

WATERJET CUTTING

Waterjet Cutting is a division of Gee Graphite Ltd, the company founded in 1989 to offer a range of industrial gasket and sealing products based on expanded flexible graphite. It was through the difficulties posed in cutting composite graphite materials that a more radical and innovative approach had to be considered. This led to the installation in 1991 of the UK's first Water jet cutting system. Gee Graphite realised the capabilities and potential of water jet cutting and so a separate division offering customers a sub-contract service was set up.

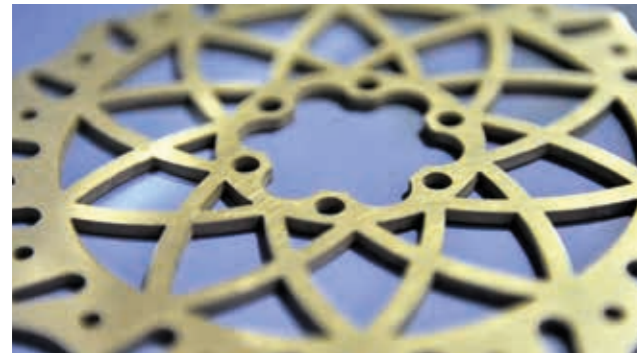
Since then the waterjet cutting division has grown substantially and now operates from a 62,000 Sq.ft site in West Yorkshire offering both pure water & abrasive waterjet cutting from various machines both single and multi-head configuration.

With a total of 8 waterjet cutting machines and a combined total of 41 cutting heads, we have capacity to meet our bespoke customer demands. With all the various configurations, we are in a strong position to select the optimum bed size and head configuration for a particular job. With so many waterjet cutting machines available to us, we are in the fortunate position to always attain to meet our customer's demands.

There are two options to our processes:

Pure Water - Waterjet Cutting

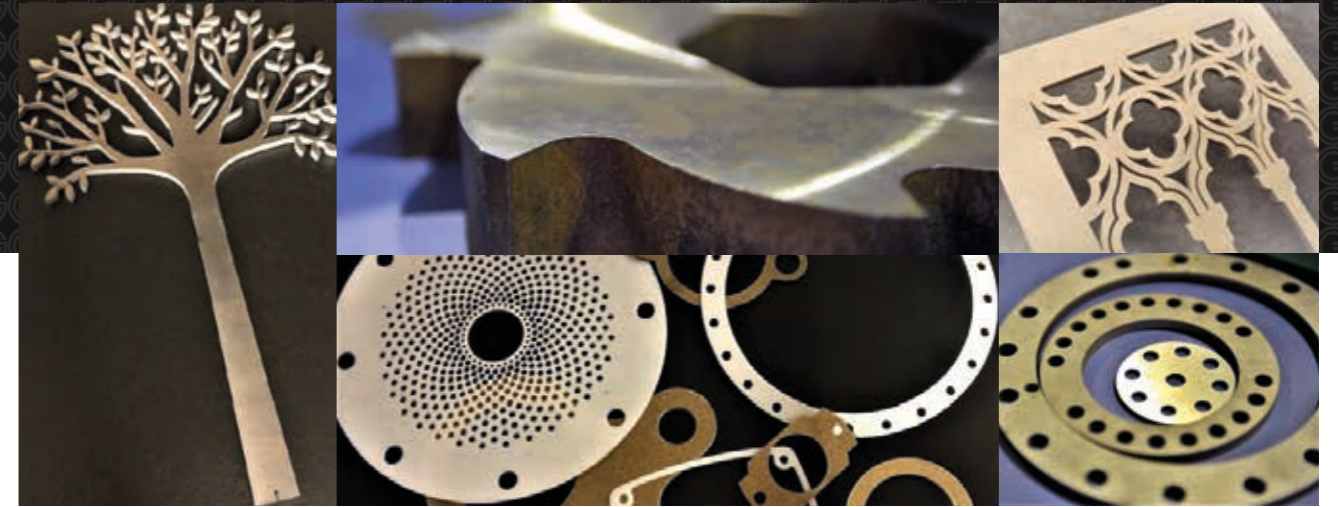
Pressurising water to 60,000 psi (3,600 bar) then projecting it through an orifice. This creates a significant amount of energy concentrated in a narrow jet of water, travelling at close to the speed of sound. The result is an extremely powerful and a precise pure waterjet cutting tool coming from our 4 pure water machines.



Abrasive - Waterjet Cutting

The abrasive system employs the same methods as pure water however with an addition of an abrasive garnet mixed into the stream increases the cutting force significantly. When the high-velocity water exits the orifice it creates a vacuum within the mixing chamber. The vacuum pulls abrasive from the abrasive line into the chamber where it is mixed with the water jet cutting stream. The resulting mixture is then realigned in a focusing tube before exiting the cutting head nozzle. At this point the accelerated abrasive particles are now travelling at speeds fast enough to cut through the hardest of materials, all this is achieved by a waterjet that is little more than 0.8mm in diameter. Our 4 abrasive machines have a range in bed size and number of cutting heads. Our largest machines are 6000mm by 3000mm and 4000mm by 2000mm, with each incorporating four cutting heads. In addition, two of our water jet cutting machines are equipped with drilling facilities to aid cutting some of the more fragile laminate materials.

ADVANTAGES OF WATERJET CUTTING



No heat affected zone (HAZ)

One of the biggest advantages is that water jet is a cold cutting technology. This allows materials to be cut that would otherwise be burned, melted or cracked by other cutting methods. It also guarantees that no structural or metallurgical changes occur to the materials being processed.

Environmentally friendly

The process is clean and does not create dust, fumes or hazardous gases. Cutting oils or coolants are not required.

Narrow kerf

The amount of material removed by the waterjet stream is typically 0.5-1.0 mm wide, meaning that very little material is removed. When working with expensive material (titanium, inconel, monel etc..) or hazardous material (such as lead), water jets small kerf, or cut width optimizes material use.

Nesting

With state-of-the-art CAD software combined with our multi cutting head machinery we have the ability to cut hundreds of different parts together in one nest. This gives us the ability to significantly reduce the amount of material required, whilst at the same time reducing the component processing time.

Setup

All our programming is carried out offline in a designated CAD office. This allows a quick and relatively easy set up at the machine.

Large components

Water Jet Cutting can meet the demands of most customer enquiries and cut the largest of profiles. With a maximum cutting bed size of 6000mm by 3000mm and an overhead crane with a 9 tonne lifting capacity, there are few components we cannot accommodate.

Other advantages of waterjet cutting

- High Cutting Speeds Many Commonly Used Materials
- Minimal Fixturing Required
- High Repeat Accuracy
- No Crushing of Material
- No Tool Sharpening
- Just-in-time Manufacturing Ability
- Eliminates Post Machining in Most Cases
- Rapid Prototyping
- One-Off To Volume Production

Cutting from metal & non-metal materials, but not limited to:

Aluminium, brass, bronze, copper, lead, carbon steel, nickel alloys, stainless steel, titanium, carbon fibre, ceramics, cork, flooring, foam, glass, granite, graphite, laminates, plastics, PTFE, rubber, tufnol and wood.

Water Only

Machine	L(mm)	W(mm)	Cutting Heads	Pressure (bar)
Axon	3000	1500	6	3600
Bobjet	3000	1500	6	3600
Flowtech	3000	1500	6	3600
WJ Sweden	3000	1500	12	3600

Abrasive

Machine	L(mm)	W(mm)	Cutting Heads	Pressure (bar)
6030	6000	3000	4+2	3600
4000Q	4000	2000	4+0	3600
Byjet	3000	1500	1+1	3600
Wardjet	3000	1500	2+2	3600

Additional Machine Processes

- Bending
- Counterboring
- Countersinking
- Drilling & Tapping
- Milling

Surface Finishing

- Anodising
- Chemical Blacking
- Electroplating
- Metal Polishing
- Shot Blasting





WATERJET CUTTING DIVISION

Bespoke, precision cutting on our pure water
and abrasive water machines



Gee Graphite Ltd, Havelock Street, Ravensthorpe Industrial Estate,
Dewsbury, West Yorkshire, WF13 3LU, ENGLAND

Tel: +44 (0) 01924 480011 Email: sales@geegraphite.com www.geegraphite.com



GEE GRAPHITE LTD