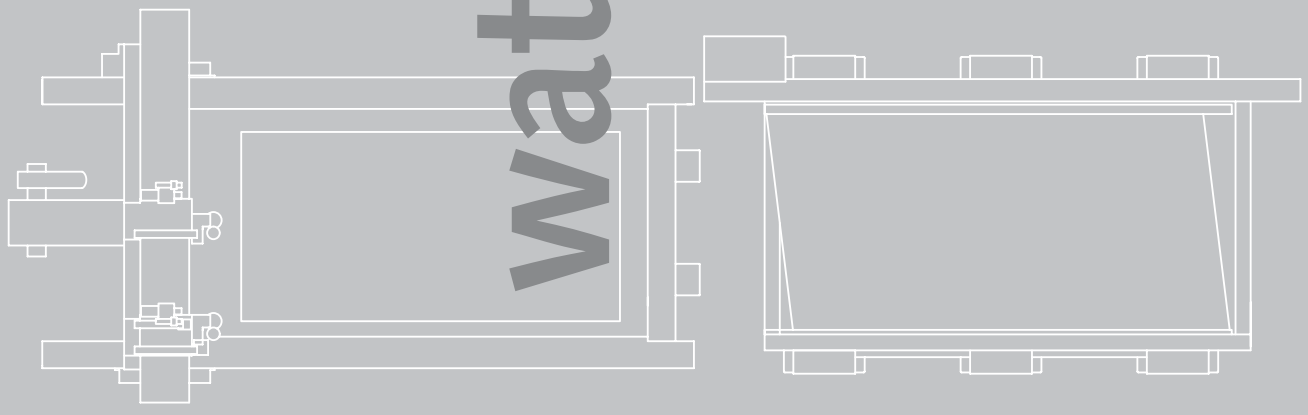
Bystronic

expertise in waterjet cutting

# Byjet

The flexible waterjet cutting system
for demanding applications

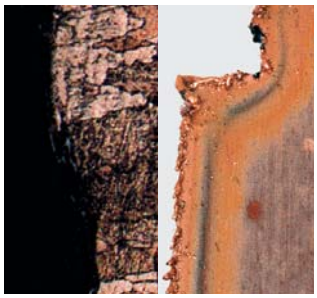


# Byjet – flexible, powerful, reliable

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.

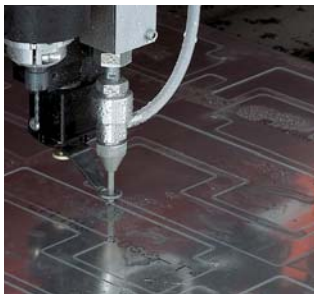
| | Byjet 3015 | Byjet 4022 | Byjet 4030 |
|---|---|---|---|
| **Working space** | x = 3 000 mm | x = 4 000 mm | x = 4 000 mm |
| | y = 1 500 mm | y = 2 250 mm | y = 3 000 mm |
| | z = 230 mm | z = 230 mm | z = 230 mm |
| **Maximum simultaneous x/y axis speed** | 84 m/min | 84 m/min | 56 m/min |

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



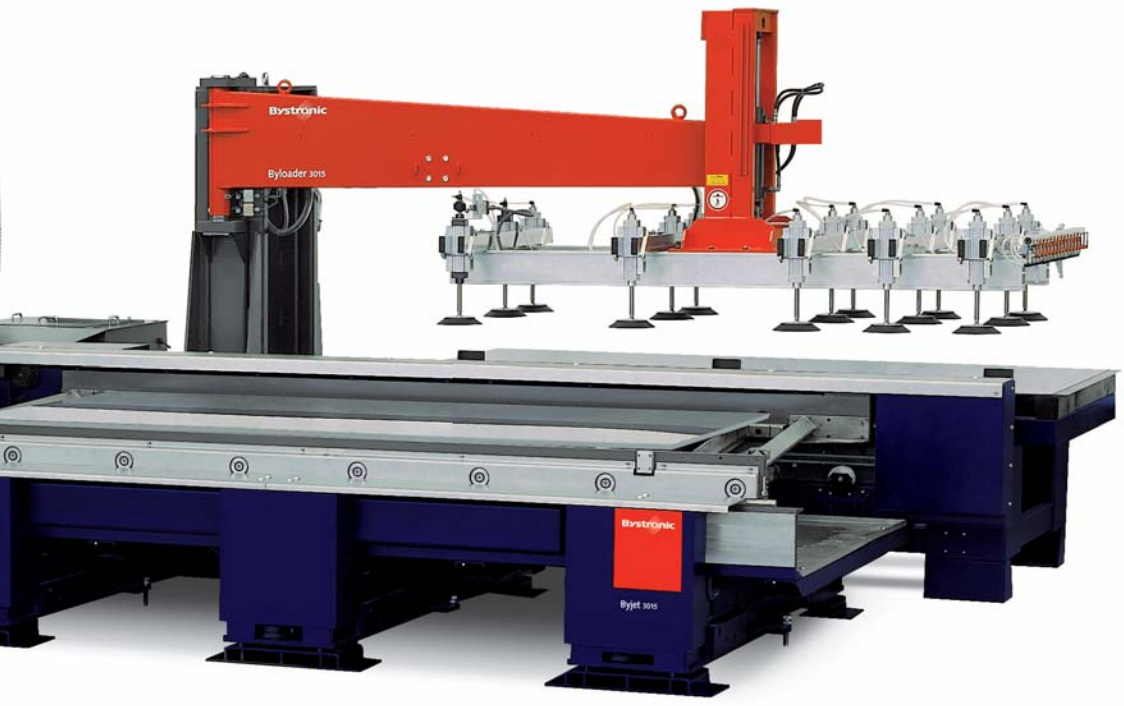
**Plasma cutting**
The heat generated during cutting using laser, plasma or torch cutting systems changes the structure of the material: The edge zone melts and burrs are formed.

# Comparison of processes



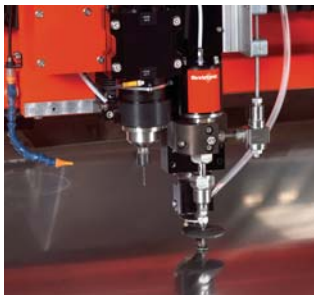
**Waterjet cutting**
The combined production using waterjet cutting machines and milling centres guarantees economical processing. The parts can be prefabricated and nested and only high precision areas are postworked.

**Mechanical processing**
With the milling centre, parts production is material-intensive due to the extensive chipping and creates process-induced tensions in the material.




**HD pump: Bypump 50 APC**
**(Active Pressure Control)**
Two individually driven, microprocessor controlled pressure multipliers ensure a constant, linear and infinitely adjustable pressure. A pressure-stabilizing pressure vessel that has a limited service life and is subject to official 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.

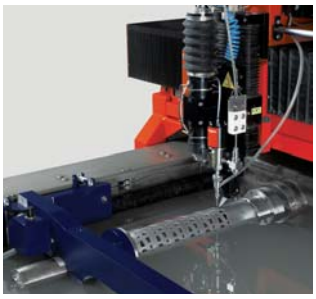
# Important components

**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.

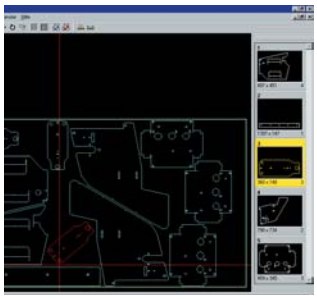
Automatic sand-flow monitoring permits lightly manned operation.

**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 control unit, specially designed by Bystronic for waterjet cutting, coordinates and manages all parameters related to cutting quality.

The cutting speed, the pressure and the amount of sand are automatically and infinitely adjusted to the material to be cut using parameter data. Thus optimal process conditions can be achieved for every application.

Operation is carried out via an ergonomically designed operator terminal.

**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 stoppage (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
- 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
- Precise, CNC-supported parameter control allows the automatic engraving of virtually all materials
- Constant, high cutting quality through highly sensitive, maintenance-free height sensing with integrated collision protection, which guarantees a precise and optimal distance between the cutting nozzle and 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 16000 x 3000 mm
- 45° head adjustment
- Automatic, CNC-controlled distance adjustment of cutting carriage
- Automatic water level regulation (for Byjet 4030 on request)
- Shuttle table (for Byjet 4022 and Byjet 4030 on request)
- Various material support grates
- Exchangeable cassettes

# Service & Support

Byjet is designed as a low-maintenance waterjet cutting system. A comprehensive after-sales service guarantees you worldwide support. In addition, we offer you training programs, in particular cutting courses, as well as hardware and software support.

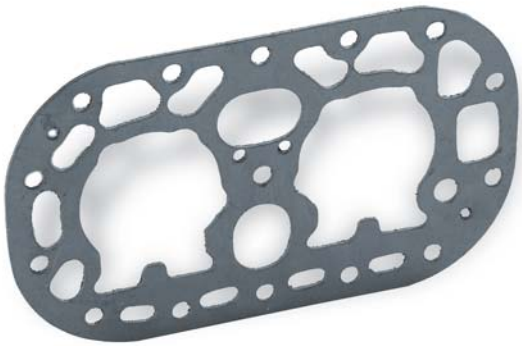
# Materials

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
- Sandwich and structural materials
- Wood, paper and cardboard
- Sealing materials, including rubber and fabric-based laminates

**Mechanical engineering**
Support plate, tool machining
50 mm, aluminium

**Automobile and automobile supplies industries**
Seals
2.5 mm, graphite with metal gauze



# Areas of application

**Glass industry**
Screens, optics
20 mm, 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
8 mm, stainless steel

**Electronics industry**
Holder, energy supply
30 mm, polyethylene (PE, plastic)

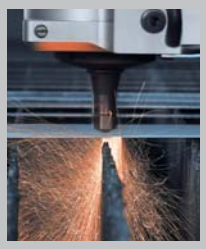
**Vehicle construction**
Switch part, car racing
10 mm, reinforced aluminium

# 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

Bystronic

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**
User-friendly software with need-oriented user 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**

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