



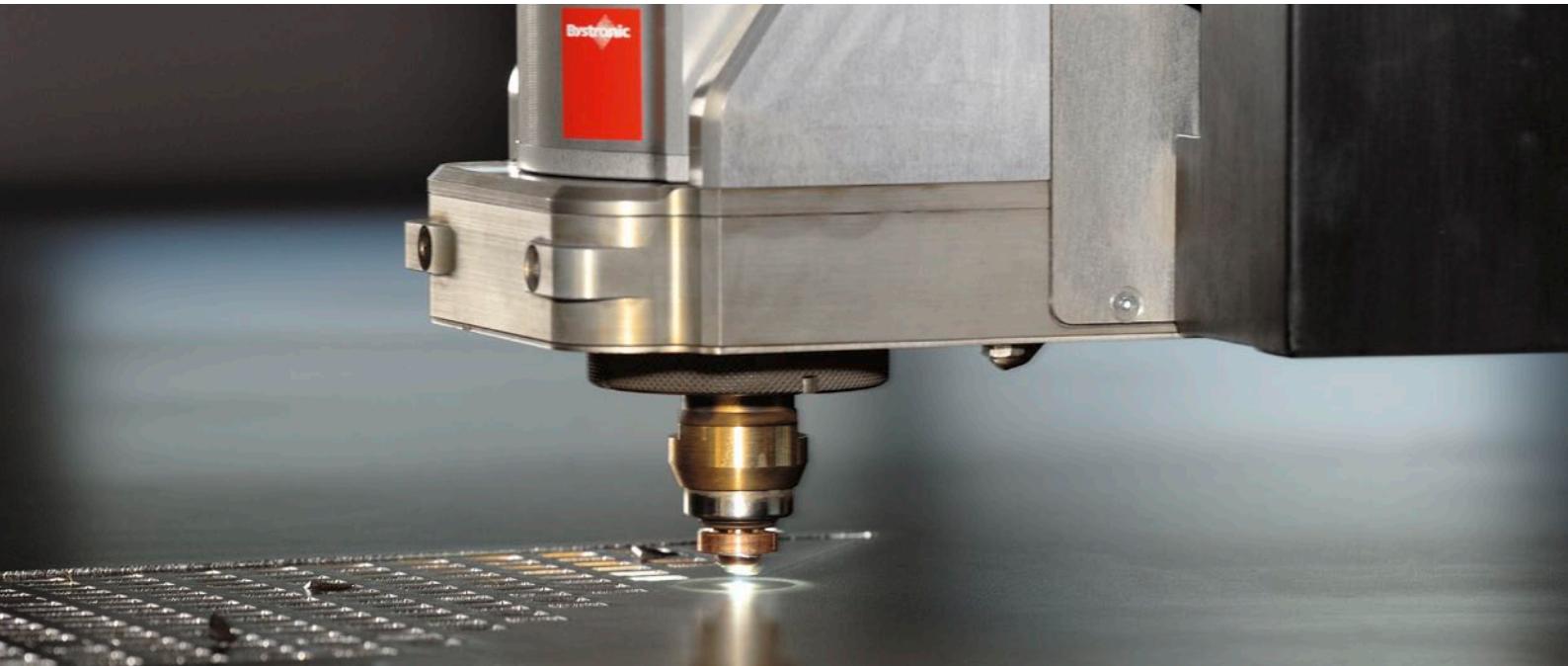
**Best choice.**

**LASER + AUTOMATION**







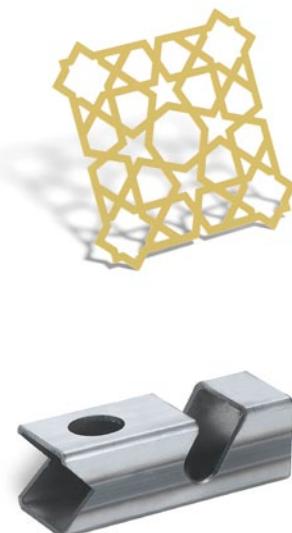


## Laser cutting

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 CO<sub>2</sub> laser.

### Versatile

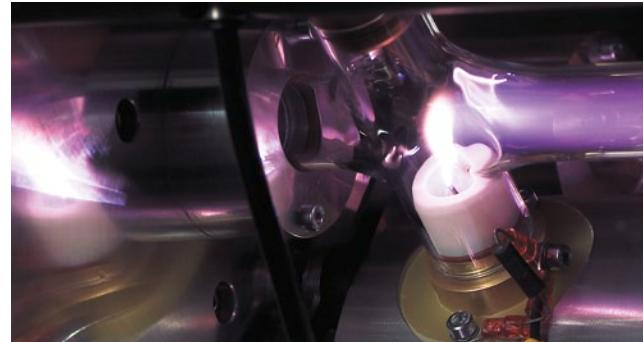
Laser cutting is extremely versatile. In addition to flat materials, tubes and profiles can also be processed by laser cutting systems. Primarily steel, stainless steel and aluminum are cut. The thickness of the processed sheet metal ranges from 0.8 to 30 mm.





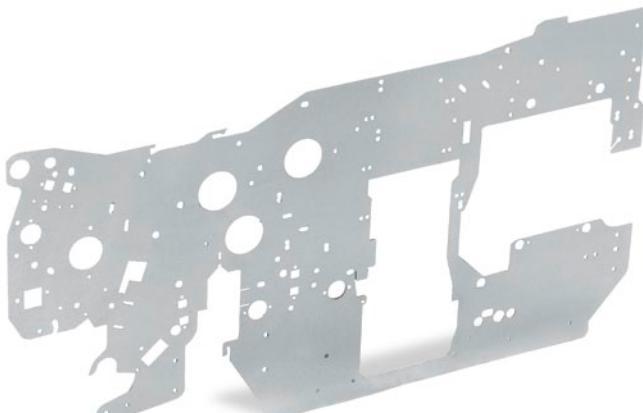
#### Fiber laser

Fiber lasers are the newest development 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 CO<sub>2</sub> lasers and generate twice as much power from the same amount of current. A fiber cutting system is primarily suited for processing thin to medium-thick sheet metal. It also cuts non-ferrous metals (copper and brass).



#### CO<sub>2</sub> laser

A CO<sub>2</sub> laser uses a gas mixture to create the laser beam. The necessary high voltage in the resonator is created with the help of wear-free semiconductor excitation modules. Bystronic relies on such modules since they are smaller, more efficient and reliable than traditional solutions. The CO<sub>2</sub> technology is suited for all-rounders who process various materials and thick sheet metal.



#### 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

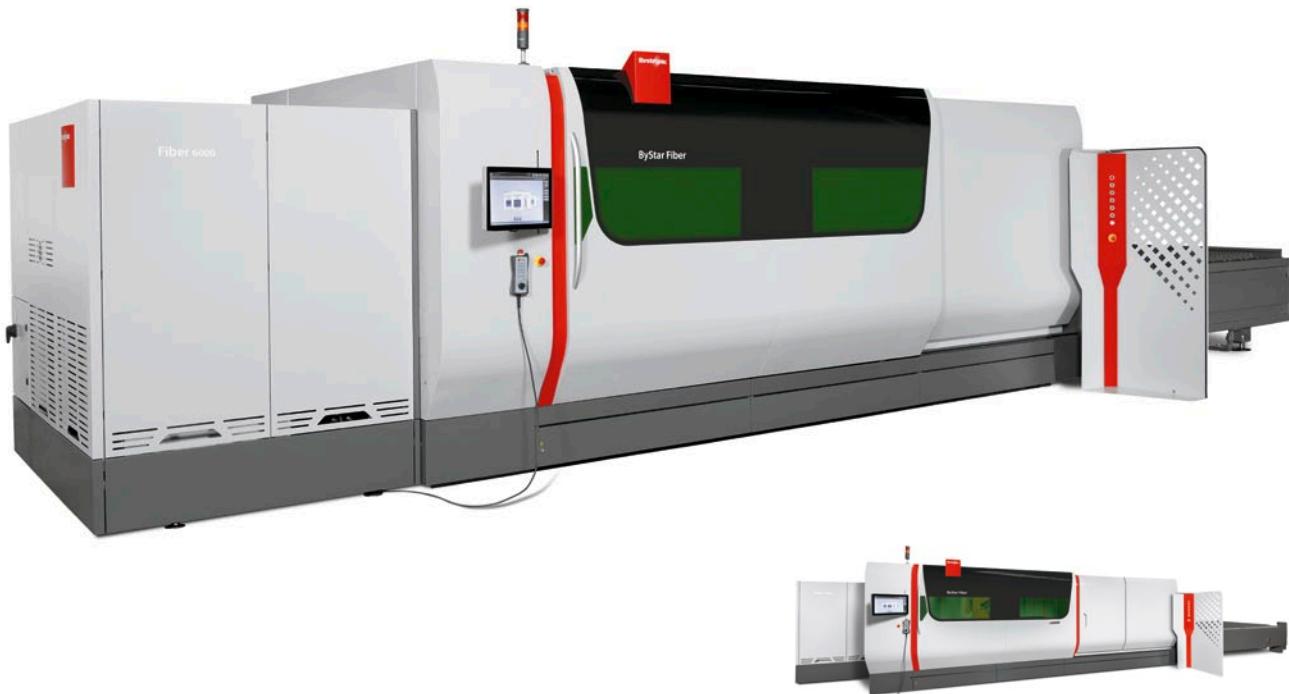
A wide selection of various, powerful laser sources is one of Bystronic's trademarks. All lasers are high-quality and highly energy efficient, not least because of their high efficiency. The portfolio contains both fiber and CO<sub>2</sub> lasers.



Type of machine	Fiber laser						CO <sub>2</sub> laser	
	Laser source							
	Fiber 2000	Fiber 3000	Fiber 4000	Fiber 6000	Fiber 8000	Fiber 10000	ByLaser 4400	ByLaser 6000
ByStar Fiber 3015*		■	■	■	■	■		
ByStar Fiber 4020*		■	■	■	■	■		■
BySprint Fiber 3015*	■	■	■	■	■	■		
BySprint Fiber 4020*		■	■	■	■	■		
BySprint Fiber 6520*		■	■	■	■	■		
BySprint Fiber 8020*		■	■	■	■	■		
BySprint Fiber 12020*		■	■	■	■	■		
BySmart Fiber 3015*	■	■	■					
BySprint Pro 3015							■	■
BySprint Pro 4020							■	■
Bystar L 4025							■	■
Type of material	Cutting thicknesses (in mm)							
	Fiber 2000	Fiber 3000	Fiber 4000	Fiber 6000	Fiber 8000	Fiber 10000	ByLaser 4400	ByLaser 6000
Fiber laser								
Steel	12	20	20	25	25	25		
Stainless steel	6	12	15	30	30	30		
Aluminum	8	12	15	30	30	30		
Brass	4	6	8	15	15	15		
Copper	3	6	8	12	12	12		
CO <sub>2</sub> laser								
Steel O <sub>2</sub>							25	25
Steel N <sub>2</sub>							8	12
Stainless steel N <sub>2</sub> fine cut							12	15/25
Stainless steel N <sub>2</sub> plasma cutting							20	25
Aluminum N <sub>2</sub>							12	15

\* Includes Fiber Warranty Premium





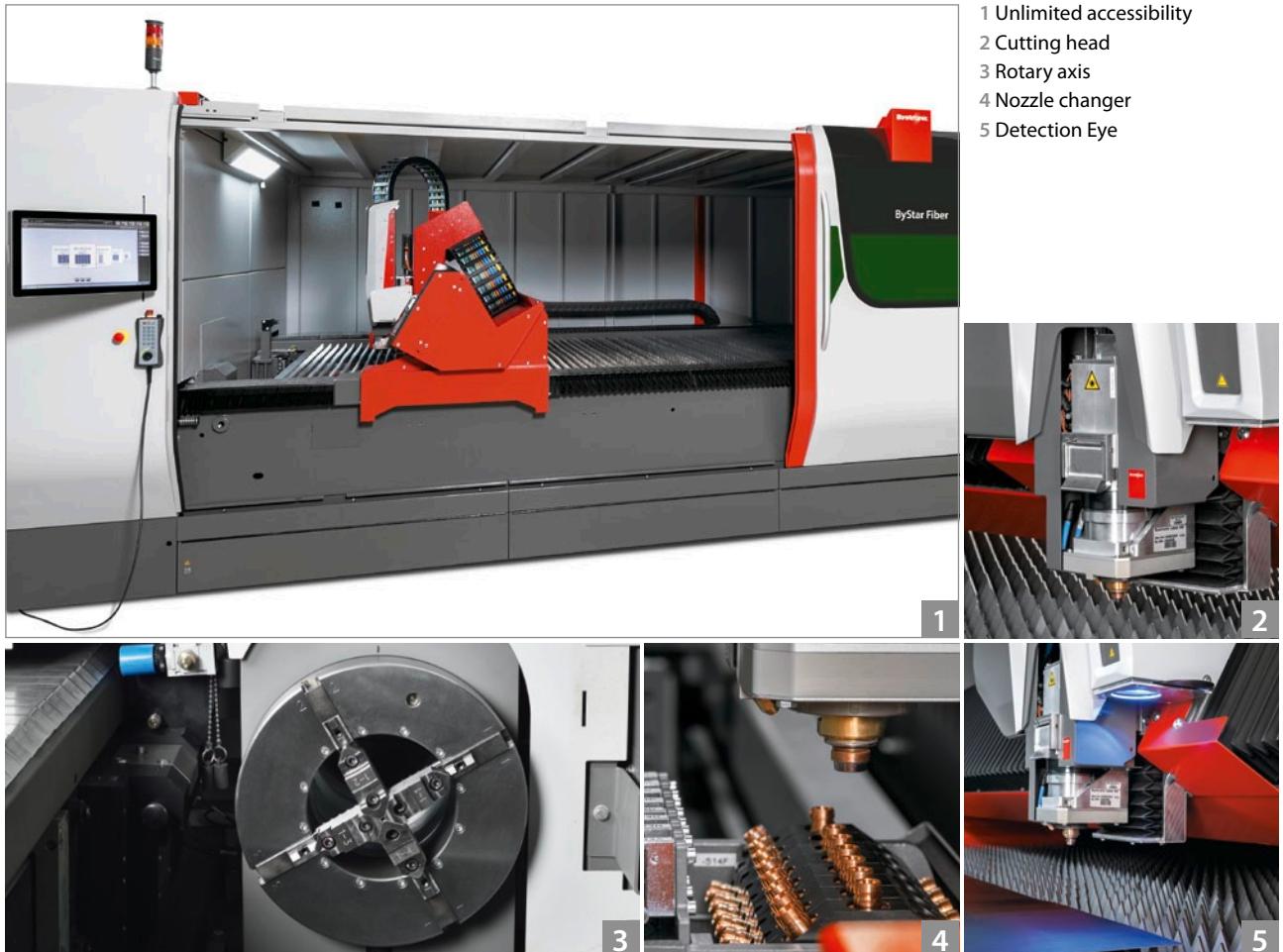
ByStar Fiber 4020

# ByStar Fiber

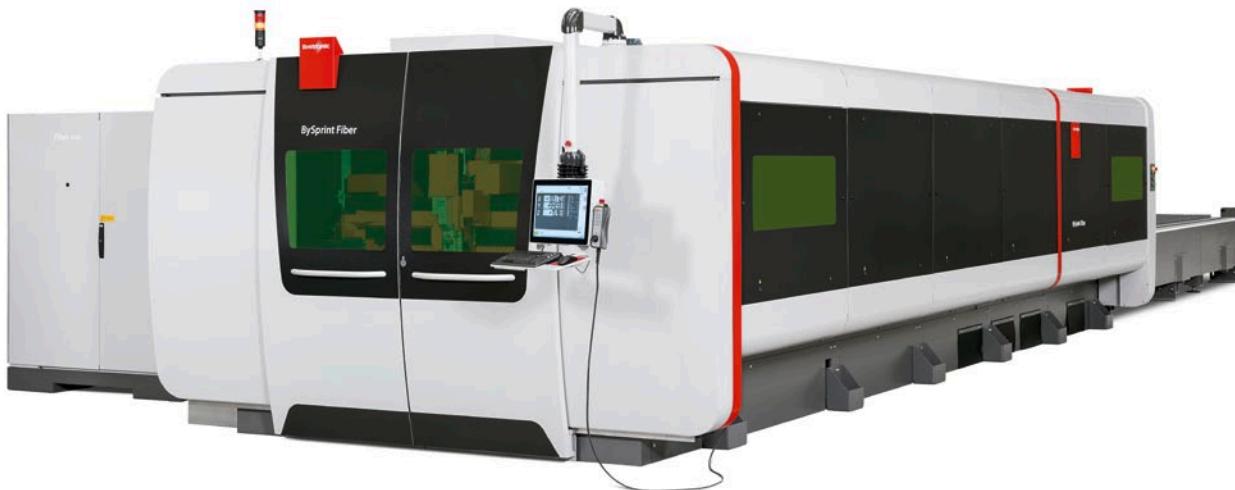
Fiber laser cutting without compromises

## Customer benefits

- Full power: Whatever you cut in the future, the ByStar Fiber provides everything you need
- The highest parts output and premium cutting quality right through to the high range of sheet thicknesses
- A maximum degree of operating convenience and transparent process control thanks to the intuitive ByVision Cutting user interface
- Unrestricted access to the cutting area from the machine's long side



	ByStar Fiber 3015	ByStar Fiber 4020
Nominal sheet size	3000 × 1500 mm	4000 × 2000 mm
Maximum simultaneous positioning speed	169 m/min	169 m/min
ByVision Cutting operation and manual control unit	■	■
Circumscribed circle diameter of the rotary axis	30–315 mm	30–315 mm



BySprint Fiber 3015

# BySprint Fiber

One fiber laser, all options

## Customer benefits

- Available in models 3015, 4020, 6520, 8020 and 12020. This means that sheet metal up to 12 x 2 meters in format can be processed quickly and economically
- Unparalleled high parts production and first-class cutting quality for thin to medium thick sheet metal, depending on laser power
- Additional functions (Power Cut Fiber, Cut Control Fiber, Nozzle Changer, Detection Eye) and automation options increase the application scope to a maximum
- Low operating costs since minimal energy is used and no laser gas is required
- High flexibility. Even non-ferrous metals can be processed with excellent quality



BySprint Fiber 3015	4020	6520	8020	12020	
<b>Nominal sheet size</b>	3000 × 1500 mm	4000 × 2000 mm	6500 × 2000 mm	8000 × 2000 mm	12 000 × 2000 mm
<b>Maximum simultaneous positioning speed</b>	140 m/min				
<b>ByVision Touchscreen operation and manual control unit</b>	■	■	■	■	■



BySmart Fiber 3015

# BySmart Fiber

Concentrated know-how at attractive conditions

## Customer benefits

- Swiss quality at attractive conditions
- Intuitive operation enables a fast entry into fiber laser technology
- Comprehensive know-how. Benefit from Bystronic's many years of experience with cutting-edge technology in the sheet metal processing business
- Lean processes. Bystronic software solutions optimally integrate the BySmart Fiber into your production environment
- Become a world class manufacturer. Experience long-term growth with a reliable business partner who offers you an extensive portfolio of services from the offer through to shipping



1



3



4

- 1 Cutting head
- 2 Steel balls for simple material handling
- 3 Operator panel
- 4 Workspace lighting

BySmart Fiber 3015

Nominal sheet size	3000 x 1500 mm
Maximum simultaneous positioning speed	140 m/min
ByVision Touchscreen operation and manual control unit	■

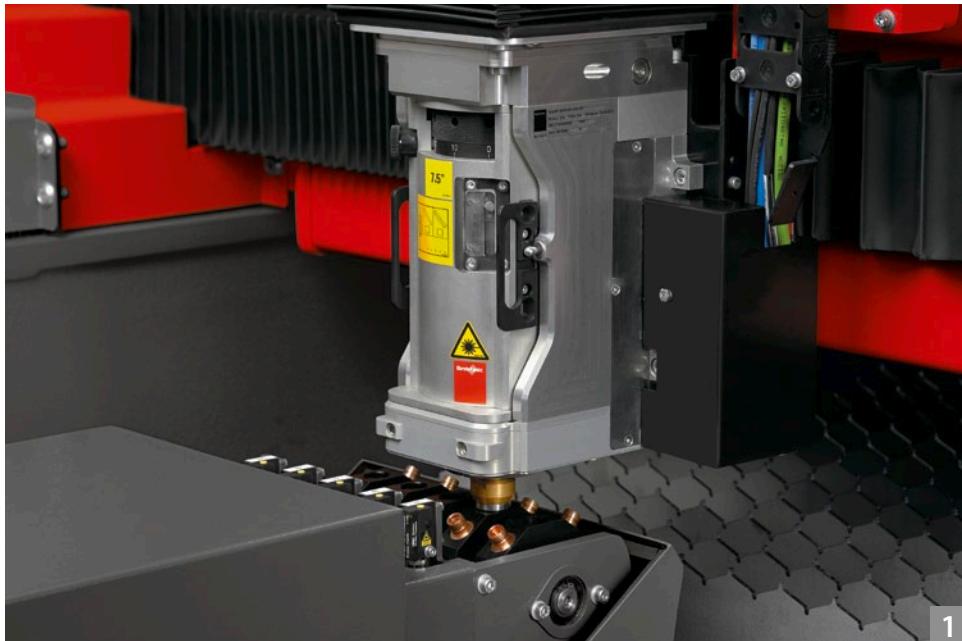


## BySprint Pro

High dynamics for sheet metal up to 4 × 2 meters

### Customer benefits

- Also available in 3015 and 4020 designs. This means that even 4 × 2 sheet metal can be processed quickly and economically
- Automated nozzle change and nozzle alignment means that machine autonomy is increased further and necessary operator interventions are reduced to a minimum
- The newest cutting and piercing technology enables both fast job processing and subsequent maximum parts production as well as first-class quality across the entire range of sheet thickness
- The shortest cutting time per part, thanks to efficient connections between plasma-supported, high-speed cutting and high machine dynamics
- The optional machine encapsulation reduces smoke emissions and noise to a minimum
- Low operating costs thanks to wear-free semiconductor excitation and wear-free magnetic bearing compressors



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



2

3

BySprint Pro 3015 | BySprint Pro 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	■	■

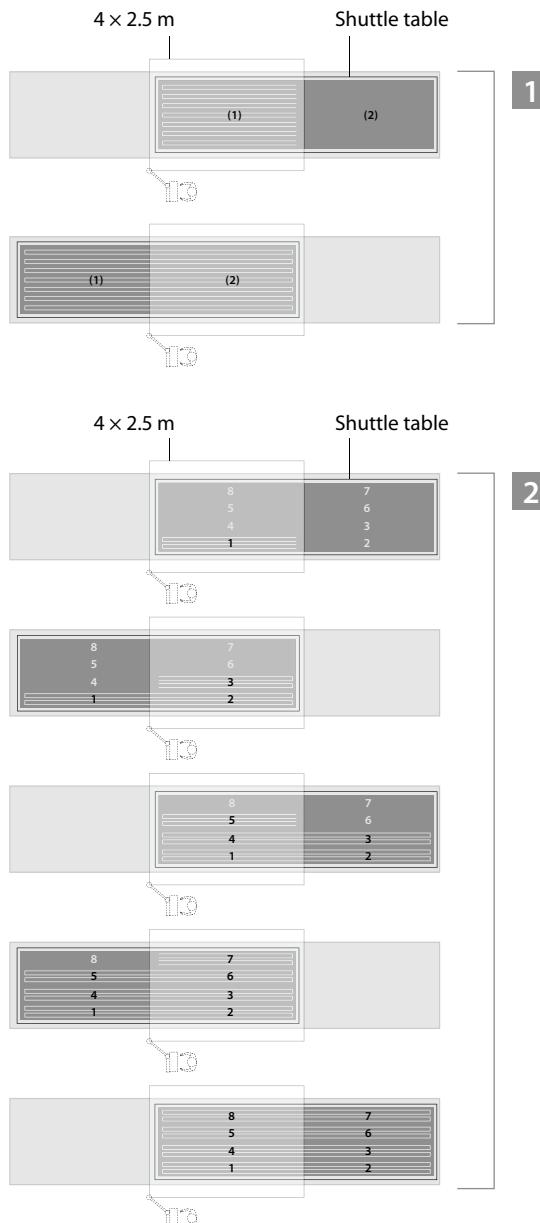


## Bystar L

The all-rounder for XXL formats up to 12 × 2.5 meters

### Customer benefits

- Even large parts up to 12 m in length are processed precisely and economically
- Up to 60 square meters of sheet metal can be loaded onto the machine. Jobs can be processed that are outside the range of competitors' standard systems
- The working area is fully accessible, both during sheet metal and tube and profile processing
- Clear view of the entire working area, even during the cutting process
- High laser power for the economical processing of thick sheet metal



## Repositioning – conventional and alternating

### 1 Conventional repositioning

Diagram 1 shows a cutting table holding a metal sheet with the dimensions of 8 x 2.5 m. The entire cutting plan is divided into two cutting areas, each 4 x 2.5 m, where the left section is processed first (1). Then the cutting table moves forward, the laser continues working and processes the entire right cutting area (2). This procedure has especially proven itself in the thin-sheet-metal range.

### 2 Alternating repositioning

Diagram 2 shows a cutting table holding a metal sheet with the dimensions of 8 x 2.5 m. In this case, the entire cutting plan is divided into eight individual cutting areas. The cutting area 1 is processed completely, the cutting table then moves forward and processes cutting areas 2 and 3. The cutting table moves back and areas 4 and 5 are cut. This process repeats until all cutting areas in the diagram have been processed in order shown.

Advantage: the heat input is distributed evenly across the cutting table and any stress in the material is only released in the individual areas. This means that the re-piercing after each sequence is highly precise. The quality of the cut parts is optimal so that even oversized and especially thick parts are finished produced to a perfect quality.

	Bystar L 4025-65	Bystar L 4025-80	Bystar L 4025-120
<b>Nominal sheet size</b>	6500 x 2500 mm	8000 x 2500 mm	12 000 x 2500 mm
<b>Maximum simultaneous positioning speed</b>	85 m/min	85 m/min	85 m/min
<b>ByVision Touchscreen operation and manual control unit</b>	■	■	■
<b>Circumscribed circle diameter of the rotary axis</b>	15–315 mm	15–315 mm	15–315 mm



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

## 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 CO<sub>2</sub> and fiber laser cutting.

Available for: BySprint Fiber, BySprint Pro, BySmart Fiber, Bystar L



# 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

Automation system	Functionality	Shuttle table	Loading	Unloading	Large parts removal	Sort	Storage
Laser cutting system without automation system							
	Byloader						
	BytransLine BytransCross						
	ByTrans						
	ByTrans Extended						
 <b>NEW</b>	ByTrans Cross						
	BySort*						
	ByTower**						

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 only

## Automation configuration

Laser cutting system	Automation systems						
	Byloader	ByTrans	ByTrans Extended	ByTrans Cross	BySort*	ByTower**	BytransLine BytransCross
ByStar Fiber 3015	■	■	■	■	■	■	■
ByStar Fiber 4020	■		■	■			■
BySprint Fiber 3015	■	■	■	■	●	■	■
BySprint Fiber 4020	■		■	■			■
BySprint Fiber 6520							●
BySprint Fiber 8020							●
BySprint Fiber 12020							
BySmart Fiber 3015	■	■					
BySprint Pro 3015	■	■	■	■	●	■	■
BySprint Pro 4020	■		■	■			■
Bystar L 4025	●						●

■ 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

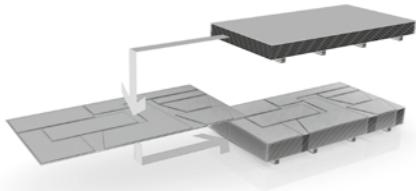
### Customer benefits

- 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 x 1.5 meter and 4 x 2 meter formats

ByTrans 3015

ByTrans 3015/4020 Extended

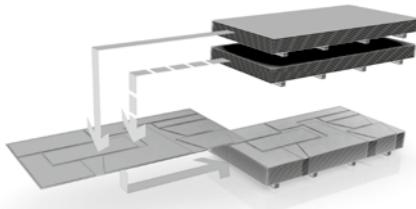
One cassette for raw material



Cassette 1: raw material

Storage: cut sheets

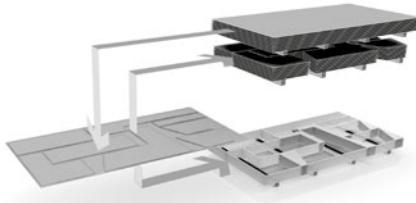
Two cassettes for raw material



Cassettes 1 and 2: raw material

Storage: cut sheets

Large parts and sheet skeletons separated

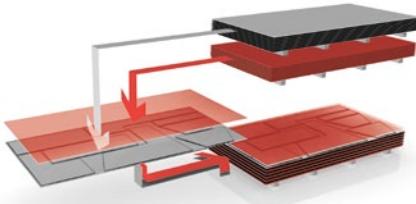


Cassette 1: raw material

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



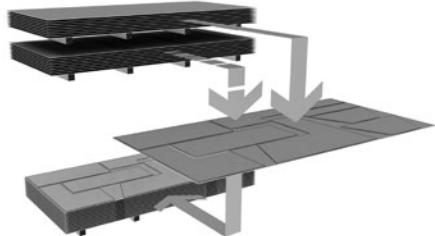
## ByTrans Cross

Modular automation for loading and unloading laser cutting systems

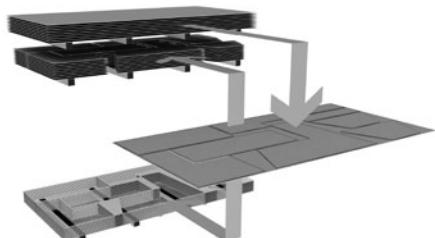
### Customer benefits

- 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

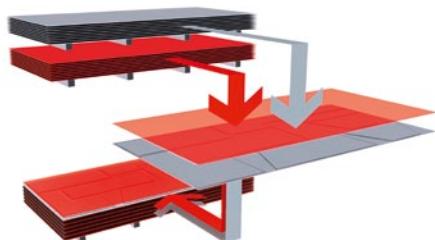
Two cassettes for raw material



Large parts and sheet skeletons separated



Cut sheets with plastic sheet separators



Cassettes 1 and 2: raw material

Storage: cut sheets

Cassette 1: raw material

Cassette 2: large parts storage

Storage: scrap

Cassette 1: raw material

Cassette 2: intermediate storage

Storage: cut sheets with plastic sheet separators

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

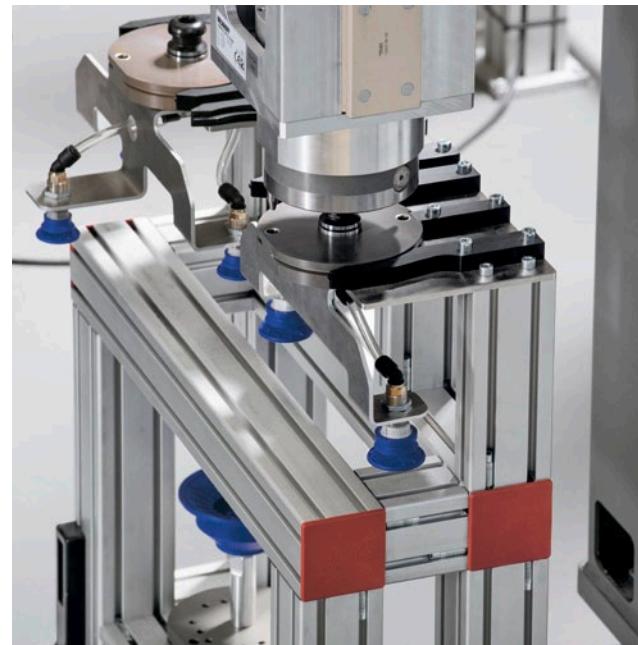
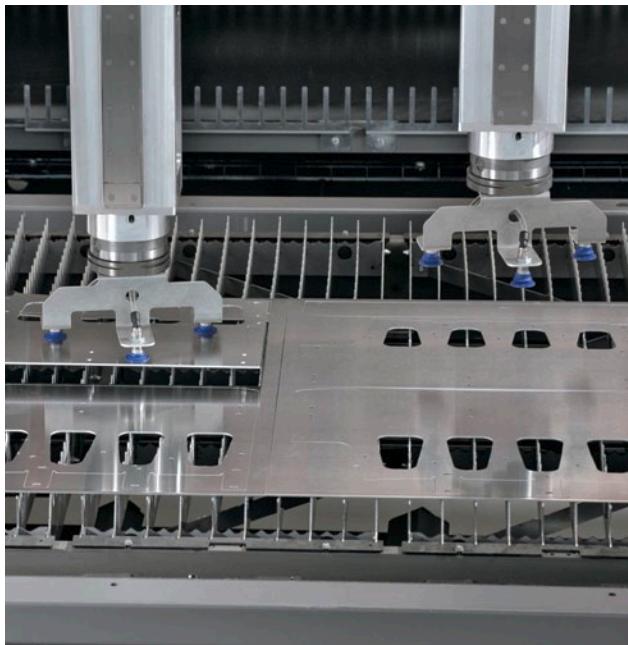
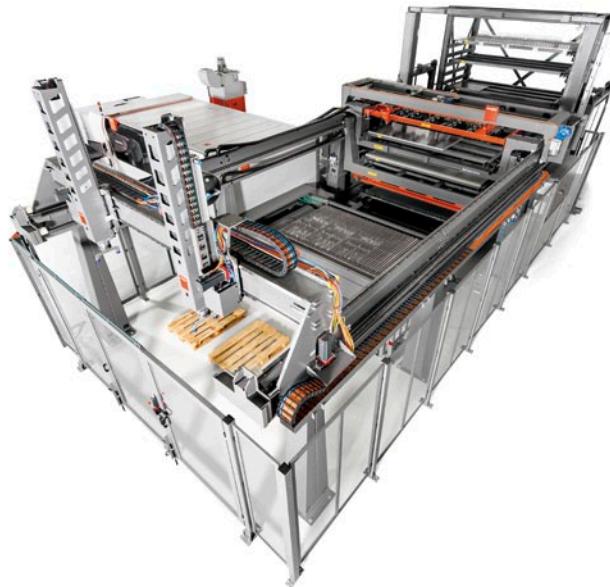


## BySort

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

<b>Nominal sheet size</b>	3000 × 1500 mm
<b>Sheet thicknesses</b>	1.5–15 mm
<b>Max. sorting heads</b>	2
<b>Minimum part size</b>	150 × 150 mm
<b>Maximum part size</b>	1800 × 1200 mm
<b>Maximum part weight per Head</b>	50 kg



## ByTower

Compact storage tower for lightly-manned production

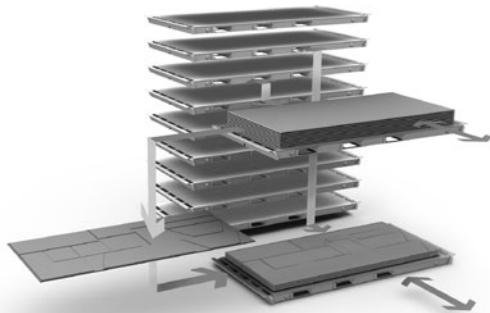
### Customer benefits

- 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

ByTower + ByTrans 3015

ByTower + ByTrans 3015 Extended

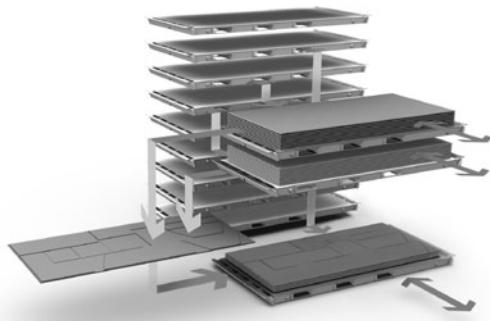
## One cassette for raw material



Cassette 1: raw material

Storage: cut sheets

## Two cassettes for raw material or intermediate storage



Cassette 1: raw material

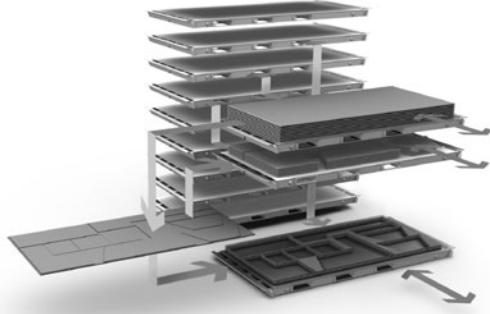
Cassette 2: raw material

Cassette 2: intermediate storage

Storage: cut sheets

Storage: cut sheets with plastic sheet separators

## Large part removal and intermediate storage



Cassette 1: raw material

Cassette 2: large parts storage

Storage: scrap

ByTower 3015

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



## BytransCross, BytransLine

**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, BytransLine 3015	4020
<b>Nominal sheet size</b>	3000 × 1500 mm	4000 × 2000 mm
<b>Load sheet metal thickness</b>	0.8–25 mm	0.8–25 mm
<b>Unload sheet metal thickness</b>	0.8–12 mm (-25 mm*)	0.8–12 mm (-25 mm*)
<b>Maximum sheet weight</b>	890 kg	1580 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
Maximum sheet weight	890 kg	1580 kg

# Bystronic Collections

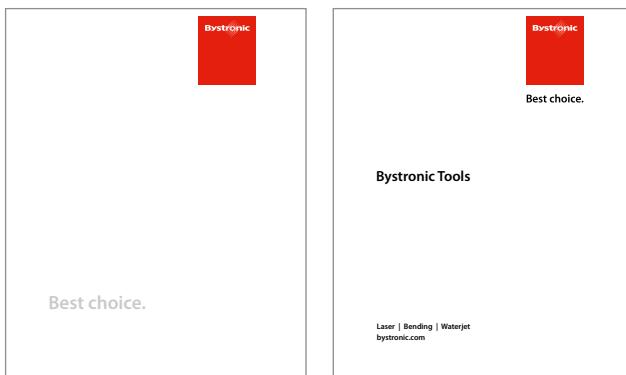


Image brochure

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 make changes to dimensions, construction, and equipment is reserved. For technical data, see the separate data sheets.

ISO-9001-certified


**Bystronic Media Center**

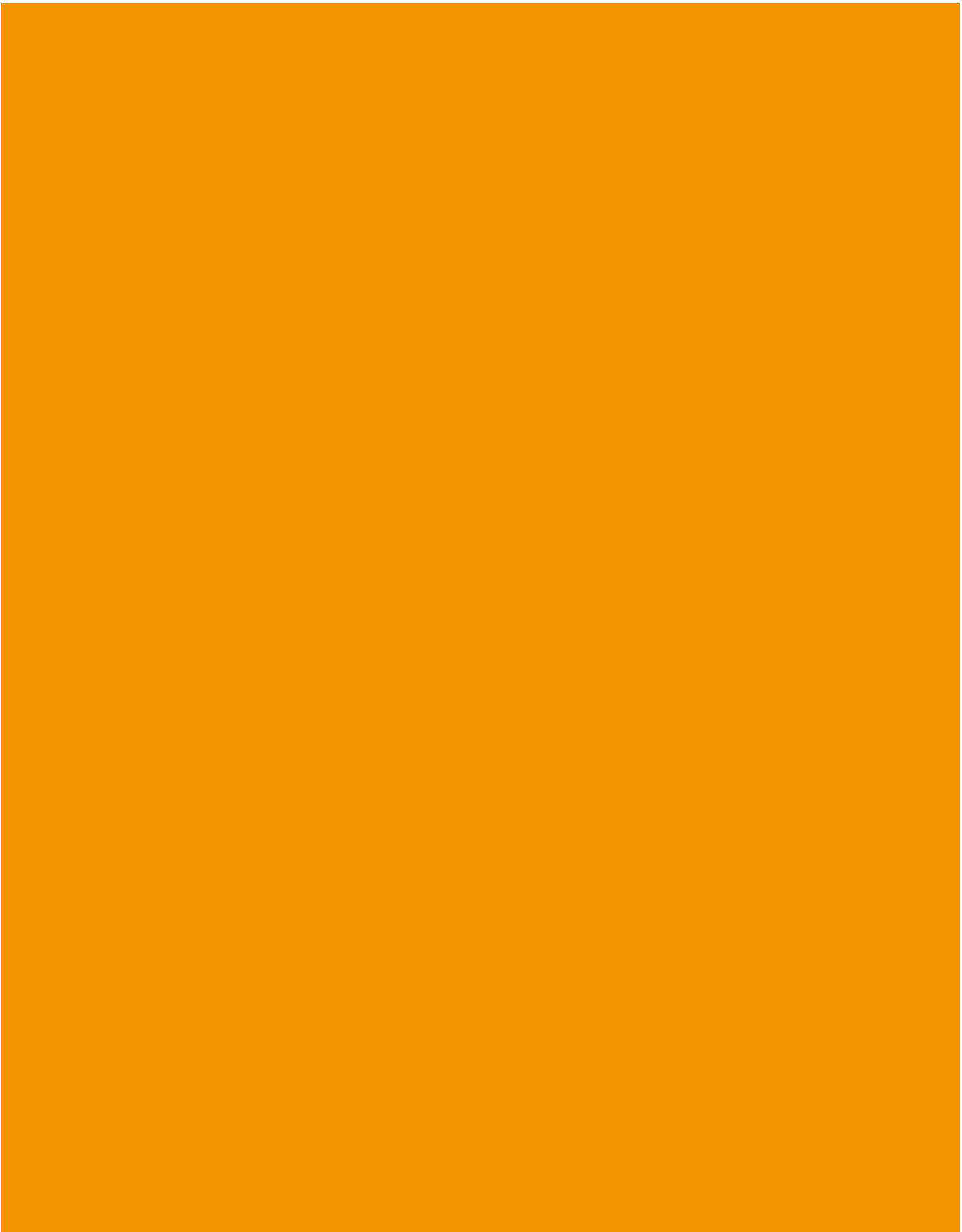
- Photographs
- Brochure
- Technical Data Sheets
- Videos


**Bystronic Videos on Youtube**







**Best choice.**

## LASER + AUTOMATION



[bystronic.com](http://bystronic.com)

