum lifting weight of 10 tons, or those meeting the above conditions and a minimum lifting weight of more than 10 tons Crane or forklift, and 2 jacks.
3. Provide materials such as steel plates for on-site debugging of equipment. Before the equipment arrives at the site, the buyer needs to prepare various materials for equipment debugging.
4. Provide temporary pass for debugging personnel.

5. The buyer needs to prepare before the equipment arrives at the site: cutting gas: high-purity nitrogen (purity ≥99.999%), oxygen ≥99.99%, clean air without water and oil.
6. Equipment space and foundation requirements: the ground bearing strength is at least 2000kg/m2, and the ground flatness is less than 5mm;
7. On a solid and firm foundation, pour a 350mm thick cement layer. The cement number is not less than 425#, and a shock-absorbing groove is set around the equipment foundation.
8. Compressed air pipeline: The compressed air pipeline connected to the machine tool is required to be made of stainless steel and withstand the maximum pressure of 15bar (the length of this pipeline is determined according to the installation of the field equipment)

10.1 Factory inspection standards

NO	Name			Content	Note
1	Time			After the machine is installed and debugged	/
2	Location			In Acme Laser Factory	/
3	Acceptance content	Machine appearance, operation and function demonstration		Meet product specification and technical agreement requirements	Including spare parts and tools
		Machine accuracy check	Geometric accuracy	Refer to the acceptance report provided by the seller	The seller randomly provides an acceptance report with inspection content and corresponding acceptance inspection standards
			Motion accuracy	Participate in the acceptance report provided by the seller	
		Transmission function verification		Test machine's program USB interface transmission function	/
		Verify delivery content		Verification according to contract supply content	/

10.2 Buyer inspection standards.

The drawings provided by the buyer can be used as the buyer's acceptance standard after being signed and confirmed by the seller, and the drawings are attached to this agreement. If there is no appendix drawing provided, it shall be implemented according to the factory inspection standard.

11. INSTALLATION

11.1 Installation

15 days before the equipment is shipped, provide the customer with the installation layout plan (including the civil works and the water, electricity, gas consumption and piping, interface requirements of the equipment installation).

The equipment is installed in the user's factory, and the user is required to provide enough space, power supply and ventilation system to install the equipment. The installation is installed by our trained engineers. We are responsible for equipment installation and commissioning. The customer is

responsible for the civil work of the equipment installation and the water, air pipe, and power cord are connected to the machine tool designated by our engineer. The pipeline connected to the machine tool is our responsibility, but the user should provide the necessary cooperation and assistance for the equipment installation and commissioning of our engineer .

11.2 Training

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

The training time is 3-5 days and is completed in the user's factory. Mainly learn equipment maintenance, operation, laser protection, processing technology, graphic editing, common troubleshooting, etc. The trainees are required to be mechanical, electrical or optical assistant engineers or engineers, understand computer operations, and know SolidWorks drawing. Trainees should pass the assessments on equipment operation, basic laser knowledge, safety protection and maintenance organized by the supplier before they can take up their posts.

(A). Charging standards：

Technician visa fees, domestic travel expenses (including transportation cost occurred during handling documents);

Training and maintenance fees: $150/day/person （take the time of landing and starting off of plane in customer's country as standard）;

International round-trip tickets (reserved and paid by the buyer, and supply the e-ticket information to our company);

Abroad accommodation(arranged and paid by the buyer)

(B).Overseas training/maintenance processes:

ACME company will calculate the fees of item 1 and item 2 above, and then inform the buyer. After the buyer pays the fees, ACME company will arrange for the technician to apply for a visa.

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 arrange accommodation from item 4 after the technician arrives.

Only after getting the approval of ACME 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.

12. WARRANTY AND SERVICE

12.1 General principles

I We are responsible for the maintenance of facilities which are within the Warranty conditions.

II 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, ACME company, reserve the right to investigate any legal liability.

1) Using the equipment in an environment that it was not designed for..

2) Altering the machines privately, including, adding parts, reducing parts, dismounting, using another brand's parts, etc.

3) Human damage or doing operations and maintenance without following the requirements in the instructions.

4) Damage caused by movement or transportation.

On 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.

12.2 Detailed Principles

Equipment Warranty: 2 years. Calculated from the production date in machine's nameplate. Specific details are as below:

I Laser module Warranty:

Fiber Laser Source warranty： 2 years

Fiber Laser Cable: no warranty

(P.S. Laser module's warranty date calculated from the production date in laser module tag)

II The warranty does not include consumable parts, such as glass mirrors, belts, switches, gas nozzles ,foots/wheels, keys/press boards, etc.

III Warranty of peripheral devices (if the machine has them):

Warranty of peripheral devices is decided by supplier, calculated from the production date in the device's tag. Maintained by device's manufacturers as standard, Our company assist maintenance. Peripheral devices including water-chillers, fans ,air compressor 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 tested, repaired or replaced.

If the failure cause by the parts'quality after testing(non human factors and use environment etc.), it will be repaired or replaced free of charge, and ACME company will bear the return shipping cost. If

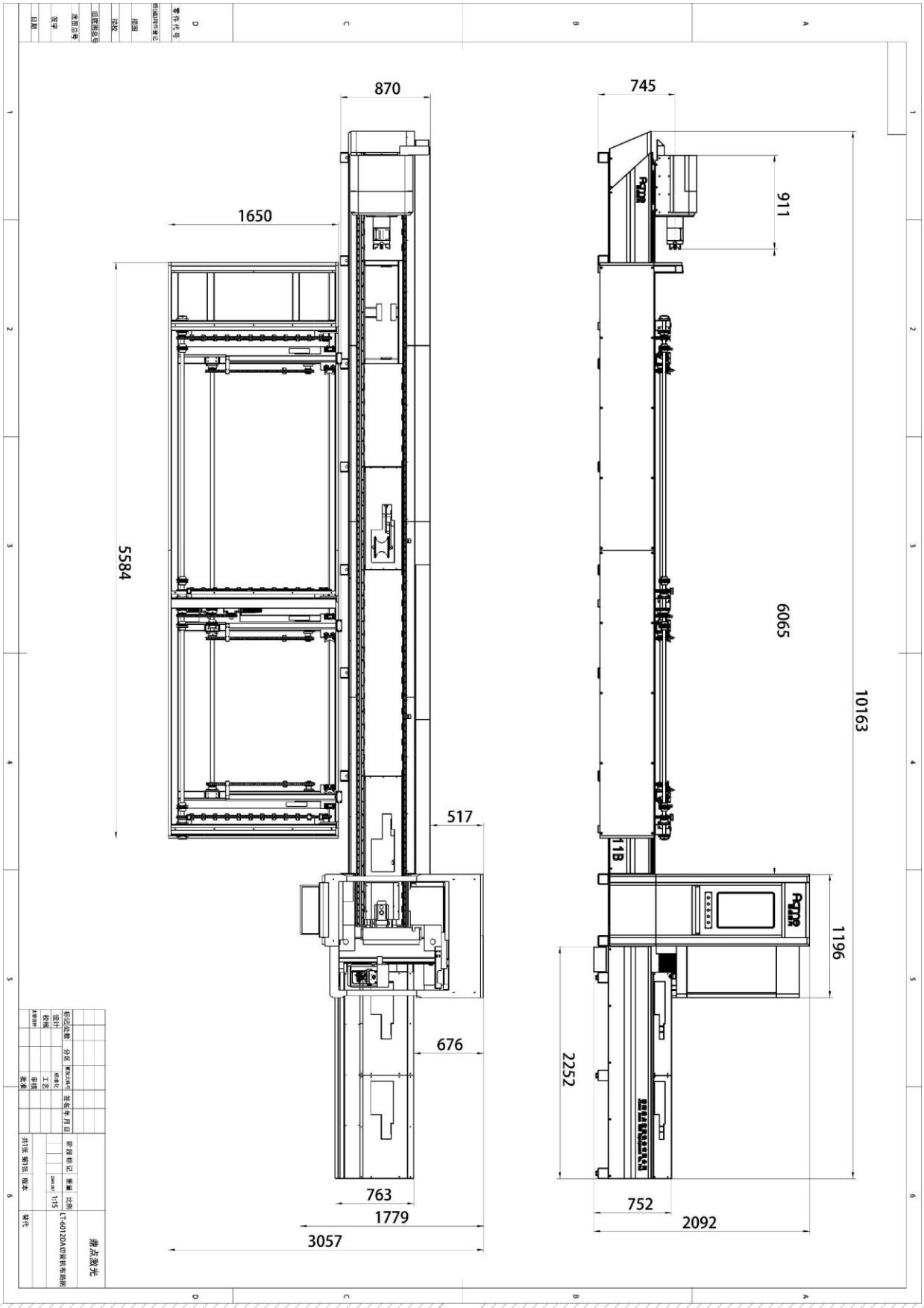
the failure doesn't cause by the parts'quality, the buyer should pay the repair fees and round-trip shipping cost.

P.S. The repaired parts should be returned to our factory. if the buyer is in arrears of spare parts, ACME company will cancel the warranty terms of the machine).

Outside the warranty period

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

13. THE FLOOR PLAN/FOUNDATION PLAN





Contact us

Company Address: Acme Laser Intelligent Manufacturing Base, New and Old Kinetic Energy Conversion Pilot Zone, Jinan City, Shandong Province

Sales Hotline: +86 18678804631

Company website: www.acmelaser.net

www.acmelaser.cn

www.acme-laser.com/www.;aseracme.com/www.fiberlaserchina.com

Company email: info@acmelaser.cn