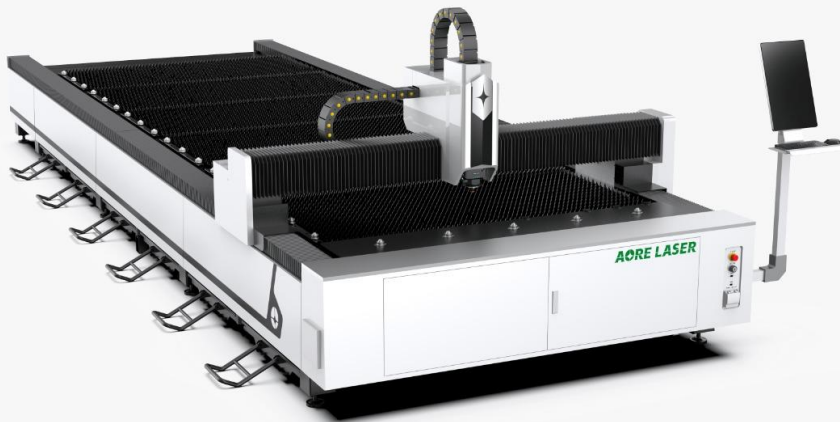


FIBER LASER CUTTING MACHINE

MODEL : F6020 - 20000W



TECHNCIAL PARAMETERS

CONFIGURATIONS		
1	Fiber Laser Source	RAYCUS CE European Version
2	Power	20000W
3	Laser cutting Head	BOCI Autofocus BLT663H
4	Machine Base	AORE Laser
5	Precision Linear Guides for X and Y axes	AORE Laser
6	Precision Racks Guides for X and Y axes	AORE Laser
7	X / Y – axis servo motors and drivers	Innovance
8	Z – axis servo motors and drivers	Innovance
9	Reducer	Kofon
10	Main Electrical components	AORE Laser
11	Machine accessories	AORE Laser
12	CNC Control system	FSCUT8000
13	Main Pneumatic components	AORE LASER
14	Precision Chiller Unit	AORE Standard configuration
15	Dust Extraction Unit	AORE Standard configuration
16	Computer	Industrial Grade Controller

MAIN MACHINE PARAMETERS

MODEL	F6020 – 20000W Machine with AC for electrical device and laser source (laser source with cabinet add AC) Wit stablilizer
Working area	: 6150MM X 2030MM
Positioning Accuracy	: $\pm 0.05\text{mm}$
Re - Positioning Accuracy	: $\pm 0.03\text{mm}$
Maximum running speed	: 150 m/min
Maximum acceleration (X/Y axis linkage)	: 1.5G
Z – axis length of travel	: 120mm
Overall Dimension of main machine	: About 8000 x 3500 x 2100mm
Total Weight of Machine	: 9000kgs
Quantity of Waste Receiving Troller	: 6 sets (16 items)
Display Size	: 21.5 inches
Control System Mode	: Ether CAT Bus Control
Power Supply Voltage	: 380V/3Ph/50Hz
Brand New	: CHINA

CUTTING CAPACITY

LASER SOURCE	ITEM	MILD STEEL	STAINLESS STEEL	ALUMINIUM
Laser source 20kw	Regular cutting mm	50 mm	40 mm	40 mm

LASER CUTTING HEAD PARAMETERS = BLT663H

PARAMETERS	VALUES
Laser Wavelength	: 1030 ~ 1090nm
Laser Power	: ≤20 kW
Fiber Interface	: QBH / QD / Q + ADD
Spot Magnification	: M=2.0 (100:200)
Max. Focus Adjustment Range	: -50 mm ~ + 40 mm
NA	: Max. 0.13 at Fc100
Centering Adjustment Range	: ±1.5mm (±0.059 inches)
Focusing Acceleration	: 7.5 m/s ² (24.6 ft/s ²)
Cutting Gas Interface	: ø10, Max 25 bar (2.5 MPa)
Nozzle Cooling Gas Interface	: ø6, Max 5 bar (0.5 MPa)
Pneumatic Cover Interface	: ø6, 4 ~ 6 bar (0.4 ~ 0.6 MPa)
Water Cooling Interface	: ø8, Max 5 bar (0.5 MPa), Min flow 2.0 L/min
Working temperature	: 5 ~ 55°C (41 ~ 131°F)
Storage Temperature	: -25 ~ +55°C (-13 ~ 131°F)
Dimension	: 442.3 x 181 mm (17.41 x 7.13 inches). This applies to the Q+ Interface version. For the size of other versions, refer to the appendix chapters.
Weight	: About 9 kg. This applies to the Q+ Interface version. Other versions may differ based on their specific specifications.

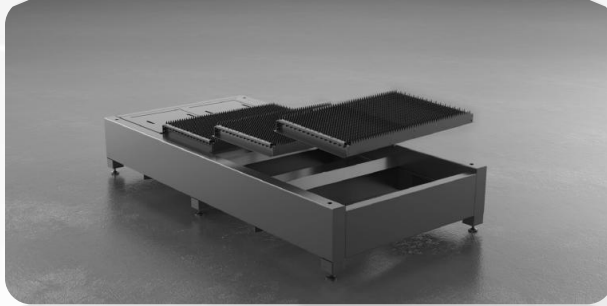
MACHINE CONFIGURATIONS:

	COMPONENT	DESCRIPTION	BRAND/ ORIGIN
	20000W RAYCUS CE LASER SOURCE	High-Power Multimode Continuous Fiber Laser Series with high electro-optical conversion efficiency, high light beam quality, high energy density, wide modulation frequency 100,000 hours life time more stable and cost-efficient maintenance free.	
	BOCI BLT663H LASER HEAD	World Leader in Laser Tools. Auto-Focus Laser Cutting Technology. High Speed, High Thickness, Lower Cost of Consumables.	
	INOVANCE SERVO MOTOR & DRIVER	Servo Signal, high Transmission through the position, torque, speed, fast response.	
	CONTROL SYSTEM (FSCUT 8000)	FSCUT8000 an EtherCAT control system for single-chuck pulling machine's. Compared with other tube cutting systems in the market, it has the advantages of improving cutting efficiency, supporting various bevel processing, and ensuring cutting stability	

	ELECTRICAL COMPONENTS	Highly stable Electrical Control Components.	AORE LASER
	PNEUMATIC COMPONENTS	Steples control of air pressure proportional to an electrical signal. Serial communications specifications, Compact/ Lightweight (Integrated communications parts)	AORE LASER
	HANLI WATER CHILLER	Water chiller of Fiber cutting machine's water system adopts double temperature water chiller, one is cooling laser and the other is cooling cutting head	HANLI
	REDUCER	More Powerful, High Efficiency, High Rigidity, Output Diversification. 100,000 hours life time cost-efficient and maintenance free.	KOFON REDUCER
	AORE LASER GUIDE RAIL	Linear guide design, carrying capacity. Long-life high-speed, high precision and smooth linear motion.	AORE LASER
	AORE Laser GEAR & RACK	High precision, long life can provide rigorous support for quenching helical gears and grinding helical gears.	AORE LASER

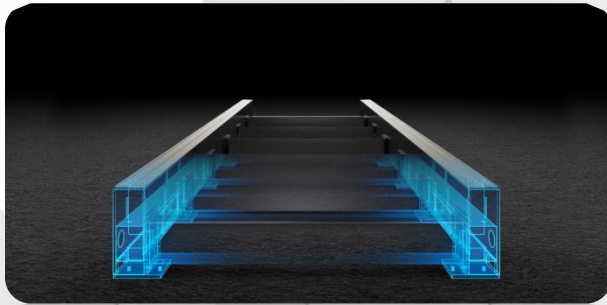
	AUTO / HIGHER	Raise system adjust the focal length automatically according to the height of the plate	AORE LASER
	Security/Stability IPAD DESIGN SCREEN	A vertical screen display, different from the traditional horizontal one with good response speed, higher contrast, wider view, lower consumption as well as high resolution.	AORE LASER
	VOLTAGE STABILIZER	Voltage deviation 80KVA Stabilizer 380V/3Phase, 50Hz/60Hz	AORE LASER

ADVANTAGES



MODULAR WORKBENCH DESIGN

- ❖ The workbench features a modular assembly design, ensuring a stable structure, strong load-bearing capacity, and easy disassembly, replacement, and maintenance.



NEW DOUBLE-KEEPER BED STRUCTURE

- ❖ Targeting high-efficiency machining needs, the self-developed double-keel design with interlocking stop joints ensures no deformation during long-term cutting and guarantees stable equipment operation.



NEW FIRE-RESISTANT AND HEAT-INSULATING TECHNOLOGY

- ❖ Adopting new fire-resistant and heat-insulating technology improves the service life of equipment and ensures cutting accuracy.

METAL SHEET CUTTING PARAMETER

MATERIAL	THICKNESS	NOZZLE	SPEED/MIN	NOZZLE HEIGHT (MM)	FOCUS POINT	GAS	AIR PRESSURE BAR
CARBON STEEL	4mm	2.0S/3.0S	23 – 28	0.6	-2	N2/AIR	15
	6mm	2.0S/3.0S	18 – 20	0.6	-2.5		15
	8mm	3.0S/3.5S	14 – 16	0.6	-3		15
	10mm	3.0S/3.5S	9 – 12	0.6	-3.5		15
	12mm	3.5S/4.0S	7 – 8	0.6	-5		15
	14mm	3.5S/4.0S	4 – 6	0.6	-6		15
	16mm	3.5S/4.0S	3 – 4	0.6	-7		15
	18mm	5.0S/6.0S	2 – 3	0.6	-7		15
	20mm	5.0S/6.0S	1 – 2	0.6	-7		15
	10mm	12SP/1.2E	2 – 24	0.8	+5		0.6
	12mm	12SP/1.2E	1.6 – 2	0.8	+5		0.65
	14mm	12SP/1.2E	1.6 – 1.8	0.6	+11		0.65
	16mm	12SP/1.2E	1.5 – 1.6	0.3	+12		0.7
	20mm	1.4SP/1.6SP	1.3 – 1.4	0.3	+13		0.8
	25mm	1.4SP/1.6SP	1 – 1.2	0.3	+13		0.8
	30mm	1.4SP/1.6SP	0.9 – 1.1	0.3	+14	O2	0.9
	40mm	1.6SP/1.8SP	0.4 – 0.6	0.3	+14		0.9
	50mm	1.6SP/1.8SP	0.3 – 0.4	0.3	+14		0.9
	60mm	1.6SP/1.8SP	0.2 – 0.3	0.3	+16		1.2
	70mm	1.6SP/1.8SP	0.1 – 0.2	0.3	+17		1.5
	80mm	1.6SP/1.8SP	0.1 – 0.2	0.3	+17		1.5
STAINLESS STEEL	1mm	0.5S /2.0S	3.0 – 35	0.6	0	NA/AIR	15
	2mm	0.5S /2.0S	30 – 35	0.6	-1		15
	3mm	2.0S / 3.0S	20 – 30	0.6	-1.5		15
	4mm	3.0S/ 3.5S	15 – 20	0.6	-2		15
	6mm	3.0S/3.5S	10 – 13	0.6	-2.5		15
	8mm	3.0S/3.5S	13 – 16	0.6	-3		15
	10mm	4.0S/5.0S	10 – 12	0.6	-3.5		15
	12mm	4.0S/5.0S	8 – 10	0.5	-7		15
	16mm	4.0S/5.0S	3.2 – 4	0.5	-8		15
	20mm	4.0S/5.0S	2.5 – 3	0.5	-11		15
	25mm	4.0S/5.0S	1.5 – 2	0.5	-12		15
	30mm	5.0S/6.0S	1 – 1.2	0.5	-12		15
	40mm	5.0S/6.0S	0.5 – 0.8	0.5	-12		15
	50mm	5.0S/6.0S	0.2 – 0.3	0.5	+11		15
	60mm	7.0SP/8.05S	0.15 – 0.2	0.5	+11		15
	70mm	7.0SP/8.05S	0.1 – 0.13	0.5	+11		15
	80mm	7.0SP/8.05S	0.08 – 0.1	0.5	+11		15
	90mm	7.0SP/8.05S	0.05 – 0.06	0.5	+11		15

	100mm	7.0SP/8.05S	0.04 – 0.05	0.5	+11		15
ALUMINIUM	1mm	1.5S/2.0S	30 – 35	0.6	0	N2/AIR	15
	2mm	1.5S/2.0S	30 – 35	0.6	-1		15
	3mm	2.0S/3.0S	20 – 25	0.6	-1.5		15
	4mm	3.0S/3.5S	13 – 17	0.6	-2		15
	6mm	3.0S/3.5S	10 – 12	0.6	-2.5		15
	8mm	3.0S/3.5S	10 – 12	0.6	-3		15
	10mm	4.0S/5.0S	9 – 10	0.6	-3.5		15
	12mm	4.0S/5.0S	5 – 6	0.5	-7		15
	16mm	4.0S/5.0S	3 – 4	0.5	-10		15
	20mm	4.0S/5.0S	1.5 – 2	0.5	-11		15
	25mm	4.0S/5.0S	1 – 1.2	0.5	-12		15
	30mm	5.0S/6.0S	0.8 – 1	0.5	-15		15
	40mm	5.0S/6.0S	0.5 – 0.8	0.5	-18		15
	50mm	5.0S/6.0S	0.4 – 0.6	0.5	-20		15
	60mm	6.0S/7.0S	0.2 – 0.3	0.5	-20		15
BRASS	1mm	1.5S/2.0S	20 – 25	0.6	0	N2/AIR	15
	2mm	1.5S/2.0S	20 – 25	0.6	-1.5		15
	3mm	2.0S/3.0S	18 – 22	0.6	-2		15
	4mm	3.0S/3.5S	12 – 14	0.6	-2.5		15
	6mm	3.0S/3.5S	12 – 15	0.6	-3		15
	8mm	3.0S/3.5S	8 – 10	0.6	-4		15
	10mm	4.0S/5.0S	7 – 8	0.6	-4.5		15
	12mm	4.0S/5.0S	2.5 – 3.5	0.5	-7		15
	16mm	5.0S/6.0S	1.5 – 2	0.5	-8		15
	18mm	5.0S/6.0S	1.2 – 1.5	0.5	-10		15
	20mm	5.0S/6.0S	0.6 – 0.8	0.5	-12		15

NOTES:

- Due to the differences in equipment configuration and cutting process (machine tool, water cooling, environment, cutting nozzle and gas pressure, etc.) of different machine tools, this data is for reference only.
- Aluminum and brass materials are highly reflective materials. If you cut in batches for a long time, please test with the support of after-sales technicians.

 Green thickness materials can be processed for a long time and in batches.

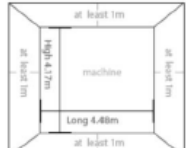
 Yellow-thick materials can be processed, but as the material temperature rises, the cutting pressure fluctuates, the plate composition fluctuates, and other factors fluctuate, the processing becomes unstable, and it is recommended to use a higher power laser.

 Red thickness materials can be cut off but cannot be processed in batches.

COST ANALYSIS

20000KW				
GAS		AIR	O2	N2
POWER CONSUMPTION (¥/h)	Total power (including laser, water chiller, and dust collector fan) KW	108.7	108.7	108.7
	Air Compressor (KW)	22	22	22
	Total Power (KW)	130.7	130.7	130.7
	The average power consumption is calculated based on 60% of the total operating time as the actual cutting time.(¥/h)	78.42	78.42	78.42
CONSUMABLE SPARE PARTS (¥/h)	Protective Lens(¥/h)	1.7	1.7	1.7
	Ceramic Ring(¥/h)	0.25	0.25	0.25
	Nozzle(¥/h)	0.8	0.8	0.8
	Compressor Maintenance (¥/h)	0.8	0	0
	Consumables and Spare Parts (¥/h)	3.55	2.75	2.75
Flow Rate(¥/h)		0	7	11.5
Total Operating Cost(¥/h)		81.97	88.17	92.67

PREPARATION BEFORE ORDER:

Power Supply	 Industrial Electricity 380V 50HZ	(1) Rated output voltage : 380V (2) Voltage Frequency : 50Hz (3) Three-phase voltage stability: +5% (4) Output voltage regulation
Position to Show Machine		Put machine evenly on ground. Position follows 6 "No rules-no inflammable, no explosive, no volatile solvent, no dust, no corrosion, no fumes.
Cutting Assisted Gas	 Oxygen	When using oxygen as assisted gas, the pressure is to be up to 1MPa and purity of 99.9%; when cutting iron, an additional small carburetor has to be added with vaporization capacity 30NM3/H or vaporization flow amount 50NM3/H.
	 Nitrogen	N2 cut for stainless steel, its pressure reaches 2MPa, in other name 20KG, purity of 99.999%; A capacity for Carburetor is 50N3/H with design pressure 2.5MPa. When using with small cylinder of N2 for cutting, a high-pressure nitrogen meter is a must with range from 0 to 6MPa.
		Air cut mainly used in cutting for thin sheet steel: It is better to use the screw type air compressor (stable pressure of 1.2MPa, the displacement of 100 L /min). Prepare with you a 3- grade filtration device (Q.P.S) and that equipped with air dryer (treatment capacity 2.5Nm2/min), an air storage tank (0.6 cubic meters). Recommend to select the quality filter, the higher the configuration, the least possibility of being contaminated the protective lens by oil and water. Thus, the cutting effect is better.)

EXCLUSIVE OFFER IN COLLABORATION WITH BROTHER GAS

- ❖ Initial 2 racks will be provided FOC to customer upon purchase of Laser Cutting Machine for its commissioning upon dealing with Brother Gas.
 - ❖ Brother Gas will support installation and commissioning of total bulk gas solution along with pipeline, FOC upon minimum volume commitment with Brother Gas.
 - ❖ Special liquid price will be provided to customer with an additional 15% discount compare to market price along with tank and pipeline investment.
- *tank investment and bulk installation is completely subject to minimum volume commitment from customers.**
- ❖ Complete AMC of gas supply system will be taken care by Brothers Gas to customers, FOC.



Nitrogen Rack - 1x16 Cylinder (160Nm3) - 99.999%



Oxygen Rack - 1x16 Cylinder (160Nm3) - 99.5%



Gas Dura Cylinder

CRITERIA FOR GAS SUPPLY SELECTION:

Supply Solutions	Purity (min.)	Pressure (Bar)	Civil Work	Min. Gas Consumption (m3/month)	Capital Investment
Loose Cylinders	4.6	200	No	<500	Low
Cylinder Rack	4.6	200	No	> 500 – 1500	Low
Bulk – Dura/Mini Bulk	5	17 - 32	No	> 500 – 1500	Low

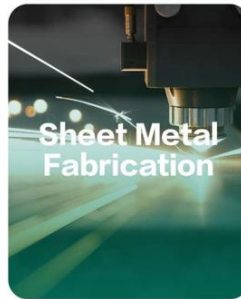
NOTE: TSF PROVIDES A UNIQUE DEAL TO ITS CUSTOMERS IN CORPORATION WITH BROTHER GAS. THE PRICE COMMITMENT WILL SOLELY BE BETWEEN BROTHER GAS AND CUSTOMER.

OPTIONAL CONFIGURATION:

Save your Gas Cost, below is an Estimate of Cutting Capability by Compressor to Save Gas Cost. Contact our experts to know more about our Compressor.

OPTIONS :	DESCRIPTION	BRAND
	Air Compressor Up to 10 Bar Pressure can be used so save cost up to 35% of your thickness capacity. (Save Nitrogen/Oxygen Cost)	ATLAS COPCO
	16-Bar Screw Compressor 60-70% of the thickness capacity can be easily cut by the 16 Bar Pressure Compressor, providing you a great saving on Cost per cut. (Save Nitrogen/Oxygen Cost)	PIONEERAIR
	18-Bar Screw Compressor 75- 85% of the thickness capacity can be easily cut by the 18 Bar Pressure Compressor, providing you a great saving on Cost per cut.	PIONEERAIR
	COMPRESSED AIR SYSTEM FOR LASER 30-Bar Booster Compressor Cut 95% of the thickness capacity by the 30 Bar Pressure Booster 0.3Mpa reciprocation air compressors, directly get 30 bar compressed air Ø 300 liters vertical air storage tank integrated. No dust, No oil, No water for pure air source. Centralized automatic water drainage system, easy, convenient. (Save Nitrogen/Oxygen Cost)	PIONEERAIR

APPLICABLE INDUSTRIES



DELIVERY & INSTALLATION:

1. Delivery at your site within UAE.
2. Training & Installation by our skilled Engineers at your site.

AFTER SALES SERVICE:

1. Two years warranty (One-year spare parts & 2nd year free Service).
Except for consumable items e.g Nozzle, Lens etc.
2. Complaint will be solved within 12 working hours, by our in-house skilled Engineers