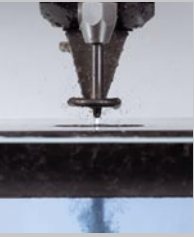


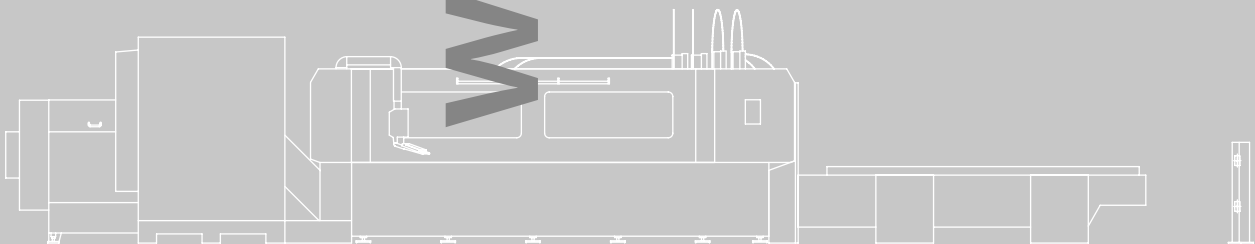
**Bystronic**



# expertise in waterjet cutting

## **ByJet Pro**

The precise waterjet cutting system  
for unmatched productivity

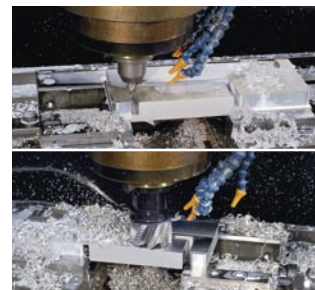
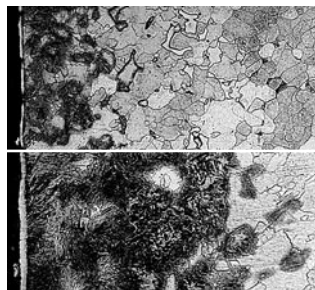
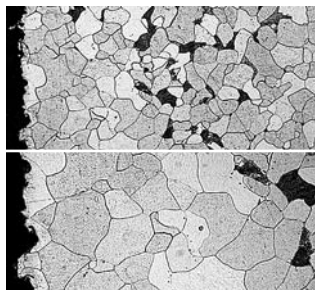


# ByJet Pro – productive, multifunctional, precise and clever

Waterjet cutting systems of the ByJet Pro model series are flexible in the processing of a wide variety of shapes and a nearly-unlimited variety of materials. Cutting is extremely precise without thermal effects on the material. The machine concept provides a modular structure with optional shuttle table and the use of one to four cutting heads. This guarantees the highest productivity and up to five times as many parts per unit time can be produced in a clean and low-noise work environment.



## Comparison of processes



### Waterjet cutting

Cold-cut edges, as created during cutting with a waterjet, are free of burrs and structural impairment.

### Plasma cutting

The heat transfer during laser, plasma, and torch cutting changes the structure: The edge zone melts and burrs are formed.

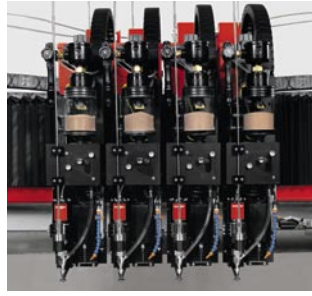
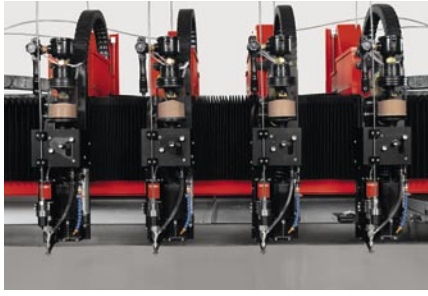
### Waterjet cutting

The combined production using a waterjet cutting system 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

The parts production with the milling center uses a lot of material because it cuts by chip removal. In addition, process-induced material tensions are generated.





### Cutting bridges with up to four cutting carriages

Up to four fully-automated, CNC-controlled and monitored cutting carriages ensure short throughput times and a significant increase in productivity with the highest quality. Minimal distances between the cutting heads enable the economical cutting of even the smallest parts. The automatic adjustment of the cutting head distance rationalizes work with the machine, because cutting heads can be switched on individually. Due to the flexible machine concept, even a system with four cutting carriages allows processing of the whole work area with the first cutting head. Each cutting carriage is equipped with its own abrasive feeder unit, via which the cutting sand is fed into the cutting head under CNC control and therefore precisely metered. Thanks to the automatic sand-flow monitoring, lightly manned operation is made possible.

### Cutting head

The Bystronic cutting head distinguishes itself through its high precision, powerful height sensing with integrated collision protection and automatic jet calibration. It also ensures low maintenance operation. Thanks to a CNC-controlled drill spindle, expensive fiber-reinforced composites and other materials can be pre-drilled, which effectively prevents delamination.

## Important components



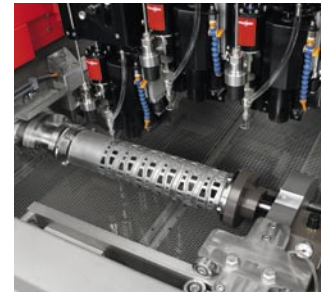
### HD pump: ByPump Active

Two individually-driven pressure intensifiers regulated by a microcontroller guarantee constant, linear and infinitely-adjustable pressure. There is no need for a pressure-stabilizing tank that would be subject to regular inspection. The intelligent and extensive diagnostic system also ensures fast and efficient maintenance and fault-free operation of the pump for many years. For material thicknesses above 5.91 inches, a ByPump Ultra respectively a ByPump Ultra+ with over 5000 cutting pressure is recommended.



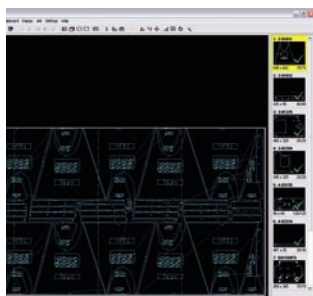
### Waterjet catcher tank

An optional automatic and maintenance-free scraper conveyor system can be integrated in the robust, stainless steel tank. With the optionally-available CNC-controlled water level control, the noise level can be minimized and user friendliness increased. The controlled cutting under water is realized without the need for additional, cost-intensive compressed air.



### Rotary axis

Depending on how the machine is equipped, round and profile tubes can be processed quickly and economically using the optional CNC-controlled rotary axis. The integration of the unit in the front of the tank provides easy accessibility for the operator.



#### Bysoft CAD/CAM software

Bysoft is the CAD/CAM software package developed by Bystronic for cutting and bending. Optimally attuned to Bystronic systems, this software ensures the fullest possible implementation of the cutting and bending technologies used. Bysoft is user-friendly and practically oriented and it supports job preparation ideally with quick programming. The user's work becomes easy thanks to need-oriented functions and a system structure that extends across all software modules.



#### ByVision high-performance control

The Bystronic ByVision high-performance control is quick and easy. On the touch screen of the operator terminal, the exact functions are made available that the operator needs at that point in time so that menu guidance is always intuitive. Parameters such as cutting speed, pressure and quantity of the cutting sand are infinitely adjustable and are continuously adapted to the material and the shape of the contour. Each part can be assigned up to eight parameter sets. The redesigned hand-held controller enables quick and easy inching operation.



#### Shuttle table

The ByJet Pro can be equipped with an optional shuttle table system. Its ergonomic design enables comfortable and safe access to the cut parts, which are cleaned automatically during the table change. Set-up times and loading and unloading during the cutting process are minimized and both the productive working time and the lightly-manned shift can be extended. The shuttle table is the optimal basis for integration into additional automation systems.

## Process benefits

- Cold cutting without thermal influences
- Flexible and precise processing of nearly all materials
- Maximum material usage thanks to minimal, sometimes burr-free, part interspacing and part-in-part (nested) production
- Stress-free processed parts due to minimal cutting force
- Environmentally-friendly and clean production without poisonous gases
- High productivity due to multi-head systems and multi-layer cutting
- No costs for tool manufacture and storage

## Expansion possibilities

- Shuttle table
- Up to four fully-automated, individually-controlled and monitored cutting carriages/ cutting heads
- Up to four drill spindles for pre-drilling laminated parts
- CNC-controlled rotary axis with tailstock for tube and profile processing
- Stationary support for cutting long tubes
- Automatic water level regulation
- Integrated scraper conveyor as operationally-reliable and space-saving slurry removal system
- A variety of material support grates

## 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

- Nearly endless variety of materials up to approx. 8 inches thick (depending on the quality and composition)
- Stainless steel, aluminium, titanium, non-ferrous and other metals
- Ceramics, glass and bullet-proof glass
- Stone, including granite and marble
- Fiber-reinforced synthetics, including carbon-fiber-reinforced plastic and glass-fiber-reinforced plastic
- Synthetics, including thermoplastics and duroplastics
- Hard and soft foam
- Insulating and isolating materials
- Sandwich and structural materials
- Wood, paper and cardboard
- Sealing materials, including rubber and fabric-based laminates

### Automobile and automobile supplier industries

Seals

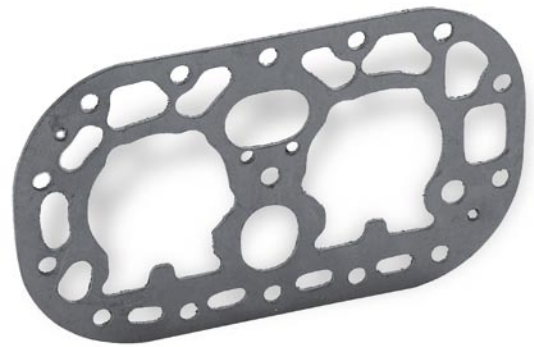
0.098 in., graphite with metal gauze



### Form and tool construction

Blanking die

3.54 in., high-alloyed tool steel



## Areas of application

### Glass industry

Viewing glass, optics

0.78 in., glass



- Glass industry
- Machine and apparatus engineering
- Shipbuilding
- Automobile industry including suppliers
- Aircraft and spacecraft industries
- Arms industry
- Electronics industry
- Construction and interior fittings
- Medical engineering
- Packaging and paper industry

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



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



**Mechanical engineering**  
Toothed belt wheel and toothed wheel  
1.18 and 0.118 in., aluminum

## Customer benefits

- Modular construction to meet customer requirements
- Short throughput times, increased productivity and the best quality thanks to four fully-automatic, CNC-controlled and monitored cutting heads
- Adaptation of the number of cutting heads used to match the part geometry creates great flexibility (large parts, one cutting head – small parts, four cutting heads)
- Small distance between the cutting heads enables economical multi-head cutting even for the smallest series and parts as well as optimal utilization of material
- Automation concept with shuttle table increases productivity and economic efficiency
- Space-saving arrangement of the system components. Reduction of unproductive safety areas due to encapsulation of the machine
- Ergonomic and safe operating concept as well as clean and low-noise work environment
- Simple, fast, and comprehensive control with the high-performance ByVision control package
- Productive thanks to high positioning and cutting speeds and axis dynamics
- Infinitely-adjustable pressure signal, precise sand feed quantity and nozzle distance regulation ensure an economical and high-quality cutting process
- All key components are developed in-house by Bystronic and are perfectly matched to one another

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 separate data sheet.

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.

## Best choice.



**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



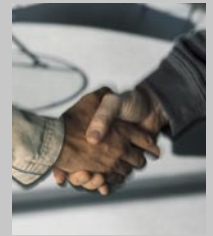
**Waterjet cutting**  
Waterjet cutting systems for cutting metals, glass, synthetics, ceramic, and many other materials



**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 application 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

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