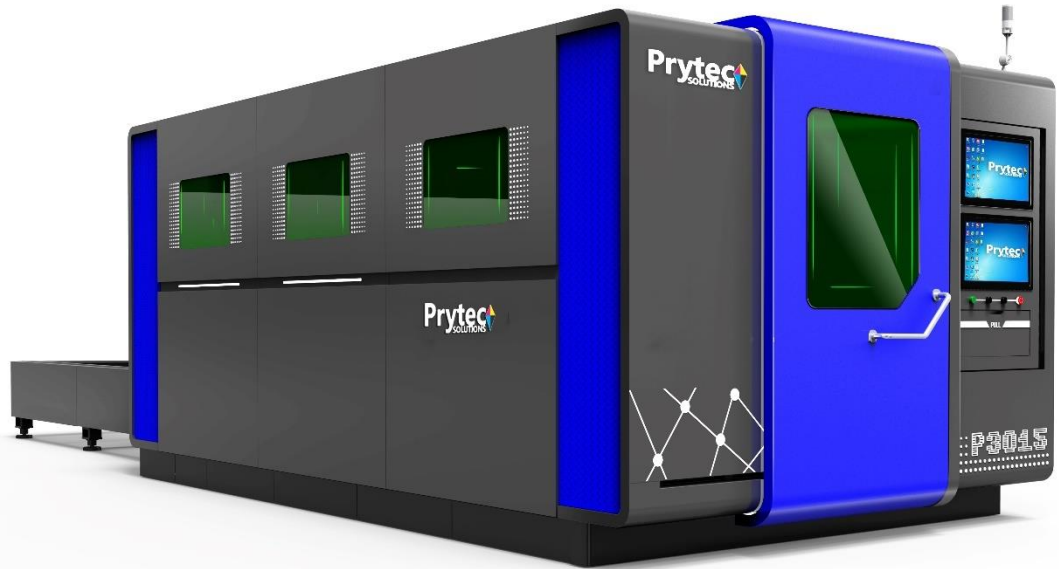


PLS-F3015 – 1000-4000W LASER CUTTING MACHINE



PLS-F3015 REPRESENTATION ONLY

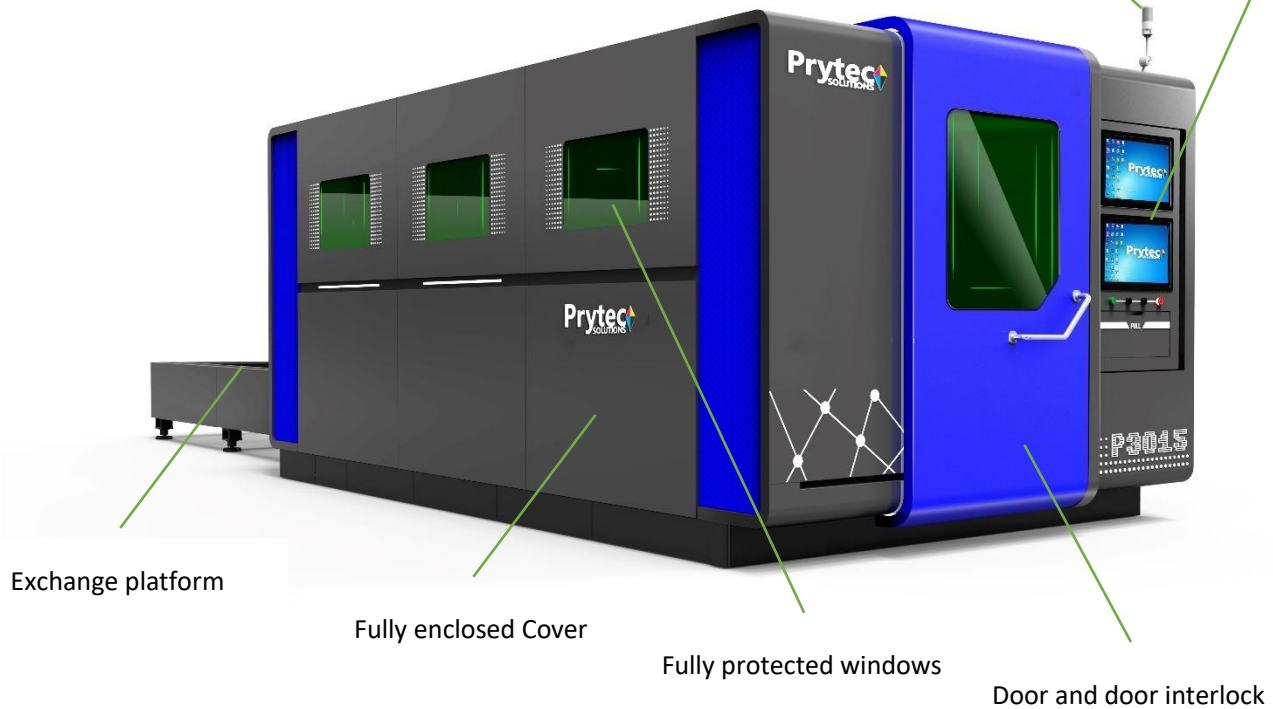


PLS-F3015 Metal Cutting Fibre Laser Technical Data

Model	PLS-F3015	
Basic Parameters	Working area	3000mm x 1500mm
	X axis travel	3050mm
	Y axis travel	1525mm
	Z axis travel	280mm
	X/Y Axial positioning accuracy	0.03mm/m
	X/Y Axis repeated positioning accuracy	0.02mm
	X/Y Max Air Line Speed	140m/min
	X/Y maximum acceleration	1.4G
	X axis rail	ROUST/ Hiwin 35#
	Y axis rail	ROUST/ Hiwin 25#
	Z axis rail	ROUST/ Hiwin 20#
	rack	Taiwan YYC
	Reduce	GERMAN ROUST
	ball screw	PMI
	Machine body	12mm plate welded machine body
	Gantry	Cast Aluminium
	Protect cover	Yes
	Oil lubrication	automatic Oil lubrication
Servo system	Servo brand	Taiwan Delta
	X axis Motor Power	1.8KW x 2
	Y axis Motor Power	0.85KW
	Z axis Motor Power	0.4KW
Exchange table	Time of exchange table	10-15s approx
	Exchange motor power	1.5KW
	Maximum load	1000kg
Input power	3 phase	380V±5%/50-60Hz
Software	brands	CYPCUT
	model	CYPCUT 2000
electronics	brand	Omron, Schneider
pneumatics	brand	SMC, AirTAC
dust removal system	Dust Removal	Intelligent automatic partitioning
	fan power	3KW/2800RPM
	Number of partitions	4
Cooling system	water cooling	Tongfei
Power consumption	1KW	16KW
	1.5KW	19KW
	2KW	21KW
	3KW	25KW
	4KW	30KW
size	machine size	8510 x 2720 x 2200
	Whole machine weight (does not include laser source, chiller, control cabinet)	6800kg

LED 3 Colour Light

Operational Panel HMI



Exchange platform

Fully enclosed Cover

Fully protected windows

Door and door interlock

- **Wide range of applications** in metal processing, including: Mild Steel, Stainless Steel, Aluminum alloy etc.
- Superior edge quality plus high cutting speed
- **High precision** driven box using World Leader-Top Quality Rack & Pinion Drive Technologies and Gearbox
- Advanced European **dual processor CNC system** for axial movement
- New **Smart Manager** operating software
- **Direct laser control** with **PWM** (Pulse Width Modulation)
- **Automatic Gas Assist** System
- **Windows™ Driven Control Software**

Advantages

- **Gantry Structure**
- **High Speed & High Acceleration**
- **Over 80% parts are imported**



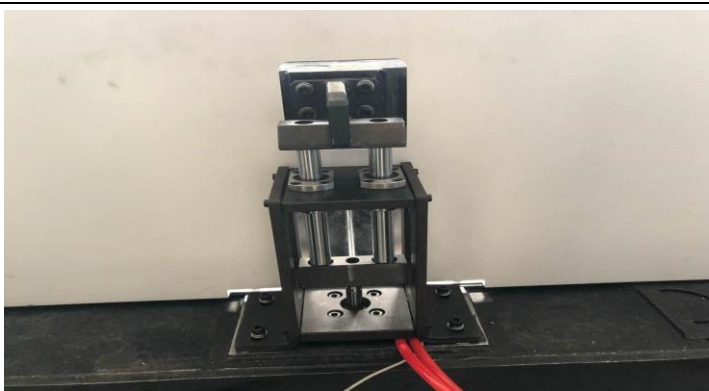
Machine body.

The design and manufacture of the reinforced precision welded body and two aging treatments ensure the accuracy and stability for long-term operation. The rigidity is good enough to bear high acceleration; The main bed is made of steel structure precision welding, stress failure treatment, and large-scale gantry machining centres for rail seats.



Exchange table

Chain transmission for exchange table



Double wedge locking cylinders to lock table in position.

The countertop roller all metal wheel structure.



Auto focus Raytools laser head

high efficiency in auto-focus
 Automatically cut plates of different thicknesses. The external motor built-in driving unit of the product automatically drives the focusing mirror to change the position within 25mm by linear mechanism. The user can continuously adjust the focus through the program to complete the rapid perforation of the thick plate and automatically cut the plates of different thickness and material. The product is equipped with a large lens optical lens composite lens group to integrate the beam, and a variety of interface settings, so that it can be matched with a variety of fiber lasers; optimized optical design and water cooling design allows the laser head to continue to be stable at high power.



The gantry is cast aluminium then machined making the structure stable and accurate. The gantry is designed to ensure very high rigidity at low weight, reduces the inertia of the whole machine at high speed, and ensures a higher acceleration.

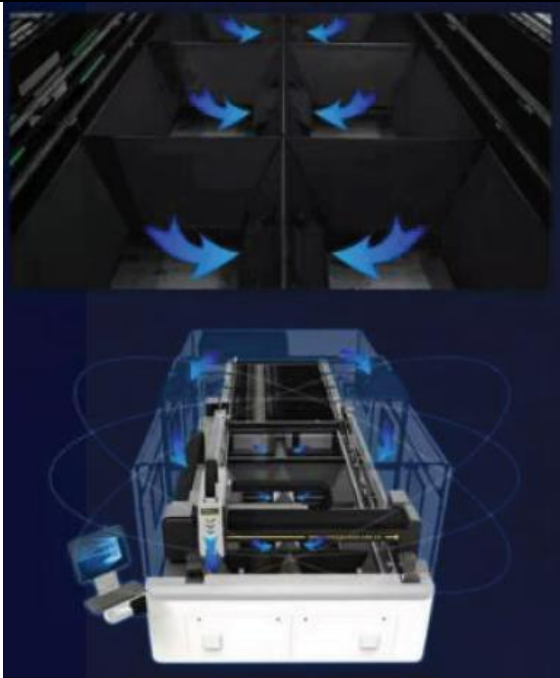


Water chiller

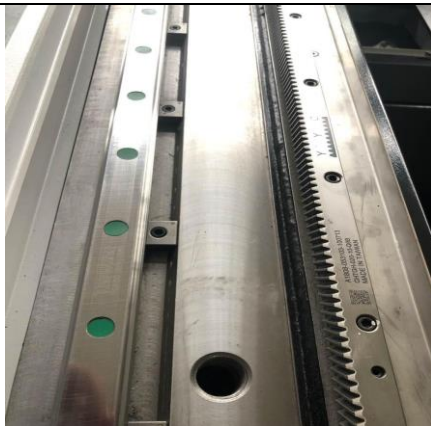
Dual-temperature and dual-control mode provides an effective temperature control solution for fiber lasers.
 Long life and durability, easy to operate.



Japan Yaskawa servo motor



We apply divided-area dust removing exhaust system in our machine body. The machine body is divided into 6 cells. It helps to extract the dust and metal particles while the machine is running to protect the laser equipment and keep the entire workspace clean. When the cutting head moves, it will automatically trigger the extraction function in certain area and other cells will keep shutting down. If the cutting head moves away to the other cells, the extraction function will be automatically shutting down in previous cell. This design can concentrate the extraction power onto the only one working cell to increase the extraction capacity.

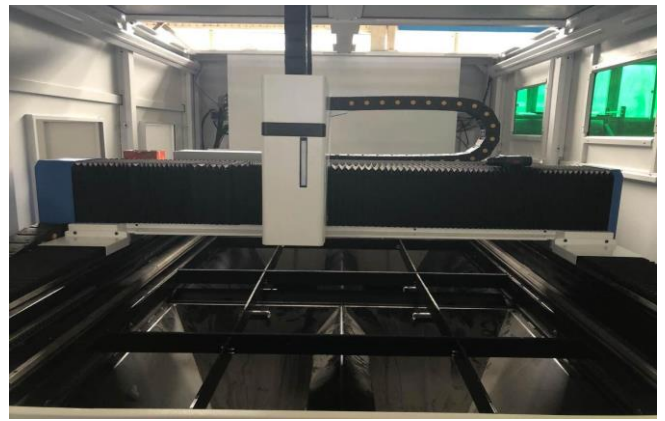


Germany ROUST Guide rail and YYC Rack and Pinion, Advantages long service life, high acceleration speed to a precise position



Auto lubrication system

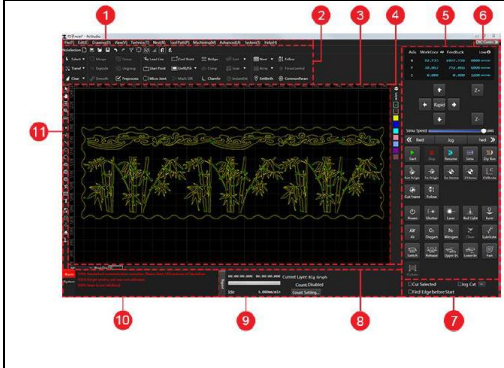
Automatic lubrication system upgrades, which increases gear and screw lubrication, regular quantitative provision of lubricants, and extends the service life of the machine (other manufacturers only provide guide rail lubrication)



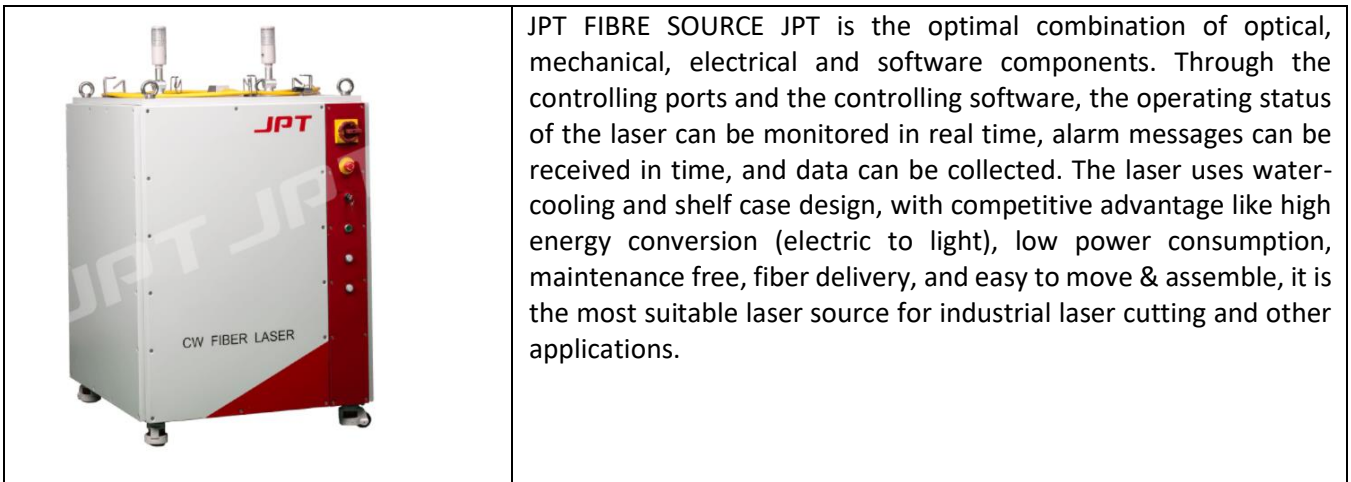
Cameras monitoring system can monitor the external state of the machine especially for table exchange at any time to ensure safety



Blower:
Hard wired to the machine for dissipating Smoke



Cypcut is an excellent laser cutting control system that integrates file reading, design, output and processing control. A set of software can complete the whole process from design to processing. It is stable, reliable, easy to deploy, easy to debug, safe in production, rich in functions, and excellent in performance; The software provides a wealth of laser cutting process parameters, flexible layout and tool editing capabilities, introduction of extraction, bridging, co-edge, spot compensation, automatic distinction between internal and external modes, and other functions.



With sensitive **non-contact positioning sensor** and control under the system, **stable Z axis floating function** is available, which can deal with the effect caused by uneven sheets, making the Laser Cutting Machine achieve much higher rate of finished product than the other domestic laser cutting machine; There is no need of oil blast before cutting, so it takes the user less work and installation cost of assisting tools.

Cutting head adopts flexible design, competent of **collision-proof and automatic reset**, which automatically stops cutting and flexibly diverges and resets when accidental collision occurs and can pick up from the former point.

OPTIONS AVAILABLE



Assist air cutting compressor - Max 1.8 MPa (18 Bars) pressure for assistant cutting gas for thin material and any thickness for Aluminium material, copper and brass. The compressor is 4 in one package, i.e. compressor, air Cooling (drying) system, high pressure accumulation tank and oil filter/water filter system.

Running power is 3 phase 415V 30A.



Dust collection system consists of:

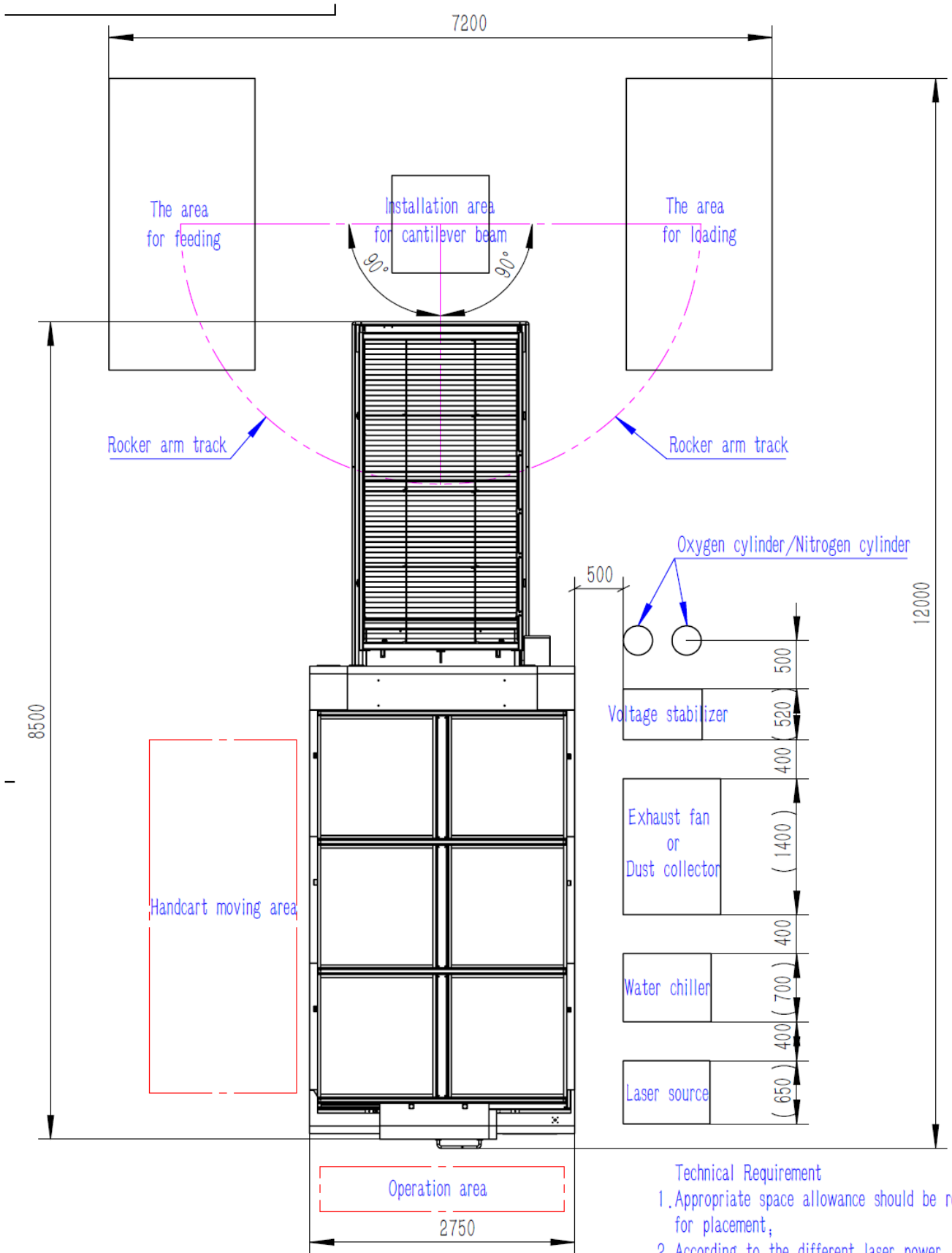
- Reliable panel filters with automatic cleaning by blasts of compressed air
- Spark trap
- Pipe connection between machine and filter

This equipment is a filter for dry dust removal from industrial used air and gases. This can be used instead of exhausting to atmosphere.



Sheet loading system

Various configurations and lifting capacities available – to be quoted as required



Technical Requirement

1. Appropriate space allowance should be reserved for placement;
2. According to the different laser power, the size of the fittings varies slightly.

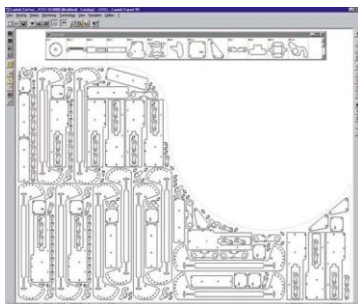
Operation Software

Cypcut includes many innovations introduced during the recent years in the industrial laser-cutting field (**fast piercing, fly cutting speed on thick material etc...**). The updated Users Interface (UI) improves the simplicity and immediacy of day-by-day operations while facilitating the most complicated laser cutting scenarios. The software is now more intuitive and easier to manage.

Among all the “standard” features of a CNC (Computer Numerical Controlled) dedicated to the laser cutting process, the software offers a variety of enhancements and revolutionary solutions all aimed to speed up and simplify your laser job always keeping the tooling quality and safety to the maximum level.

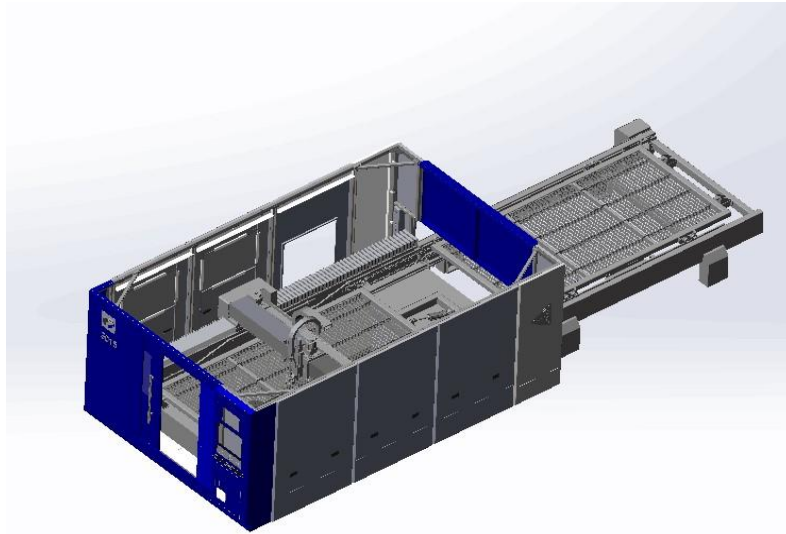
Here are some of the more noteworthy features:

- **Settings saving:** the system is fitted with a memory device external to the PC that automatically and freely allows the operator the sensible data of the system, such as settings files and/or the cutting technological parameters.
- **Resume:** in addition to the possibility of re-calling the last interrupted job, due for example to an electrical black out, the CNC is able to memorize the last 64 part-programs incorrectly unfinished. If there is the need to voluntarily give precedence to a more urgent job, the operator can re-launch the unfinished job later on.
- **Dry Run:** allows a rapid full check out of the entire geometry of the sheet. It is able to indicate the dimensions of the bounding box, the length of the cutting path and more. A special function allows verification before starting the laser cutting if the sheet dimension is big enough to contain all the geometries.
- **I/O data:** Ethernet (TCP/IP), WiFi and USB ports.
- **Automatic edge detection on metal sheets:** this function automatically recognizes the metal sheet position and rotational/translation of the CNC axes origin to match the actual sheet position on the working table (therefore there is no need to manually move the sheet on the pallet, avoiding any unwanted scratches): typically ± 0.02 inch (± 0.5 mm) precision with good material edges.
- **Nesting** Nesting feature can nest different cuts to sheet metal.



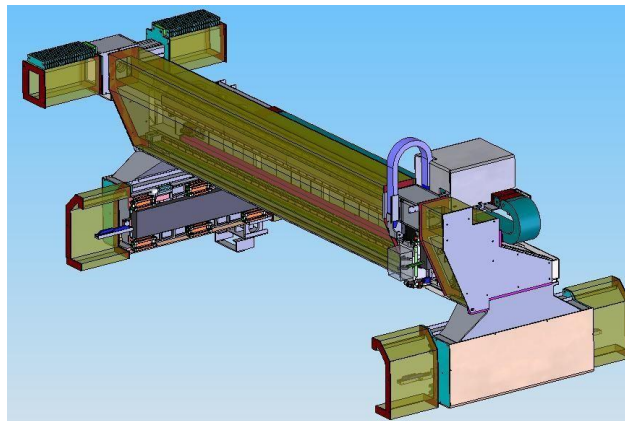
Mainframe

Structural Dynamic Design and Variate Analysis technology optimises the design for outstanding dynamic and static features. The **frame-structure base** is made with high quality steel plates and certified welders. The design and manufacturing of the base is to ensure excellent **vibration resistance, rigidity and stability**.



The **gantry structure** is designed from Aluminum and is **extremely rigid**; yet, lightweight to achieve and maintain high acceleration. The gantry is a monoblock cast aluminium alloy, having less weight and therefore less vibration. It is made through rough machining and late strict aging treatment and precision machining. Because the dynamic part is light, moving speed is high and processing precision is high.

Transmission is through rack and pinion. The gantry is installed on the support guide of the body of the machine tool. With directing guide and level guide on it, the gantry can achieve fast moving and feed motion through servo motor driving coaxial rack and pinion on either side.



The **work area** is 3020mm in the X axis direction and 1520 mm in the Y axis.

Fume extraction: the simple type of suction system (motor driven) will take off the wasted cutting assisting gas and smoke produced during the cut from the table, and then released to the environments.

Cooling water is maintained at ideal operating temperature via a chiller that assures correct cooling of the internal laser system. The chiller is equipped with dual line water services. The first is targeting the Laser. The second one is used for the external optics and cutting head lens: this feature eliminates the risk of condensation.








Main parts of the system

Name	Amount	Manufacturer & Brand
Laser Source		
laser source	1 unit	JPT
External Beam Path and Cutting Head		
Cutting Head	1 piece	RAYTOOLS
High and Low Pressure Solenoid valves and Proportional valves, Pneumatic component	2 set	SMC
Main Frame		
Mechanical Table and Parts	1 unit	
X, Y Axial Rack	1 set	YYC, Taiwan
Linear Guide	1 set	Hiwin, Taiwan
CNC system and software		
CYPCUT (including Control Software)	1 set	market share over 80%
Servo Motor and Drivers	1 set	Yaskawa JAPAN
Standard Auxiliary Systems		
Suction System	1 set	Domestic Match
Dust collector	1 set	
Chiller	1 set	Domestic Match
Transformer	1 set	Domestic Match

Working Conditions

ITEM	CONTENTS
1	<p>Requirements for the power supply:</p> <p>(1) INPUT power: 415V 50Hz 65Amp</p> <p>(2) Stability of the tri-phase: +10%</p> <p>(3) Adjustability of the output voltage: <2%</p>
2	<p>Gas supply for the compressed air (Recommend are screw type compressor, tank, dryer and Oil-Water filters)</p> <p>(1) Capacity: 0.6 m³</p> <p>(2) Nominal pressure: 10 bar</p> <p>(3) Air purity: residual oil content of 0.03 ppm</p> <p>(4) Air flow rate: 1 L/min</p>
3	<p>Cutting material:</p> <p>The cutting material should be equal and flat, clean on the surface without paint and oxidation. The material has also to be suitable for the laser cutting process and to have a high standard quality.</p>

Components List

NO.	Components	Brand	Manufacturer
1	Serve Motor		Yaskawa
2	Reduction Box	 	Tawan APEX Japanese Nabtesco RV
3	linear		THK/HIWIN
4	Drag Chain		Kabel Schlepp
5	pneumatic component		SMC
6	electrical apparatus		Schneider
7	Controller	CYPCUT 2000s	CYPCUT

RUNNING COSTS

Item		Option One: Oxygen cutting	Option Two: Nitrogen Cutting
Electricity consumption (Peak power consumption)	Laser Source	3KW	3KW
	Water Chiller	8.1KW	8.1KW
	Air Compressor		
	Machine	16KW	16KW
	Extraction FAN	6KW	6KW
Wearing parts		\$0.12c/hr	\$0.12c/hr
Gas consumption Av 40L/hr		\$0.62/hr*	\$2.20/hr*
Total PEAK Power		33.1KW	33.1KW
Total electricity consumption (60% cutting efficiency)		19.9KW/H	19.9KW/H
Total operation cost (As per \$0.3/kwh)		\$5.96/hr	\$5.96/hr
Total operation cost (Av AUD/hr)		6.70AUD	8.30AUD

*Prices significantly different depending on location and provider and final design of solution

1000W

Material	Thickness mm	Speed m/min	gas
CS	1	15	N
CS	2	6-8	O ₂
CS	3	3-4	O ₂
CS	4	2	O ₂
CS	5	1.5	O ₂
CS	6	1.2-1.5	O ₂
CS	8	1	O ₂
CS	10	0.6-0.8	O ₂
CS	12	0.6	O ₂
SS	1	18	N
SS	2	5-7	N
SS	3	2-3	N
SS	4	1.2-1.5	N
SS	5	0.8	N
AL	1	8-10	N
AL	2	4.5	N
AL	3	1.2	N
CU	1	10	N

1500W

Material	Thickness mm	Speed m/min	gas
CS	1	20	N
CS	2	6-8	O ₂
CS	3	4.5	O ₂
CS	4	2.5	O ₂
CS	5	2.2	O ₂
CS	6	2	O ₂
CS	8	1	O ₂
CS	10	0.8-1	O ₂
CS	12	0.8	O ₂
CS	14	0.6	O ₂
SS	1	25	N
SS	2	6-8	N
SS	3	3-4	N
SS	4	1.2-1.5	N
SS	5	0.8	N
SS	6	0.6	N
AL	1	20	N
AL	2	6	N
AL	3	2	N
AL	4	1.2	N
CU	1	15	N
CU	2	6	N
CU	3	2	N

2000W

Material	Thickness mm	Speed m/min	gas
CS	1	35	N
CS	2	10	O ₂
CS	3	6	O ₂
CS	5	3-4	O ₂
CS	6	2-3	O ₂
CS	8	1.5-2.5	O ₂
CS	10	1.5	O ₂
CS	12	1.2-1.5	O ₂
CS	14	1	O ₂
CS	16	0.8	O ₂
SS	1	35	N
SS	2	10	N
SS	3	6	N
SS	4	4	N
SS	5	2.2	N
SS	6	2	N
SS	8	1.2	N
AL	1	25	N
AL	2	10	N
AL	3	7.2	N
AL	4	3.6	N
AL	6	1.2	N
CU	1	20	N
CU	2	10	N
CU	3	6	N
CU	4	2	N

3000W

Material	Thickness mm	Speed m/min	gas
CS	1	40	N
CS	2	12	O ₂
CS	3	6-8	O ₂
CS	5	4	O ₂
CS	6	3	O ₂
CS	8	1.5-2.5	O ₂
CS	10	1.7	O ₂
CS	12	1.5	O ₂
CS	14	1.2	O ₂
CS	16	0.9	O ₂
CS	20	0.6	O ₂
SS	1	42	N
SS	2	12	N
SS	3	9	N
SS	4	6	N
SS	5	2.5	N
SS	6	2.1	N
SS	8	1.2	N
SS	10	0.8-1	N
AL	1	30	N
AL	2	12	N
AL	3	8-9	N
AL	4	4.5-5.5	N
AL	6	1.8	N
AL	8	0.8	N
CU	1	22	N
CU	2	12	N
CU	3	6	N
CU	6	1.2-2	N