

BLT Intelligent Laser Cutting Head

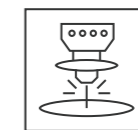
Selection Guide



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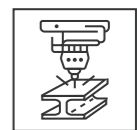
To bring you intelligent manufacturing



2D Cutting



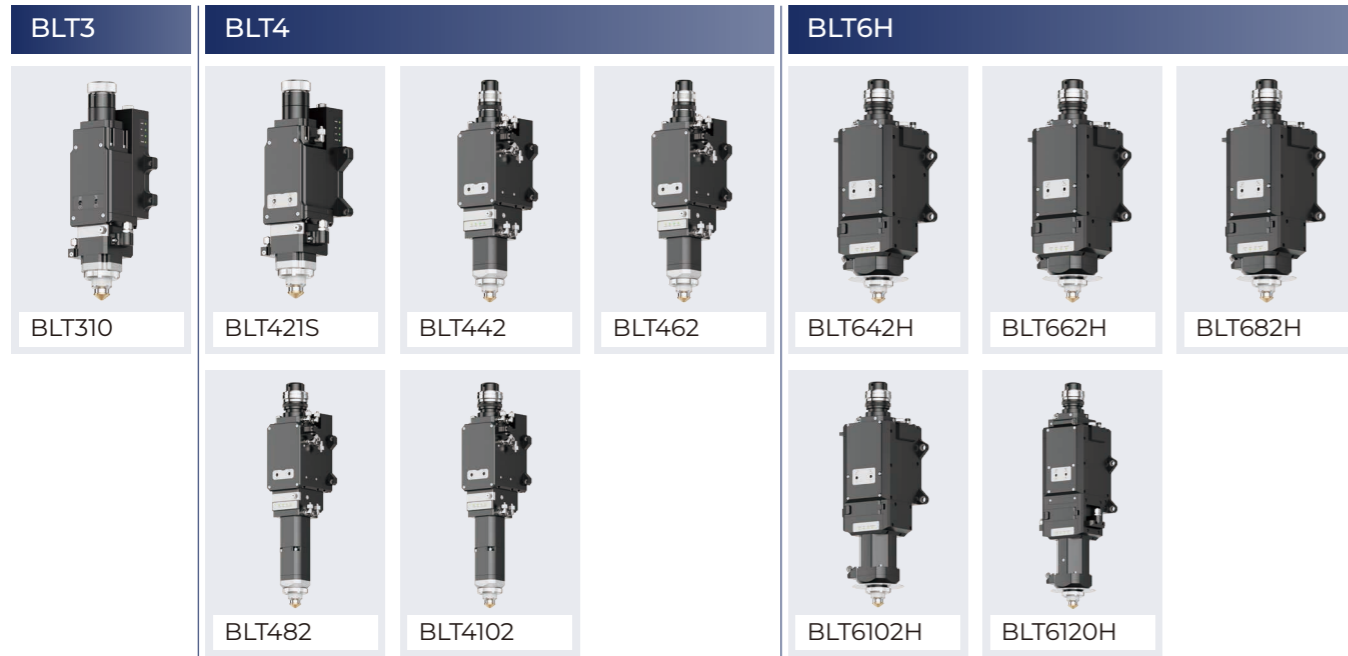
Tube Cutting



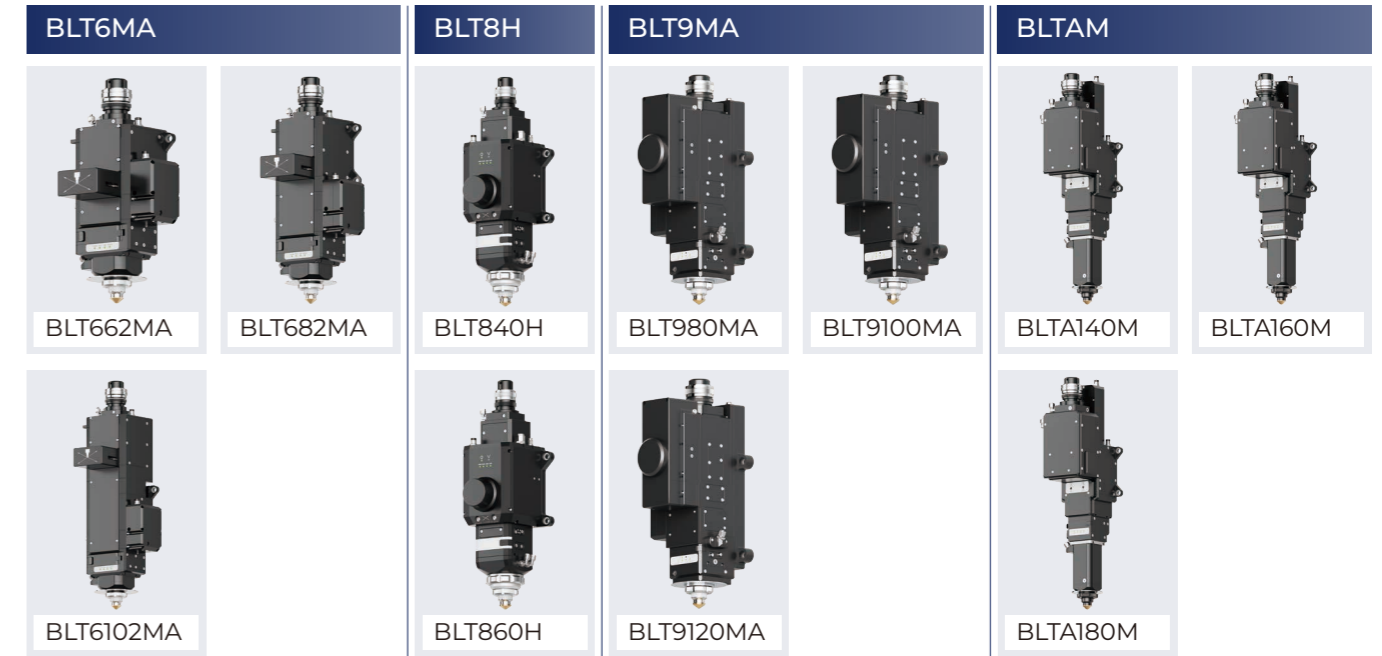
3D Cutting

Overview

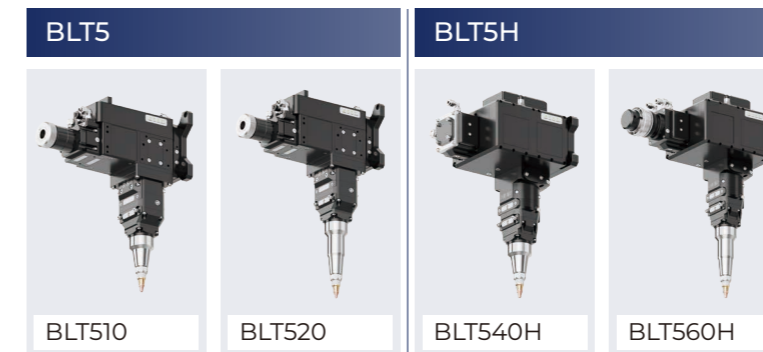
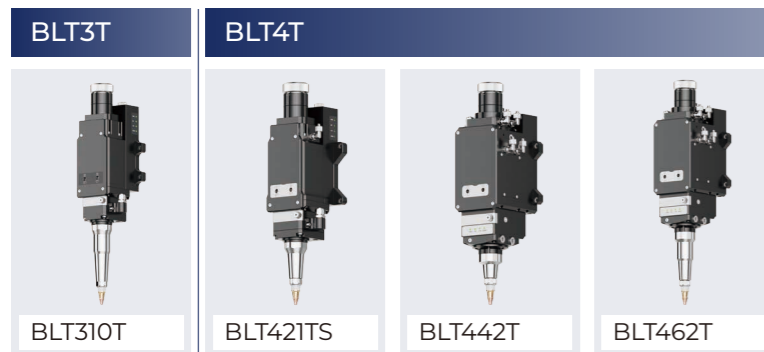
2D Laser Cutting Head



Overview



Tube Laser Cutting Head



Other 3D Laser Cutting Head



Rotary Axis



Product Series and Power Range

	2D Laser Cutting Head	Tube Laser Cutting Head	Other 3D Laser Cutting Head
4kW	BLT310 P07	BLT310T P14	
		BLT510 P16	
8kW	BLT421S P08	BLT421TS P15	
		BLT520 P16	
15kW	BLT442 P08	BLT442T P15	BLT442P P17
	BLT642H P09	BLT540H P16	BLT442 P08
	BLT840H P11		
20kW	BLT462 P08	BLT462T P15	BLT462P P17
	BLT662H P09	BLT560H P16	BLT462 P08
	BLT662MA P10		
	BLT860H P11		
30kW	BLT482 P08		BLT482P P17
	BLT682H P09		BLT482 P08
	BLT682MA P10		
	BLT980MA P12		
40kW	BLT4102 P08		BLT4102P P17
	BLT6102H P09		BLT4102 P08
	BLT6102MA P10		
	BLT9100MA P12		
60kW	BLT6120MA P09		
	BLT9120H P12		
80kW _{and above}	BLTA140M P13		
	BLTA160M P13		
	BLTA180M P13		

2D Laser Cutting Head Features and Portfolio

Product Groups	BLT3	BLT4	BLT6H	BLT8H	BLTAM	BLT6MA	BLT9MA
Mechanical	Closed-Loop Monitoring	●	●	●	●	●	●
	Fast Focusing	●	●	●	●	●	●
	Nozzle Cooling	●	●	●	●	●	●
	Built-In Amplifier	●	●	●	●	●	●
	Full-body Water Cooling		●	●	●	●	●
	Collision Protection	●	●	●	●	●	●
	3 Sets of Protective Windows	●					
4 Sets of Protective Windows		●	●	●	●	●	
Sensor	Protective Window Monitoring	●	●	●	●	●	●
	Cutting Gas Pressure Monitoring	●	●	●	●	●	●
	Bottom Protective Cartridge Sealing		● ¹	●	●	●	●
	Protective Window Anti-Explosion		● ²	●	●	●	●
	Focusing Lens Monitoring			●	●	●	●
	Stray Light Monitoring			●	●	●	●
	Smart Piercing			●	●	●	●
	Auto Recut			●	●	●	●
	Smart Laser Off			●	●	●	●
	Co-edge Piercing Monitoring			●	●	●	●
Highlight	2D Bevel Cutting		●				
	Variable Beam Shape				●		●
	Cutting Path Monitoring				●	●	●
	Real-time Focus Centering					●	●
	Quick Focus Centering						●
Controller	2000S	○	○	○			
	2000E	●	○	○			
	4000E	○	●	○			
	6000E	○	●	○			
	8000A/B/C		○	●	●	●	●

●=Recommended ○=Optional

¹² BLT421S does not support Bottom Stray Light Monitoring, Protective Window Anti-Explosion.

Tube Laser Cutting Head Features and Portfolio

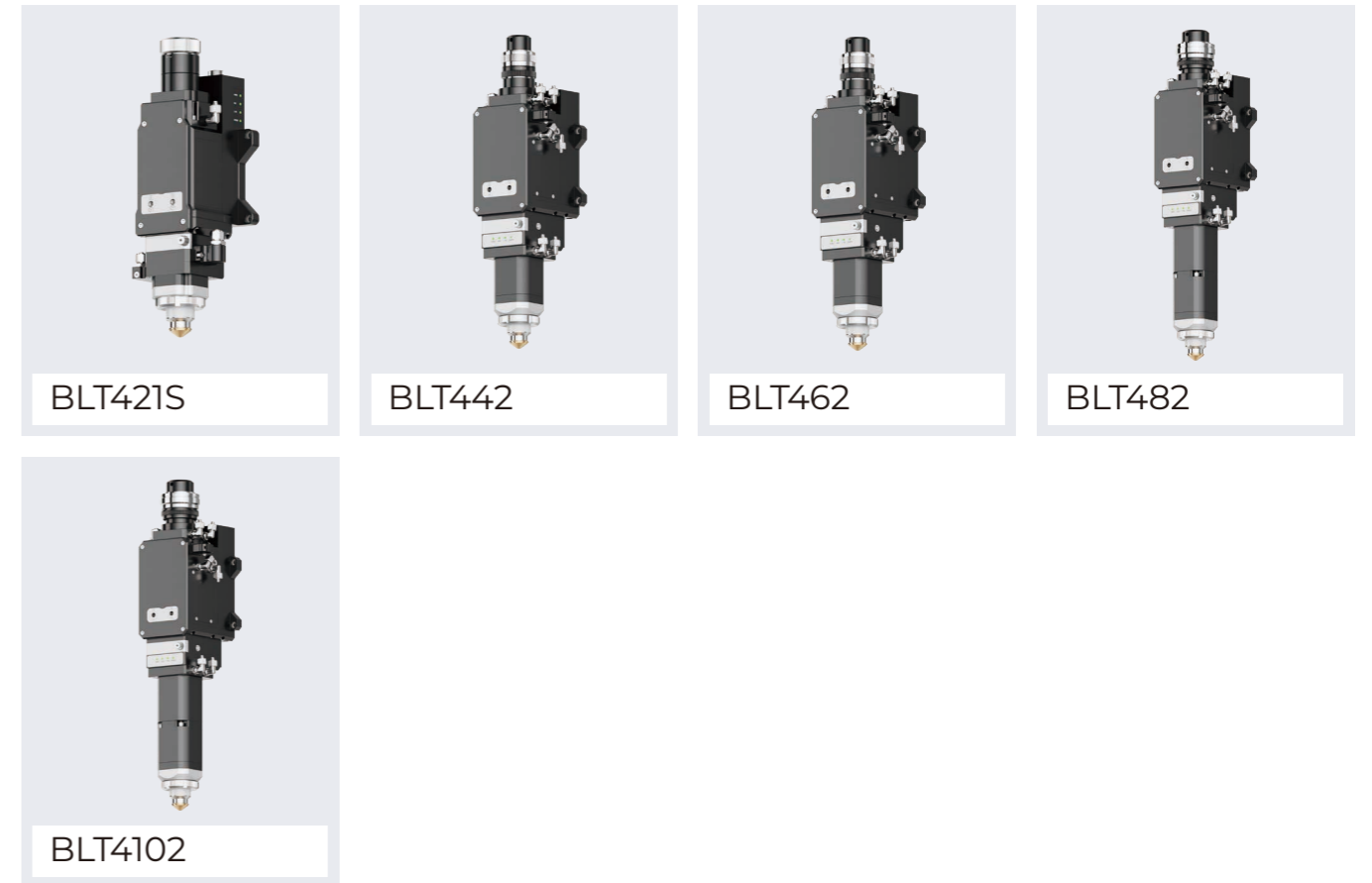
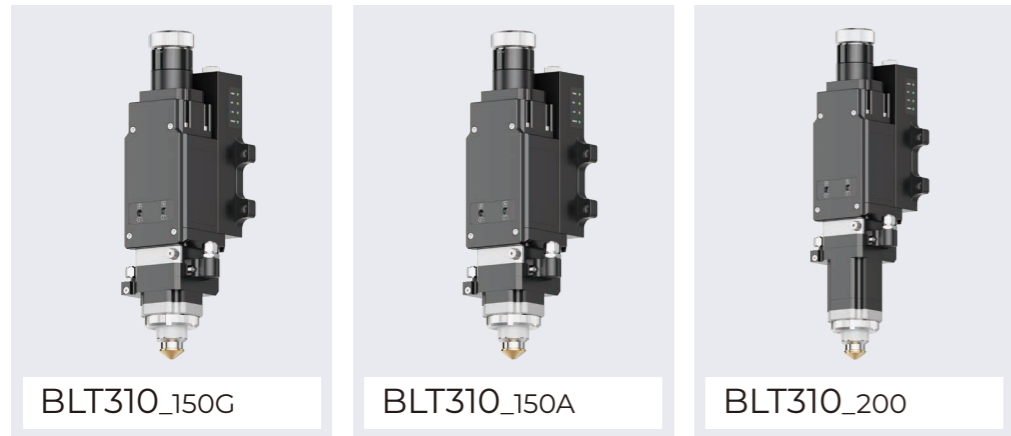
Product Groups		BLT3T	BLT4T	BLT5	BLT5H
Mechanical	Closed-Loop Monitoring	●	●	●	●
	Fast Focusing	●	●	●	●
	3D Sensing Head	●	●	●	●
	Built-In Amplifier	●	●	●	●
	Full-body Water Cooling		●	●	●
	Collision Protection	●	●	●	●
	3 Sets of Protective Windows	●			
	4 Sets of Protective Windows		●	●	●
Sensor	Protective Window Monitoring	●	●	●	●
	Cutting Gas Pressure Monitoring	●	●	●	●
	Bottom Protective Cartridge Sealing		●		●
	Protective Window Anti-Explosion		●		●
	Focusing Lens Monitoring		●		●
	Stray Light Monitoring				●
	Smart Piercing				●
	Auto Recut				●
	Smart Laser Off	●			●
	Co-edge Piercing Monitoring				●
Tube Bevel Cutting	●	●		●	
Controller	3000DE-A	●	○		
	3000DE-D	○	○		
	3000DE-H	○	○		
	3000DE-L	○	○		
	3000DE-M	●	●		
	3000DE-G	○	●		
	5000S			●	●

●=Recommended ○=Optional

Other 3D Laser Cutting Head Features and Portfolio

Product Groups		BLT4	BLT4P
Mechanical	Closed-Loop Monitoring	●	●
	Fast Focusing	●	●
	3D Sensing Head	●	●
	Built-In Amplifier	●	●
	Full-body Water Cooling	●	
	Collision Protection	●	●
	3 Sets of Protective Windows		
	4 Sets of Protective Windows	●	●
Sensor	Protective Window Monitoring	●	●
	Cutting Gas Pressure Monitoring	●	●
	Bottom Protective Cartridge Sealing	●	●
	Protective Window Anti-Explosion	●	●
	Focusing Lens Monitoring	●	
	Stray Light Monitoring		
	Smart Piercing		
	Auto Recut		
	Smart Laser Off		●
	Co-edge Piercing Monitoring		
Bevel Cutting	●	●	
9100	●		
9200		●	

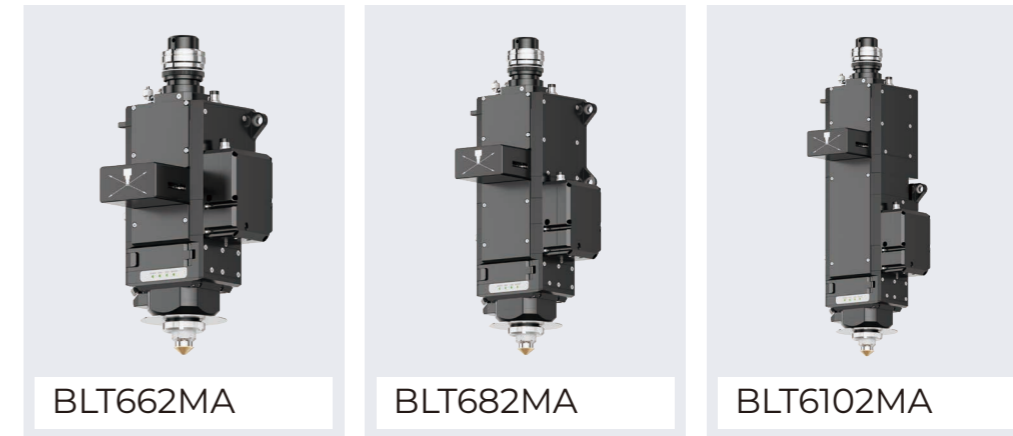
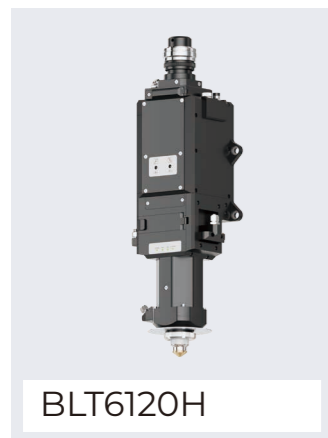
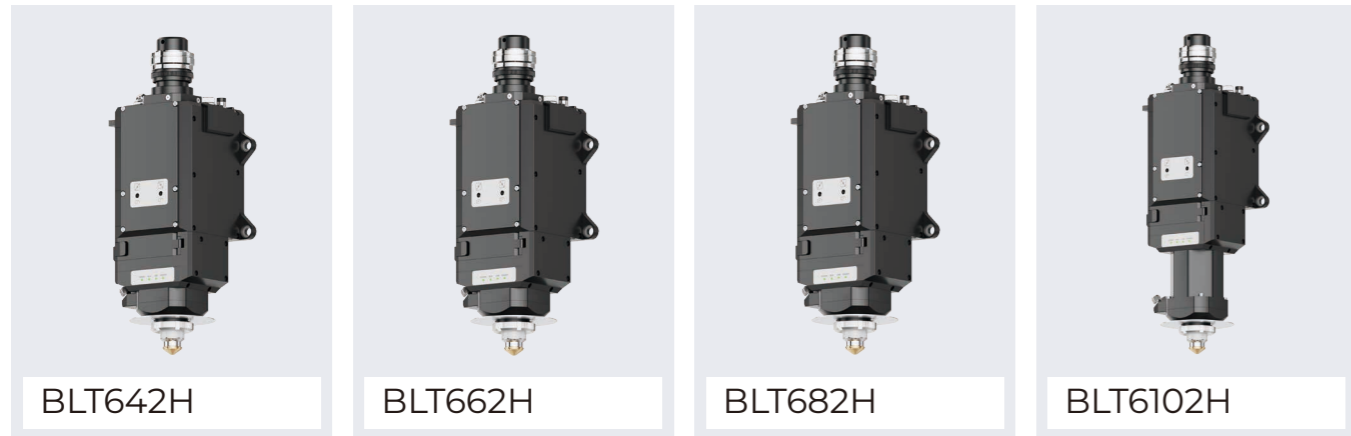
●=Recommended ○=Optional



Cutting Head Model		BLT310_150G ¹	BLT310_150A ²	BLT310_200
Technical data				
Support Power Range	kW	≤4		
Focal Length	mm	150		200
Energy Distribution		Gaussian Distribution	Homogeneous Distribution	
Fiber Interface		QBH/EOC		
Focus Speed	mm/s	300		
Focus Range	mm	±50		
Reposition Precision	mm	±0.01		
Laser Wavelength	nm	1030~1090		
Max Gas Pressure	Bar	25		

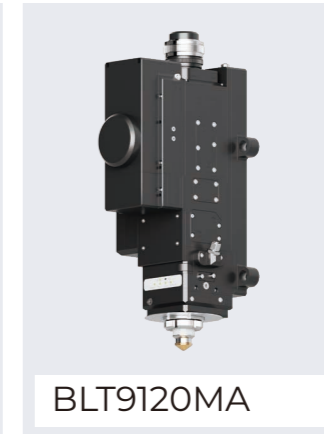
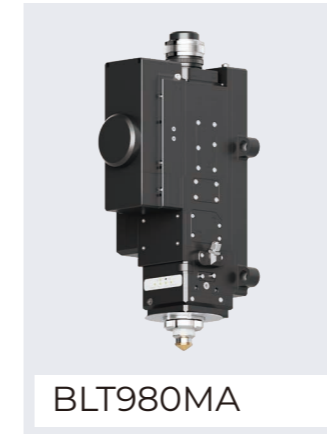
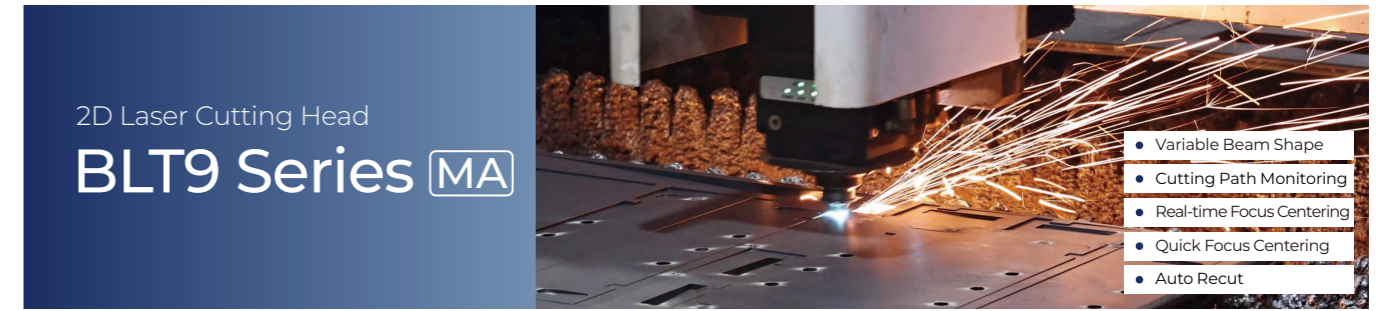
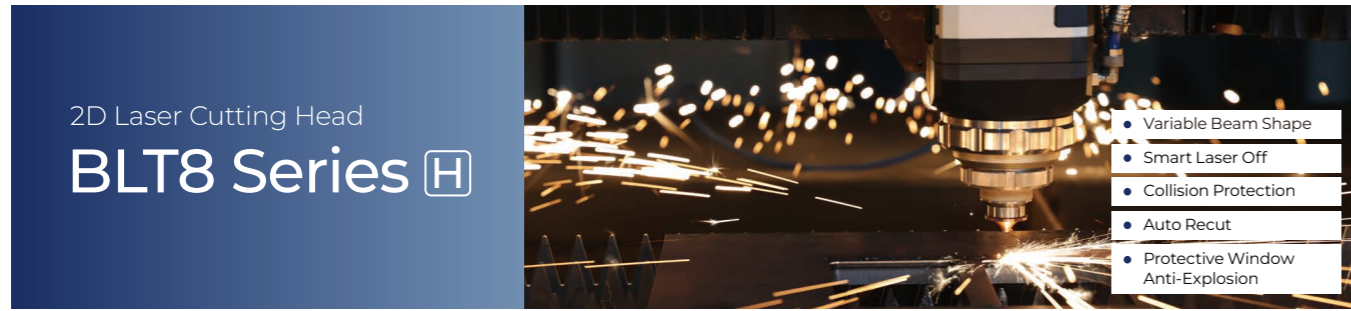
¹ 150G - With more concentrated beam energy, it enhances the quality and efficiency of cutting thin sheets.
² 150A - With a wider process window, it reduces setup complexity, enhancing the quality of oxygen cutting.

Cutting Head Model		BLT421S	BLT442	BLT462	BLT482	BLT4102
Technical data						
Support Power Range	kW	≤8	≤15	≤20	≤30	≤40
Focal Length	mm	150/200	200		200/300	300
Fiber Interface		QBH/EOC	Q+/QD/QBH/ADD			
Focus Speed	mm/s	500				
Focus Range	mm	±50				+50~-100
Reposition Precision	mm	±0.01				
Laser Wavelength	nm	1030~1090				
Max Gas Pressure	Bar	25				



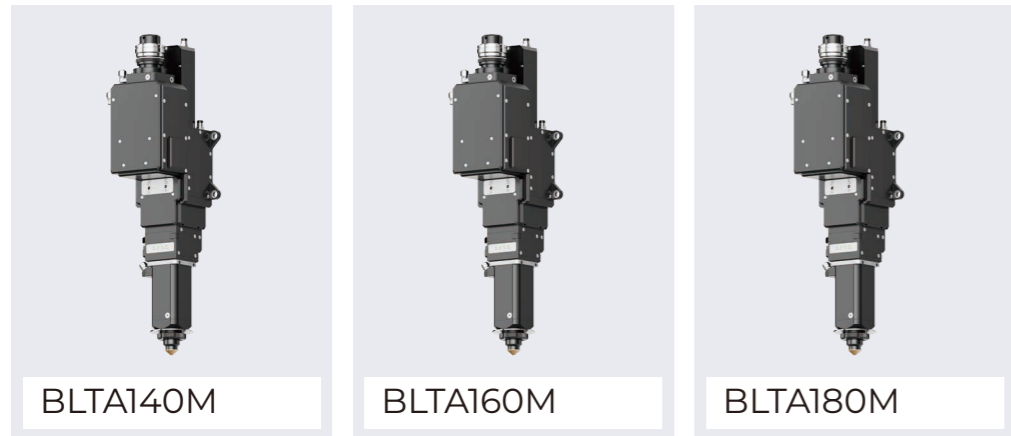
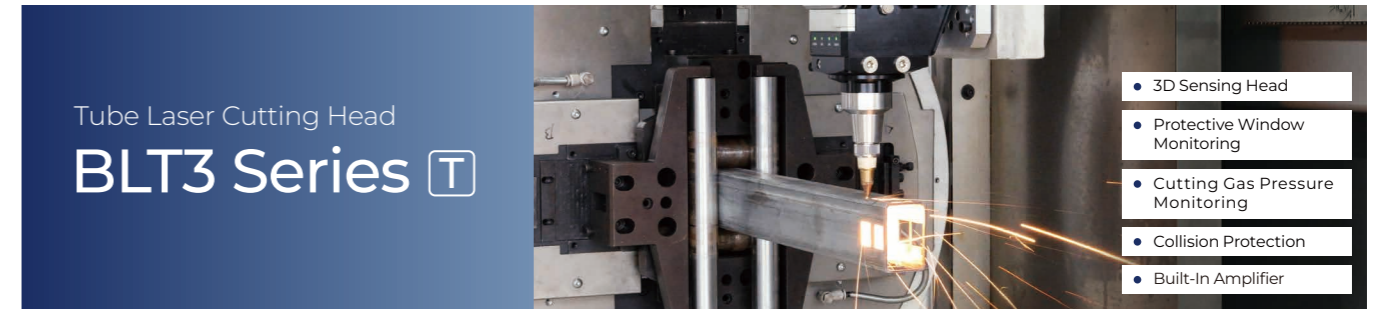
Cutting Head Model		BLT642H	BLT662H	BLT682H	BLT6102H	BLT6120H
Technical data						
Support Power Range	kW	≤15	≤20	≤30	≤40	≤60
Focal Length	mm	200	200/300	300/400	300	
Fiber Interface		Q+/QD/QBH/ADD				
Focus Speed	mm/s	500				
Focus Range	mm	±50	+50~-100			
Reposition Precision	mm	±0.01				
Laser Wavelength	nm	1030~1090				
Max Gas Pressure	Bar	25				

Cutting Head Model		BLT662MA	BLT682MA	BLT6102MA
Technical data				
Support Power Range	kW	≤20	≤30	≤40
Focal Length	mm	200	300	300/400
Fiber Interface		Q+/ADD		
Focus Speed	mm/s	500		
Focus Range	mm	±50	+50~-100	+50~-150
Reposition Precision	mm	±0.01		
Laser Wavelength	nm	1030~1090		
Max Gas Pressure	Bar	25		



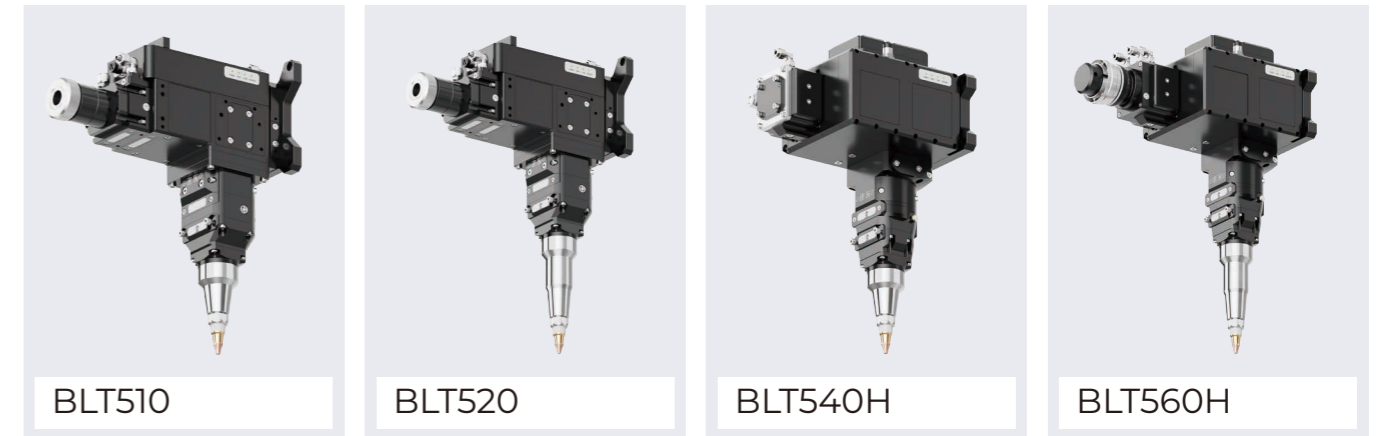
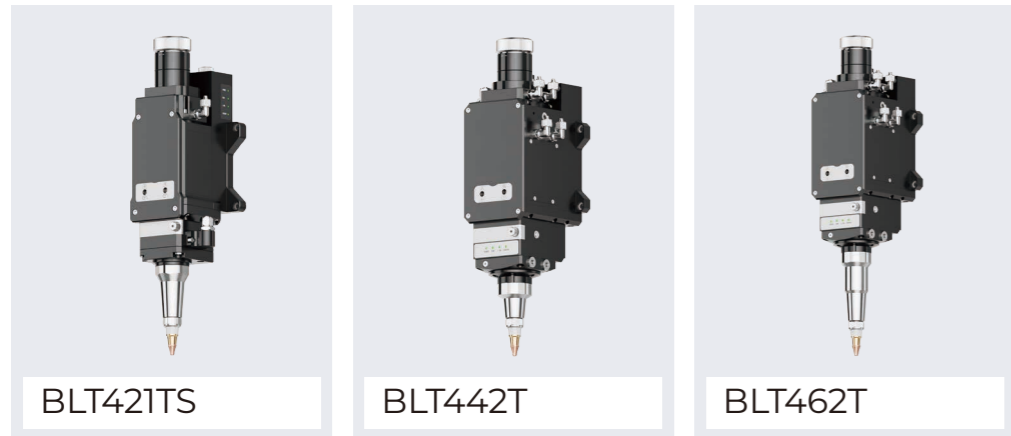
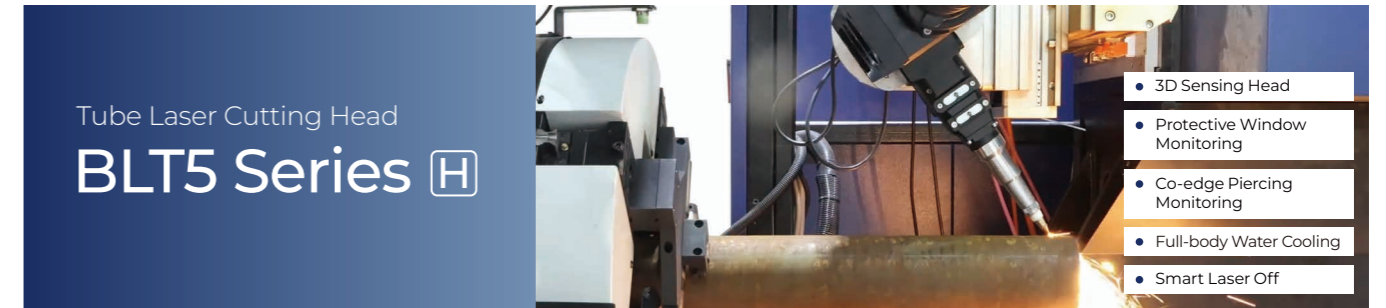
Cutting Head Model		BLT840H	BLT860H
Technical data			
Support Power Range	kW	≤15	≤20
Focal Length	mm	200	
Energy Distribution		Gaussian Distribution/Homogeneous Distribution	
Fiber Interface		Q+/QD	
Focus Speed	mm/s	500	
Focus Range	mm	±50	
Reposition Precision	mm	±0.01	
Laser Wavelength	nm	1030~1090	
Max Gas Pressure	Bar	25	

Cutting Head Model		BLT980MA	BLT9100MA	BLT9120MA
Technical data				
Support Power Range	kW	≤30	≤40	≤60
Focal Length	mm	200/400		
Focus Point Size		M1=2.0/M2=4.0		
Fiber Interface		QD/ADD	Q+/ADD	
Focus Speed	mm/s	500		
Focus Range	mm	+70~-150		
Reposition Precision	mm	±0.01		
Laser Wavelength	nm	1030~1090		
Max Gas Pressure	Bar	25		



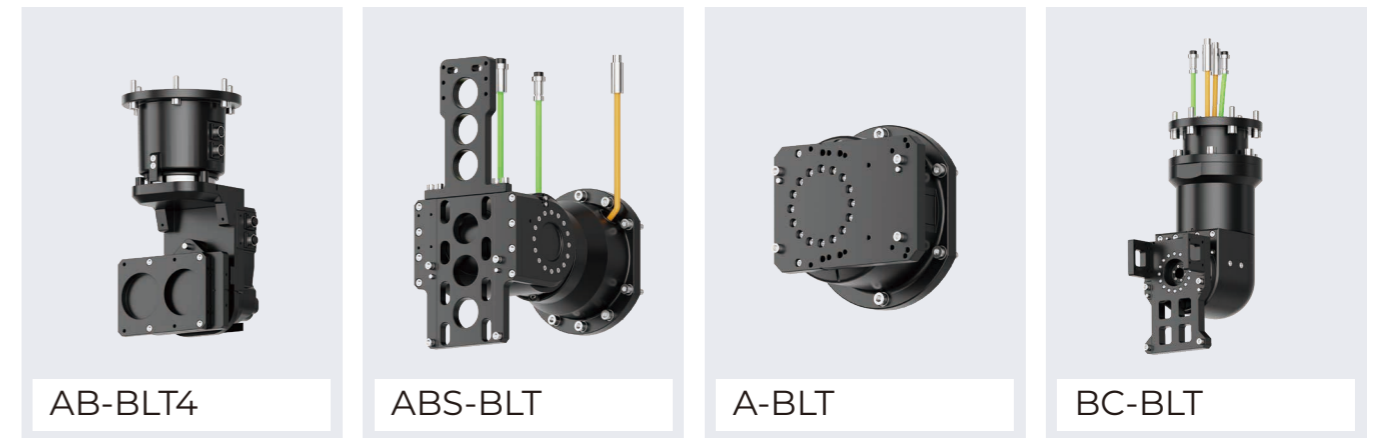
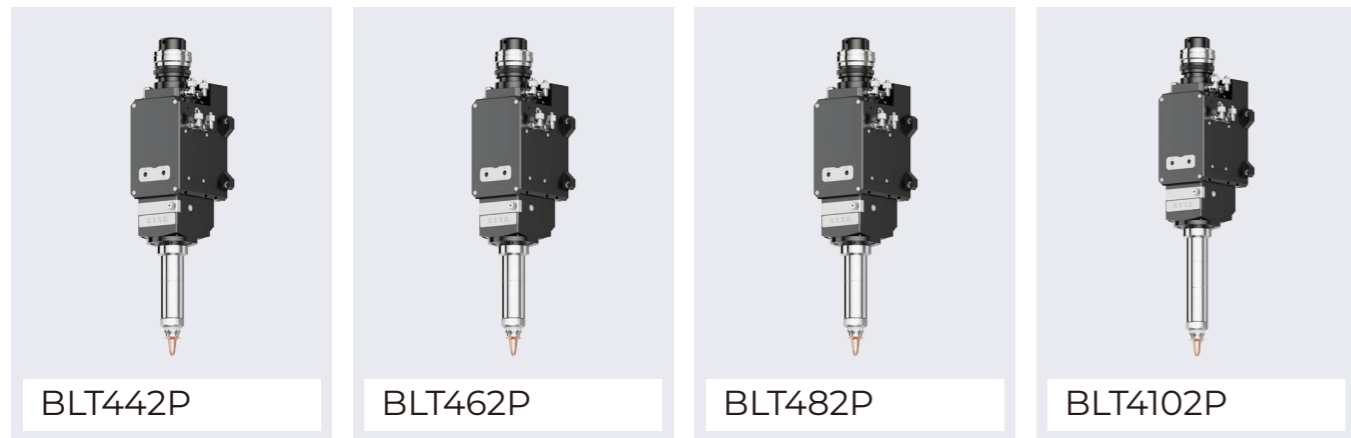
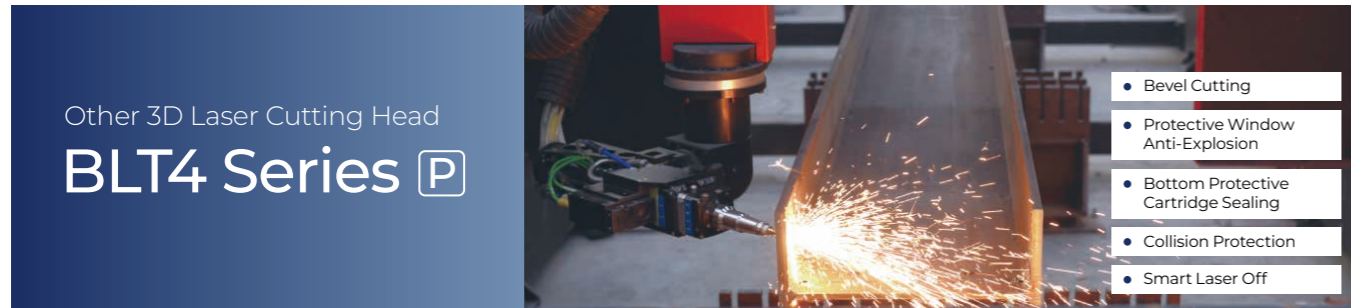
Cutting Head Model		BLTA140M	BLTA160M	BLTA180M
Technical data				
Support Power Range	kW	≤80	≤100	≤120
Focal Length	mm	300		
Fiber Interface		Q+/ADD		
Focus Speed	mm/s	500		
Focus Range	mm	+70~-150		
Reposition Precision	mm	±0.01		
Laser Wavelength	nm	1030~1090		
Max Gas Pressure	Bar	25		

Cutting Head Model		BLT310T
Technical data		
Support Power Range	kW	≤4
Focal Length	mm	200/250
Fiber Interface		QBH/EOC
Focus Speed	mm/s	300
Focus Range	mm	±60
Reposition Precision	mm	±0.01
Laser Wavelength	nm	1030~1090
Max Gas Pressure	Bar	25



Cutting Head Model		BLT421TS	BLT442T	BLT462T
Technical data				
Support Power Range	kW	≤8	≤15	≤20
Focal Length	mm	200/250		300
Fiber Interface		QBH/EOC	Q+/ADD/QBH/QD	
Focus Speed	mm/s	500		
Focus Range	mm	±50		
Reposition Precision	mm	±0.01		
Laser Wavelength	nm	1030~1090		
Max Gas Pressure	Bar	25		

Cutting Head Model		BLT510	BLT520	BLT540H	BLT560H
Technical data					
Support Power Range	kW	≤4	≤8	≤15	≤20
Focal Length	mm	200/250			
Fiber Interface		QBH/EOC		Q+/QD/QBH/ADD	
Focus Speed	mm/s	500			
Focus Range	mm	±50			
Reposition Precision	mm	±0.01			
Laser Wavelength	nm	1030~1090			
Max Gas Pressure	Bar	25			



Cutting Head Model		BLT442P	BLT462P	BLT482P	BLT4102P
Technical data					
Support Power Range	kW	≤15	≤20	≤30	≤40
Focal Length	mm	250/300			
Fiber Interface		Q+/ADD/QBH/QD			
Focus Speed	mm/s	500			
Focus Range	mm	±50			
Reposition Precision	mm	±0.01			
Laser Wavelength	nm	1030~1090			
Max Gas Pressure	Bar	25			

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• Closed-Loop Monitoring



➤ Smart and More Efficient

Built-in multi-sensor, real time closed-loop intelligent monitoring, rapid diagnosis of problems and early warning.

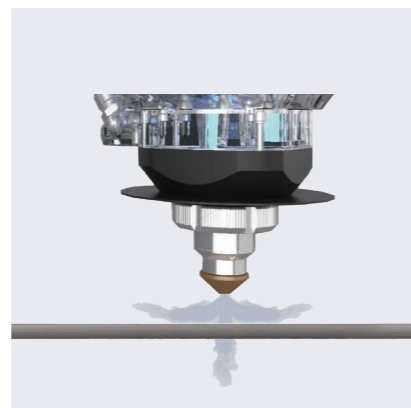
• Fast Focusing



➤ Less Focusing Time

Focal position vertically adjusted by collimating lens, realizing higher efficiency.

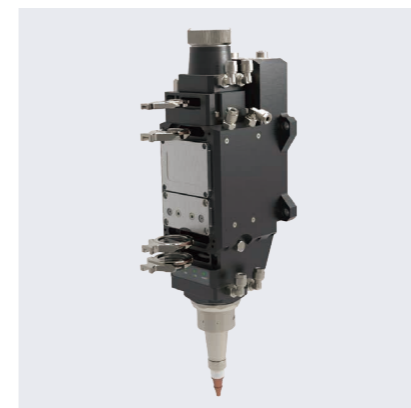
• Nozzle Cooling



➤ More Stable Cutting

Built-in nozzle cooling circuit, adaptable to a wider range of working conditions for stable batch processing, extending the nozzle's service life.

• 3/4 Sets of Protective Windows



➤ Longer Windows Lifespan

Protect the focusing and collimating lens and improve the cartridge sealing.

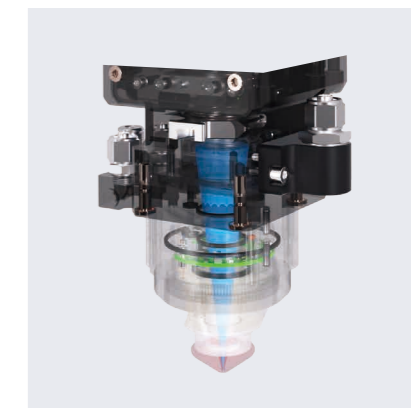
• Protective Window Monitoring



➤ More Stable Cutting

The sensor does real time temperature monitoring. When contamination detected, it will automatically turn off laser and give alarm, this way to limit risk of protective window shattering.

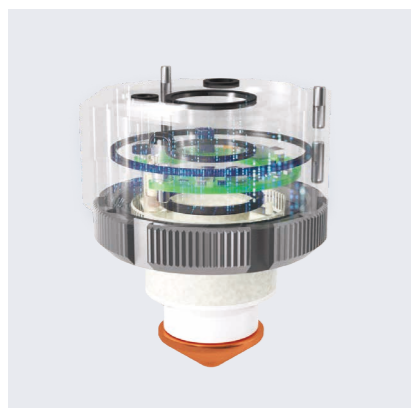
• Cutting Gas Pressure Monitoring



➤ More Stable Cutting

Real-time monitor the gas output to mitigate the impact on cutting quality.

• Built-In Amplifier



➤ Higher Cutting Precision

Integrated capacitance amplifier sensor makes a more precise and stable following.

• Full-body Water Cooling



➤ More Stable Cutting

Featuring a water-cooling design that covers 90% of the cutting head's optical path, ensuring a more stable cutting process.

• Collision Protection



➤ Simpler Maintenance

Protective Screws keep cutting head from damage. No time wasting on Depot Repair.

• Bottom Protective Cartridge Sealing



➤ Protect the Protective Windows

Monitor the sealing of the protective windows cartridge for stable production.

• Protective Window Anti-Explosion



➤ Safer Production

Contamination sensor and system algorithms are upgraded to monitor the stray light of the protective window in real-time.

• Focusing Lens Monitoring



➤ More Stable Cutting

Under real-time monitoring of the focusing lens temperature during cutting, the system will promptly stop and alarm in case of lens contamination, reducing cutting defects caused by contaminated protective window.

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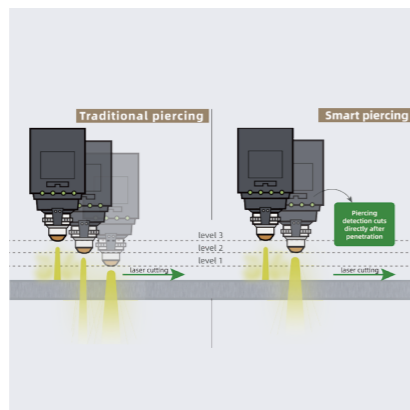
• Stray Light Monitoring



➤ Easy Troubleshooting

Monitor the stray light to prevent damages to the cutting head and to prevent poor cutting.

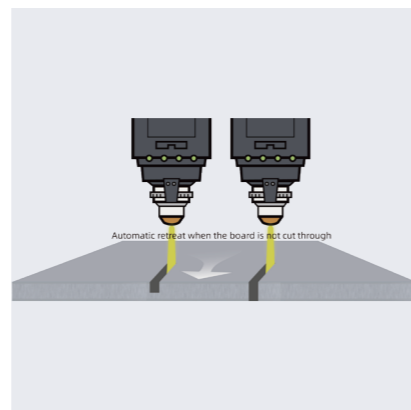
• Smart Piercing



➤ Enhance Piercing Efficiency

Monitor the piercing and cut immediately after piercing to improve the efficiency and reduce costs.

• Process Monitoring



➤ Stable and Efficient Cutting

If a part is not cut through, the cutting head will return and cut it again.

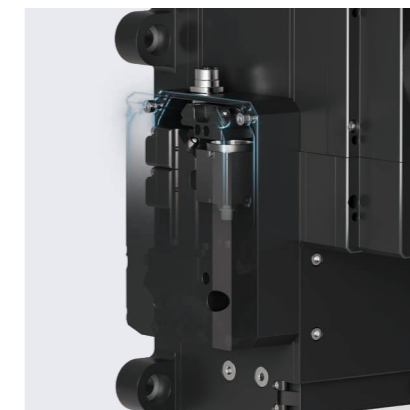
• Variable Beam Shape



➤ Efficient Cutting

The switching between small and large beam spots is used for ultra-high-power cutting of thin/thick plates, support both air and oxygen cutting, improving cutting efficiency and quality.

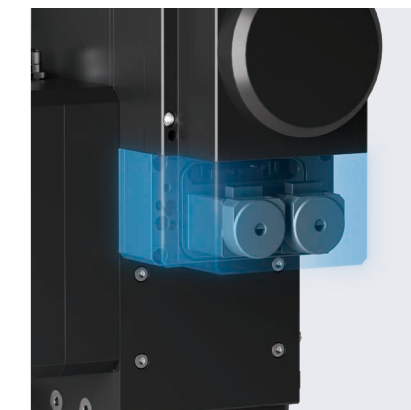
• Cutting Path Monitoring



➤ More Stable Cutting

Monitoring the seam width in real time during the cutting process Intelligent adjustment of focus to ensure consistent cutting results over a long period of time.

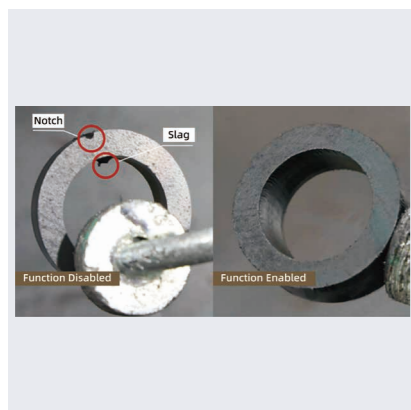
• Real-time Focus Centering



➤ Intelligent Cutting

By collecting molten pool image, the sensor detects any coaxial deviation of the laser beam and automatically adjust it in real-time, ensuring consistent cutting quality.

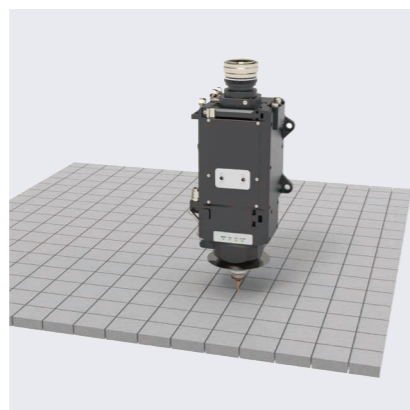
• Smart Laser Off



➤ Improve Cutting Quality

Section and surface finish of inner and outer contours of parts are smooth without slag.

• Co-edge Piercing Monitoring



➤ Efficient Cutting

Detect whether piercing is required at co-edged positions.

• Bevel Cutting



➤ One Time Forming

With AB swing axis can support cutting V, Y, X and other types of bevels, maximum $\pm 45^\circ$ bevel and one time forming, reducing beveling process, reducing cost and increasing efficiency.

• Quick Focus Centering



➤ Simpler Centering

Through one-click visual centering, it replaces the tape centering method with higher efficiency.

• 3D Sensing Head



➤ Wide Application

It can cut round tubes, square tubes, channel steel, I-beams, and profiles. With a smaller interference area, it has a wider application.