



İleri Teknik
Innovative Sawing Technologies



Innovative Sawing Technologies

www.ileriteknik.com



YOUTUBE



Nilüfer Organize Sanayi Bölgesi
Gürgen Cd. No: 4 Nilüfer / BURSA / TR
T: +90 224 411 05 37 F: +90 224 411 05 38
www.ileriteknik.com

İleri Teknik Makine

info@ileriteknik.com

+90 224 411 05 37



İleri Teknik
Innovative Sawing Technologies



Proven In Production Since 1984

İleri Teknik was established in 1984 in Bursa/Turkey as a supplier of technical services to the metal and automotive industries. In 1989 started to design and produce Circular Sawing Machines. In 2021 started to design and produce Laser Tube Cutting Machines.

Nowadays İleri Teknik producing Laser tube cutting machines, Fully automatic cutting lines with automatic loading and unloading systems, semi-automatic and manual cutting machines.

İleri Teknik uses the best materials and very well-known brands during production. Every single part has a quality control procedure and final control check list. All machines are tested before dispatch. All machines are tested and checked before shipment.

İLERİ TEKNİK As of 2023, it exports to a total of 45 countries, including all European countries, America, Canada, South Korea and Australia. Therefore, İLERİ TEKNİK is known as a very good machine builder in all over the world.



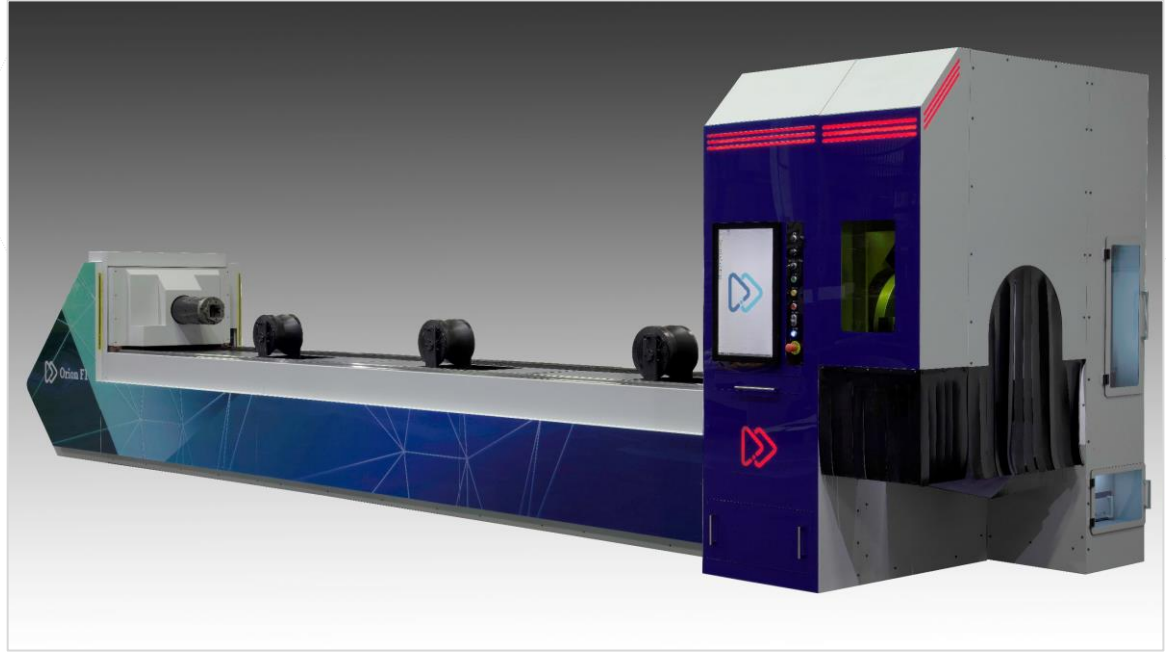
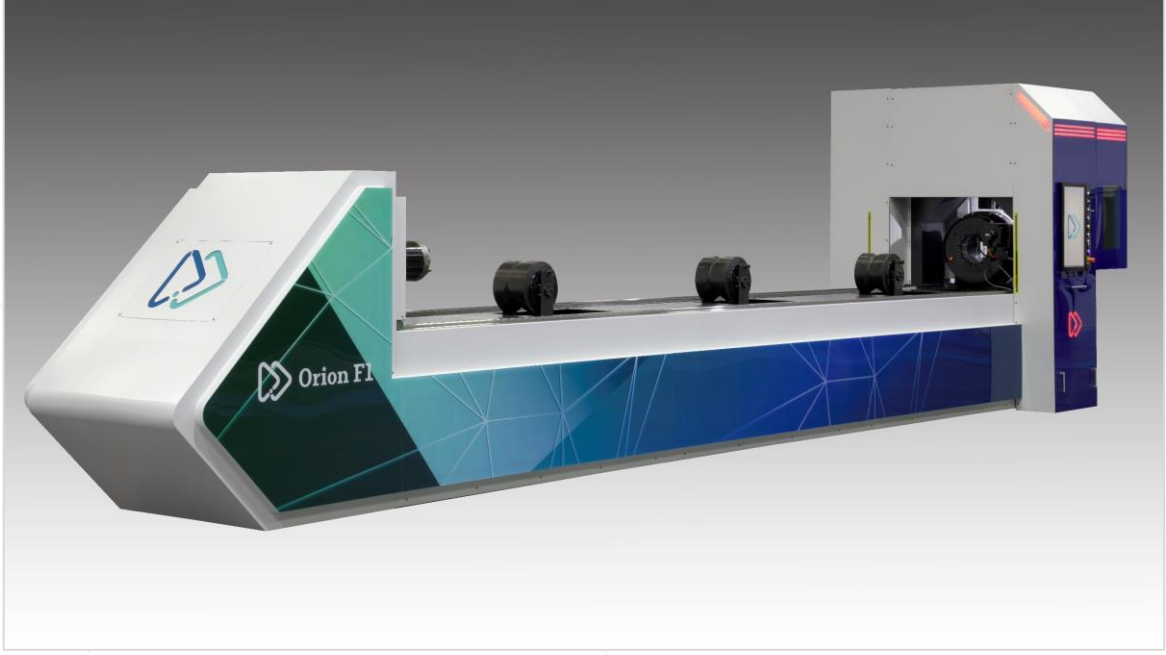
Nilüfer Organize Sanayi Bölgesi
Gürgen Cd. No: 4 Nilüfer / BURSA / TR
T: +90 224 411 05 37 F: +90 224 411 05 38
www.ileriteknik.com



İleri Teknik
Innovative Sawing Technologies

Orion F1

Laser Pipe Cutting Machine



Nilüfer Organize Sanayi Bölgesi
Gürgen Cd. No: 4 Nilüfer / BURSA / TR
T: +90 224 411 05 37 F: +90 224 411 05 38
www.ileriteknik.com



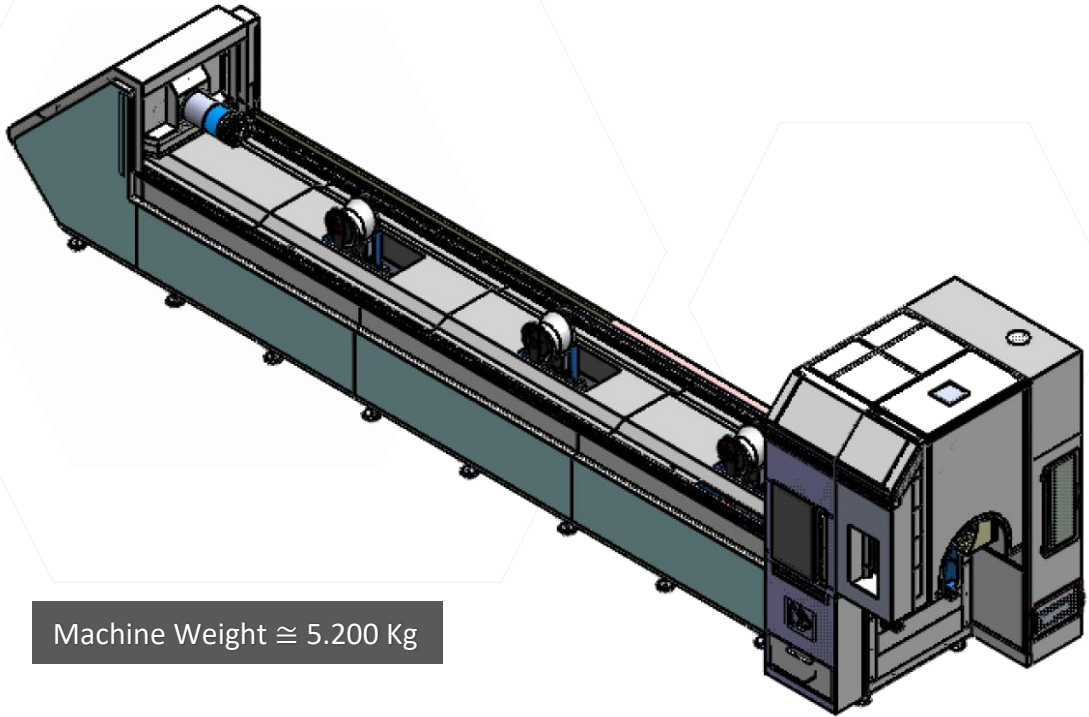
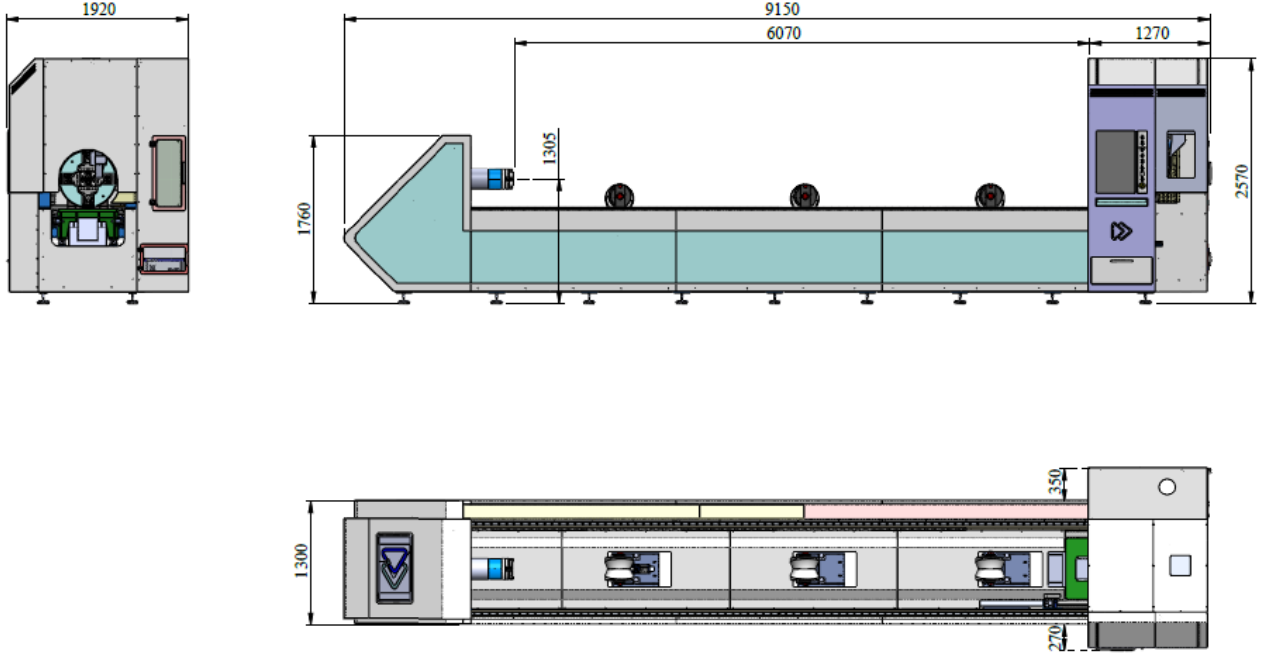
Professional pipe, profile cutting machine is a series that offers precision, high cutting quality and less service needed.

- 1kW, 1,5kW, 2kW and 3kW power source alternatives,
- Suitable for cutting round pipes, square, rectangular, C, U, I profiles,
- Maximum cutting capacity is for square min. 15x15, Max. 150x150, for round pipe from \varnothing 15mm up to \varnothing 220mm,
- Suitable for fixing max. 6.100 mm length profile and pipes with max. 230 kg loading weight.
- The necessary analyzes have been carried out so that the machine body can work at high speeds with high precision. Tension relief was performed after welding to ensure longevity and precision. All required surfaces are reshaped with high precision CNC machines.

1. Technical Details

Machine		Features			
Machine Model		ORION F1			
Dimensions LxWxH (m)		9.15x1.92x2.57			
Weight (Kg)		5.200			
Cutting Head		Raytools BD04K / Precitec Light Cutter 2.0			
Resonator		Raycus / Max Photonics / Ipg / nLight			
Resonator Power		1 kW	1,5 kW	2 kW	3 kW
Material Cutting Capacities	Mild Steel	4 mm	6 mm	8 mm	10 mm
	Stainless Steel	2 mm	4 mm	5 mm	6 mm
	Aluminum (AlMg3)	3 mm	4 mm	6 mm	8 mm
	Cooper	1,5 mm	2 mm	3 mm	5 mm
	Brass	1,5 mm	2 mm	3 mm	5 mm
Cutting Capacities	Profile Types Can Be Cut	Round, square, rectangular, c , u , l			
	Min - Max. Pipe Diameter	Ø15 mm - Ø220 mm			
	Min - Max. Square Profile Dimension	15 x15 mm - 150 x 150 mm			
Max. Material Length		6100 mm			
Min. Length of Remaining Material		70 mm			
Unloading Length		Manuel / 3000 mm (Optional)			
Max. Total Workpiece Weight		230 kg			
Height of Chuck Center		1305 mm			
Chiller		S&A / I-Tech / Ipg / Omi			
Chuck		Ø15 - Ø220 mm Hollow Wrist			
Positioning and Movement	Rack and Pinion	Framo Morat			
	Liners	Hiwin / Bosch Rexroth			
Cable Carriage		Iigus			
Motors		Panasonic			
Reducer		Liming - Framo Morat			
CNC		FsCut 5000S			
Nesting		TubesT			
Screen		27" Industrial Touch Screen Panel			
Electrical Components		Eaton, Kraus&Naimer, Phoenix			
Laser Safety Barrier		Omron			
Y Axis Max. Speed (Material Feeding Speed)		125 m/min.			
Chuck Rotation Speed		130 rpm.			
X,Y Axis Repeatability Precision		±0.02 mm			
Tube Center Search with Capacitive Sensor		Yes			

2. Layout



Machine Weight \cong 5.200 Kg

3. Component List

3.1 RAYCUS / RFL-C2000W FIBER LASER SOURCE



RFL-C2000W 2 kW resonator is suitable for cutting 8 mm mild-steel, 5 mm stainless steel and 6 mm aluminum with correct speed. It has higher electro-optical conversion efficiency, lower power consumption and more excellent beam quality.

3.2. CWFL-2000 PRO SERIES FIBER LASER CHILLER

Suitable for 2 kW fiber laser power source and work correspondingly.

Multiple warning protections, water level alarm, over-temperature alarm, water flow alarm, etc.

Thermal insulation for water tubing, pump and evaporator
Fully hermetic compressor with built-in motor protection



3.3. RAYTOOLS BD04K SERIES CUTTING HEAD



Auto Focus Tube Cutting Head up to 4 kW Power Rating. It has a Lightweight design with fast acceleration, Optimized optical configuration and efficient airflow design significantly to improve cutting quality and efficiency.

3.4. CHUCKS



It adopts dual pneumatic clamp design on both sides and it can modulate the center of the materials such as pipes, square, rectangular or C,U,I profiles automatically and precisely. The diagonal adjustable range is 15-220mm.

3.5. FSCUT5000S (FIVE AXIS) LASER CUTTING CONTROL SYSTEM

FSCUT5000S series is EtherCAT bus system for fiber laser tube cutting machine.

It applied to 3-chuck delivering structure, work with TubestT 3D nesting software, it will achieve most efficiency and least waste.



3.6. TUBEST NESTING SOFTWARE FOR PIPES AND PROFILES



Create parts via standard parameter (circle, rectangle, Obround, U/H/T profiles and free from shape parts); Allow to create wrapping holes by planer contour of any shape; 3D vision, allow to zoom and move graphic view and facilitate user to check tube holes and cut-off section.

3.7. INDUSTRIAL TOUCH SCREEN CONTROL PANEL AND CONTROLLERS



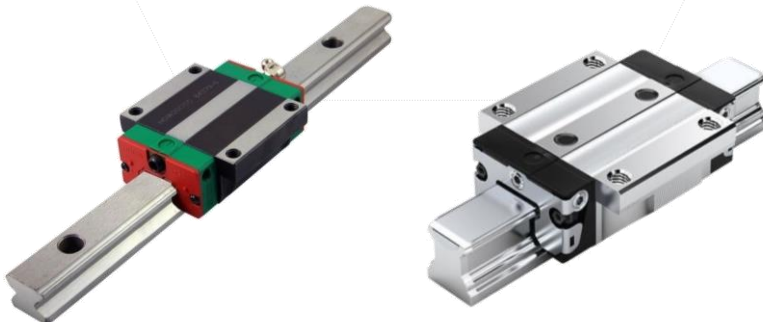
User Friendly 27" Industrial touch screen control panel with easy reach button set. With extra USB ports on the panel, it is easy to use them for uploading files. Inside the electrical panel, all servo drivers are connected to the CNC, so it is easy to control servo drivers directly from the screen. Socket for internet connection allows İleri Teknik Technicians to connect to the machine via remote control program from anywhere where there is an internet.

3.8. PANASONIC SERVO MOTOR & DRIVERS

Highly reliable, efficient and high precision Panasonic motor and Drivers control the axis.



3.9. HIWIN OR BOSCH REXROTH LINEAR GUIDEWAYS



High precision, smooth and quiet linear guideways work on X, Y, Z axis.

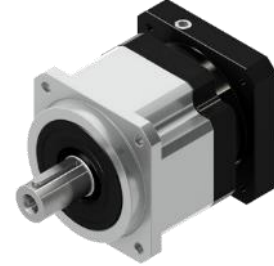
3.10. FRAMO MORAT PRECISION GRINDED RACK AND PINION



Orion F1 uses high-precision and backlash-free drive systems developed by Framo Morat, a subsidiary of the German Franz Morat Group, especially for use in laser pipe cutting machines.

3.11. LIMING AND FRAMO MORAT REDUCERS

Liming and Framo Morat are the High Precision reducers which used together with Panasonic motors and Framo Morat Rack and Pinions. They are well fits and high-capacity reducers well match with Orion F1 Tube cutting machine.



3.12. IGUS CABLE CARRIAGE



With fully enclosed series, supports, reliable protection against dirt and swarf. IGUS cable carriers, which can be used at high speeds due to their dense and robust design, protect the cables and hoses of ORION F1.

3.13. EATON, KRAUS&NAIMER, PHOENIX ELECTRICAL COMPONENTS



All components used inside the electrical box are proven all around the world and are well-known brands. They are suitable for CE norms and give the highest safety.

3.14. OMRON SAFETY LIGHT CURTAIN



Omron light curtains and light barriers include a muting function that temporarily disables the safety light curtain when a workpiece or man passes through. They are reliable protection for both man and machine.



4.Details about the components

4.1 RAYCUS / RFL-C2000W FIBER LASER SOURCE

Compared with traditional lasers, Raycus CW fiber laser has higher efficiency electric-optical conversion, lower power consumption and excellent beam quality. The fiber laser is compact and ready to use. It can be used as a stand-alone unit or easily inserted into user's apparatus.



Main Features:

- Excellent beam quality
- High quality fiber output
- High Power Stability
- Output power continuously adjustable, fast switching response
- Maintenance free operation
- High efficiency of electric-optical conversion
- Convenient control interface
- Fast modulation

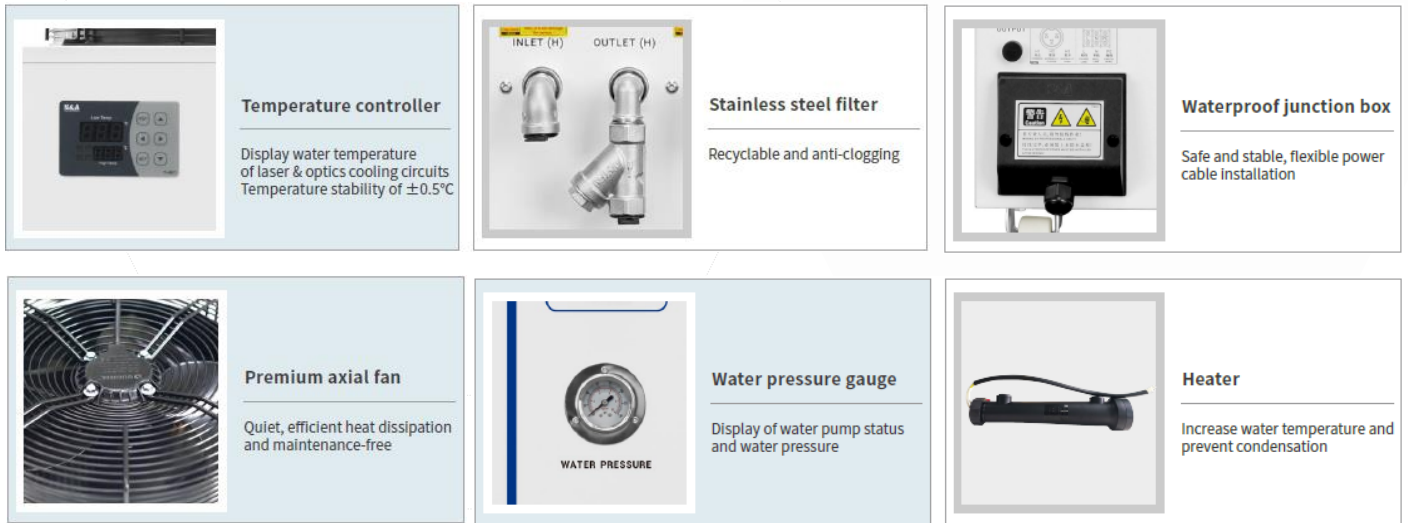


Model	C100	C200L	C200	C300L	C300	C500	C750	C1000	C1500	C2000	Test Conditions	
Optical Characteristics												
Nominal Output Power(W)	100	170	200	250	300	500	750	1000	1500	2000		
Operation Mode	CW/Modulated											
Polarization State	Random											
Output Power Tunability(%)	10~100											
Emission Wavelength(nm)	1080±5											
Output Power Instability	± 1.5											
Modulation Frequency(Hz)	50~50,000											
Red Guide Laser Power(mW)	0.1~1											
Optical Output Characteristics of QBH head												
Beam Quality	M ² ≤ 1.3						BPP < 2.3 (mm×mrad)			Nominal Output Power		
Core Fiber(μm)	25						50(25, 100, 200 optional)					
Delivery Cable Length(m)	15						20					
Electrical Characteristics												
Power Supply	220±10% V AC, 50/60Hz						380±10% V AC, 50/60Hz					
Numerical Aperture (NA)	0.11						0.2					
Max. Power Consumption(W)	400	800	800	1000	1000	2000	3000	4000	5000	6500		
Control Mode	RS-232/AD/Ethernet											
Other Characteristics												
Dimensions(W×H×D)	485×237×663(include. handles)						485×237 lude. handles)		520×620×986 handles)			
Weight(kg)	<50						<80					
Operating Ambient Temperature(°C)	10~40											
Humidity (%)	<70											
Storage Temperature(°C)	-10~60											
Cooling Method	Water Cooling											

4.2 RAYCUS /CWFL-2000 PRO SERIES FIBER LASER CHILLER



CWFL-2000 is specially made to control the temperature of fiber laser metal cutter machine up to 2kW.



Model	CWFL-2000ANP	CWFL-2000BNP
Voltage	AC 1P 220V-240V	AC 1P 220V-240V
Frequency	50Hz	60Hz
Current	3.4~17.8A	3.9~17.3A
Max. power consumption	3.03kW	3.38kW
Heater power	600W + 600W	
Precision	$\pm 0.5^{\circ}\text{C}$	
Reducer	Capillary	
Pump power	0.55kW	0.75kW
Tank capacity	14L	
Inlet and outlet	Rp1/2"+Rp1/2"	
Max. pump pressure	4.4bar	5.3bar
Rated flow	2 L/min+>15 L/min	
N.W	77Kg	70Kg
G.W	87Kg	82Kg
Dimension	70×47×89 cm (L×W×H)	
Package dimension	74×61×104 cm (L×W×H)	



4.3 RAYTOOLS BD04K SERIES CUTTING HEAD

RAYTOOLS BD04K SERIES



Auto Focus Tube Cutting Head

Power Rating **4KW**

Excellent Design

Lightweight design with fast acceleration, Optimized optical configuration and efficient air flow design significantly to improve cutting quality and efficiency.

High Adaptability

With QBH,QD,G5 and other types of optical fiber interfaces, It is applicable to various fiber lasers.



Sealed Beam Path

Good sealing to keep beam path clean.

Auto Focus

Automatically change the focus position.

Technical Data

Item	Specification
Collimation Length	100mm
Focusing Length	200mm
Cover Glasses	
-Top	Φ24.9*1.5mm
-Middle	Φ27.9*4.1mm
-Bottom	Φ27.9*4.1mm
Auto Focus Control	
-Pulse+Direction	
-0~10V Analog	
-EtherCAT	
Beam Alignment	Collimator X/Y
Beam Alignment Range	±1mm

Item	Specification
Focus Adjustment	Focus Lens Moving
Auto Focus Range	-12~+12mm
Fiber Interface	QBH,QD,G5
Weight	~4.8Kg
Nozzle Style	Single/Double
Diameter of Nozzle Tip	1.2mm,1.5mm,2.0mm,2.5mm 3.0mm,3.5mm,4.0mm
Height Follow System	Optional
-Standalone	
-0~10V Analog	
-EtherCAT	



4.4 FSCUT 5000S (FIVE AXIS) LASER CUTTING CONTROL SYSTEM

FSCUT



Introduction

FSCUT5000 series is EtherCAT bus system for fiber laser tube cutting machine. FSCUT5000A applied to 3-chuck delivering structure, FSCUT5000B applied to 2-chuck structure, work with TubesT 3D nesting software, it will achieve most efficiency and least waste.



Specification

Feature	EtherCAT Bus System		Pulse System	
	FSCUT5000A	FSCUT5000B	FSCUT3000S	FSCUT3000
System	FSCUT5000A	FSCUT5000B	FSCUT3000S	FSCUT3000
Software	TubePro	TubePro	TubePro, CypCut	CypTube, CypCut
Application	3-chuck 7-axis linkage Tube cutting	2-chuck feeding Tube cutting	2-chuck feeding Tube, tube-sheet combo	Tube, tube-sheet combo
Tube center offset	●	●	●	—
Corner technique	●	●	●	—
Tube feeding	●	●	●	—
Real time bus	●	●	—	—
Active control	●	●	—	—
3-chuck delivering	●	—	—	—

Performance

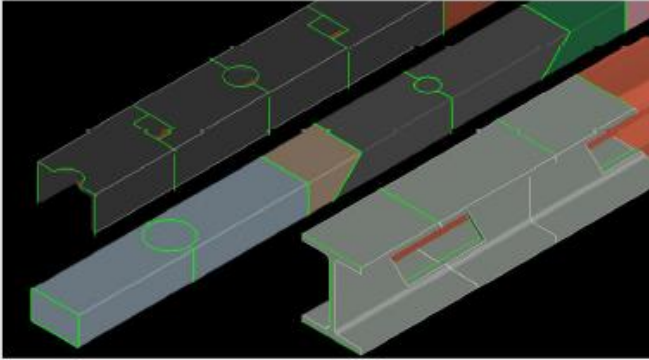
Performance Feature	
Functions	Offset tube center error in production to improve through holes cutting precision
	Active control based on ethercat bus technology, more faster and stable in corner cutting
	Support holders following up tube in rotation to guarantee cutting quality
	Support hollow chuck feeding tube in cutting to allow longer tube production in shorter machine travel range
	Support 3-chuck delivering tube in production to improve cutting quality and minimize waste
Nest software	TubesT 3D tube nesting software make it easier in parts drawing and toolpath generation

Accessories

	Item	Model	Description	Qty.
Standard	EtherCAT station	CypTronic-E	EtherCAT master station, running control system	1
	Extension board	BCL4516E	EtherCAT I/O extension board	1
	Height control	BCS100E	Capacitive height control and follow unit	1
Cable	LAN/SPC/HC cable (optional length)			

4.5 TUBEST NESTING SOFTWARE FOR PIPES AND PROFILES

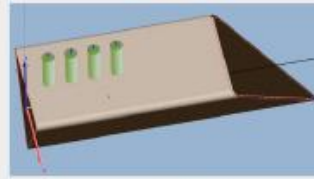
Tubest



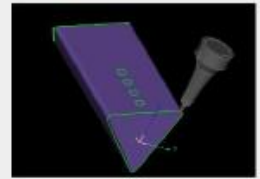
Parts nesting

Introduction

TubesT is designed for CypTube/TubePro laser cutting system. From parts drawing and modification, full type compensation, strategic nesting to report generation, TubesT will meet and exceed your production needs.

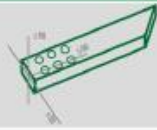


Parts drawing



Toolpath simulation

Parts design



Create parts via standard parameter(circle, rectangle, Obround, U/H/T profiles and free form shape parts);
Allow to create wrapping holes by planar contour of any shape;
3D vision, allow to zoom, rotate and move graphic view and facilitate user to check tube holes and cut-off section.

Quick



Support import parts of different shape all at once;
Support IGS/SAT and assembly;
Support import and create standard parts via Excel table.

Auto nest



Support auto nest parts of different shape all at once; Support flexible common line styles to minimize waste;
Support round tube rotation in nesting; support manual nest;
Support simple and detailed nest report.

Graphic technique



Support drawing modification of inner/outer contour selection, welding seam avoidance etc; Support auto-add technique of kerf compensation, lead line, micro-joint and cooling point; Support edit 3D vector of profile contour, support bevel cutting technique.