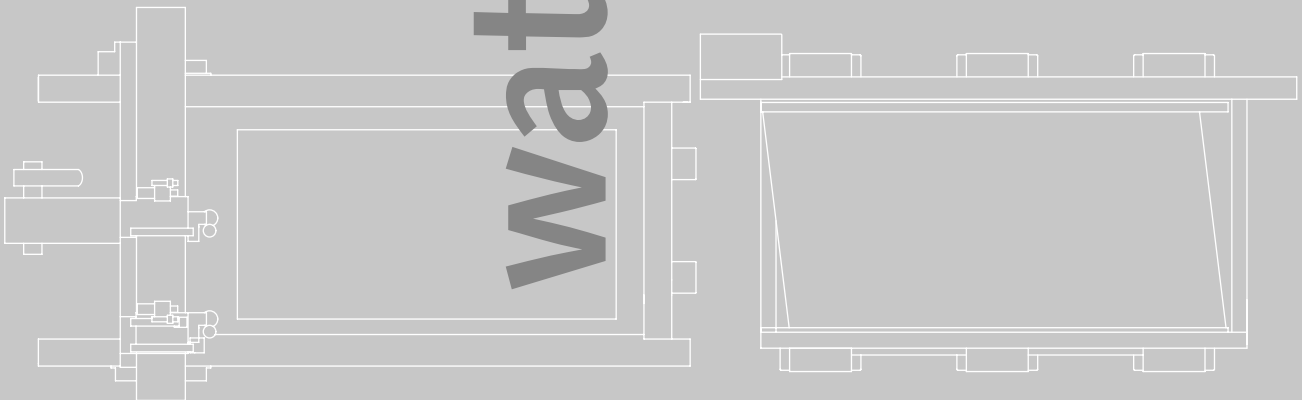
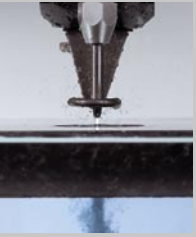


**Bystronic**

# expertise in waterjet cutting

## **Byjet**

The flexible waterjet cutting system  
for demanding applications



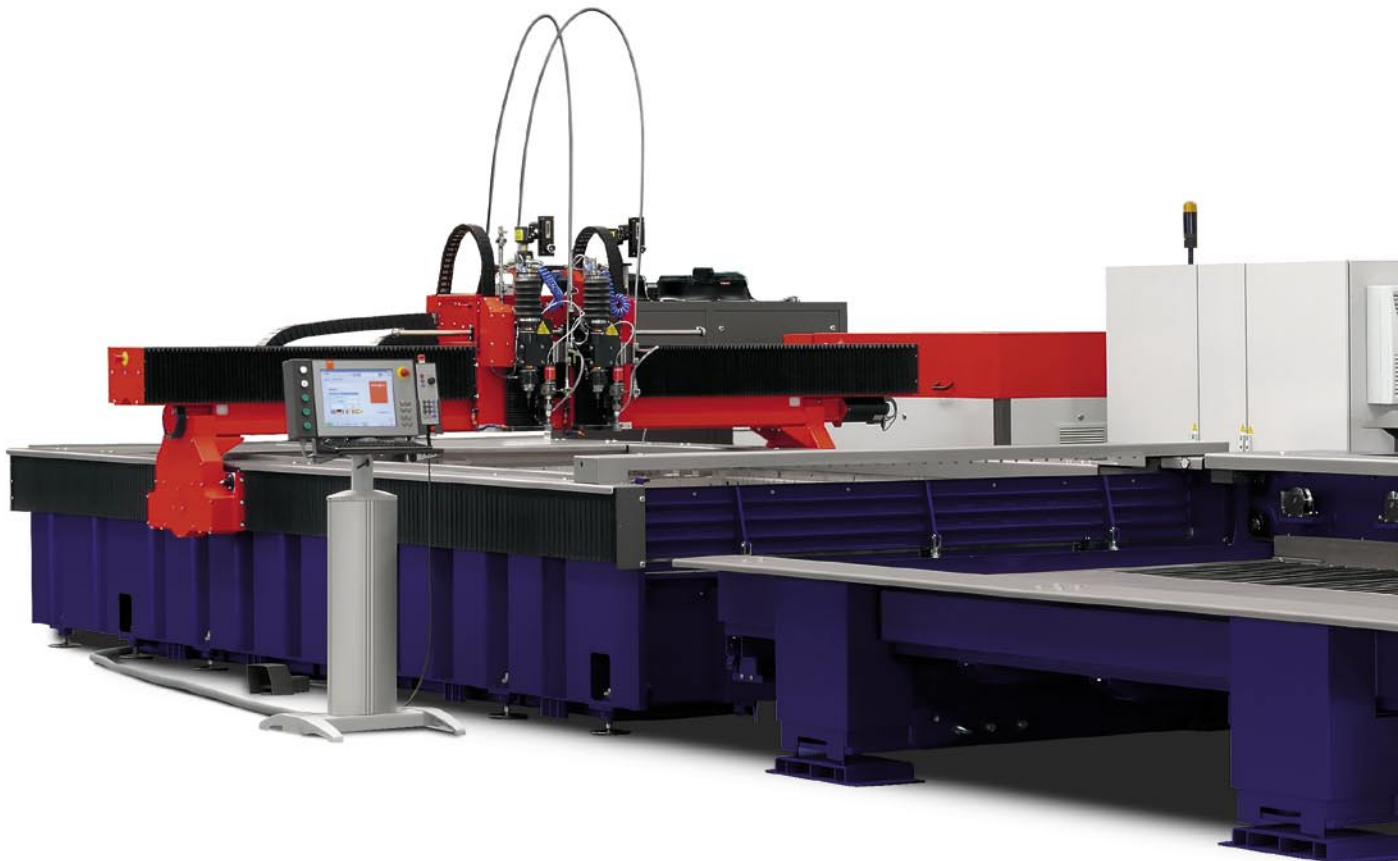
# Byjet – flexible, powerful, reliable

The high-performance waterjet cutting systems in the Byjet range permit the processing of a wide variety of shapes and materials without thermal effects, to an excellent quality standard.

The machine concepts and the machine design are of top quality and guarantee the user high reliability and hence process security as well as the maximum level of productivity.

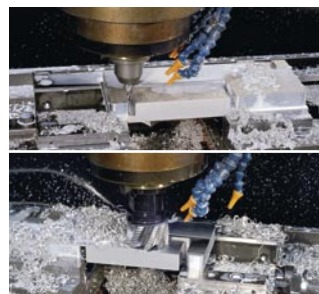
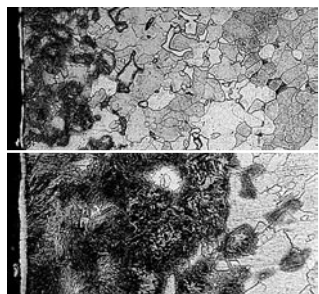
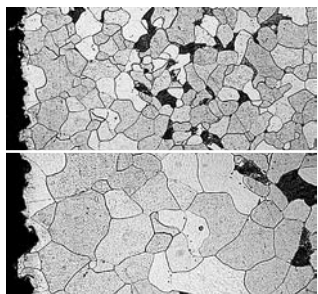
Numerous automation modules can be adapted to meet customer requirements to offer a further increase in productivity.

	Byjet 3015	Byjet 4022
<b>Working space</b>	x = 120 in.	x = 160 in.
	y = 60 in.	y = 90 in.
	z = 9 in.	z = 9 in.
<b>Maximum simultaneous x/y axis speed</b>	3 300 in./min	3 300 in./min





# Comparison of processes



**Waterjet cutting**  
Cold-cut edges, as created during cutting with a water jet, are free of burrs and structural impairment.

**Plasma cutting**  
The heat generated during cutting using laser, plasma or torch cutting systems changes the structure of the material: The edge zone melts and burrs are formed.

**Waterjet cutting**  
The combined production using a waterjet cutting machine and milling center guarantees economical processing. The parts can be nested and quickly prefabricated with the waterjet, then only the high precision areas are worked with the milling center.

**Mechanical processing**  
With the milling center, parts production is time-intensive due to extensive removal of material and creates process-induced tensions in the material.

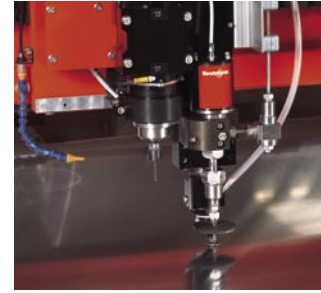




#### HD pump: Bypump 50 APC (Active Pressure Control)

Two individually driven, microprocessor controlled pressure intensifiers ensure a constant, linear and infinitely adjustable pressure. A pressure-stabilizing pressure vessel that has a limited life and is subject to inspections is not required.

An intelligent and extensive diagnostic system (in excess of 20 signals are monitored and displayed) also ensures rapid and efficient maintenance thus making possible the fault-free operation of the pump over a long period.



#### Cutting tool

The new Bystronic **cutting head** is characterized by its precision and its simple and quick handling.

Together with the special, highly dynamic **cutting valve** and **height sensing** with integrated **collision protection**, the highest cutting quality and the most economical processing times can be achieved.

Thanks to the CNC-controlled **drill spindle**, expensive bonded fibre laminates and other composite materials can be drilled without causing delaminations.

## Important components



#### Abrasive sand feeder

The cutting sand is precisely fed without the use of pressure via the CNC-controlled abrasive feeder. Thus the feed tube does not become clogged and the storage container can be filled up during operation.

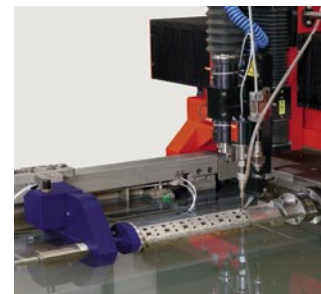
Automatic sand-flow monitoring permits lightly manned operation.



#### Tank catcher

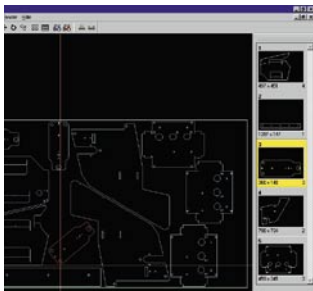
An automatic and maintenance-free scraper conveyor system is integrated in the robust, stainless steel basin.

An optional CNC-controlled water level control allows the noise level to be minimized and the user-friendliness to be increased (controlled cutting under water **without** an additional need for compressed air). This increases productivity and reliability.



#### Rotary axis

The optional rotary axis allows all round and profile tubes to be processed quickly and therefore economically. The rotary axis can be easily retrofitted since it is integrated in the machine bed and is easily accessed. A powerful and easy-to-use programming software is available for programming all cutting contours.



### CAD/CAM system

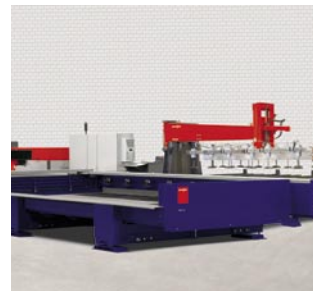
A powerful and user-friendly CAD/CAM module permits the user to produce one or more cut parts easily, quickly and precisely from defined contours. In addition, the complete production planning is supported («from file to part»).



### Operating terminal/control

The ByVision high-performance control maximizes user-friendliness and the speed. Operating takes place via a simple-to-use touch screen. Only those functions of the control are displayed that the operator needs at any particular point in time.

Parameters such as the cutting speed, the pressure and the amount of sand are infinitely adjusted to the material to be cut and the shape of the contour. The operator can allocate up to eight different parameter sets to the part to be cut.



### Shuttle table

The Byjet system can optionally be equipped with a shuttle table system that features a high carrying load and short change times. The use of the shuttle table permits optimal, perfectly safe access to the cut parts, increases the productive working time (through the reduction of set-up times, loading and unloading times during the cutting process) and increases the productivity during lightly manned shifts. Additionally, the cut parts are cleaned during the table change.

## Benefits

- Simple and varied restart possibilities after a stop condition (e.g. catching on a contour); even after switching the system off, a partially cut part can be completed
- Close linking with the Bysoft CAD/CAM programming system
- Simplest operation using a touch screen with context-sensitive, on-line help
- High-performance drive system, which permits high-precision production of parts as well as the highest of processing speeds
- Secure fixing of materials using a mechanical clamping system permits the production of high-precision parts
- Automatic engraving of most materials
- Constant high cutting quality through highly sensitive, maintenance-free height sensing with automatic calibration and integrated collision protection that ensures the precise and optimal distance of the cutting nozzle from the workpiece
- Space-saving, vibration-free construction with integrated scraper conveyor

## Expansion possibilities

- Second cutting carriage with abrasive cutting head and sensor-controlled height sensing
- Up to four cutting heads; additional cutting heads available on request
- Exchangeable cutting cassettes
- One or two drill spindles for drilling laminated materials
- CNC rotary axis with tailstock for tube and profile processing
- Cutting areas up to 630 x 120 in.
- 45° head adjustment
- Automatic, CNC-controlled distance adjustment of cutting carriage
- Automatic water level regulation
- Shuttle table
- Various material support grates
- Exchangeable cassettes

## Service & Support

Bystronic's proven technology and extensive expertise produce systems that are extremely reliable. With its global network of specialized service and training experts and comprehensive spare parts inventories in the local markets, Bystronic guarantees that it will support what it sells. In addition to maintenance, spare parts delivery, and repair services, customers are also offered training programs as well as hardware, software, and operational support so that they are in a position to get the most from their machine investment.

# Materials

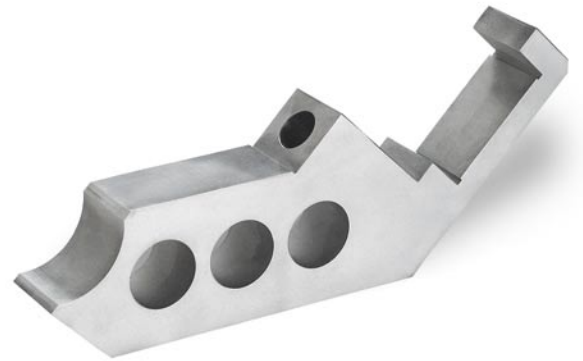
Unlimited range of materials up to a thickness of approx. 200 mm (dependent on the quality and composition of the material)

- Metal, including stainless steel, aluminium, titanium and non-ferrous metals
- Ceramics, glass and bullet-proof glass
- Stone, including granite and marble
- Fiber-reinforced synthetics, including carbon- and glass-fibre-reinforced plastic
- Plastics, including thermoplastics and duroplastics
- Hard and soft foam
- Insulating and isolating materials
- Laminated and structural materials
- Wood, paper and cardboard
- Sealing materials, including rubber and fabric-based laminates

## Automobile and automobile supplies industries

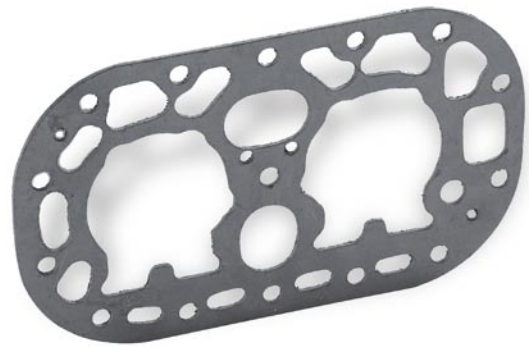
Seals

0.1 in., graphite with metal gauze



## Mechanical engineering

Support plate, tool machining  
2 in., aluminium



# Areas of application

## Glass industry

Screens, optics

0.8 in., glass



The waterjet cutting production process is in use worldwide in the:

- Glass industry
- Machine and apparatus engineering
- Shipbuilding
- Automobile and automobile supplies industries
- Aircraft and spacecraft industries
- Arms industry
- Electronics industry
- Construction and interior decoration industries
- Medical engineering
- Packaging and paper industry

**Chemical industry**  
 Scraper plate  
 0.3 in., stainless steel



**Electronics industry**  
 Holder, power supply  
 1.2 in., polyethylene (PE, plastic)



**Vehicle construction**  
 Switch part, car racing  
 0.4 in., reinforced aluminium

## Customer benefits

- Cold cutting without thermal influences
- Flexible processing of virtually all materials with consistent high quality
- Material-saving production due to reduced cutting width and the nesting of several parts on a single sheet
- Maximum degree of material utilization thanks to the smallest of part separation distances (partially free of burrs) and part-in-part production
- Tension-free processed parts due to minimal cutting force
- Environmentally friendly and clean production without poisonous gases
- Good access to the work area of the waterjet system
- Optimization of the cutting parameters to meet individual requirements
- It is possible to identify the cut parts using waterjet engraving
- High economic efficiency due to the shuttle table system
- High material savings due to narrow bridges or ribs
- No tool manufacturing and tool storage costs
- High productivity through multihead cutting systems and multilayer cutting

This brochure may show parts that do not belong to the standard equipment but which are available as options. In order to permit the details of the machine to be more clearly identified, safety covers have in some cases been opened or removed. Changes to dimensions, construction and equipment are reserved. See the separate data sheet for the technical data.

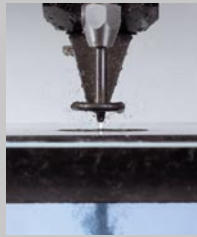
Bystronic is a worldwide active supplier of application-oriented systems and services for the laser and waterjet cutting processes, as well as bending: economical, high-performance, reliable.



**Laser cutting**  
Laser cutting systems for the innovative processing of a wide variety of materials and geometries



**Bending**  
3-point and air bending machines for high-precision working of sheet metals



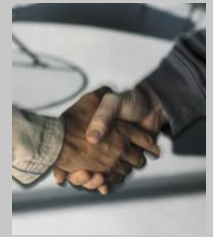
**Waterjet cutting**  
Waterjet cutting systems for cutting metals, glass, synthetics, ceramic, and many other materials



**Automation**  
High-performance handling and automation solutions from simple loading systems to fully automated laser production cell with integrated storage system



**Software & Control**  
User-friendly programming and operation with requirement-oriented applications programs and interfaces to CAD and ERP systems



**Service & Support**  
Competence and customer proximity with after-sales support available worldwide: local contact persons, prompt delivery of spare parts and professional training courses

## Your contact

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