

CT Series Technical solutions

Base fiber laser sheet&tube metal cutting machine
with full protection



One machine with two uses. CT series cuts both metal sheets and metal tubes.

LASER **SCANNING** CUTTING MACHINE CATEGORY CREATOR

Much Faster | Much Thicker | Free of Beam Reflection
Beam locus covers **30** meters for every one meter's cutting.

Bodor Laser Ranking

No.1 Globally By Sales Volume



Source: The ranking serves as the result of independent research by Shenzhen FORWARD Industry Research Institute Co., Ltd., which is measured in terms of Global Sales Volume covered all sales channels of Laser Cutting Machine with Power of 1kW and above from 2019 to 2021. The research is completed on June 28th, 2022.

CT series

Plate and tube combo fiber Laser cutting machine Economical model



- **EtherCAT bus control:** Upscale system in the industry, more accurate control, swifter response, faster speed and higher processing efficiency.
- **Independently developed BodorThinker system:** The third generation bus control system with excellent performance and significantly reduces system failure.
- **New family design style:** international IF design award winner. Classic and iconic design of Bodor products is distinguishable in the market.
- **Second generation mortise and tenon welded bed:** The newly upgraded second generation mortise and tenon welded bed designed with the optimal force point and support structure by finite element analysis. Workpiece deformation during loading is significantly reduced to ensure the long-term stable operation of the equipment.
- **High pressure tensile aluminum crossbeam:** industry leading technology, faster dynamic response performance
- New generation of modular table at your disposal, easy and convenient.
- **Remaining material nesting:** photos captured in a single shot, reuse of cutting remnants and scrap to improve plate utilization and thus saving cost.

Function¶meter List

Model	C3T
Working area	3048mm*1524mm
Table load bearing	900kg
Machine overall dimensions	9700mm*3600mm*2400mm
Overall weight	7800kg
Laser source	BodorPower
Requirements for tubes	Diameter < $\varnothing 50\text{mm}$ Wall thickness of tubes $\geq 1.2\text{mm}$ Diameter $\geq \varnothing 50\text{mm}$ Wall thickness $\geq 2.5\%$ of Diameters of tubes
Max. linkage speed	100m/min
Max. acceleration	1.0G
Positioning accuracy	$\pm 0.05\text{mm/m}$
Repositioning accuracy	$\pm 0.03\text{mm}$
Tube size range	Round tube: $\varnothing 20\text{-}\varnothing 230\text{mm}$ Square tube : $\square 20\text{-}\square 230\text{mm}$ Rectangular tube $230\text{mm} \geq \text{Side length} \geq 20\text{mm}$
pneumatic chuck maximum load	200kg 33.4kg/m
Total power capacity/current with 6KW source	57.5KVA/87.3A
Total power capacity/current with 3KW source	51.1KVA/77.7A
Total power capacity/current with 1.5KW source	39.8KVA/60.4A

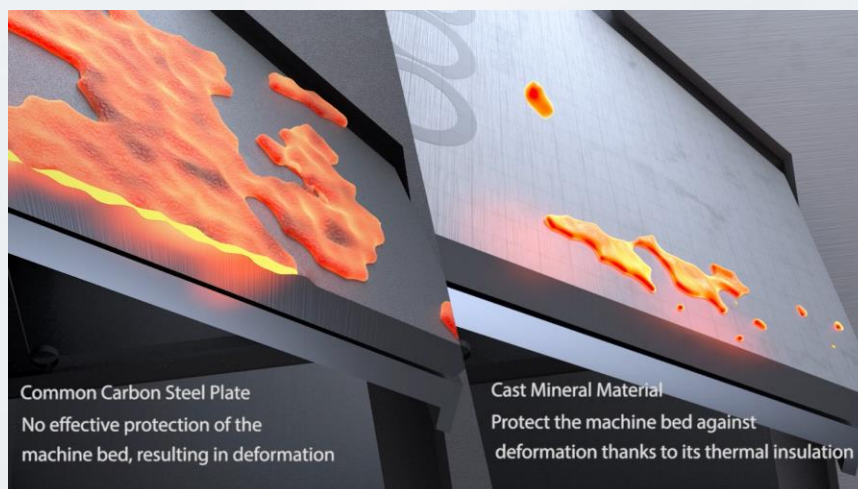
Laser head active anti-collision function

- With optimized auto-following algorithm, the laser head is able to anticipate obstacles and achieve the best performance of motor, which both ensure a stable cutting process and speedy, sensitive air movement.
- Z-axis responds at high speed to avoid the detected obstacle, which effectively prevent the potential interference and laser head collision that caused by the distorted cutting parts during batch cutting of thin plates.



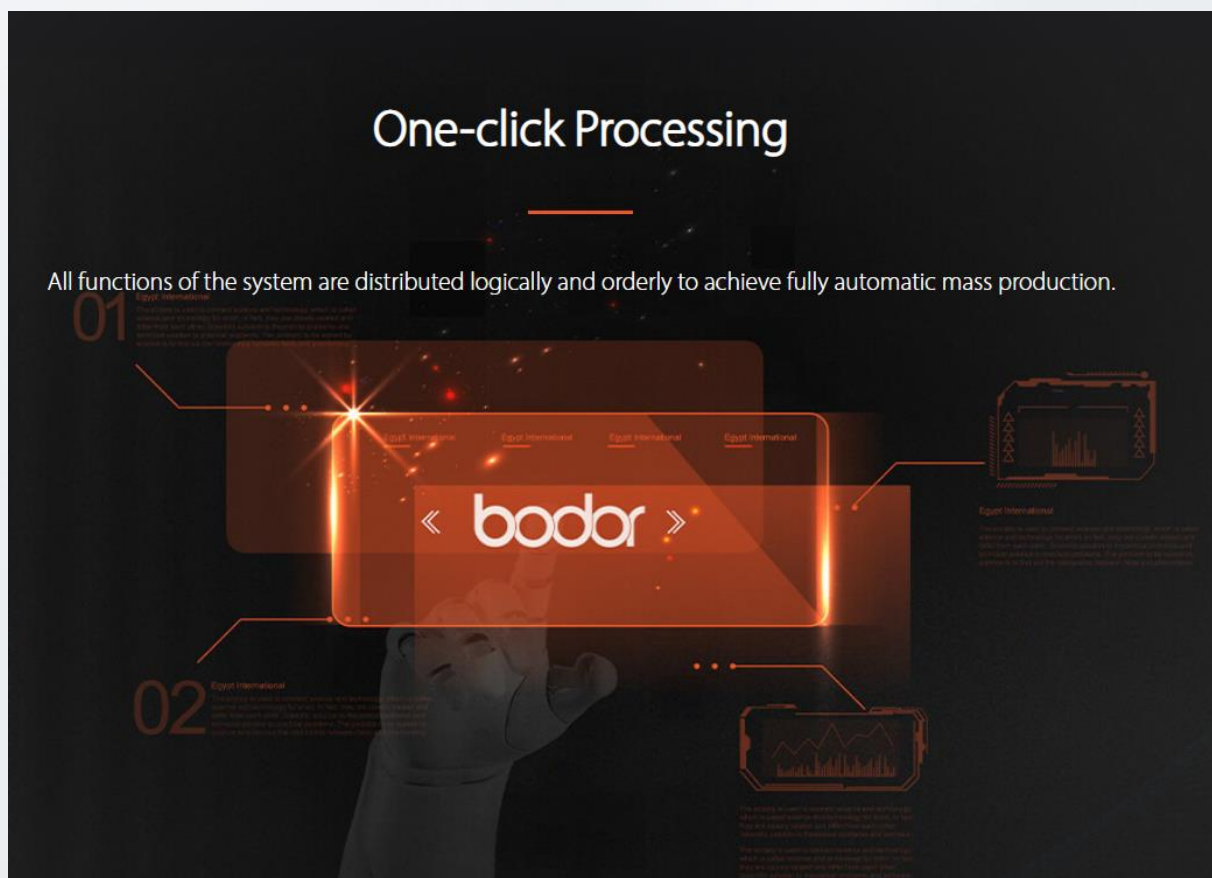
Mineral casting anti-burning

- **Easy to clean slag:** automatic separation of metal residue and anti-burning plate, reducing maintenance cost.
- **Stability:** longer service life and less deformation compared to anti-burnout cast iron and anti-burnout steel plates.
- **Modular design:** light weight, easy to replace, more convenient maintenance.



One-click automatic processing

- One-click automatic processing function reduces the repeated manual labor workload when cutting sheets in bulk and improves the processing efficiency of the machine.
- Cutting automation. With one click, automatic cutting reaches on single machine is enabled for batch processing.
- One-click processing, optimal distribution of system functions, greater human-machine cooperation and improved labor productivity.



High-speed cutting process package

High-speed cutting process package is the application of fiber cutting technology, designed to optimize the cutting surface, with a wider range of cuttable materials, Faster, better quality and lower cost, Applicable to the full coverage of quasi from low to high power lasers.

Carbon Steel Oxygen Fast Cutting

(COF)

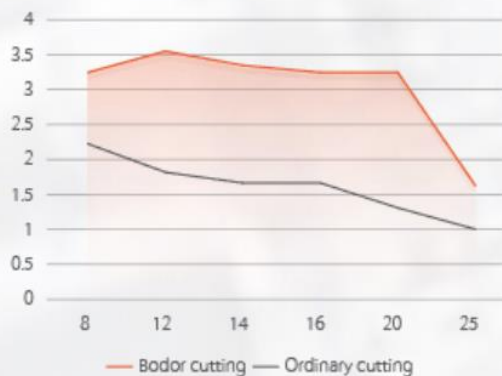
Carbon Steel Economic Fast Cutting

(CEF)

Low Nitrogen Pressure Fast Cutting

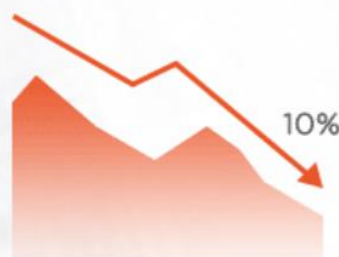
(LNF)

15kw Carbon steel oxygen cutting speed



Thick plate cutting realizes to doubles the speed while ensuring the cutting quality.

At a specific power, cutting cost is **only 10%** of nitrogen cutting and creates more economic value for clients.



The nitrogen pressure reduces to **4Bar** during cutting the 10mm stainless steel, its speed improves at least **10%** than common cutting.

Lightening Piercing

- Monitered piercing process for shorter piercing time. Once piercing is stopped, the remaining piercing time will not be applied.
- Automatic focus adjustment: Perforation focus can be automatically adjusted, primary-stage perforation processing is able to penetrate the plate within 20mm, seamless perforation cutting process with zero pause.
- The perfect combination of the lightning-fast piercing process and Bodor Genius makes it possible to complete the entire piercing process while the cutting head is falling with the movement. The piercing of medium thick plates does not require additional movements and time.



BodorGenius **-independently developed laser cutting head**



- External drive motor is completely separated from the barrel cavity to avoid the machine wear and lens damage due to the mechanical transmission.
- The circuit mounting board and the mirror barrel make a sealed chamber design to prevent dust from entering the mirror barrel.
- Double-sided symmetrical airflow channel design, smoother air output.
- Full circumference water cooling is able to perform colling to fiber optic interface, collimating mirror group, and focusing mirror group to increase the lens durability.
- Addhering to IP65 sealing standard, waterproof and dustproof.

High-quality cutting package

- Compared with the traditional cutting process, the overall processing efficiency of "ultra-delicate cutting technology" can be improved by more than 30%
- More delicate and smooth cutting surface;
- Wider range of gas selection with cost savings of over 35%



Self-developed optic fibre laser

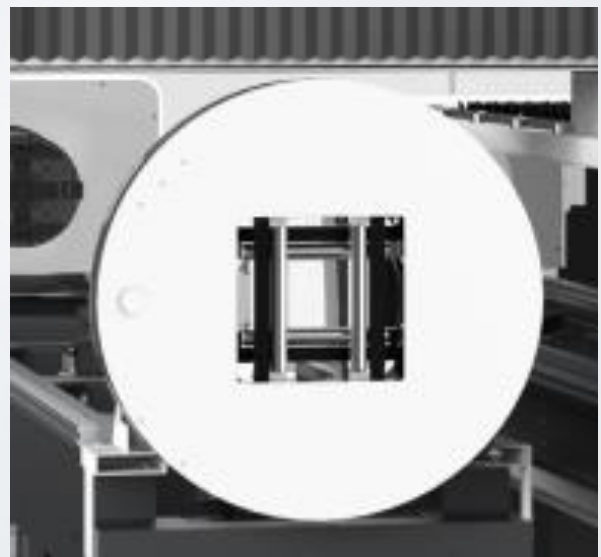


- Bodor's laser has a conversion rate of up to 35%, which is significantly higher than its domestic general counterparts' 25% and far higher than CO2 lasers' 5–10% electro-optical conversion rate. As a result, power consumption and operating costs can be significantly reduced, and the productivity will be improved.
- Unlike CO2 laser, fiber laser does not consume laser-generating CO2 gas and other auxiliary gases (such as helium, nitrogen, etc.) Adopting semiconductor modular and redundant design, fibre laser has compact structure with no optical lens in the resonant cavity. Simpler repair and maintenance, lower failure rate and lower operating cost
- The central wavelength of an optical fiber laser is 1080 nm, or one-tenth the wavelength of a CO2 laser. The processing costs are lowered to a minimum since the output beam has superior quality, a larger power density, and is easier to absorb by metal materials.
- Optical fibre laser transmitted through the whole machine with simple optical path, stable structure. external optical path is maintenance-free.

Automatic self-centering pneumatic chuck

- Tubes of thin wall thickness are prevalent in tube laser cutting, and the tubes can be deformed due to too much chuck clamping force, which might result in cutting accuracy deviation or scrap workpiece. During the cutting process, there is a chance that the sizes of loaded tubes are inconsistent with that of tube drawings in the control system, which might lead to great loss.
- The pneumatic chuck has the characteristics of fast clamping speed, strong load-bearing capacity, high stability and fast cutting speed, etc.

- 1 Precise control of speed and clamping force, no deformation and falling off of the tubes.
- 2 The fastest clamping response can be completed in only 2S.
- 3 Gear transmission structure, stable operation and long service life.



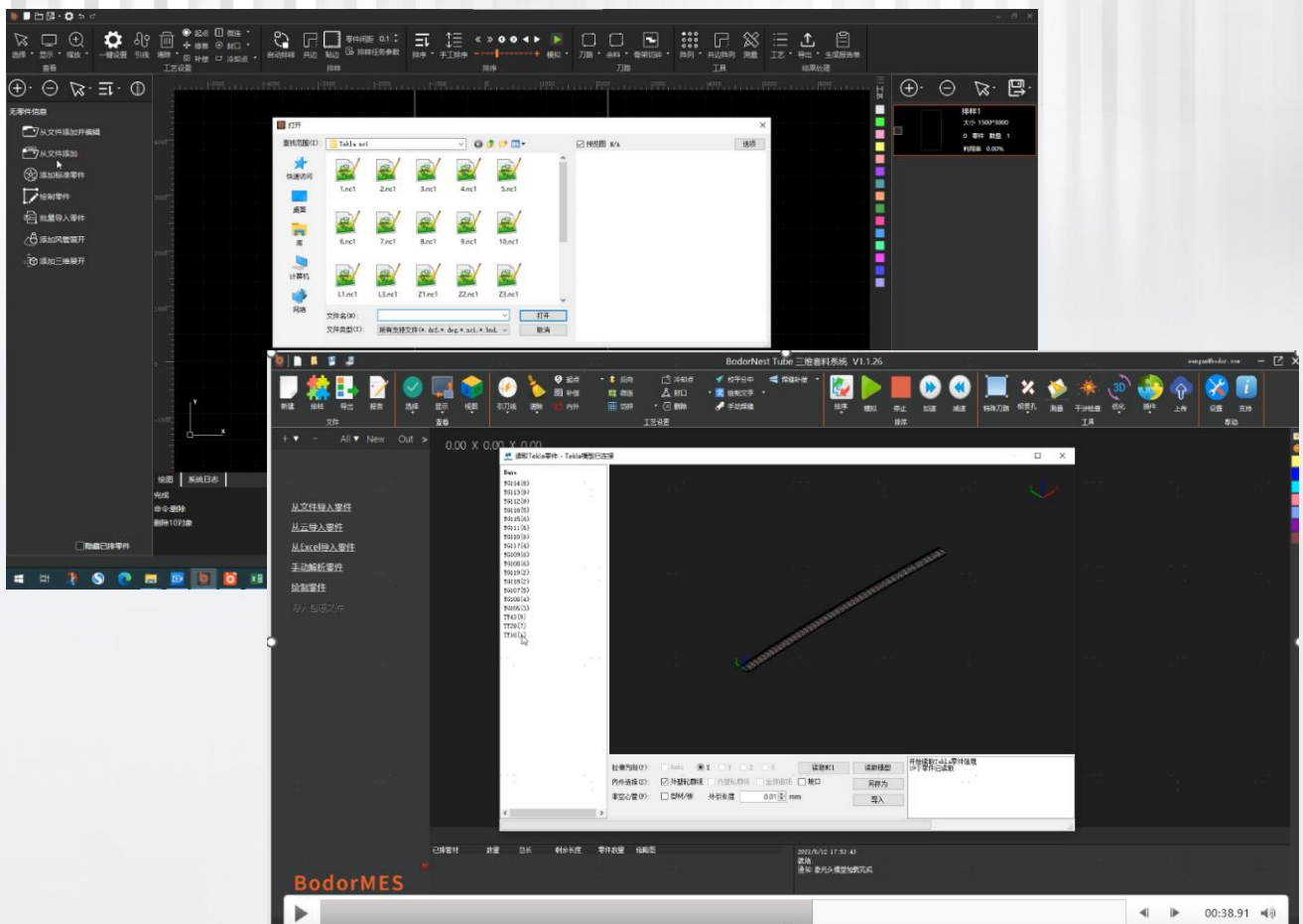
Remaining material typesetting



- Easy snapshot graphics output can be completed through the phonet open. More convenient
- Integrated system, program support running on cutting software. Software Automatic nesting is on once the processing is completed.
- Easy to operate, no hassles of repeated measurement. auto-identification and auto-correction can be achieved through brief reference.
- Greater adaptability to cope customers' more complex production scenarios.

Nesting software compatible with tekla

- Bodor Nest supports direct NC1 files import.
- Bodor Nest Tube supports Tekla online import.



Compatibility: compatible with various versions of Tekla software.

One click to split the drawing: automatically split whole drawing into individual parts

Intelligent drawing recognition: directly detect the material properties, thickness, quantity etc.

Multi-layer display: marking, part outline, part labeling, etc. are displayed in different layers

Intelligent matching: automatically matching appropriate cutting process parameters with identified material information.

Efficient nesting: Automatic calculation for the optimal nesting solution to maximize plate utilization.

Cutting Parameters

	Thickness	3000W	6000W	12kW	22kW	24kW	30kW	50kW
		speed m/min	speed m/min	speed m/min	speed m/min	speed m/min	speed m/min	speed m/min
"Carbon steel (Q235A) O2"	1	8.0-10	8-10	9-11	9-11	9-11	9-11	9-11
	2	5.5-7.5	5-7.5	5-7.5	5-7.5	5-7.5	5-7.5	5-7.5
	3	3.0-4.0	3.5-5	3.5-5.5	3.5-5.5	3.5-5.5	3.5-5.5	3.5-5.5
	4	2.8-3.5	3.0-4.5	3.5-5	3.5-5	3.5-5	3.5-5	3.5-5
	5	2.6-3.2	3.0-4.2	3.3-4.8	3.3-4.8	3.3-4.8	3.3-4.8	3.3-4.8
	6	2.5-2.6	2.5-3.5	3.0-4.2	3.0-4.2	3.0-4.3	3-4.5	3-4.5
	8	1.6-1.8	2.2-3.2	2.5-3.5	2.5-3.5	2.5-3.5	2.5-3.6	2.5-3.6
	10	1.4-1.6	1.8-2.5	2.2-2.7	2.0-2.7	2.0-2.7	2.2-2.8	2.2-2.8
	12	1.0-1.4	1.2-2.1	1.2-2.1	1.6-2.1	1.6-2.1	1.6-2.1	1.6-2.1
	14	0.8-0.9	1.2-1.8	1.7-1.9	1.5-2.0	1.5-2.0	1.6-2.0	1.6-2.0
	16	0.7-0.8	0.8-1.5	1.2-1.7	1.4-2.0	1.4-2.0	1.5-2.0	1.5-2.0
	18	0.6-0.7	0.6-1.2	1.0-1.8	1.4-2.0	1.4-2.0	1.4-2.0	1.4-2.0
	20	0.5-0.6	0.5-0.8	0.6-1.5	1.5-1.9	1.5-1.9	1.5-1.9	1.5-1.9
	25		0.3-0.55	0.5-1.2	1.0-1.6	1.0-1.6	1.0-1.6	1.0-1.6
	30			0.3-1.0	0.8-1.4	0.8-1.4	1.1-1.4	1.1-1.4
	35			0.3-0.7	0.6-1	0.6-1	0.9-1.1	0.9-1.1
	40			0.2-0.4	0.5-0.9	0.5-0.9	0.8-1.0	1.0-1.2
	45				0.3-0.5	0.3-0.6	0.5-0.9	0.9-1.1
	50						0.4-0.8	0.6-1.0
	60						0.2-0.6	0.4-0.8
"Stainless steel (201) N2"	1	30-55	42-52	70-85	72-100	72-100	72-100	72-100
	2	12-30	20-33	40-66	50-75	50-75	50-75	60-75
	3	6.0-10.0	15-22	35-45	38-55	38-55	38-55	45-65
	4	4.0-6.0	10-15	20-32	25-35	25-35	30-40	35-45
	5	3.0-5.0	7.0-12	18-25	24-32	24-32	25-32	30-35
	6	2.0-3.2	4.8-9.0	12-15	20-25	20-26	20-29	25-30
	8	1.0-1.8	3.0-4.0	8-12	15-19	15-19.5	15-20	25-30
	10	0.5-0.85	1.6-2.5	6.0-8.0	10-13.5	10.5-14	12-17	18-22
	12	0.4-0.5	0.8-1.5	4.0-5.5	8.0-10	8.2-10.5	9-14	16-18
	14		0.6-1.2	3.0-5.0	6.0-8.5	6.2-9	7-11	11-15
	16		0.5-1.0	2.2-2.8	4.0-6.0	4.2-6.5	5-9	11-13
	18		0.4-0.8	1.2-2.0	3.0-3.5	3.1-4.5	3-8	9-11
	20		0.3-0.6	1.0-1.6	2.0-3.0	2.2-3.5	3-7	8-10
	25			0.5-0.8	1.5-2.2	1.6-2.5	2-4.5	6-7
	30			0.3-0.6	1.2-1.5	1.3-1.8	1.5-3.2	4-5
	35			0.3-0.5	0.4-0.8	0.5-1	1.0-1.5	2.8-3.5
	40			0.3-0.5	0.3-0.6	0.4-0.8	0.8-1.7	2-2.5
	45				0.2-0.6	0.3-0.7	0.6-1.0	1-1.5
	50						0.25-0.5	0.6-1
	60						0.2-0.3	0.4-0.6
	70							0.35-0.5
	80							
"Aluminum N2"	1	25-30	42-55	60-85	70-100	70-100	70-100	70-100
	2	13-20	20-40	38-50	40-70	40-70	40-70	40-70
	3	6.5-7.5	15-25	30-40	35-60	35-60	35-60	35-60
	4	3.5-5.0	9.5-12	20-30	30-43	30-43	30-45	30-45
	5	2.5-3.5	5.0-8.0	15-25	22-35	22-35	22-35	22-35
	6	1.5-2.5	3.8-5.0	10-15	18-28	18-28.5	18-32	18-32
	8	0.7-1.0	2.0-2.5	7.0-12	12-20	12-20.5	12-23	12-23
	10		1.0-1.5	4.5-8.0	7.0-12.0	7-12.5	7-16	7-16
	12		0.8-1.3	4.0-5.0	4.5-6.5	4.5-7	4.5-12	4.5-12
	14		0.9-1.2	1.8-2.7	3.0-4.0	3-4.5	3-8	3-8
	16		0.5-0.8	1.5-2.5	2.5-3.5	2.5-4	2.5-6	2.5-6
	18		0.5-0.7	1.0-1.8	1.8-2.2	1.8-2.2	1.8-2.2	1.8-2.2
	20		0.5-0.7	0.9-1.5	1.5-2.0	1.5-2	1.5-2	1.5-2
	25			0.6-0.9	0.8-1.5	0.8-1.5	0.8-1.5	0.8-1.5
	30			0.3-0.8	0.6-1.2	0.6-1.2	0.6-1.2	0.6-1.2
	35				0.4-0.9	0.4-0.9	0.4-0.9	0.4-0.9
	40				0.3-0.5	0.3-0.6	0.4-0.6	0.4-0.6
	45						0.4-0.5	0.4-0.5
	50							
"Brass N2"	1	20-30	35-45	55-65	65-75	65-75	65-75	65-75
	2	6.0-10	20-30	38-42	40-60	40-60	40-60	40-60
	3	3.0-8.0	12-18	18-30	25-40	25-40	30-45	30-45
	4	2.5-4.0	8.0-12.0	15-20	20-35	22-35.5	25-38	25-38
	5	1.5-2.0	6.0-8.0	10-15	20-28	21-28.5	22-31	22-31
	6	1.0-1.8	3.0-6.5	6.0-8.0	12-20	13-21	15-25	15-25
	8		1.6-2.2	5.0-7.0	9.0-12	10-13	12-18	12-18
	10		0.8-1.2	4.5-6.0	6.0-10	6.5-11	8-14	8-14
	12		0.3-0.5	2.4-4.0	3.0-4.5	3.5-6.0	5-10	5-10
	14			0.8-1.5	1.8-4.0	2-4.5	4.5-8.5	4.5-8.5
	16			0.6-1.2	1.5-3.0	1.8-3.5	4-6.5	4-6.5
	18			0.4-0.6	1.0-2.5	1.2-2.8	3-5.5	3-5.5
	20				0.4-2.0	0.5-2.3	2-4	2-4
	25				0.3-0.5	0.3-0.8	1.5-3	1.5-3
	30					0.3-0.5	1-1.5	1-1.5
	35						0.5-1	0.5-1

Cutting Parameters

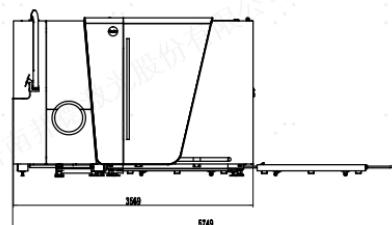
		1500W	3000W	6000W	12kW
	Thickness (mm)	speed m/min	speed m/min	speed m/min	speed m/min
Carbon steel	1	17--19	18--21	18--21	18--21
	2	6--8	10--12	15-20	15-20
	3	2.5--3.5	3.5--5	3.8--5.5	4--6
	4	2.3--2.8	3--3.8	3.2--4.3	3.3--4.5
	5	1.8--2.4	2.6--3.2	3--4	3.5--4.3
	6	1.4--1.8	1.9--2.4	2.5--3.5	2.7--4
	8	1--1.4	1.6--2	2--3	2.5--3.5
	10	0.8--1.1	1.2--1.6	1.3--2.2	1.8--2.5
	12	0.6--0.9	0.9--1.3	1.2--1.7	1.5--2
	14	0.5--0.6	0.8--1	0.9--1.3	1.2--1.8
	16		0.6--0.9	0.6--1.1	1--1.5
	18		0.5--0.6	0.5--0.7	0.8--1
	20				0.5--0.8
Stainless steel	1	15--20	23--28	23--28	23--28
	2	9--12	14--18	20--22	20--22
	3	2--3	4.2--5.4	8--10	8--12
	4	1.2--1.5	2.8--3.6	9--12	12--14
	5	0.6--0.9	1.8--2.4	6--8	7--9
	6	0.5--0.6	1--1.5	4--5.5	6--8
	8		0.8--1.2	2--3	3--4
	10		0.4--0.6	1--1.5	1.5--2.5
	12			0.5--1	1--2
	14			0.4--0.7	0.8--1.5
	16			0.2--0.4	0.6--1
	18			0.2--0.4	0.6--0.8
	20				0.4--0.5

Machine Operation Cost Reference Table

Lifetime of Consumable Parts

Consumable Parts	Lifetime (h)
Collimating protective lens	1600
Focusing protective lens	100
Ceramic ring	200
Nozzle	50
Collimator	1600
Focusing lens	1600

1. The lifetime of consumable parts will vary under different working conditions, and the above is the average lifetime.
2. Under air cutting, the use cost is the power consumption of air compressor and cold dryer, and the cost of purchasing air compressor, cold dryer and other consumables is not calculated.
3. When cutting different materials or materials with different thicknesses, the gas consumption is also different due to the different gas pressure used. (the gas consumption in the table is for reference only)



Equipment layout requirements

1. 警戒区应设置明显。
The equipment should be away from the vibration source;
2. 警戒线现场地面平整度不大于5mm;
The ground flatness not greater than 5mm;
3. 警戒线电压波动5%以内, 电源线电压波动5%以内, 周围500mm内设置接地点, 接地电阻小于4Ω。
Power requirement: Device access voltage fluctuation does not exceed 5%; Power cable exposed more than 5 meters; The grounding resistance is less than 4Ω when the grounding point is set within 500 mm.
4. 施工前要对基础地脚螺栓孔位置尺寸, 并清理基础周围杂物。
Check the location and dimensions of the foundation bolt hole before construction, and clean up the debris around the foundation
5. 安装结束后, 床身导轨面在安装后应覆盖与基础上的预埋物保持良好接触。
After installation, the bed foot needs to be welded to the embedded steel plate after debugging.
6. 风机关气需随自行行走在不影响使用的位置。
Fan and gas source interface placed in a position that does not affect the use of the equipment. Voltage regulator is non-standard equipment; if you choose, please contact the Technical Department.
7. 注意的台地安装, 可自行设置地脚安装。
Pay attention to the foundation drawing, you can set up the bridge tray of the trench and so on.
8. 本图纸仅供参考, 客户依据自身需要布置, 如影响线缆长度应及时告知客服。
This drawing is for reference only and customers can arrange it according to their own needs. If the cable length is affected, we should be informed in time.

— www.bodor.com

Applicable to Industries

Steel
bridge

Pressure vessel

Special vehicle

Mining machinery

Construction machinery

Hardware

Ship container

...



Cutting sample

Bodor laser uses advanced cutting technology, and the cutting sample has a neat cut surface, a smooth bottom, no burrs, no slag, and no secondary processing. Perfectly realize the cutting requirements of carbon steel extreme cutting, thick plate extreme small hole cutting, and carbon steel thick plate sharp corner-cutting.

