

Bystronic

Best choice.

LASER + AUTOMATION

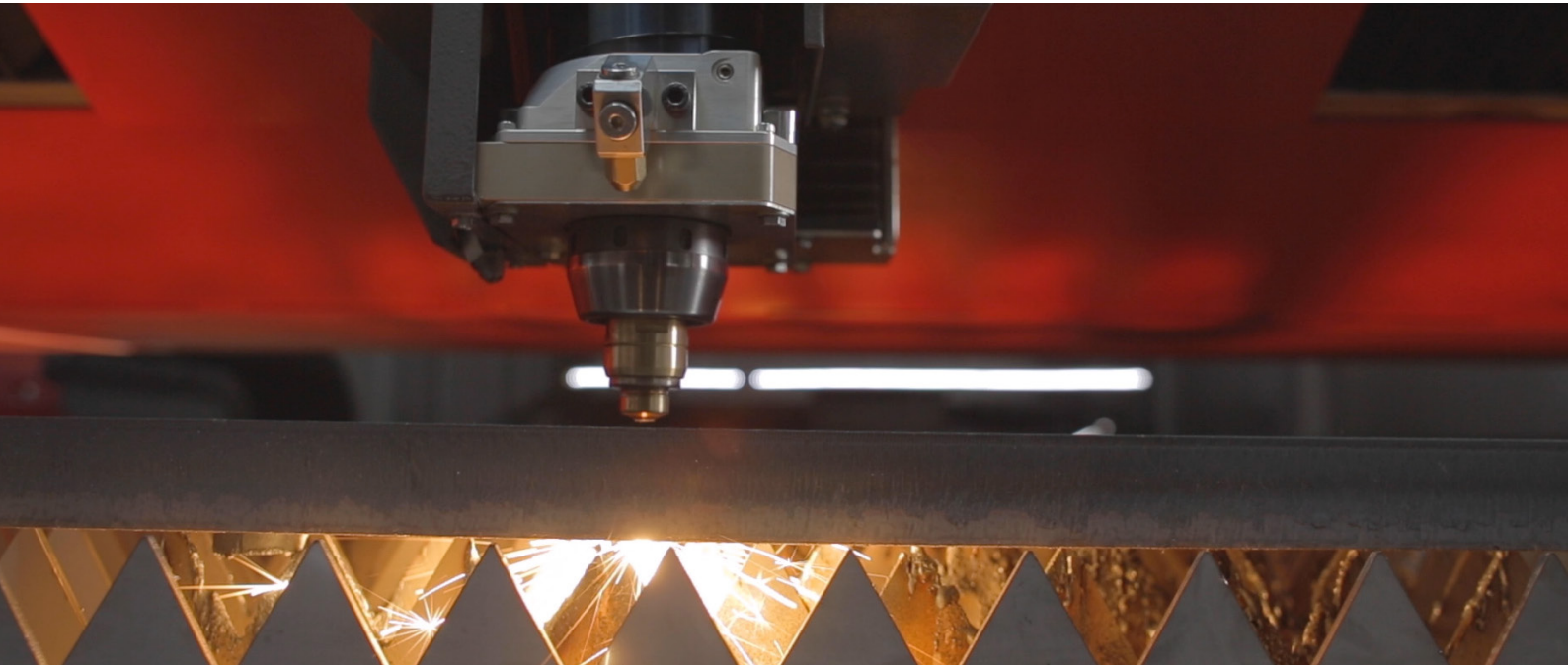


The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every sale, purchase, and payment must be properly documented to ensure the integrity of the financial statements. This includes recording the date, amount, and purpose of each transaction, as well as the names of the parties involved. The document also highlights the need for regular reconciliation of bank statements and the company's records to identify any discrepancies early on.

In addition, the document provides a detailed overview of the company's revenue streams and cost structures. It breaks down sales into different product lines and regions, allowing for a more granular analysis of performance. Similarly, it categorizes expenses into fixed and variable costs, helping management understand the impact of different operational decisions on the bottom line. The document also includes a section on tax compliance, outlining the company's obligations and the steps taken to ensure full adherence to applicable laws and regulations.

Overall, the document serves as a comprehensive guide for the company's financial management practices. It provides clear instructions and best practices for all employees involved in financial reporting, ensuring that the company's financial data is accurate, reliable, and transparent. The document is a key tool for management to monitor performance, identify trends, and make informed decisions about the company's future.



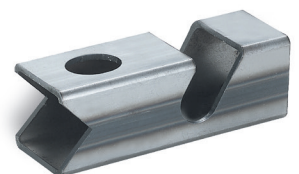
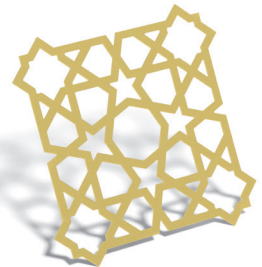


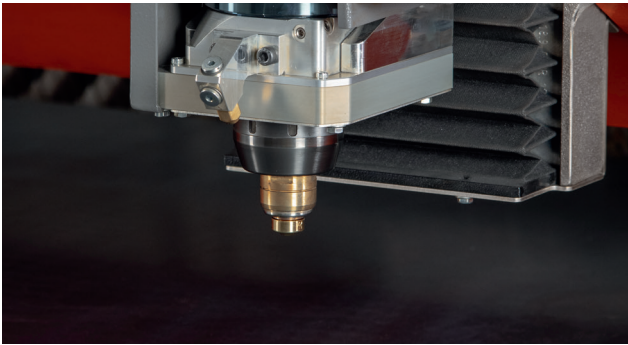
Laser cutting

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. Bystronic uses two types of laser sources: Fiber laser and CO₂ laser.

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 non-ferrous metals are cut. The thickness of the processed sheet metal ranges from 0.8 to 30 mm.





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 non-ferrous metals (copper and brass).

Cutting techniques

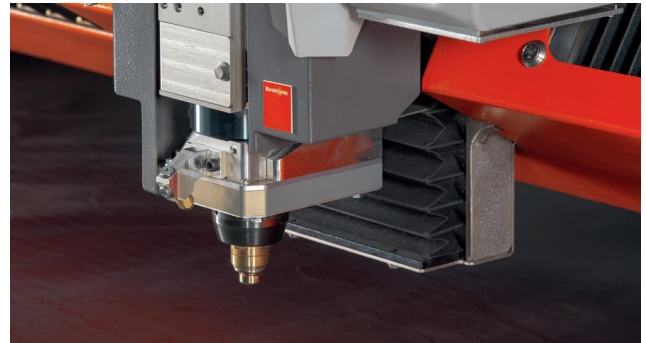
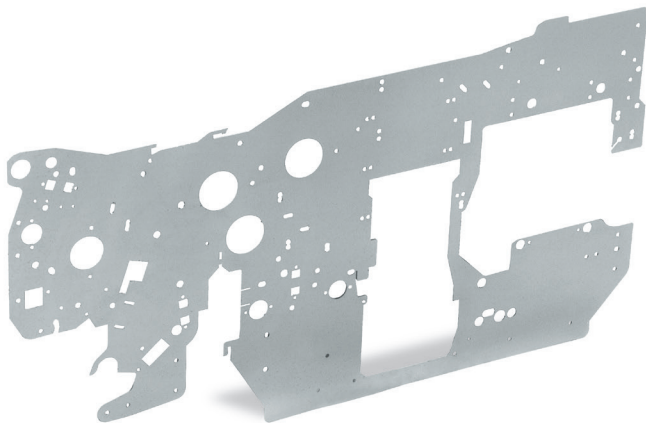
Depending on the cutting technique employed, different process gases are used, and these are forced through the kerf at different pressures. The various techniques differ primarily in respect to cutting speed and the quality of the cutting edges.

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 0.4 and 10 bar. Flame cutting permits the cutting of thick steel sheets up to 30 millimeters.

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 20 bar. 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. The portfolio contains both fiber and CO₂ lasers.



Type of machine	Fiber laser							CO ₂ laser
	Laser source							ByLaser 4400
	Fiber 2000	Fiber 3000	Fiber 4000	Fiber 6000	Fiber 8000	Fiber 10000	Fiber 12000	
ByStar Fiber 3015*		■	■	■	■	■	■	
ByStar Fiber 4020*		■	■	■	■	■	■	
ByStar Fiber 6225*		■	■	■	■	■		
ByStar Fiber 8025*		■	■	■	■	■		
BySprint Fiber 3015*	■	■	■	■				
BySprint Fiber 4020*		■	■	■				
BySprint Fiber 12020*		■	■	■				
BySmart Fiber 3015*	■	■	■	■				
BySmart Fiber 4020*		■	■	■				
BySprint Pro 3015								■
BySprint Pro 4020								■

Type of material	Cutting thicknesses (in mm)							ByLaser 4400
	Fiber 2000	Fiber 3000	Fiber 4000	Fiber 6000	Fiber 8000	Fiber 10000	Fiber 12000	
Fiber laser								
Steel	12	20/20**	20/25**	25/30**	25/30**	25/30**	25/30**	
Stainless steel	6	12	15	30	30	30	30	
Aluminum	8	12	15	30	30	30	30	
Brass	4	6	8	15	15	15	15	
Copper	3	6	8	12	12	12	12	
CO₂ laser								
Steel O ₂								25
Steel N ₂								8
Stainless steel N ₂ fine cut								12
Stainless steel N ₂ plasma cutting								20
Aluminum N ₂								12

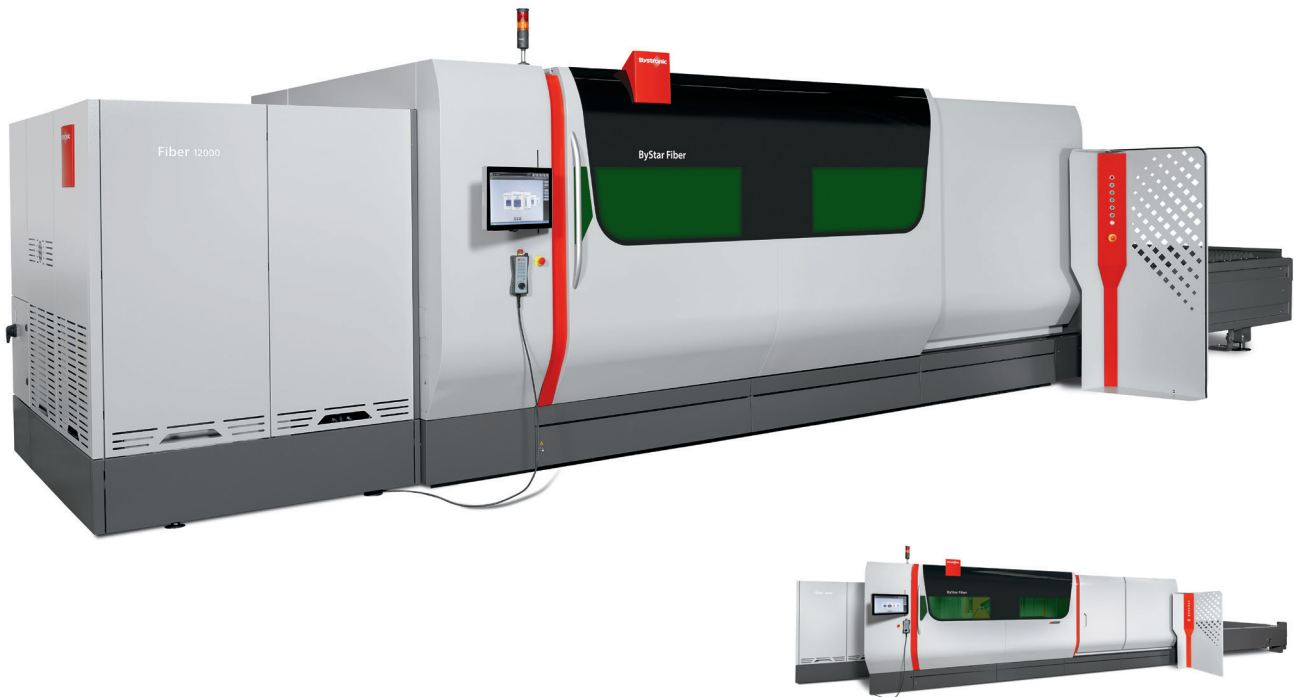
* Includes Fiber Warranty Premium

** with option BeamShaper

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 4020

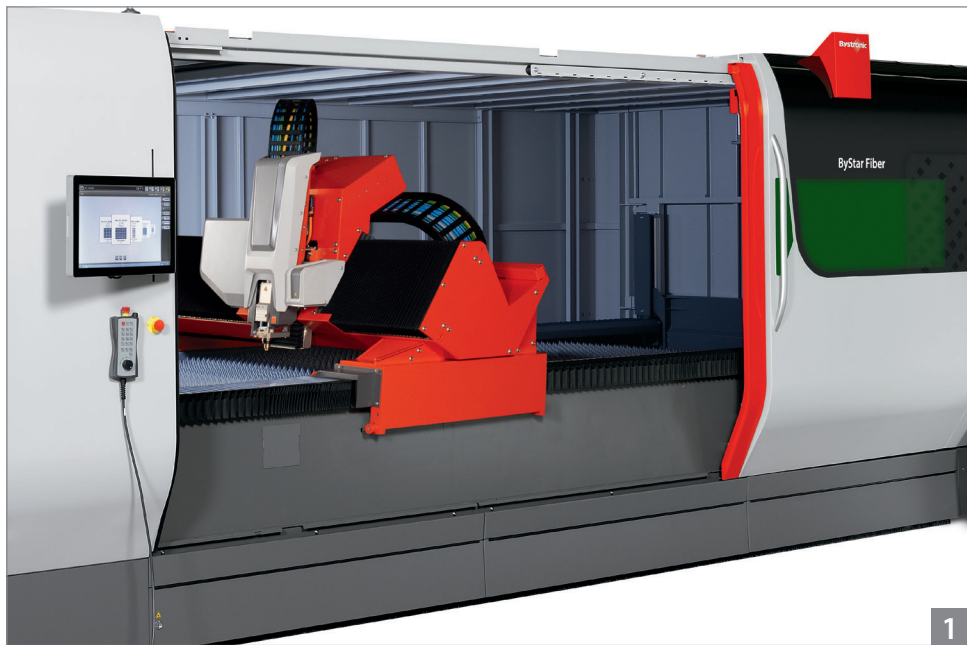
ByStar Fiber

Fiber laser cutting for the highest performance

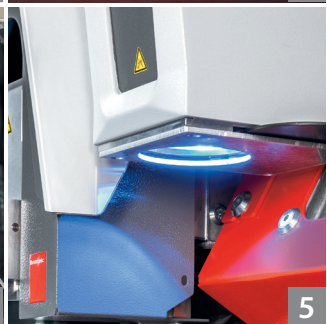
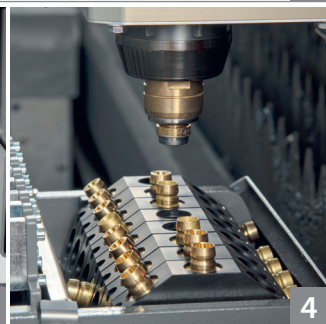
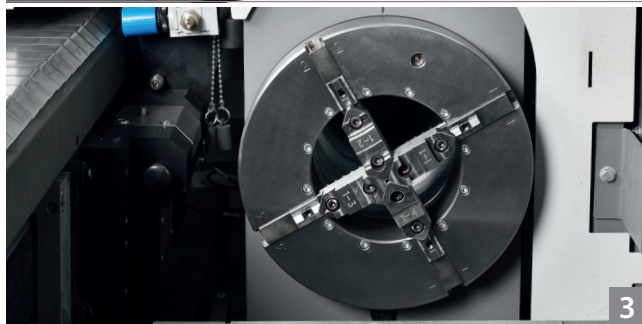
Customer benefits

- High-speed cutting in a class of its own, with up to 12 kilowatts* of laser power. For unbeatable productivity in 3 to 12 millimeter thick mild steel with an average 20 percent speed advantage over 10 kilowatts
- Maximum flexibility for large series and spontaneous customer orders. Regardless of whether aluminum, non-ferrous metals, or steel, the high-performance Bystronic cutting head excels with maximum precision in both thin and thick sheets and profiles*
- Cut up to 30 millimeter thick steel. Clean cutting edges in a wide variety of steel sheet qualities thanks to the unique BeamShaper option
- Using a 21.5-inch touch screen, Bystronic's ByVision Cutting software is operated just as simply as a smartphone
- A wide range of automation solutions guarantees maximum machine utilization and process reliability even during unmanned operation

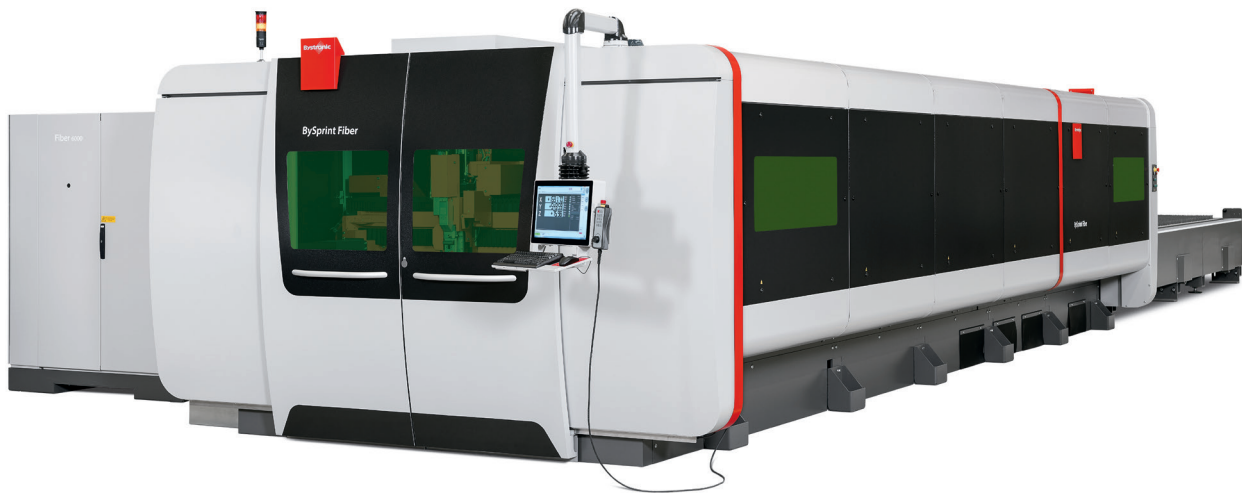
* Available for ByStar Fiber 3015, 4020



- 1 Unlimited accessibility
- 2 Cutting head
- 3 Rotary axis*
- 4 Nozzle changer
- 5 Detection Eye



	ByStar Fiber 3015	4020	6225	8025
Nominal sheet size	3000×1500 mm	4000×2000 mm	6200×2500 mm	8000×2500 mm
Maximum simultaneous positioning speed	170 m/min	170 m/min	170 m/min	170 m/min
ByVision Cutting operation and manual control unit	■	■	■	■
Circumscribed circle diameter of the rotary axis	30–315 mm	30–315 mm	–	–



BySprint Fiber

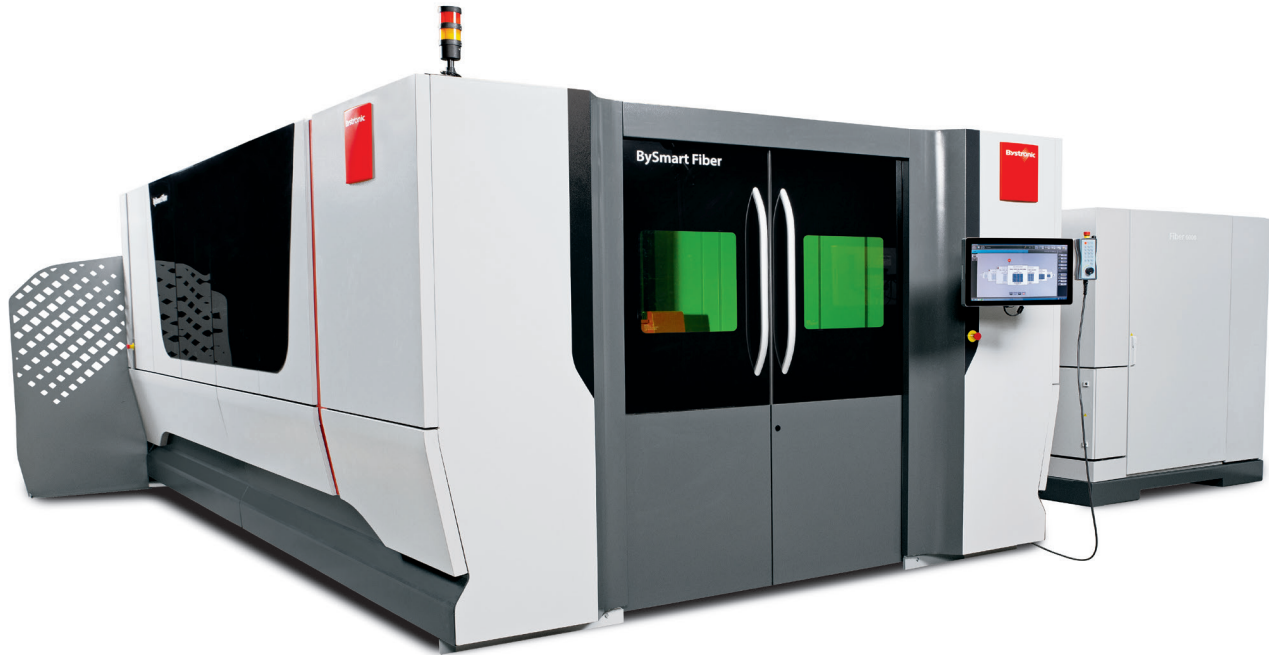
Highest productivity for competitive fiber laser cutting

Customer benefits

- High degree of material utilization thanks to extra-long sheet formats up to 12 meters in length
- Wide spectrum of applications for steel, aluminium and other non-ferrous metals. With up to 6 kilowatts of laser power, stainless steel is cut with high precision up to a material thickness of 30 millimeters
- Fiber laser technology reduces operating costs by eliminating the need for laser gas and reducing power consumption
- Automated process solutions (optional) for fast loading and unloading as well as for sheet metal handling shorten the job processing time even further



	BySprint Fiber 3015	4020	12020
Nominal sheet size	3000 × 1500 mm	4000 × 2000 mm	12 000 × 2000 mm
Maximum simultaneous positioning speed	140 m/min	140 m/min	140 m/min
ByVision Touchscreen operation and manual control unit	■	■	■



BySmart Fiber

The smart access to fiber laser technology

Customer benefits

- Outstanding cutting performance for high parts output and excellent cutting quality with thin to medium sheet metal
- Wide range of applications. In addition to steel, stainless steel, and aluminum, non-ferrous metals can also be processed in excellent quality
- High ease-of-use and intuitive process control enable a fast access to fiber laser technology
- More profit per part. Fast cutting processes combined with comparatively low operating costs and low maintenance requirements
- Flexible process solutions. Bystronic software and automation solutions optimally integrate the BySmart Fiber into the requirements of the sheet metal processing environment



1 Cutting head
 2 Nozzle changer
 3 Operator panel
 with ByVision Cutting

	BySmart Fiber 3015	4020
Nominal sheet size	3000 × 1500 mm	4000 × 2000 mm
Maximum simultaneous positioning speed	140 m/min	140 m/min
ByVision Cutting operation and manual control unit	■	■

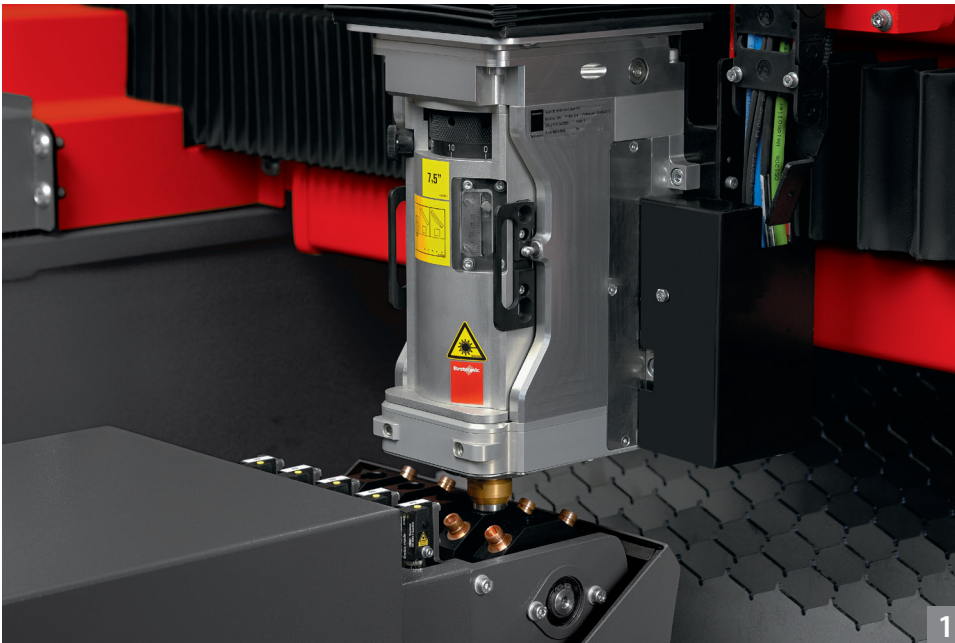


BySprint Pro

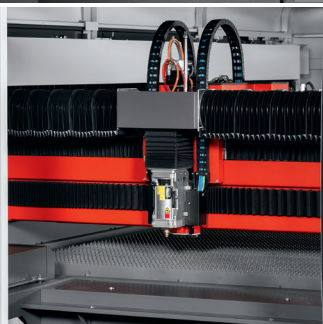
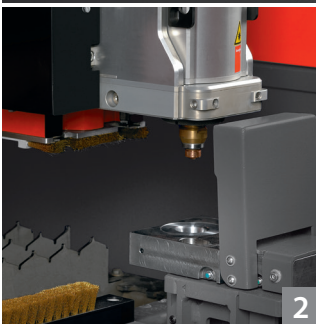
Excellent cutting quality with high cost-effectiveness

Customer benefits

- Cost-effective CO₂ laser cutting for world-class cutting quality in the entire range of sheet metal thicknesses
- Tried-and-tested cutting and piercing technologies combined with high machine dynamics ensure a smooth cutting process
- Highest level of productivity thanks to laser outputs up to 6 kilowatts and automated functions for uninterrupted cutting.
78 percent higher parts output with the 4020 machine format
- The low energy consumption reduces parts costs and increases operational energy efficiency
- Additional functions such as automatic nozzle changing and Collision Detection reduce the processing time of cutting jobs



- 1 Nozzle changer
- 2 Nozzle centering
- 3 Best accessibility



	BySprint Pro 3015	4020
Nominal sheet size	3000×1500 mm	4000×2000 mm
Maximum simultaneous positioning speed	140 m/min	140 m/min
ByVision Touchscreen operation and manual control unit	■	■



Modern sheet metal processing without high-performance software is unimaginable these days. BySoft 7 offers a comprehensive range of functions and is still easy to operate. With BySoft 7, the user can quickly and easily design tailored parts and create cutting plans and bending programs with the push of a button. Furthermore, manufacturing processes are scheduled and monitored efficiently, thus maintaining an overview and finishing jobs quickly and economically.

BySoft 7

Modular CAD/CAM software with 2D and 3D CAD as well as extensive functions for scheduling and monitoring manufacturing processes

Customer benefits

- Existing drawings and models can be input, edited, and processed easily
- Reduction in parts costs, because BySoft 7 automatically nests parts perfectly. Raw materials are used in their entirety. This also applies to the processing of tubes and profiles
- Cutting plans and bending programs can be perfectly created with the push of a button. The correct cutting technology is automatically set and the bending process is automatically simulated and monitored
- Offers comprehensive options for scheduling and monitoring manufacturing processes
- Provides maximum transparency because all machine and job data are always available
- Efficient connection to ERP/PPS systems



ByVision Cutting

With ByVision Cutting, laser cutting is as easy as daily interaction with a smartphone. The user interface provides you with all the important laser cutting functions on a touch screen.

Control the entire cutting process with a few swipes of your finger: Sort the job list, assign cutting parameters and define automation mode. Then start the process, and your laser cutting system goes right to work. In addition, ByVision Cutting also supports users with its extensive database, which includes parameters for all common sheet types and cutting technologies.

Available for: ByStar Fiber, BySmart Fiber

ByVision

Bystronic's user interface for laser cutting systems is called ByVision. The control stands for the highest productivity and is optimally attuned to Bystronic's laser cutting systems. With ByVision you can fully exploit the performance spectrum in CO₂ and fiber laser cutting.

Available for: BySprint Fiber, BySprint Pro

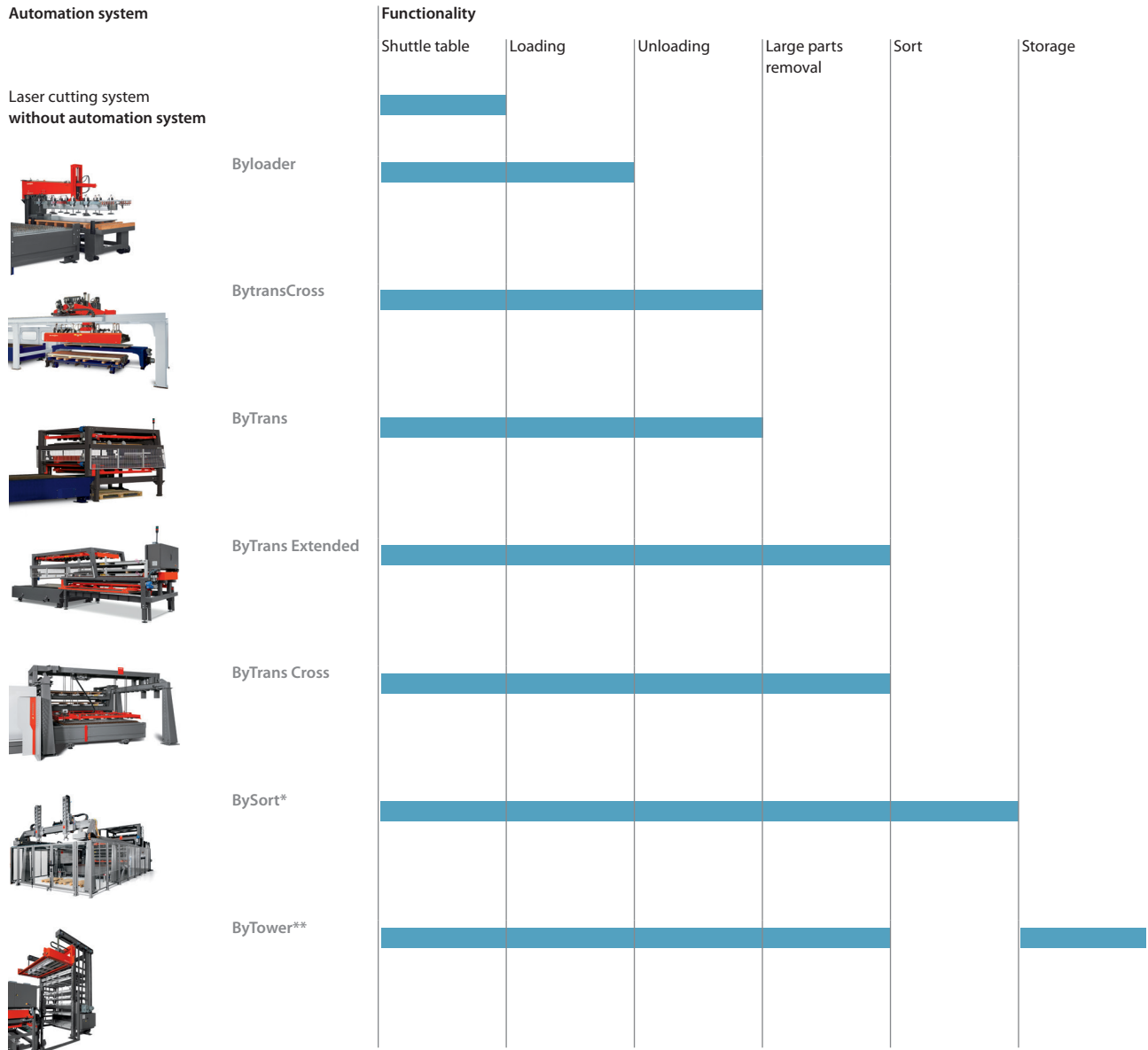
AUTOMATION



Requirements and solutions

Automation solutions optimize material flow, improve machine use and increase work and process reliability. The building blocks are modular so that the degree of automation can be adapted at a later date. The solutions range from simple handling to fully automatic operation.

Automation requirement profile



The utilization of the laser cutting system increases with the degree of automation

* Functionality in combination with ByTrans Cross only

** Functionality in combination with ByTrans/ByTrans Extended/ByTrans Cross only

Automation configuration

Laser cutting system	Automation systems						
	Byloader	ByTrans	ByTrans Extended	ByTrans Cross	BySort*	ByTower**	BytransCross
ByStar Fiber 3015	■	■	■	■	■	■	
ByStar Fiber 4020	■		■	■	■		
ByStar Fiber 6225							●
ByStar Fiber 8025							●
BySprint Fiber 3015	■	■	■	■		■	
BySprint Fiber 4020	■		■	■			
BySmart Fiber 3015	■	■	■	■	■	■	
BySmart Fiber 4020	■	■	■	■	■		
BySprint Pro 3015	■	■	■	■		■	
BySprint Pro 4020	■		■	■			

- Available in combination with the corresponding laser cutting system
- On request
- * Functionality in combination with ByTrans Cross only
- ** Functionality in combination with ByTrans/ByTrans Extended only



ByTrans, ByTrans Extended

Intelligent solutions for loading and unloading laser cutting systems

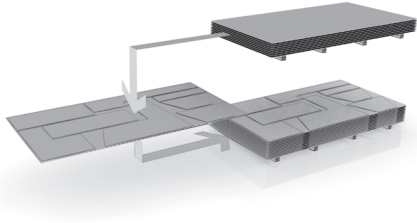
Customer benefits

- Fast job processing because automatic loading and unloading decreases set-up times
- Much higher machine utilization for only a slightly higher investment
- The ByTrans Extended design has not just one but two cassettes, thereby making the machine system even more autonomous
- Flexible use. Not just for storage/return transfer but also for large parts removal as well as the preparation of plastic protective separators, which are placed between the metal sheets by the system (ByTrans Extended)
- Entry into lightly-manned parts production
- ByTrans Extended is optionally available in 3 × 1.5 meter and 4 × 2 meter formats

Cassette Changer

- Enhanced autonomy: The option “Cassette Changer” extends the range of functions for the removal of finished cut parts and residual sheets on the ByTrans Extended automation system

One cassette for raw material

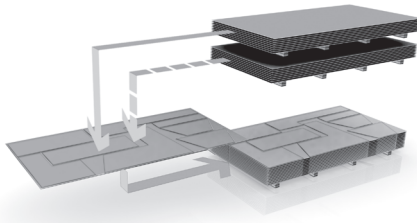


Cassette 1: raw material

Storage: cut sheets

ByTrans 3015

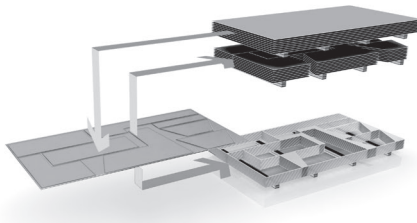
Two cassettes for raw material



Cassettes 1 and 2: raw material

Storage: cut sheets

Large parts and sheet skeletons separated

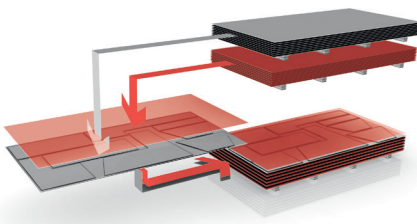


Cassette 1: raw material

Cassette 2: large parts storage

Storage: scrap

Cut sheets with plastic sheet separators



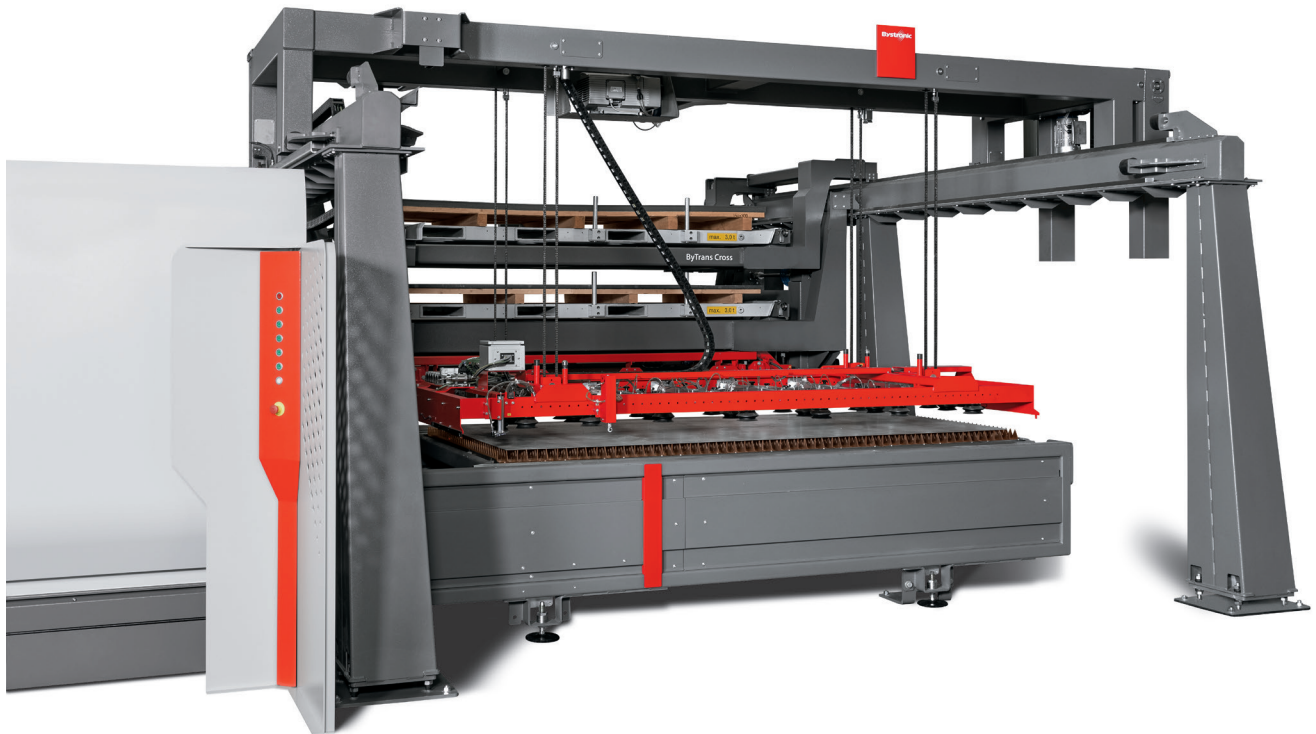
Cassette 1: raw material

Cassette 2: intermediate storage

Storage: cut sheets with plastic sheet separators

ByTrans 3015/4020 Extended

	ByTrans 3015	ByTrans 3015 Extended	ByTrans 4020 Extended
Nominal sheet size	3000 × 1500 mm	3000 × 1500 mm	4000 × 2000 mm
Load sheet metal thickness	0.8 – 25 mm	0.8 – 25 mm	0.8 – 20 mm
Unload sheet metal thickness	0.8 – 25 mm	0.8 – 25 mm	0.8 – 20 mm
Maximum sheet weight	890 kg	890 kg	1300 kg
Number of cassettes	1	2	2
Large parts removal		■	■
Insert protective separators		■	■
Cassette Changer			■



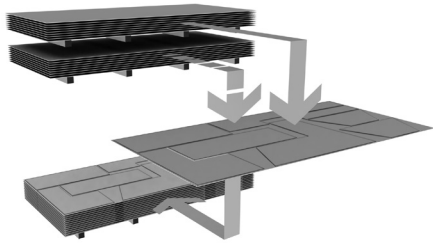
ByTrans Cross

Modular automation for loading and unloading laser cutting systems

Customer benefits

- Automation tailored for every need. The ByTrans Cross loading and unloading system can be expanded in modular fashion at any time
- Great flexibility and availability. Short loading cycles move a lot and unburden the operator
- Complete accessibility of the laser cutting system, for ByTrans Cross enables automated material handling in the smallest space
- Everything on a touch screen. Integrated operation of the automation via operator terminal of the laser cutting system
- Handle material gently and sort it cleanly. Automatic large parts removal and selection of residual sheets

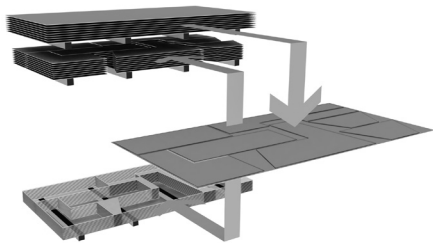
Two cassettes for raw material



Cassettes 1 and 2: raw material

Storage: cut sheets

Large parts and sheet skeletons separated

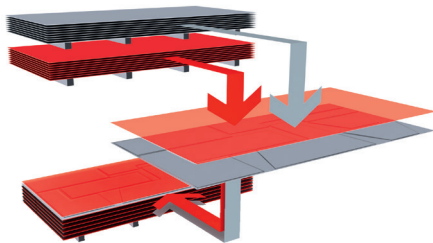


Cassette 1: raw material

Cassette 2: large parts storage

Storage: scrap

Cut sheets with plastic sheet separators

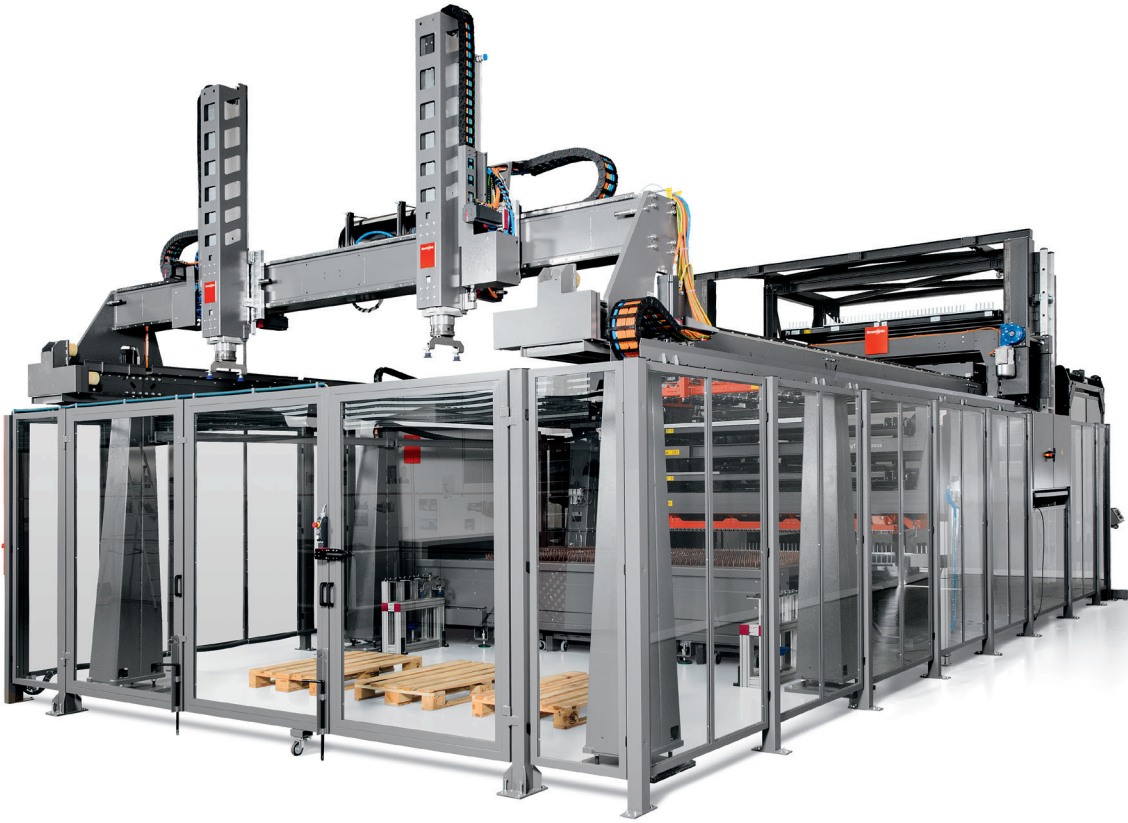


Cassette 1: raw material

Cassette 2: intermediate storage

Storage: cut sheets with plastic sheet separators

	ByTrans Cross 3015	ByTrans Cross 4020
Nominal sheet size	3000×1500 mm	4000×2000 mm
Load sheet metal thickness	0.8–25 mm	0.8–20 mm
Unload sheet metal thickness	0.8–25 mm	0.8–20 mm
Maximum sheet weight	980 kg	1340 kg
Number of cassettes	2	2
Large parts removal	■	■
Insert protective separators	■	■

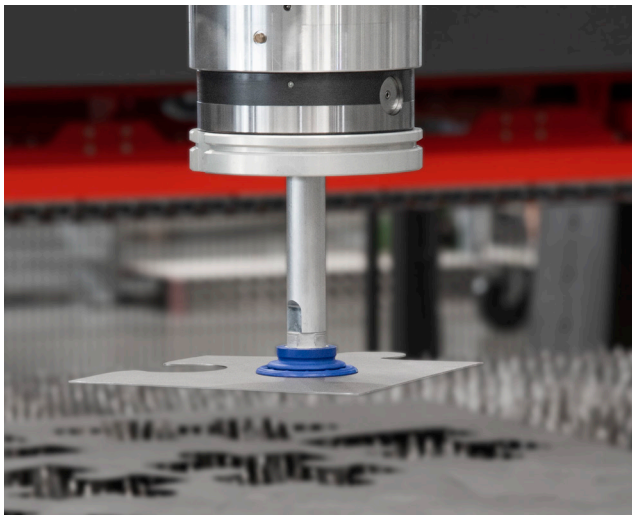
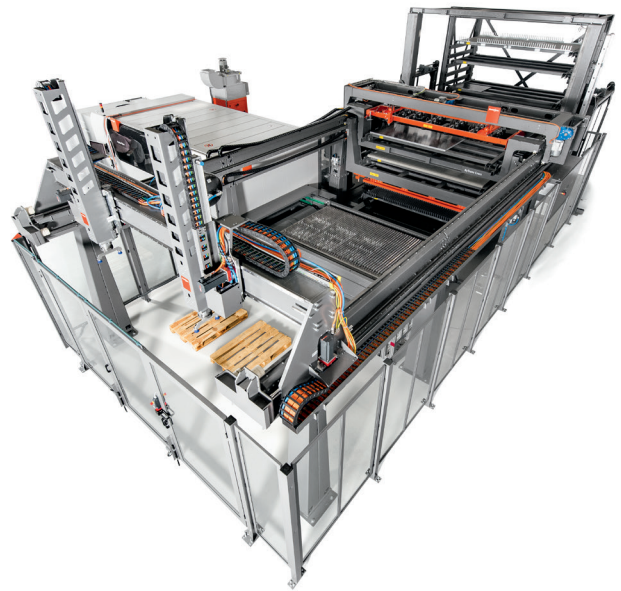


BySort

The upgrade for the fully automatic sorting of parts

Customer benefits

- Increase the processing quality. Automated unloading of the completed cut parts enables safe and careful material handling on your ByTrans Cross
- Increased level of automation during the unloading and sorting process also accelerates your subsequent manufacturing processes
- Full integration into the BySoft software environment.
All of your cutting and unloading plans from a single source
- Everything on one touch screen. Thanks to the integrated control, you operate the BySort using your Bystronic laser cutting system's operator terminal
- Maximum flexibility for your parts unloading and a variety of unloading positions with a selection of different gripper modules
- The upgrade can be carried out any time. BySort can also be retrofitted on your existing ByTrans Cross loading and unloading system



	BySort 3015	BySort 4020
Nominal sheet size	3000×1500 mm	4000×2000 mm
Sheet thicknesses	1.5 – 15 mm	1.5 – 15 mm
Number of sorting heads	2	2
Minimum part size	150×150 mm	150×150 mm
Maximum part size	1800×1200 mm	2400×1600 mm
Maximum part weight per Head	50 kg	50 kg



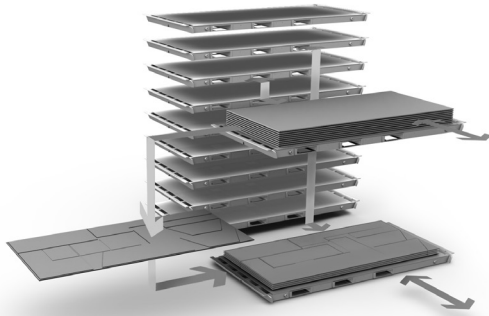
ByTower

Compact storage tower for lightly-manned production

Customer benefits

- The shuttle table is automatically loaded and unloaded and the entire system significantly better utilized
- Frequently used materials are immediately available because they are stored directly next to the machine
- Lightly-manned parts production can be realized to a high degree
- The shuttle table is still freely accessible
- Extraordinarily flexible and simple to operate. The storing of raw material and removal of processed sheets is easy using a fork lift truck. The return transfer of cut sheets is automatic by the system

One cassette for raw material

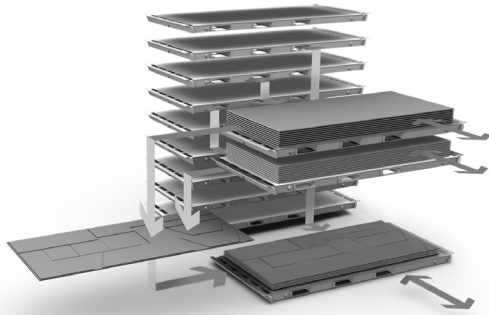


Cassette 1: raw material

Storage: cut sheets

ByTower + ByTrans 3015

Two cassettes for raw material or intermediate storage



Cassette 1: raw material

Cassette 2: raw material

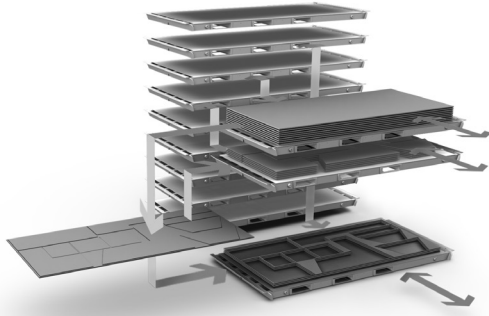
Cassette 2: intermediate storage

Storage: cut sheets

Storage: cut sheets with plastic sheet separators

ByTower + ByTrans 3015 Cross

Large part removal and intermediate storage



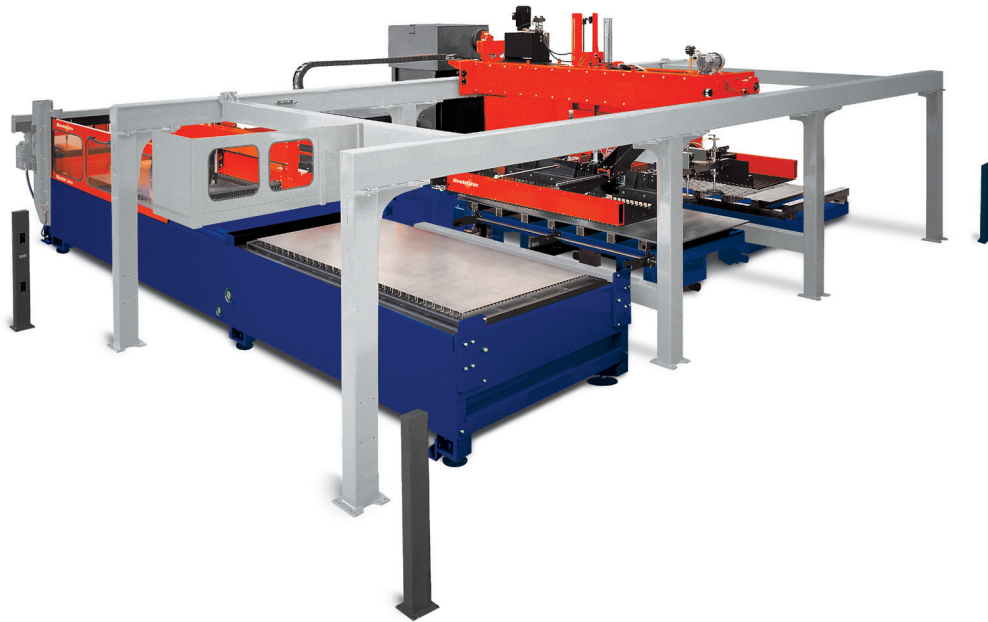
Cassette 1: raw material

Cassette 2: large parts storage

Storage: scrap

ByTower 3015

Nominal sheet size	3000 × 1500 mm
Load sheet metal thickness	0.8 – 25 mm
Unload sheet metal thickness	0.8 – 25 mm
Maximum sheet weight	890 kg
Number of cassettes	11/8/6
System height	5.6 m/4.5 m/3.8 m



BytransCross

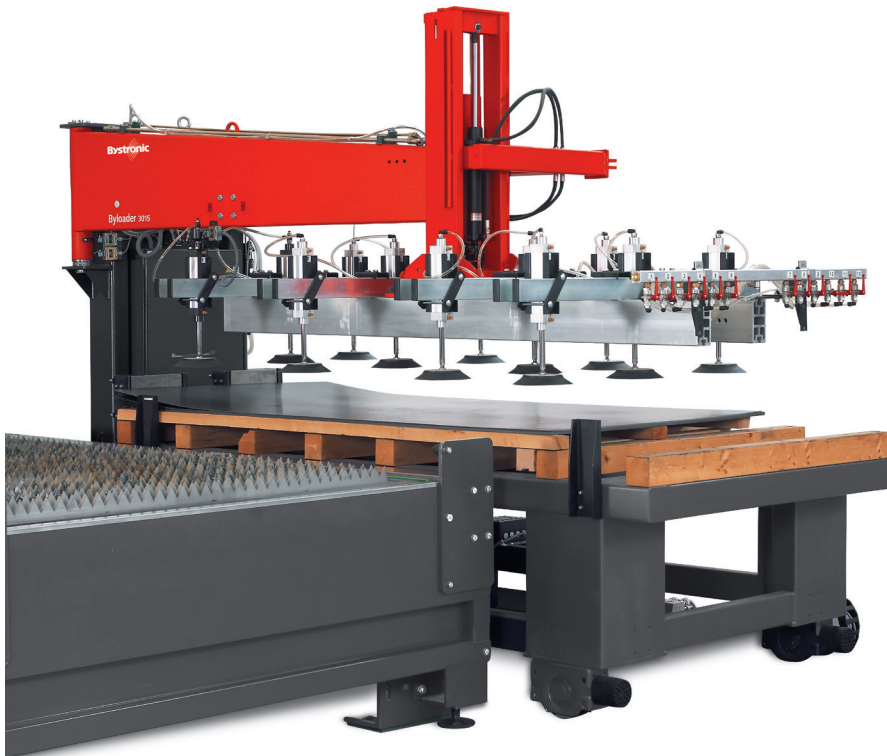
Flexible solution for the loading and unloading of laser cutting systems

Customer benefits

- Highest flexibility regarding material flow and layout
- Simple incorporation of up to two laser cutting systems
- Interface for various storage systems

	BytransCross 6225	BytransCross 8025
Nominal sheet size	6200×2500 mm	8000×2500 mm
Load sheet metal thickness	0.8 – 25 mm	0.8 – 25 mm
Unload sheet metal thickness	0.8 – 12 mm (–25 mm*)	0.8 – 12 mm (–25 mm*)
Load maximum sheet weight	3070 kg	3900 kg

* with special cassette



Byloader

Proven solution for efficient sheet metal handling

Customer benefits

- Sheet metal is automatically, quickly and reliably loaded onto the shuttle table
- The laser cutting system is utilized better
- Simple operation via machine control

	Byloader 3015	Byloader 4020
Nominal sheet size	3000 × 1500 mm	4000 × 2000 mm
Load sheet metal thickness	0.8 – 25 mm	0.8 – 25 mm
Load maximum sheet weight	890 kg	1580 kg

Bystronic Collections



Tool catalog

Not all products listed in this brochure are available in all countries.

This brochure may show parts that are not standard equipment, but are available as options. For the better visibility of machine details, some safety covers may have been opened or removed for these pictures. The right to makes changes to dimensions, construction, and equipment is reserved. For technical data, see the separate data sheets.

ISO-9001-certified



Bystronic Media Center

- Photographs
- Brochure
- Technical Data Sheets
- Videos

Bystronic Videos on Youtube

the 1990s, the number of people aged 65 and over has increased from 10.4 million in 1990 to 13.7 million in 2000, with the number of people aged 75 and over increasing from 2.8 million in 1990 to 4.2 million in 2000 (Department of Statistics, 2001). The increase in the number of people aged 65 and over is expected to continue in the future.

There are a number of reasons for the increase in the number of people aged 65 and over. One of the main reasons is the increase in life expectancy. In 1990, the life expectancy at birth was 74.8 years for males and 78.5 years for females. By 2000, the life expectancy at birth had increased to 76.5 years for males and 80.2 years for females (Department of Statistics, 2001). This increase in life expectancy is due to a number of factors, including improvements in medical care, better nutrition, and a healthier lifestyle.

Another reason for the increase in the number of people aged 65 and over is the decrease in the birth rate. In 1990, the birth rate was 14.6 births per 1,000 live births. By 2000, the birth rate had decreased to 10.9 births per 1,000 live births (Department of Statistics, 2001). This decrease in the birth rate is due to a number of factors, including a decline in fertility rates and a shift in the timing of childbearing.

The increase in the number of people aged 65 and over has a number of implications for society. One of the main implications is the increase in the demand for social security benefits. In 1990, the number of people aged 65 and over receiving social security benefits was 8.5 million. By 2000, this number had increased to 11.5 million (Department of Statistics, 2001). This increase in the number of people aged 65 and over receiving social security benefits is due to a number of factors, including the increase in life expectancy and the decrease in the birth rate.

Another implication of the increase in the number of people aged 65 and over is the increase in the demand for long-term care services. In 1990, the number of people aged 65 and over requiring long-term care services was 1.5 million. By 2000, this number had increased to 3.0 million (Department of Statistics, 2001). This increase in the number of people aged 65 and over requiring long-term care services is due to a number of factors, including the increase in life expectancy and the decrease in the birth rate.

The increase in the number of people aged 65 and over has also led to a number of policy changes. One of the main policy changes is the increase in the retirement age. In 1990, the retirement age was 60 years for males and 55 years for females. By 2000, the retirement age had increased to 65 years for males and 60 years for females (Department of Statistics, 2001). This increase in the retirement age is due to the increase in life expectancy and the decrease in the birth rate.

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