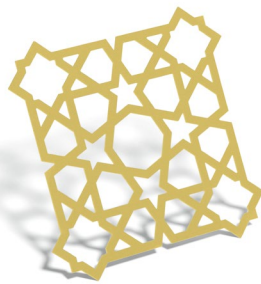


Laser cutting

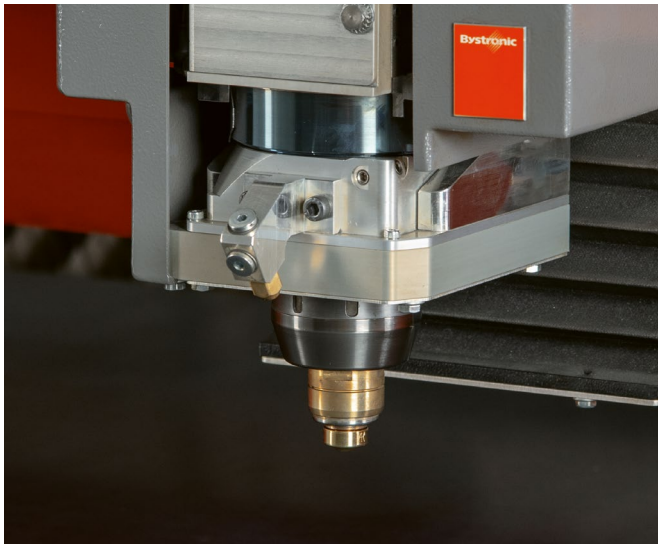
Laser cutting is a thermal cutting process for processing sheet metal. The laser beam is created by the laser source (resonator), conducted by a transport fiber or mirrors in the machine cutting head where a lens focuses it at very high power on a very small diameter. This focused laser beam meets the sheet metal and melts it.



Versatile

Laser cutting is extremely versatile. In addition to flat materials, tubes and profiles can also be processed by laser cutting systems. Primarily steel, stainless steel, aluminum and also other nonferrous metals are cut. The thickness of the processed sheet metal ranges from 0.060 to 2.36 inch.





Fiber laser

Fiber lasers are the most efficient way in laser cutting. The laser beam is created by an active fiber and transmitted over a transport fiber to the machine cutting head. Fiber lasers are significantly smaller than CO₂ lasers and generate several times the power from the same amount of current. A fiber cutting system is primarily suited for processing thin to thick sheet metal from steel, stainless steel, aluminium and also other nonferrous metals (copper and brass).

Cutting techniques

Depending on the cutting technique employed, different process gases are used, and these are forced through the kerf at different pressures. The various techniques differ primarily in respect to cutting speed and the quality of the cutting edges.

Flame cutting

During flame cutting, the material is heated to ignition temperature by the laser beam, burnt by introducing oxygen, and blown out of the kerf using gas pressures of between 5.8 and 145 psi. Flame cutting permits the cutting of thick steel sheets up to 2 inch.

Fusion cutting

During fusion cutting, the material in the kerf is fused by the laser beam. The cutting gas used is nitrogen or argon. The cutting gas expels the fused metal from the kerf at pressures of up to 290 psi. Since the cutting gases do not react with the material, oxide-free cutting edges are produced that do not require reworking.

Cutting gas

The laser beam is focused by the lens in the cutting head and directed onto the workpiece by a nozzle. The cutting gas also flows through this nozzle. Depending on the application, oxygen, nitrogen or compressed air are used as the cutting gas.

Bystronic laser sources

A wide selection of various, powerful laser sources is one of Bystronic's trademarks.

All lasers are high-quality and highly energy efficient, not least because of their high efficiency.

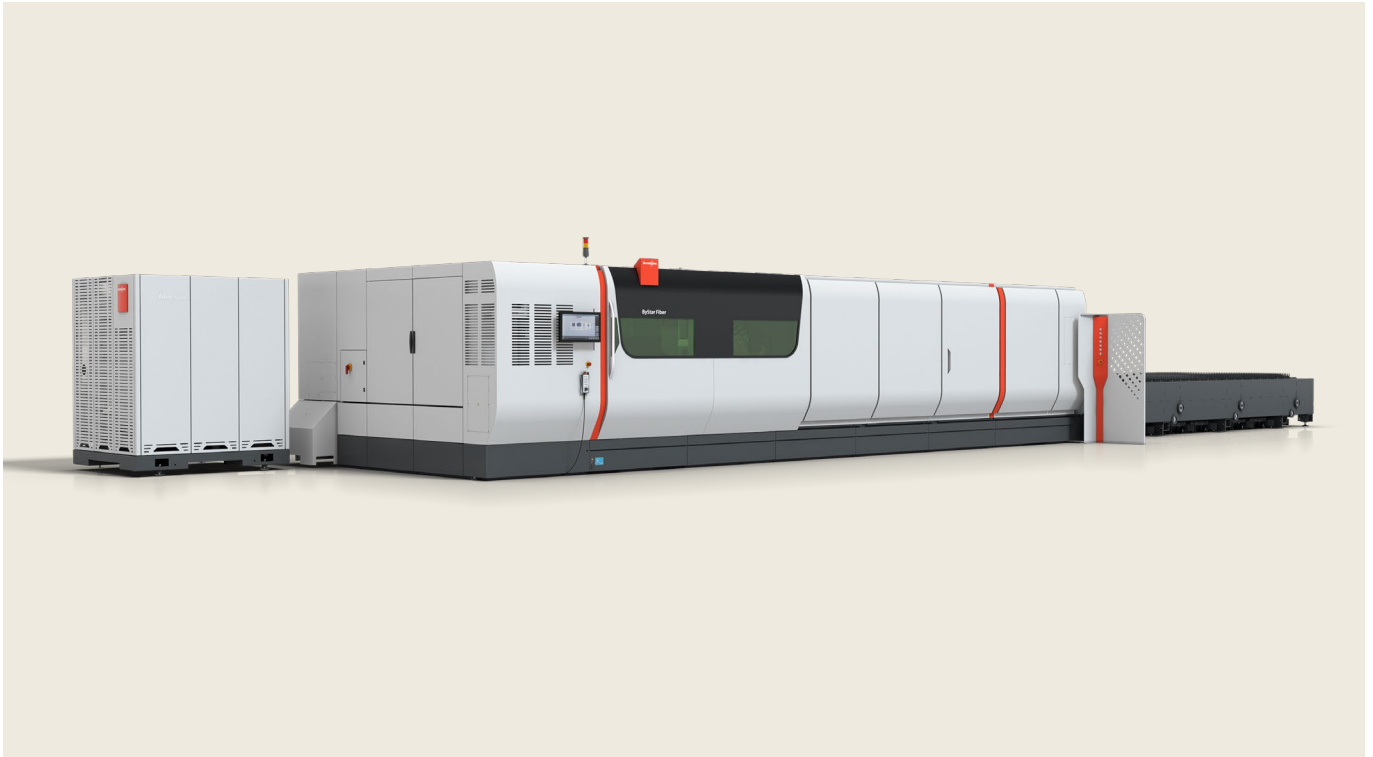
Type of machine	Laser sources							
	Fiber 3000	Fiber 4000	Fiber 6000	Fiber 10000	Fiber 12000	Fiber 15000	Fiber 20000	Fiber 30000
ByCut 3015	✓	✓	✓	✓	✓	✓	✓	✓
ByCut 4020	✓	✓	✓	✓	✓	✓	✓	✓
ByStar Fiber 6225	✓	✓	✓	✓	✓	✓	✓	✓
ByStar Fiber 8025	✓	✓	✓	✓	✓	✓	✓	✓
ByCut Smart 3015	✓	✓	✓	✓	✓	✓	✓	✓
ByCut Smart 6225	✓	✓	✓	✓	✓	✓	✓	✓
ByCut Smart 12025	✓	✓	✓	✓	✓	✓	✓	✓
BySmart Fiber 3015	✓	✓	✓	✓	✓	✓	✓	✓
BySmart Fiber 4020	✓	✓	✓	✓	✓	✓	✓	✓
ByCut Eco 3015	✓	✓	✓	✓	✓	✓	✓	✓
ByCut Eco 4020	✓	✓	✓	✓	✓	✓	✓	✓

Material type	Cutting thicknesses								
	Fiber 3000	Fiber 4000	Fiber 6000	Fiber 8000	Fiber 10000	Fiber 12000	Fiber 15000	Fiber 20000	Fiber 30000
Steel (max. cutting sheet thickness)	0.75 inch	0.75 inch	1 inch	1 inch	1 inch	1 inch	1 inch	1 inch	1 inch
Steel (with option BeamShaper)	0.75 inch	1 inch	1.18 inch	1.18 inch	1.18 inch	1.18 inch	1.18 inch		
Steel (advanced applications)							2 inch	2 inch	2 inch
Stainless steel (max. cutting sheet thickness)	0.5 inch	0.625 inch	1.18 inch	1.18 inch	1.18 inch	1.18 inch	1.57 inch	1.57 inch	1.57 inch
Stainless steel (advanced applications)							2 inch	2 inch	2 inch
Aluminum (max. cutting sheet thickness)	0.5 inch	0.75 inch	1.18 inch	1.18 inch	1.18 inch	1.18 inch	1.57 inch	1.57 inch	1.57 inch
Aluminum (advanced applications)							2 inch	2 inch	2 inch
Brass (max. sheet thickness)	0.25 inch	0.312 inch	0.59 inch	0.59 inch	0.59 inch	0.59 inch	0.75 inch	0.75 inch	0.75 inch
Copper (max. sheet thickness)	0.25 inch	0.312 inch	0.47 inch	0.47 inch	0.59 inch	0.59 inch	0.75 inch	0.75 inch	0.75 inch

Fiber Warranty Premium

The exclusive service for all fiber laser cutting systems. 5 years comprehensive protection for the replacement of parts of the fiber laser source. During the warranty period, the cutting hours are unlimited.



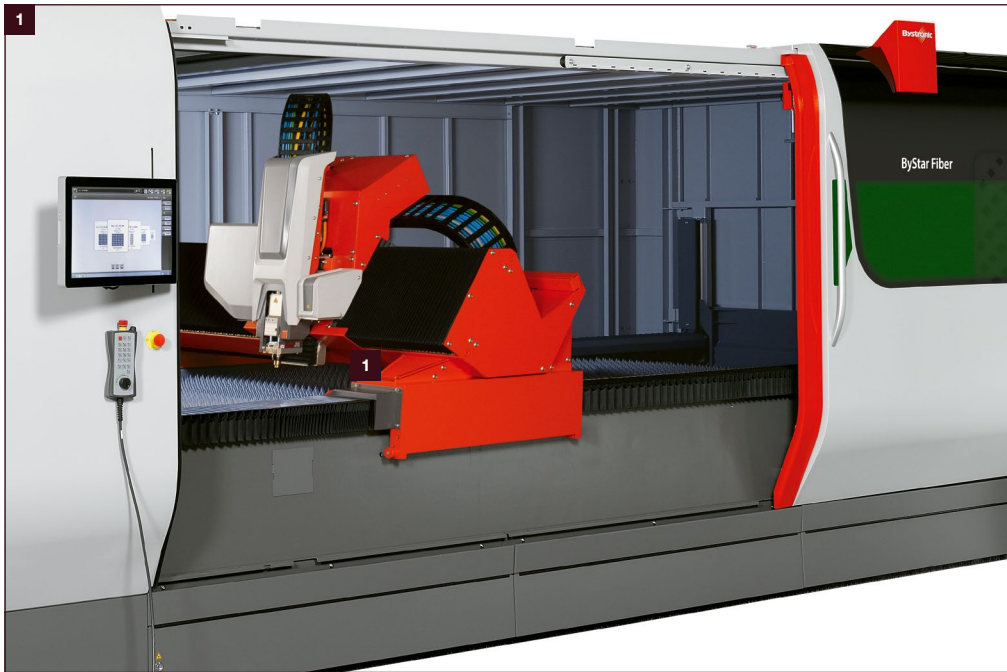


ByStar Fiber 6225/8025

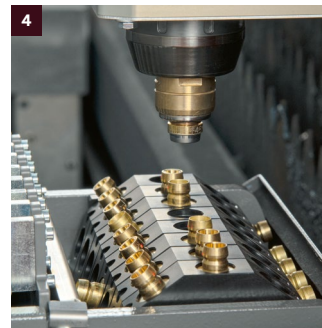
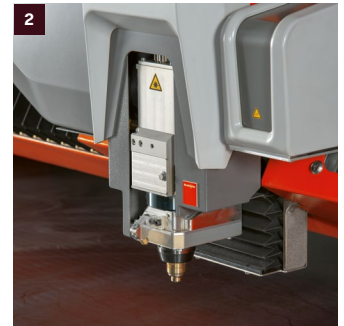
XXL fiber laser cutting for large formats

Customer benefits

- Improved cutting quality and productivity due to a laser power of up to 30 kW
- Thanks to its optimized cutting and piercing parameters, the ByStar Fiber is up to 100% more productive than a comparable 20-kilowatt laser system when processing mild steel with a thickness of up to 1 inch
- In addition, advanced applications in steel, stainless steel, and aluminum up to 2.36 inch
- “Parameter Wizard” (optional): Ensures that the right quality is always selected for cut parts by determining the perfect parameters in just a few minutes
- The BySoft Cell Control Cut user interface makes operating the ByStar Fiber as easy as using a smartphone



- 1 Unlimited accessibility
- 2 Cutting head
- 3 Nozzle Control Tool (NCT)
- 4 Nozzle changer
- 5 Detection Eye

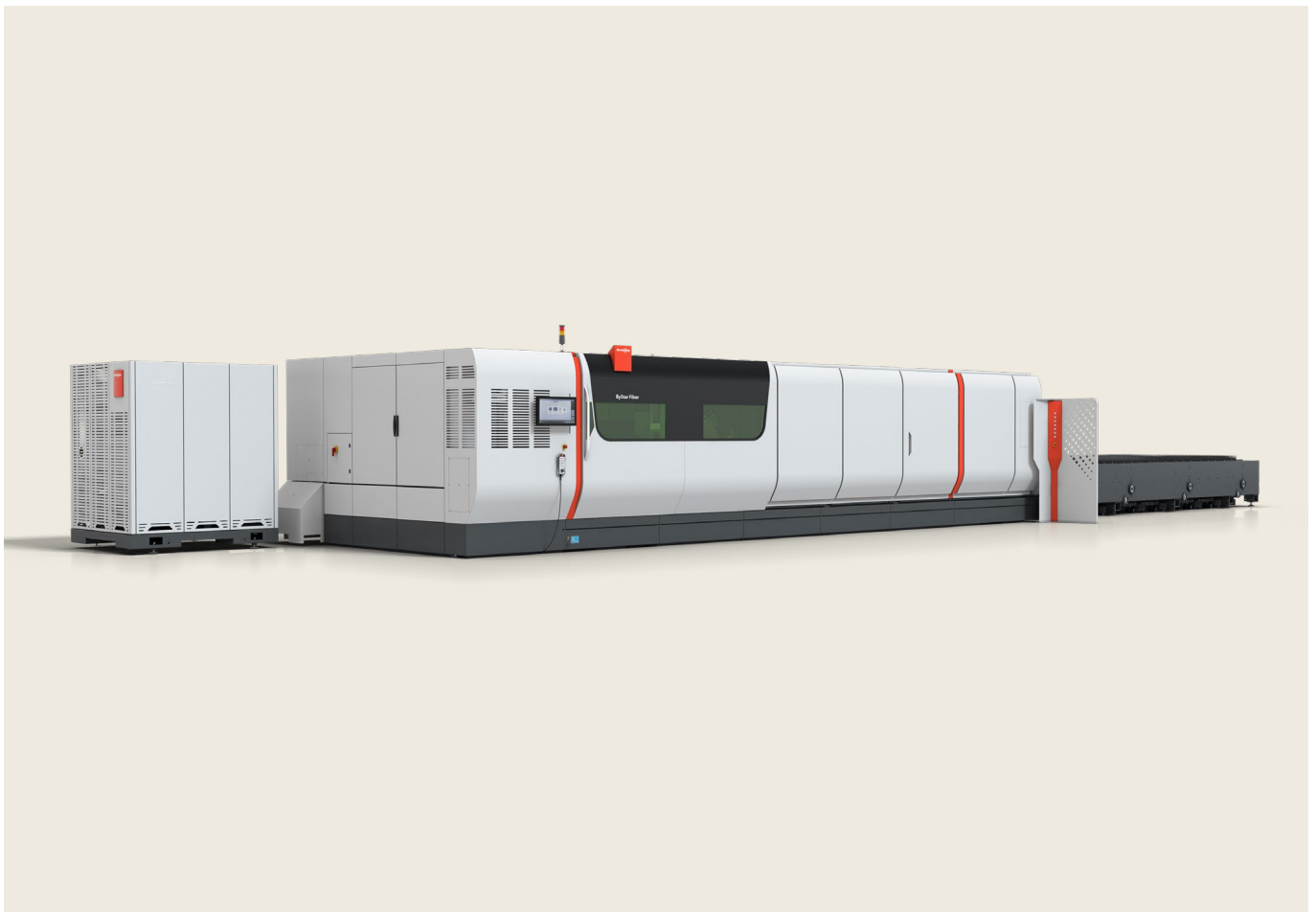


	ByStar Fiber 6225	ByStar Fiber 8025
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Nominal sheet size	244 × 100 inch	319 × 100 inch
Max. simultaneous positioning speed	6,681 inch/min	6,681 inch/min
BySoft Cell Control Cut operation and manual control unit	■	■

ByStar Fiber 6225/8025

Technical Data





	ByStar Fiber 6225	ByStar Fiber 8025
Length	795 inch	937 inch
Width	272 inch	272 inch
Height	126 inch	126 inch
Nominal sheet size (X)	244 inch	319 inch
Nominal sheet size (Y)	100 inch	100 inch
Cutting area (X)	246 inch	321 inch
Cutting area (Y)	102 inch	102 inch
Cutting area (Z)	6 inch	6 inch
Max. positioning speed parallel axis X/Y	4,724 inch/min	4,724 inch/min
Max. simultaneous positioning speed	6,681 inch/min	6,681 inch/min
Bilateral repeatability of positioning of one axis R (following ISO 230-2:2014(E))	0.001 inch	0.001 inch
Averaged, bilateral position deviation of one axis M (following ISO 230-2:2014(E))	0.004 inch	0.004 inch
Edge detection accuracy (\pm)	0.02 inch	0.02 inch
Max. workpiece weight	8,040 lbs	10,380 lbs
Maximum allowed workpiece weight on both shuttle tables	16,080 lbs	20,760 lbs
Machine weight (without exhaust, chiller and conveyor)	48,500 lbs	59,500 lbs
Table changeover time	51 s	79 s
Operation	BySoft Cell Control Cut Touchscreen and manual control unit	



Laser source	Fiber 3000	Fiber 4000	Fiber 6000	Fiber 10000
Power	3,000 W	4,000 W	6,000 W	10,000 W
Range of adjustment	300–3,000 W	400–4,000 W	400–6,000 W	400–10,000 W
Wavelength	1,070 nm	1,070 nm	1,070 nm	1,070 nm
Steel (max. cutting sheet thickness) *	0.75 inch	0.75 inch	1 inch	1 inch
Steel (with option BeamShaper) *	0.75 inch	1 inch	1.18 inch	1.18 inch
Steel (Option «Advanced Applications») *				
Stainless steel (max. cutting sheet thickness) *	0.5 inch	0.6 inch	1.18 inch	1.18 inch
Stainless steel (Option «Advanced Applications») *				
Aluminum (max. cutting sheet thickness) *	0.5 inch	0.75 inch	1.18 inch	1.18 inch
Aluminum (Option «Advanced Applications») *				
Brass (max. sheet thickness) *	0.25 inch	0.31 inch	0.59 inch	0.59 inch
Copper (max. sheet thickness) *	0.25 inch	0.31 inch	0.47 inch	0.59 inch
Total electric consumption of system ByStar Fiber 6225 **	21 kW	22 kW	23 kW	27 kW
Total electric consumption of system ByStar Fiber 8025 **	21 kW	23 kW	23 kW	27 kW

Laser source	Fiber 12000	Fiber 15000	Fiber 20000	Fiber 30000
Power	12,000 W	15,000 W	20,000 W	30'000 W
Range of adjustment	1,200–12,000 W	400–15,000 W	400–20,000 W	400–30'000 W
Wavelength	1,070 nm	1,070 nm	1,070 nm	1,070 nm
Steel (max. cutting sheet thickness) *	1 inch	1 inch	1 inch	1.57 inch
Steel (with option BeamShaper) *	1.18 inch	1.18 inch	1.18 inch	
Steel (Option «Advanced Applications») *		2 inch	2 inch	
Stainless steel (max. cutting sheet thickness) *	1.18 inch	1.57 inch	1.57 inch	1.57 inch
Stainless steel (Option «Advanced Applications») *		2 inch	2 inch	2.36 inch
Aluminum (max. cutting sheet thickness) *	1.18 inch	1.57 inch	1.57 inch	1.57 inch
Aluminum (Option «Advanced Applications») *		2 inch	2 inch	2.36 inch
Brass (max. sheet thickness) *	0.59 inch	0.75 inch	0.75 inch	0.75 inch
Copper (max. sheet thickness) *	0.59 inch	0.75 inch	0.75 inch	0.75 inch
Total electric consumption of system ByStar Fiber 6225 **	27 kW	27 kW	23 kW	44 kW
Total electric consumption of system ByStar Fiber 8025 **	27 kW	27 kW	23 kW	44 kW

* In order to cut the maximum thicknesses, the following conditions must be met:
 - optimally maintained and adjusted laser cutting systems
 - the materials must be of the quality specified by Bystronic (laser materials)

** Entire system with exhaust and chiller: Electrical consumption data shows an average value based on 4 reference cutting plans of mild steel between 1–10 mm thickness

The right to make changes to dimensions, construction, and equipment is reserved. ISO-9001-certified.

The technical data can vary in the different countries, according to local security rules and configuration of the machine.