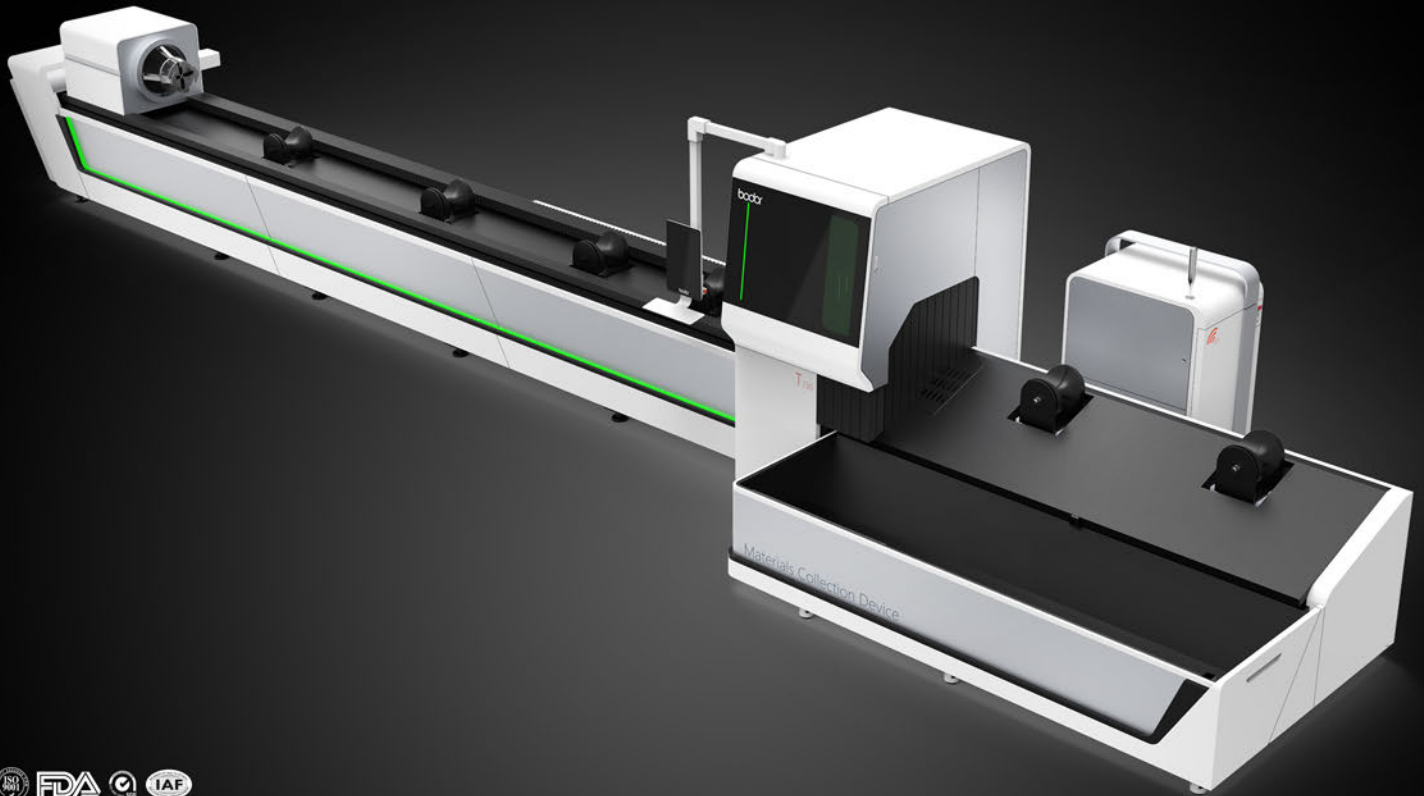


## Tube Laser Cutting Machine--T Series



### Tube Laser Cutting Machine--T Series

The equipment meets the parts processing requirements of most industries, working accuracy is stable. Selecting the optimal force and supporting structure, the overall mechanical property of equipment is perfect. Adopting cutting-edge optical concept to improve cutting performance. High speed cutting, auxiliary loading and unloading and efficient production reduce labor costs. At present, laser cutting machines have been widely used in electronics, electrical, mechanical hardware, new energy lithium, packaging, solar, LED, automotive and other industries.

### Product parameters

Model	T230
Working Area	6500mm
Laser Output Power	4000w/3000w/2000w/1500w/1000w
X/Y-axis positioning accuracy	0.05mm
X/Y-axis repositioning accuracy	0.03mm
X-axis max.moving speed	40m/min
Y-axis max.moving speed	500m/min



## BIGGER THAN BIGGER

The diameter is increased by 30%,The weight is increased by 100%,Suitable for various tubes cutting

### Tube Laser Cutting Machine T Series

Large size, heavy weight. The maximum cutting area of T series: round pipe is  $\varnothing 20 - \varnothing 230$  mm; Square tube is  $\square 20 \times 20 - \square 160 \times 160$  mm; Maximum material length is 6500mm; The maximum material weight is 200 kg 30 kg / m. Suitable for more sizes pipes and heavy weight pipes, so T series has a wider application scope.

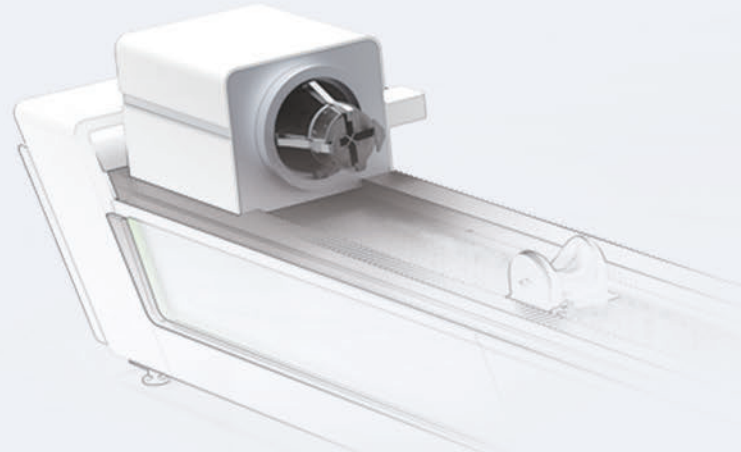
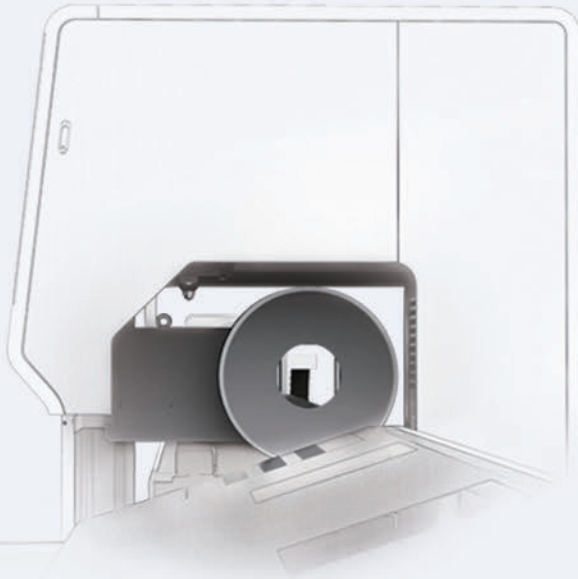
# UI DESIGN, ULTRA - CLEAR TOUCH CONTROL

The first one to use UI design in the world which lets display respond to processing table.



## Tube Laser Cutting Machine--T Series

The first one to use UI design in the world which lets display respond to processing table, making processing more intuitive. 1920\*1080 high-definition capacitive 10 points touch screen. Elegant curves precisely fit machine body. Strong waterproof breathable system creates the best space, making operation more convenient. Diamond cutting process and HD plasma tempered glass make screen more exquisite and comfortable to use. More enjoyable work methods and cheerful mood can improve work efficiency.



## Fully automatic electric chuck

Automatic electric chuck, claw DC motor drive, clamping motor current is sensitive, adjustable and stable, clamping range is wider and clamping force is larger. Non - destructive pipe clamping, fast automatic centering and clamping pipe, performance is more stable. The chuck size is smaller, rotation inertia is low, and dynamic performance is strong. Self-centering electric chuck, gear transmission mode, higher transmission efficiency, long working life and high work reliability.



# BodorPro-T 2.0

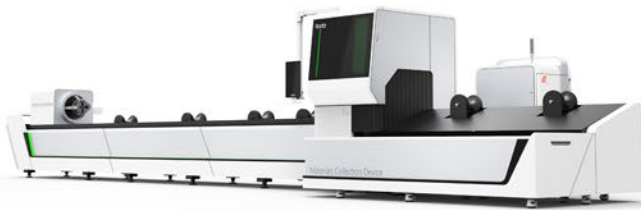
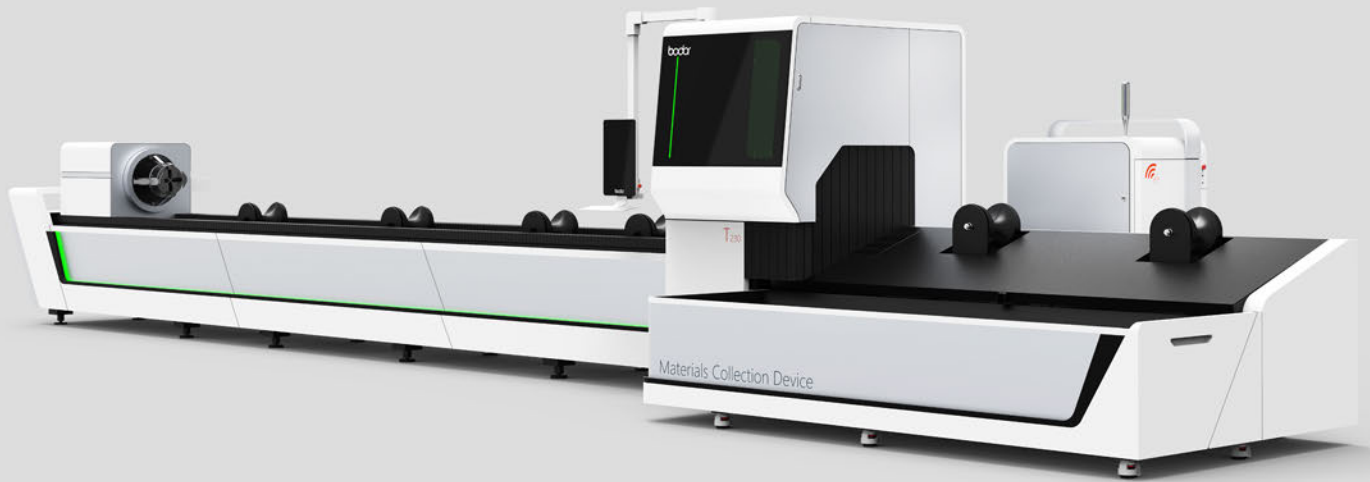
Four - sided searching, Precision upgrading as low pressure alarm function

## BodorPro-T 2.0 Four - sided searching, Precision upgrading

Using a new graphic rendering and presentation, pipe parts can realize dual display as flat and three-dimensional. Plane retouching is simple and quick, three-dimensional can synchronous display. The new four-sided edges searching, optimized edges searching mode and algorithm bring us higher cutting accuracy and accuracy stability.

## Tube Laser Cutting Machine--T Series

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## Appearance design

Aesthetics was introduced to industrial ID, perfect combination of technology and aesthetics.

# AVAILABLE OPTIONS

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## Full automatic loading and unloading device

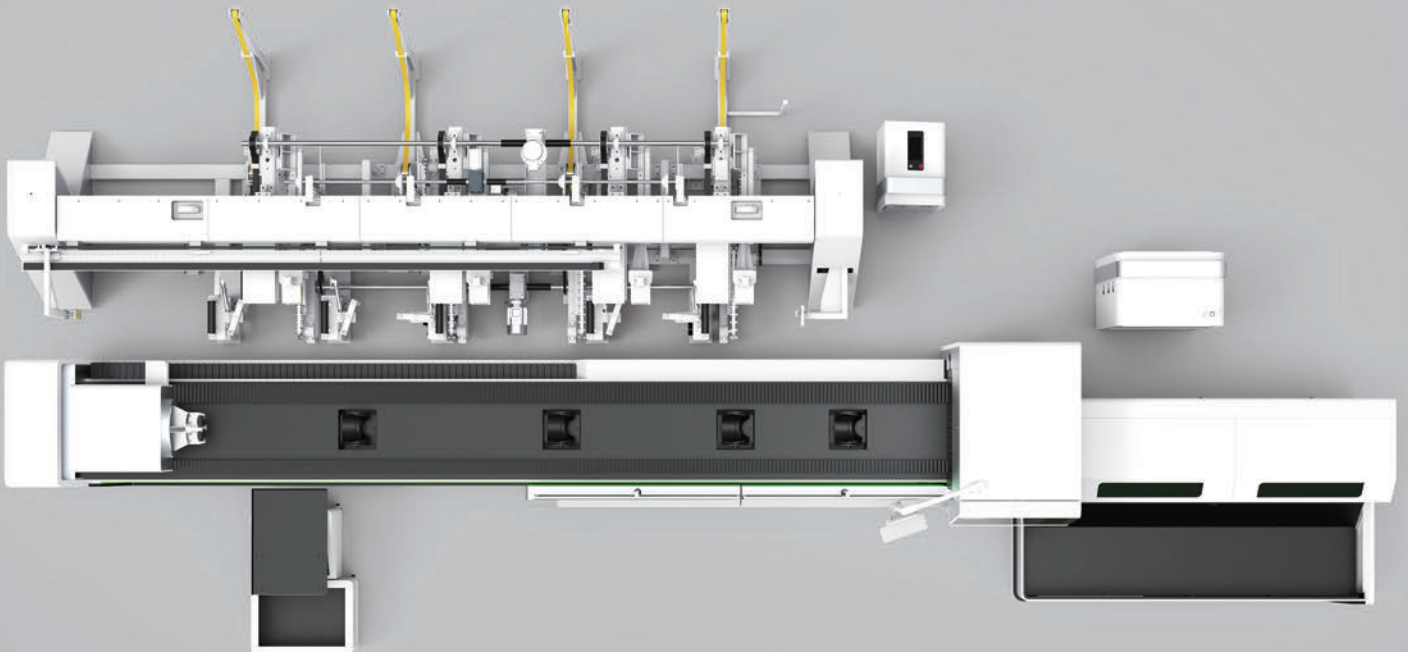
### Loading:

After the whole bundle pipes were put on the feeding device, these pipes can be intelligently divided, loaded and connected seamlessly with the pipe cutter to ensure that only one pipe is transported to the delivery arm at a time.

### Unloading:

Finished material is automatically unloaded to the parts silo, double rollers auxiliary support long parts; materials can be automatic prepared during processing time, shorten the feeding time.

Automatic unloading, parts and scraps are automatically separated, reducing sorting, saving labor, improving machine production efficiency.



## FUNCTIONS

The heavy bed makes the equipment more stable in working, the light crossbeam makes it work faster; perfect industrial design is more in line with man-machine engineering; high quality electrical software control system gives equipment higher cutting precision. The machine owns more comfortable operation, more stable performance, more durable quality, higher cutting efficiency and wider application scope.

### **Auxiliary feeding mechanism**

The promotion and demotion of subsidiary roller table reduces friction force between parts and working table, making loading and unloading more convenient.

### **Intelligent travel protection**

Automatically monitor operation range of crossbeam and cutting parts, keeping operation within machining range. Double guarantees of fixed limitation greatly improve equipment and personal safety, minimizing the using risks.

### **Automatic lubrication system**

Automatic lubrication system provides timing and ration lubricating oil for equipment to ensure its normal and high speed operation, and owns functions of abnormal alarm and liquid level alarm. The system greatly enhances cutting accuracy and effectively extends service life of transmission mechanism.

### **WIFI remote intelligent assistance**

Global real-time feedback ; Providing real-time fault analysis and troubleshooting.

### **A new generation of safety following module**

Laser head keeping distance with work piece in cutting process can reduce collision risks. It will stop cutting when colliding plate. The safety following module reduces accident rate and improves cutting performance.

### **Intelligent alarm system**

The system will start full abnormal alarm and push it to the interface through control center when equipment is abnormal.

Finding equipment abnormal in advance and reducing hidden dangers can multiply improve the equipment troubleshooting efficiency.

Auxiliary gas low pressure alarm function

Providing real-time pressure detection, pushing abnormal information when pressure value is lower than optimal cutting effect and precision. Ensure the cutting performance, accuracy and timeliness of gas replacement.

# ADVANTAGES OF LASER CUTTING MACHINE

- 1, High speed, high efficiency and high performance
- 2, High precision, low cost and simple operation
- 3, Extensive processing materials, advanced processing technology and strong flexibility
- 4, Energy-saving and environmental protection, simple maintenance and low operating cost
- 5, High cost performance and standard after-service
- 6, Independently-developed software, simple operation, safety and stable performance
- 7, Reasonable framework, leading technology, superior performance, high speed operation and perfect functions
- 8, Reasonable structure, easy operation, laser source runs stable with low maintenance cost

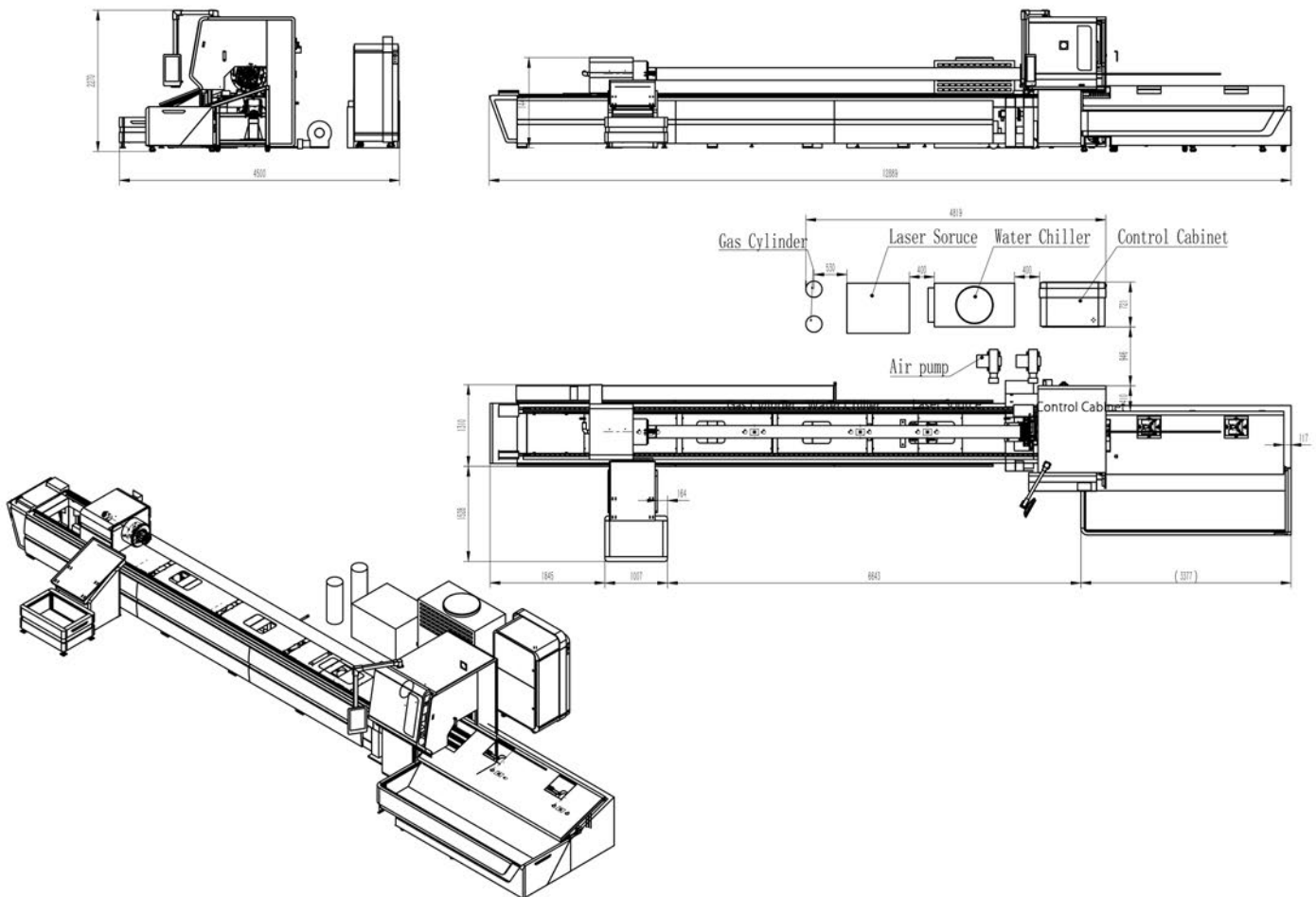
## The advantages of laser cutting compared with traditional cutting methods

1. High precision: Focusing accuracy is 0.05mm, repetition focusing accuracy is 0.02 mm
2. Narrow kerf: The laser beam is focused into a small spot, making the focus reach high power density, the material is quickly heated up to the gasification then evaporates to form holes. With the relative linear movement of the light beam to the material, the hole is continuously formed narrow gaps. Kerf width of the incision is usually 0.10 ~ 0.20mm.
3. Smooth section: Cutting surface without burrs, roughness of incision surface is generally controlled within Ra12.5.
4. Good cutting quality: Non contact cutting, cutting edge is less affected by heat, basically no thermal deformation of work piece, completely avoid down edge formed by material punching, in general, slit doesn't need secondary processing.
5. No damage to work piece: Laser cutting head won't contact surface of material to ensure no scratches to work piece.

## Advantages compared with other cutting methods

1. Wire cutting: High precision, difficult to perforate, low cutting speed. Low investment in equipment. The price range of a device is from tens of thousands to hundreds of thousands or so.
2. Laser cutting: High precision, cutting speed is influenced by plate thickness which is generally within 10 m / min. Not suitable for thick plate (only for 0~25mm plate), high investment in equipment is suitable for large batch processing.
3. Water jet cutting: High precision, low cutting speed. It is not suitable for large batch processing, and equipment investment is high.
4. Plasma cutting: High precision(The verticality of the product is not high), fast speed and consumption. Suitable for large batch processing, and equipment investment belongs to medium level.
5. Flame (oxygen) cutting: Accuracy(thermal deformation), low speed, suitable for large batch processing. Equipment investment is small and operation cost is cheap.
6. Punch: Difficult for processing various small-batch materials, suitable for few large batch processing. It is difficult to cut the thick plate. Equipment investment belongs to medium level.
7. Plate shearing machine: Not suitable for curvilinear cutting, straight line cutting is OK, difficult for thick plate cutting.

## T230 • FLOOR PLAN



### Attention!

Obstacles should be stayed at least 1 meter away from the whole machine;

Machine should be far away from the hypocenter(origin of shocks);

The floor flatness of less than 5mm;

Input voltage floating within + -5%.

## Fiber Laser Cutting Process Parameters

Material	Thickness	500W	1000W	1500	2000W	3000W	4000W	6000W	8000W	10000W	12000W
		speed m/min	speed m/min	speed m/min	speed m/min	speed m/min	speed m/min	speed m/min	speed m/min	speed m/min	speed m/min
Carbon steel (Q235A)	1	7.0-9.0	8.0-10	15-26	24-30	30-40	33-42	No support			
	2	3.0-4.5	4.0-6.5	4.5-7.0	4.7-6.0	4.8-7.5	5.2-8.0				
	3	1.8-3.0	2.4-3.0	2.6-4.0	3.0-4.8	3.3-5.0	3.5-5.5				
	4	1.3-1.5	2.0-2.4	2.5-3.0	2.8-3.5	3.0-4.2	3.1-4.8				
	5	0.9-1.1	1.5-2.0	2.0-2.5	2.2-3.0	2.6-3.5	2.7-3.6				
	6	0.6-0.9	1.4-1.6	1.6-2.2	1.8-2.6	2.3-3.2	2.5-3.4				
	8		0.8-1.2	1.0-1.4	1.2-1.8	1.8-2.6	2.0-3.0				
	10		0.6-1.0	0.8-1.1	1.1-1.3	1.2-2.0	1.5-2.0				
	12		0.5-0.8	0.7-1.0	0.9-1.2	1.0-1.6	1.2-1.8				
	14			0.5-0.7	0.7-0.8	0.9-1.4	0.9-1.2				
	16				0.6-0.7	0.7-1.0	0.8-1.0				
	18				0.4-0.6	0.6-0.8	0.65-0.9				
	20					0.5-0.8	0.6-0.9				
	22					0.4-0.6	0.5-0.8				
	25						0.3-0.5				
Stainless steel (201)	1	8.0-13	18-25	20-27	24-30	30-35	32-40	No support			
	2	2.4-5.0	7.0-12	8.0-13	9.0-14	13-21	16-28				
	3	0.6-0.8	1.8-2.5	3.0-5.0	4.0-6.5	6.0-10	7.0-15				
	4		1.2-1.3	1.5-2.4	3.0-4.5	4.0-6.0	5.0-8.0				
	5		0.6-0.7	0.7-1.3	1.8-2.5	3.0-5.0	4.0-5.5				
	6			0.7-1.0	1.2-2.0	2.0-4.0	2.5-4.5				
	8				0.7-1.0	1.5-2.0	1.6-3.0				
	10					0.6-0.8	0.8-1.2				
	12					0.4-0.6	0.5-0.8				
	14						0.4-0.6				
	20										
	25										
30											
40											
Aluminum	1	4.0-5.5	6.0-10	10-20	15-25	25-38	35-40	No support			
	2	0.7-1.5	2.8-3.6	5.0-7.0	7-10	10-18	13-25				
	3		0.7-1.5	2.0-4.0	4.0-6.0	6.5-8.0	7.0-13				
	4			1.0-1.5	2.0-3.0	3.5-5.0	4.0-5.5				
	5			0.7-1.0	1.2-1.8	2.5-3.5	3.0-4.5				
	6				0.7-1.0	1.5-2.5	2.0-3.5				
	8				0.6-0.8	0.7-1.0	0.9-1.6				
	10					0.4-0.7	0.6-1.5				
	12					0.3-0.45	0.4-0.6				
	16						0.3-0.4				
	20										
	25										
35											
Brass	1	4.0-5.5	6.0-10	8.0-13	10-16	20-35	25-30	No support			
	2	0.5-1.0	2.8-3.6	3.0-4.5	4.5-7.5	6.0-10	8.0-12				
	3		0.5-1.0	1.5-2.5	2.5-4.0	4.0-6.0	5.0-6.5				
	4			1.0-1.6	1.5-2.0	3.0-5.0	3.2-5.5				
	5			0.5-0.7	0.9-1.2	1.5-2.0	2.0-3.0				
	6				0.4-0.7	1.0-1.8	1.4-2.0				
	8					0.5-0.7	0.7-1.0				
	10						0.2-0.4				

## 1000W FIBER LASER USING COST

Consumption		Assisted gas		ChooseI:using air compressor Group as air supply to cutting stainless steel	ChooseII:using O <sub>2</sub> cutting stainless steel	ChooseIII:using N <sub>2</sub> cutting stainless steel
Power Consumption	Laser module	4 kw		4 kw	4 kw	4 kw
	Water Chiller Group	2.8kw		2.8kw	2.8kw	2.8kw
	Host Machine	5.4kw		5.4kw	5.4kw	5.4kw
	Dust Exhausting Equipment	3kw		3kw	3kw	3kw
Total Power		15.2kw		15.2kw	15.2kw	15.2kw
Average Power Consumption (Take 80% Cutting Efficiency)		15.2x80%=12.16kw		15.2x80%=12.16kw	15.2x80%=12.16kw	15.2x80%=12.16kw
Gas Consumption		15x85%=12.75kw		About 20L/h( 1.45 \$)	About 50L/h(3.61 \$)	
Quick-wear Part		0.36 \$/h		0.36 \$/h	0.36 \$/h	0.36 \$/h
All Cost Reference 0.1 \$/kwh		1.216+1.275+0.36=2.85 \$/h		1.216+1.45+0.36=3.03 \$/h	1.216+3.61+0.36=5.19 \$/h	

## 500W FIBER LASER USING COST

Consumption		Assisted gas		ChooseI:using air compressor Group as air supply to cutting stainless steel	ChooseII:using O <sub>2</sub> cutting stainless steel	ChooseIII:using N <sub>2</sub> cutting stainless steel
Power Consumption	Laser module	2kw		2kw	2kw	2kw
	Water Chiller Group	2.2kw		2.2 kw	2.2kw	2.2kw
	Host Machine	5.4kw		5.4kw	5.4kw	5.4kw
	Dust Exhausting Equipment	0.75kw		0.75 kw	0.75kw	0.75kw
Quick-wear Part		0.29 \$/h		0.29 \$/h	0.29 \$/h	0.29 \$/h
Gas Consumption		11x85%=9.35kw		About 20L/h(1.45 \$)	About 50L/h(3.61 \$)	
Total Power		10.35kw		10.35kw	10.35kw	10.35kw
Average Power Consumption (Take 80% Cutting Efficiency)		10.35x80%=8.28kw		10.35x80%=8.28kw	10.35x80%=8.28kw	10.35x80%=8.28kw
All Cost Reference 0.1 \$/kwh		0.828+0.935+0.29=2.06 \$/h		0.828+1.45+0.29=2.571\$/h	0.828+3.61+0.29=4.73\$/h	

Above data is only for reference

### 3000W FIBER LASER USING COST

Consumption		Assisted gas		ChooseI:using air compressor Group as air supply to cutting stainless steel	ChooseII:using O <sub>2</sub> cutting stainless steel	ChooseIII:using N <sub>2</sub> cutting stainless steel
Power Consumption	Laser module	12kw		12kw	12kw	12kw
	Water Chiller Group	4.94kw		4.94kw	4.94kw	4.94kw
	Host Machine	10.5kw		10.5kw	10.5kw	10.5kw
	Dust Exhausting Equipment	3kw		3kw	3kw	3kw
Total Power		30.44kw		30.44kw	30.44kw	30.44kw
Average Power Consumption (Take 80% Cutting Efficiency)		$30.44 \times 80\% = 24.35\text{kw}$		$30.44 \times 80\% = 24.35\text{kw}$	$30.44 \times 80\% = 24.35\text{kw}$	$30.44 \times 80\% = 24.35\text{kw}$
Gas Consumption		$20 \times 85\% = 17\text{kw}$		About 20L/h(1.45 \$)	About 50L/h(3.61 \$)	
Quick-wear Part		0.43 \$/h		0.43 \$/h	0.43 \$/h	0.43 \$/h
All Cost Reference 0.1 \$/kwh		$2.435 + 1.7 + 0.43 = 4.57$ \$/h		$2.435 + 1.45 + 0.43 = 4.32$ \$/h	$2.435 + 3.61 + 0.43 = 6.48$ \$/h	

### 2000W FIBER LASER USING COST

Consumption		Assisted gas		ChooseI:using air compressor Group as air supply to cutting stainless steel	ChooseII:using O <sub>2</sub> cutting stainless steel	ChooseIII:using N <sub>2</sub> cutting stainless steel
Power Consumption	Laser module	8 kw		8 kw	8 kw	8 kw
	Water Chiller Group	3.1kw		3.1kw	3.1kw	3.1kw
	Host Machine	6kw		6kw	6kw	6kw
	Dust Exhausting Equipment	3kw		3kw	3kw	3kw
Total Power		20.1kw		20.1kw	20.1kw	20.1kw
Average Power Consumption (Take 80% Cutting Efficiency)		$20.1 \times 80\% = 16.08\text{kw}$		$20.1 \times 80\% = 16.08\text{kw}$	$20.1 \times 80\% = 16.08\text{kw}$	$20.1 \times 80\% = 16.08\text{kw}$
Gas Consumption		$20 \times 85\% = 17\text{kw}$		About 20L/h(1.45 \$)	About 50L/h(3.61 \$)	
Quick-wear Part		0.36 \$/h		0.36 \$/h	0.36 \$/h	0.36 \$/h
All Cost Reference 0.1 \$/kwh		$1.608 + 1.7 + 0.36 = 3.67$ \$/h		$1.608 + 1.45 + 0.36 = 3.42$ \$/h	$1.608 + 3.61 + 0.36 = 5.58$ \$/h	

Above data is only for reference

## 4000W FIBER LASER USING COST

Assisted gas		ChooseI:using air compressor Group as air supply to cutting stainless steel	ChooseII:using O <sub>2</sub> cutting stainless steel	ChooseIII:using N <sub>2</sub> cutting stainless steel
Power Consumption	Laser module	15kw	15kw	15kw
	Water Chiller Group	6.08kw	6.08kw	6.08kw
	Host Machine	10.5kw	10.5kw	10.5kw
	Dust Exhausting Equipment	3kw	3kw	3kw
	<b>Total Power</b>	<b>34.58kw</b>	<b>34.58kw</b>	<b>34.58kw</b>
Average Power Consumption (Take 80% Cutting Efficiency)		$34.58 \times 80\% = 27.66\text{kw}$	$34.58 \times 80\% = 27.66\text{kw}$	$34.58 \times 80\% = 27.66\text{kw}$
Gas Consumption		$20 \times 85\% = 17\text{kw}$	About 20L/h(1.45 \$)	About 50L/h(3.61 \$)
Quick-wear Part		0.43 \$/h	0.43 \$/h	0.43 \$/h
All Cost Reference 0.1 \$/kwh		$2.766 + 1.7 + 0.43 = 4.90 \text{ \$/h}$	$2.766 + 1.45 + 0.43 = 4.65 \text{ \$/h}$	$2.766 + 3.61 + 0.43 = 6.81 \text{ \$/h}$

Above data is only for reference

# EUROPORPEAN QC SYSTEM

Precision testing and installation process



**Flatness**  
Large CNC milling machine processing



**Solidness**  
Each equipment is processed with 650°C heat aging treatment machine body is stable without any deformation



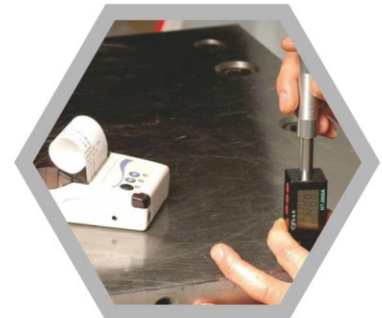
**Precision**  
3 axes coordinate meter tests coordinate setting precision



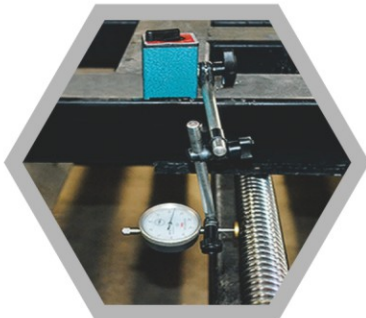
**Straightness**  
Laser collimator detects guide line



**Fineness**  
Every tiny parts is detected with many times



**Flintiness**  
Lathe Bed hardness measurement



**Parallelism**  
Rack gear parallelism test



**Parallelism**  
Ball gear parallelism test



**Perpendicularity**  
Marble feet for lathe bed verticality test



**Skillfulness**  
Quantity production with skilled technique and advanced manufacturing process



**Durability**  
72 hours aging test without laser



**Stability**  
12 hours cutting test with laser



## Metal Samples

For more information, please go to the website : [www.bodor.com](http://www.bodor.com)



# OFFICE

For more information, please go to the website : [www.bodor.com](http://www.bodor.com)



# WORKSHOP

For more information, please go to the website : [www.bodor.com](http://www.bodor.com)