



## WATER JET SHAPE CUTTING



Our CNC machine operates on a simple principle.

A thin jet of water with a diameter of 2mm under pressure of up to 4000 atm and at a speed of 900 m/s cuts through the material. The water jet is powered by a pump and delivered through high pressure tubing to a Diamond Head Nozzle where the water is mixed with the precise quantity of abrasive to cut the material.



ALQAL



Sheets, plates



Water jet cutting



Round bar



Tread plate



Corrugated sheets



Coils



Foil

### **What can we cut using the water jet machine?**

Cutting practically anything is possible with the water jet machine except hardened glass or materials that react intensely with water.

The only limiting factors are a maximum work piece weight of 1600kg, the dimension of CNC table bed of 2000 x 5000 mm and the movement range of Z axis of 0 to 200 mm (therefore the maximum cut thickness is 200 mm).

### **What should you bring?**

The quickest way to complete your order is if you bring your own technical drawing in electronic form in \*.dxf or \*.dwg format.

If you have no possibility to bring your drawing in either of these formats, we can use paper version drawings or freehand drawings. In such cases you should count on longer lead times for completion. At the order stage we ask you to state whether the cut material will be further processed, or you need to have finished quality (see the following section “Cut quality and precision”).

### **Cut quality and precision**

It is necessary to note that the water jet has a particular attribute – its cut profile is conical and the chamfer is bigger with greater thickness. What about quality? We follow three precise quality grades.

**1. Maximum Quality** – Utilised mainly in cases when the customer will not further process (or minimally) material after cutting. We recommend using this cut to a maximum thickness of 50 mm. In such a case we can keep within a tolerance of +/-0.3 mm. It is possible to cut this quality in greater thicknesses but, because of the greater chamfer, we cannot keep the a.m. tolerance and further process is required therefore impacting the finished costs.

**2. Medium Quality** – This quality is between the top and bottom of the quality range. Normally used for parts where the cut tolerance is not critical, e.g. for visible “non-functional” machine parts. This quality is used for thicknesses up to 100 mm.

**3. Dividing Cut** – This is used for semi-products which require further processing with the supplement for processing being 2-5 mm depending on thickness of material. This cut is suitable for all thicknesses and offers a very cost effective solution.

### **Advantages of water jet cutting**

A cut with water jet is a “cold cut” and so without any heat influence on the material. The work piece suffers no physical, chemical or mechanical changes and can be easily processed.

The water jet minimally affects the material with there being no micro cracks. Water jet cutting is environmentally friendly as during the cutting process no non-ecological discharges occur. Water consumption is very low, the abrasive is not toxic and can be recycled for further use.