



Case Study  
Water jet cutting technology

Foam processing industry

we think in **cutting** solutions.

# Industry: Foam processing

For decades, the customer has been processing foams in a variety of foam and cellular materials in different processing depths and quantities.

The managing director wanted a **machine to be able to cut different materials with very low set-up times**. Challenge excepted!!

## Applications of customer products:

- Industry
- Rehab
- Packaging
- Medical technology
- Technik
- Care taking
- Protection
- Cleaning

### **expert systemtechnik gmbh**

**Als unabhängiger Lösungsanbieter für innovative, voll automatische 2D-Schneidsysteme arbeiten wir aus dem Herzen der deutschen Maschinenbau-Region heraus mit Unternehmen auf der ganzen Welt zusammen.**

**Durch anderes Denken, Kombinieren und Verbinden schaffen wir immer wieder neue, einfache Lösungen mit einem echten Mehrwert. Wir agieren als Impulsgeber und Sparringspartner für technische Problemstellungen. Dabei kombinieren wir unser Know-How als Maschinenbau- und Software-Anbieter.**

**Seit 1994 sind wir ein Familienunternehmen - und werden das auch bleiben. Kunden beschreiben uns als sehr flexibel, kompetent und verlässlich. Das von uns selbst zu behaupten wäre anmaßend. Aber es stimmt wohl.**

# Initial situation of the customer

## Challenges:

- Previously used die-cutting technology is too inflexible
- High costs for smaller batch sizes
- Development and construction of individual punches for every required shape
- Storage costs for the punches
- Loss of material due to punching grid
- Time expenditure for upstream and downstream work steps to be taken into account

## Demands & wishes

- Flexibility in material and geometry
- Reduced makeready times compared to die-cutting
- Easy digitalisation of the required forms
- Quick adaptation of the geometries
- User-friendly use of the software
- Maintenance contract for safety

## Outcome

- **Reduced set-up times**  
Flexibility of personnel deployment
- **More flexibility**  
Changing possibilities for material use and cutting patterns (batch size 1)
- **Lower production costs per finished part**  
Faster ROI
- **Higher capacity**  
The result: after only a short time the machine was easily retrofitted with a second water jet head thanks to the modular concept

# Solution & Implementation

## cut **expert** variojet, Waterjet Cutter

*Why we have chosen the water jet cutter:*

- Water jet allows cutting of any geometry. - Punches and CNC knives are limited in geometry, material height and speed
- Materials up to 150mm can be cut
- Angular cutting up to 45° in X and Y direction
- Through the use of multi-head systems, a similar productivity and capacity can be achieved as when using the punching tool
- Can be retrofitted with a second water jet nozzle to increase capacity and a second Z-axis
- Significantly higher speed through contact-free cutting by water jet

## cut **expert** data, Datenbank-Software

*Why we recommend this software:*

- Storage of different materials at different heights
- Material database with transferable cutting parameters
- Individually adjustable parameters for each cut file:
  - Velocity
  - Beschleunigung
  - Acceleration
  - Pressure

## Advantages of (pure) waterjet cutting technology

- **Precision**  
smallest cutting gap 0.08 mm | part accuracy +/- 0.1 mm | any shape can be contour cut (from 0.08 mm)
- **Flexibility:**  
Faster material or geometry changes thanks to short set-up times
- **Efficient material savings:**  
The water jet does not require any spaces (buffers) between the parts. Savings potential for material (sustainability). In addition, new, efficient nesting patterns can be created for specific orders
- **Combined work steps:**  
The combination of water jet and a further manufacturing step (milling) in one process is ideal
- **Extended application possibilities:**  
The angle cut is a further option when processing foam plastics (Schaumstoff). An immense advantage over the punch or CNC knife.



*cut expert variojet*




Water jet or CNC cutter - which cutting system is suitable for your application?


You provide the material samples - we carry out free test cuts.


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