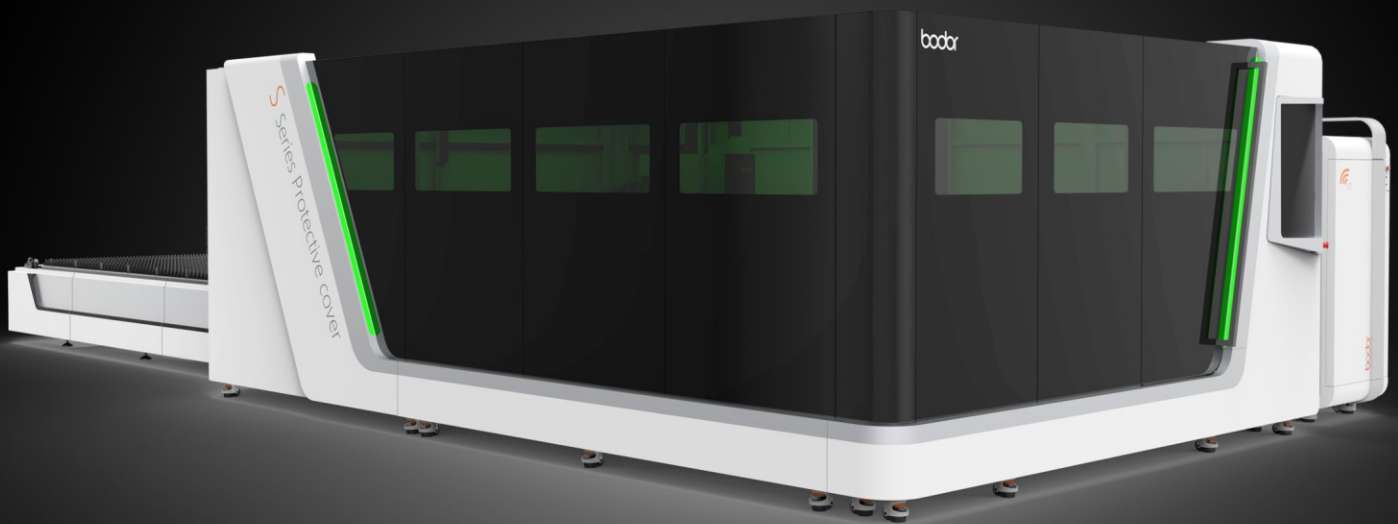


SUPER-POWER, FOR THICK AND THIN PLATES

High Power Laser Cutting Machine - S 4020



High Power Laser Cutting Machine - S 4020

Equipped with high/super power laser device, efficient thick plate cutting is no longer a dream, thin plate cutting is more speed; BODOR database of cutting process will provide you with data support of performance and energy saving to save your cutting cost.

Product parameters

Model	S4020
Working area	4000*2000mm
Laser power	12000W/10000W/8000W/6000W
X/Y-axis max.moving speed	140m/min
X/Y-axis positioning accuracy	0.05mm
X/Y-axis repositioning accuracy	0.03mm

A CAST IRON BED LASTS FOREVER.

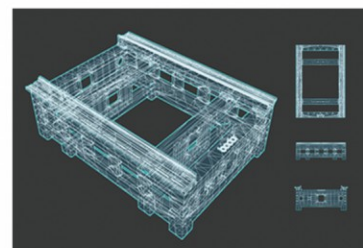
No deformation in a life cycle



Material is more suitable



Technique is more suitable



Structure is more reasonable

Clone

Mold pouring, clone production; integrally formed, reject splicing

Durable

Using flake graphite cast iron, the lowest tensile strength of which is 200MPa. High carbon content, high compressive strength and high hardness. Strong shock absorption and wear resistance. Low thermal sensitivity and bed gap sensitivity reduce the loss of equipment in using, so the machine accuracy could maintain for a long time, and no deformation in a life cycle.



To be the forerunner of the world laser industry, to change human life with laser technology !

AUTO - FOCUS

Applicable to various focal lengths, which are controlled by machine tool control system. Focal point will be automatically adjusted in cutting process to achieve the best cutting effect of different thicknesses sheets metal.

Free

Free your hands. Focal length is controlled by operating system. We don't need to do manual regulation, which effectively avoids errors or faults caused by manual operation.

Fast

It can automatically adjust the most appropriate focal points in working process, greatly improving cutting speed; When replacing different materials or different thicknesses sheet, manual focus laser head needs to adjust focal length manually, very inefficient; auto focus laser head can read system storage parameters automatically, very efficient;

Accuracy

Increasing perforation focus length, separately setting perforation focal length and cutting focal length, enhance cutting accuracy.

Durable

Built-in double water-cooling structures can ensure constant temperature of collimating and focusing components, avoid lenses overheating and extend service life of lenses;

Increasing collimation protective lens and focus protective lens, carefully protect key components.

ENVIRONMENT FRIENDLY AND HEALTHY FULL PROTECTION COVER

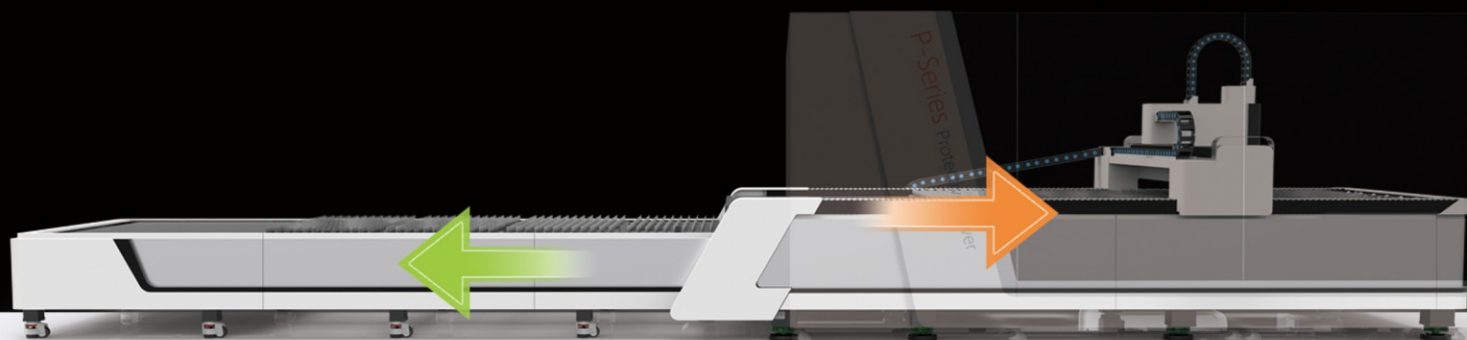


All Cover Exchange Platform Laser Cutting Machine — S 4020

Full closed protection improves using security; laser protection glass isolates laser radiation to human beings; automatic collection system of smokes and dusts is environment friendly; intelligent monitoring system reduces accident rate, making us enjoy beauty and health in cutting process.

TIME-SAVING AND EFFORT-REDUCING

TWO AUTOMATIC EXCHANGE PLATFORMS SYSTEM



All Cover Exchange Platform Laser Cutting Machine — P4020

Rapid exchanging between two platforms greatly improve work efficiency. Rack and pinion transmission system has better rigidity and higher accuracy, saving feeding time, making operation more efficient.



WIFI Remote Intelligent Assistance

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

Bodor Nest



Bodor Nest

Bodor Nest supports the import of various graphics, generates NC code automatically, and optimizes the cutting sequence. Simple and fast system operation, efficient and accurate cutting instructions, improve plate utilization and reduce waste.



Auxiliary gas low pressure alarm function

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.



OPERATING SYSTEM DISPLAY

Operating system display

Touch screen

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

Double HD Cameras

Partitioning monitoring, no blind corner in machining region, to monitor every point at any time, intuitive machining, secure operation and controllable process.



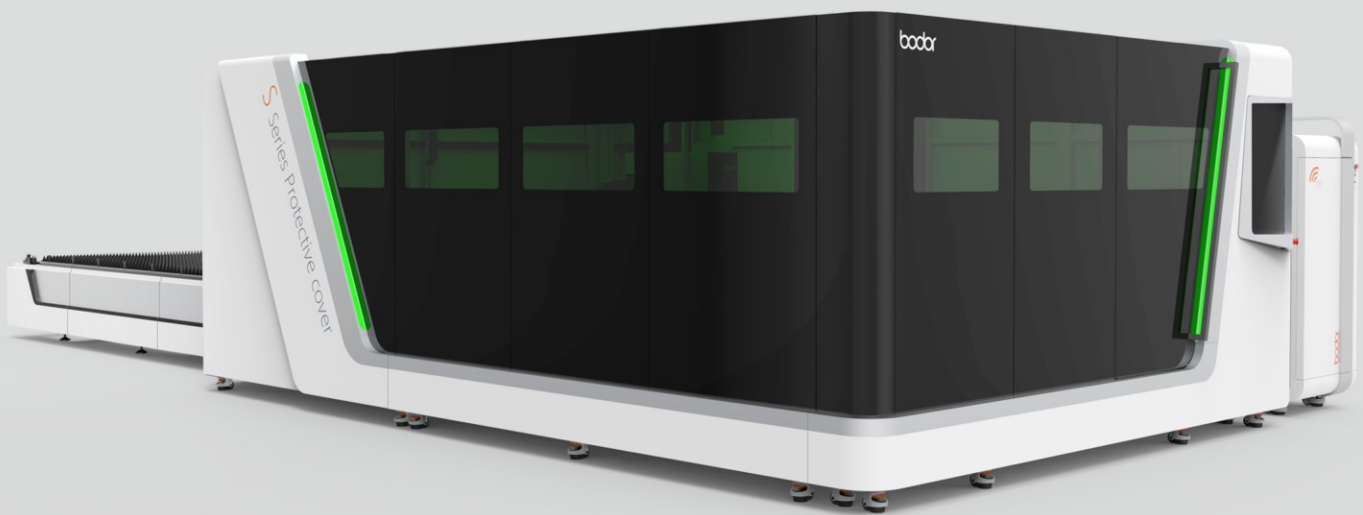
CAST ALUMINUM CROSSBEAM



Cast aluminum crossbeam

Integral steel mold pressure casting, light, flexible and efficient

After artificial aging, solution treatment and finishing, crossbeam owns good integrity, rigidity, surface quality, toughness and ductility. Aluminum alloy's metal characteristics of light weight and strong rigidity are helpful to high speed movement in processing, and high flexibility is beneficial to high-speed cutting of various graphics based on high accuracy. Light crossbeam can give equipment a high operation speed, improving processing efficiency to ensure processing quality.



Appearance design

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

Surrounded by baking paint silver decoration, coordinated with diamond cutting tempered glass and alpine white sheet metal design, the international design of the machine is accepted by global consumer groups.

The workplace is neat, orderly and space-saving.

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.

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

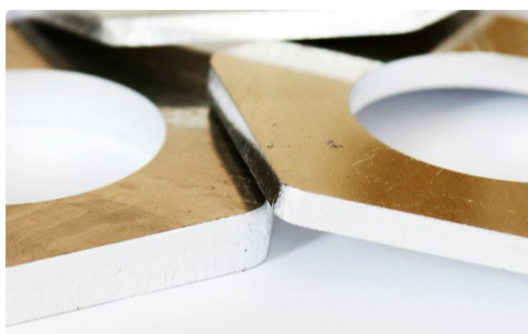
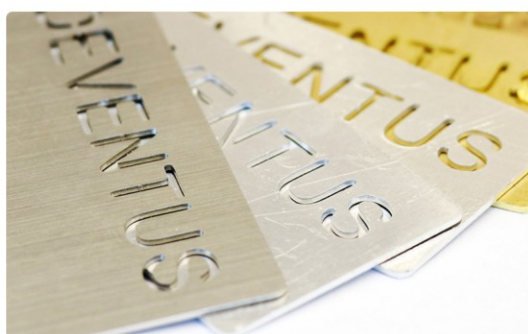
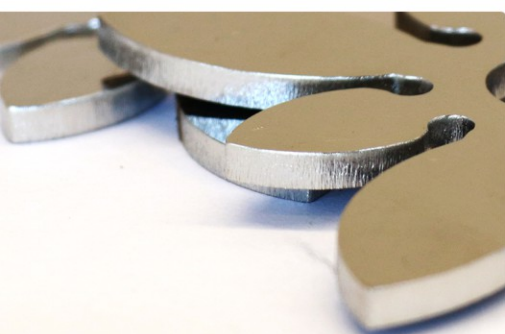
- 1, High speed, high efficiency and high performance
- 2, High precision, low cost and simple operation
- 3, Extensive processing materials, advanced processing technology and strong flexibility
- 4, Energy-saving and environmental protection, simple maintenance and low operating cost
- 5, High cost 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.



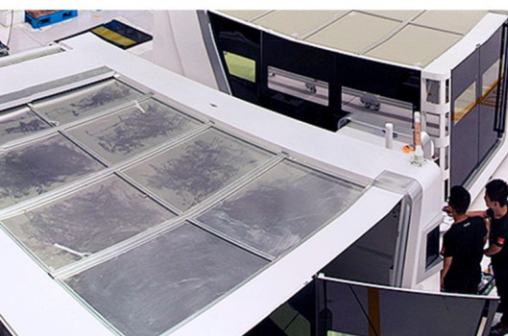
Metal Samples

For more information, please go to the website : www.bodor.com



OFFICE

For more information, please go to the website : www.bodor.com



WORKSHOP

For more information, please go to the website : www.bodor.com

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



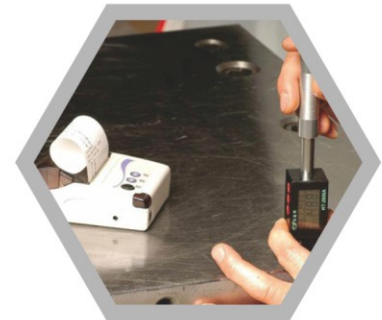
Straightness

Laser collimator detects guide line



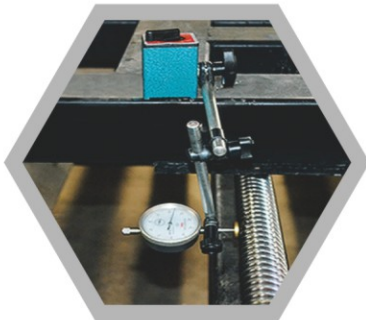
Fineness

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

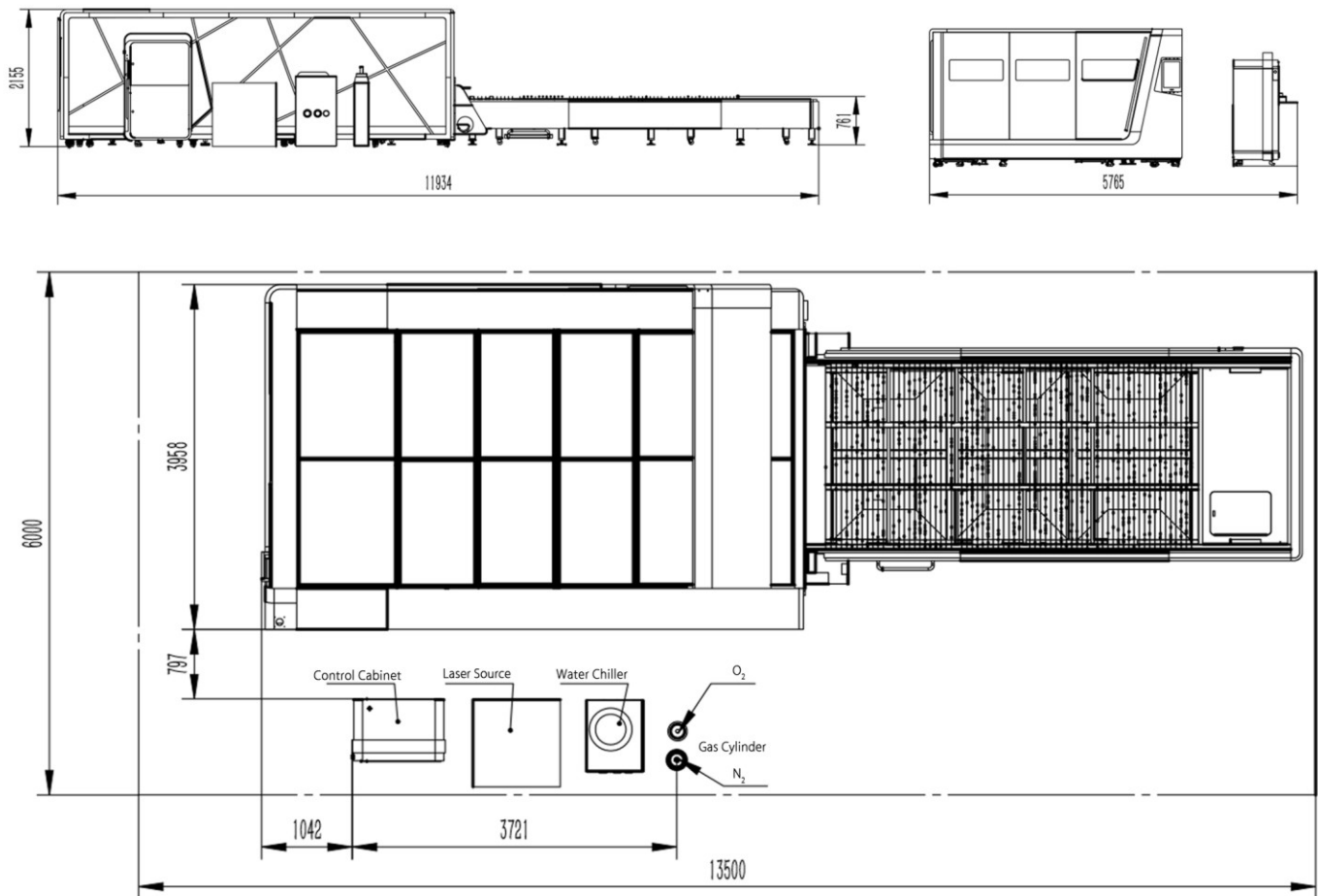
72 hours aging test without laser



Stability

12 hours cutting test with laser

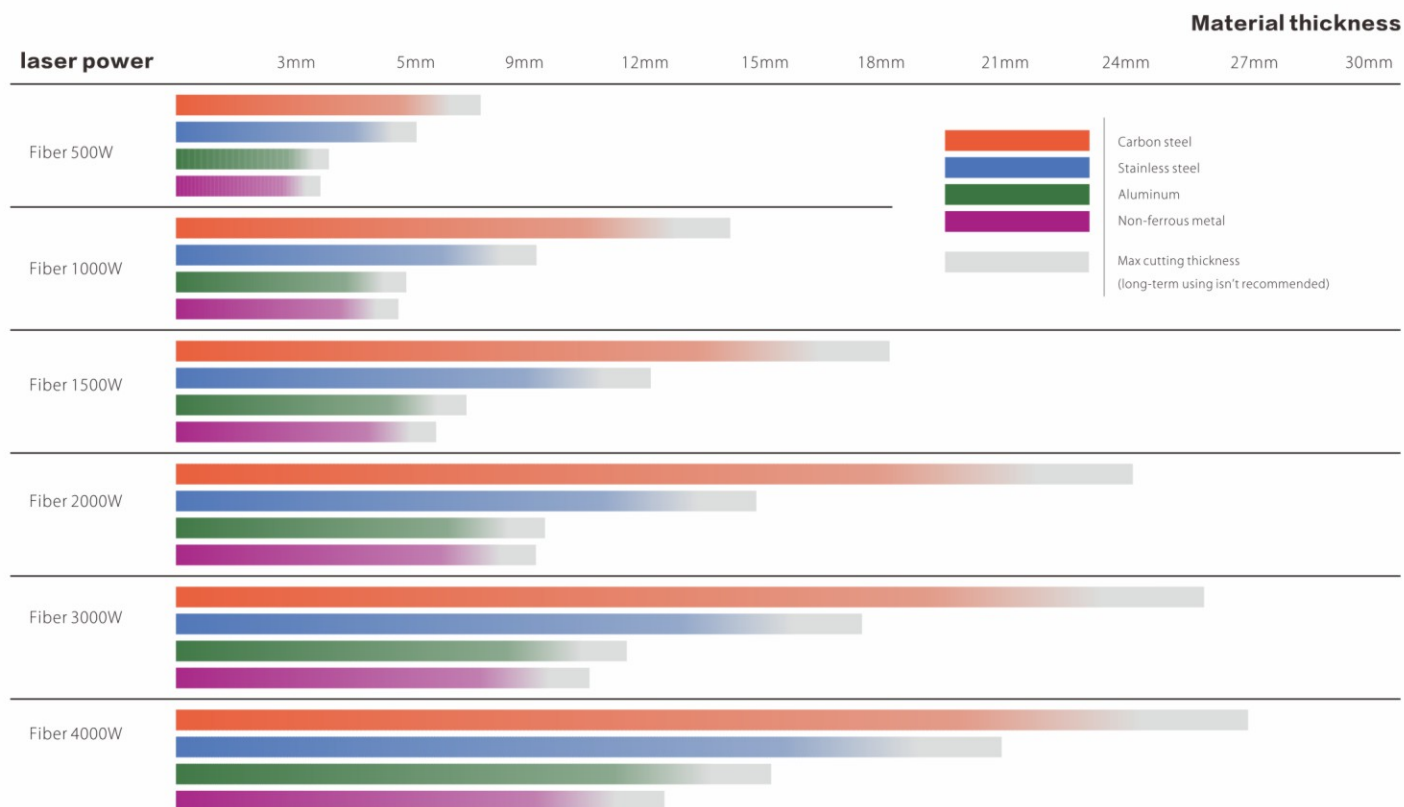
S4020 • FLOOR PLAN



PLACING REQUIREMENT

1. The whole machine should keep away from obstacles at least 1 m.
2. The whole machine should be far away from the hypocenter.
3. The planeness of placing field should be less than 5mm.
4. Voltage fluctuation of the whole machine should be kept in $\pm 5\%$.

Cutting Capacity



Above data is only for reference

8000W FIBER LASER USING COST

Assisted gas Consumption		Choosel:using air compressor Group as air supply to cutting stainless steel	Choosell:using O ₂ cutting stainless steel	Chooselll:using N ₂ cutting stainless steel
Power Consumption	Laser module	32kw	32kw	32kw
	Water Chiller Group	7.2kw	7.2kw	7.2kw
	Host Machine	10.5kw	10.5kw	10.5kw
	Dust Exhausting Equipment	3kw	3kw	3kw
Total Power		52.7kw	52.7kw	52.7kw
Average Power Consumption (Take 80% Cutting Efficiency)		$52.7 \times 80\% = 42.16\text{kw}$	$52.7 \times 80\% = 42.16\text{kw}$	$52.7 \times 80\% = 42.16\text{kw}$
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		$4.216 + 1.7 + 0.43 = 6.3 \text{ $/h}$	$4.216 + 1.45 + 0.43 = 6.10 \text{ $/h}$	$4.216 + 3.61 + 0.43 = 8.26 \text{ $/h}$

6000W FIBER LASER USING COST

Assisted gas Consumption		Choosel:using air compressor Group as air supply to cutting stainless steel	Choosell:using O ₂ cutting stainless steel	Chooselll:using N ₂ cutting stainless steel
Power Consumption	Laser module	24kw	24kw	24kw
	Water Chiller Group	7.2kw	7.2kw	7.2kw
	Host Machine	10.5kw	10.5kw	10.5kw
	Dust Exhausting Equipment	3kw	3kw	3kw
Total Power		44.7kw	44.7kw	44.7kw
Average Power Consumption (Take 80% Cutting Efficiency)		$44.7 \times 80\% = 35.76\text{kw}$	$44.7 \times 80\% = 35.76\text{kw}$	$44.7 \times 80\% = 35.76\text{kw}$
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		$3.576 + 1.7 + 0.43 = 5.71 \text{ $/h}$	$3.576 + 1.45 + 0.43 = 5.46 \text{ $/h}$	$3.576 + 3.61 + 0.43 = 7.62 \text{ $/h}$

Above data is only for reference

For more information, please go to the website : www.bodor.com

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	35~42	35~42	35~42	35~42
	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	6.0~8.0	6.2~10	7.0~12	10~13
	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	3.8~6.5	4.0~7.0	4.2~7.5	4.5~8.0
	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	3.5~5.0	3.5~5.5	3.5~5.5	3.5~5.5
	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	3.3~4.2	3.3~4.5	3.3~4.5	3.3~4.8
	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	2.8~4.0	3.0~4.2	3.0~4.2	3.0~4.2
	8		0.8~1.2	1.0~1.4	1.2~1.8	1.8~2.6	2.0~3.0	2.2~3.2	2.5~3.5	2.5~3.5	2.5~3.5
	10		0.6~1.0	0.8~1.1	1.1~1.3	1.2~2.0	1.5~2.0	1.8~2.5	2.2~2.7	2.2~2.7	2.2~2.7
	12		0.5~0.8	0.7~1.0	0.9~1.2	1.0~1.6	1.2~1.8	1.2~2.0	1.2~2.1	1.2~2.1	1.2~2.1
	14			0.5~0.7	0.7~0.8	0.9~1.4	0.9~1.2	1.5~1.8	1.7~1.9	1.7~1.9	1.7~1.9
	16				0.6~0.7	0.7~1.0	0.8~1.0	0.8~1.5	0.9~1.7	0.9~1.7	0.9~1.7
	18				0.4~0.6	0.6~0.8	0.65~0.9	0.65~0.9	0.65~0.9	0.65~0.9	0.65~0.9
	20					0.5~0.8	0.6~0.9	0.6~0.9	0.6~0.9	0.6~0.9	0.6~0.9
	22					0.4~0.6	0.5~0.8	0.5~0.8	0.5~0.8	0.5~0.8	0.5~0.8
	25						0.3~0.5	0.3~0.5	0.3~0.7	0.3~0.7	0.3~0.7
Stainless steel (201)	1	8.0~13	18~25	20~27	24~30	30~35	32~40	45~55	50~66	60~75	70~85
	2	2.4~5.0	7.0~12	8.0~13	9.0~14	13~21	16~28	20~35	30~42	40~55	50~66
	3	0.6~0.8	1.8~2.5	3.0~5.0	4.0~6.5	6.0~10	7.0~15	15~24	20~30	27~38	33~45
	4		1.2~1.3	1.5~2.4	3.0~4.5	4.0~6.0	5.0~8.0	10~16	14~21	18~25	22~32
	5		0.6~0.7	0.7~1.3	1.8~2.5	3.0~5.0	4.0~5.5	8.0~12	12~17	15~22	18~25
	6			0.7~1.0	1.2~2.0	2.0~4.0	2.5~4.5	6.0~9.0	8.0~14.0	12~15	15~21
	8				0.7~1.0	1.5~2.0	1.6~3.0	4.0~5.0	6.0~8.0	8.0~12.0	10~16
	10					0.6~0.8	0.8~1.2	1.8~2.5	3.0~5.0	6.0~8.0	8.0~12
	12					0.4~0.6	0.5~0.8	1.2~1.8	1.8~3.0	3.0~5.0	6.0~8.0
	14						0.4~0.6	0.6~0.8	1.2~1.8	1.8~3.0	3.0~5.0
	20							0.4~0.6	0.6~0.8	1.2~1.8	1.8~3.0
	25								0.5~0.6	0.6~0.7	1.2~1.8
	30								0.4~0.5	0.5~0.6	0.6~0.7
	40									0.4~0.5	0.5~0.6
Aluminum	1	4.0~5.5	6.0~10	10~20	15~25	25~38	35~40	45~55	50~65	60~75	70~85
	2	0.7~1.5	2.8~3.6	5.0~7.0	7~10	10~18	13~25	20~30	25~38	33~45	38~50
	3		0.7~1.5	2.0~4.0	4.0~6.0	6.5~8.0	7.0~13	13~18	20~30	25~35	30~40
	4			1.0~1.5	2.0~3.0	3.5~5.0	4.0~5.5	10~12	13~18	21~30	25~38
	5			0.7~1.0	1.2~1.8	2.5~3.5	3.0~4.5	5.0~8.0	9.0~12	13~20	15~25
	6				0.7~1.0	1.5~2.5	2.0~3.5	4.0~6.0	4.5~8.0	9.0~12	13~18
	8				0.6~0.8	0.7~1.0	0.9~1.6	2.0~3.0	4.0~6.0	4.5~8.0	9.0~12
	10					0.4~0.7	0.6~1.5	1.0~2.0	2.2~3.0	4.0~6.0	4.5~8.0
	12					0.3~0.45	0.4~0.6	0.8~1.4	1.5~2.0	2.2~3.0	4.0~6.0
	16						0.3~0.4	0.6~0.8	1.0~1.6	1.5~2.0	2.2~3.0
	20							0.5~0.7	0.7~1.0	1.0~1.6	1.5~2.0
	25								0.5~0.7	0.7~1.0	1.0~1.6
	35									0.5~0.7	0.7~1.0
Brass	1	4.0~5.5	6.0~10	8.0~13	10~16	20~35	25~30	45~55	55~65	65~75	75~85
	2	0.5~1.0	2.8~3.6	3.0~4.5	4.5~7.5	6.0~10	8.0~12	25~30	30~40	33~45	38~50
	3		0.5~1.0	1.5~2.5	2.5~4.0	4.0~6.0	5.0~6.5	12~18	20~30	25~40	30~50
	4			1.0~1.6	1.5~2.0	3.0~5.0	3.2~5.5	8.0~10	10~18	15~24	25~33
	5			0.5~0.7	0.9~1.2	1.5~2.0	2.0~3.0	4.5~6.0	7.0~9.0	9.0~15	15~24
	6				0.4~0.7	1.0~1.8	1.4~2.0	3.0~4.5	4.5~6.5	7.0~9.0	9.0~15
	8					0.5~0.7	0.7~1.0	1.6~2.2	2.4~4.0	4.5~6.5	7.0~9.0
	10						0.2~0.4	0.8~1.2	1.5~2.2	2.4~4.0	4.5~6.5
	12							0.2~0.4	0.8~1.5	1.5~2.2	2.4~4.0
	14								0.4~0.6	0.6~0.8	0.8~1.5