



Pure Water

Take tap water, pressurise it to 60,000 psi (4,000 bar) then force it through a very small hole, or orifice. This creates a tremendous amount of energy concentrated in a thin beam of water, travelling at close to the speed of sound. The result is an extremely powerful and a precise 'Pure Water' cutting tool.

Abrasive Cutting

An 'Abrasive' water system employs the same methods as 'Pure Water' however; the addition of an abrasive garnet mixed into the stream increases the cutting forces 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 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 water jet that is little more than 0.8mm in diameter.

What can we cut ?

With over 8 years of experience we have successfully profile cut a vast range of materials from low density foams to wear resistant steels.

- **Metals** - Aluminium, Brass, Bronze, Copper, Lead, Mild Steel, Nickel Alloys, Stainless Steel, Titanium.
- **Non Metals** - Carbon Fibre, Ceramics, Glass, Granite, Laminates, Plastics, PTFE, Tufnol, Wood.
- **Soft Materials** - Cork, Foams, Foam Rubbers, Graphite, Neoprene Rubber.

WATER JET CUTTING MACHINE

Advantage of Water Jet Cutting

The versatility and flexibility of water jet profile cutting as a tool has seen its popularity grow rapidly since its introduction in the mid 1990's. Some key advantages are:-

No heat affected zone (HAZ) - One of the biggest advantages is water jet's inherent cold cutting quality. This allows materials to be cut that would be burned, melted or cracked by other cutting methods. It also guarantees that no structural change or metallurgical deformation is placed onto 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 water jet stream is typically about 0.5-1.0 mm wide, meaning that very little material is removed. When you are working with expensive material (such as titanium) or hazardous material (such as lead), water jets small kerf, or cut width optimizes material use, increasing cost effectiveness.



4 Axis Water Jet

Besides the 3 basic axis, there are other 2 axis, one of them is for rotation, another is angle axis which is manual without participating in the linkage, so we just call it 4 axis water jet cutting machine.

The tilt angle of 4 axis machine is much smaller than 5 axis machine, the angle is 5 degrees. but it is enough to solve the problem of the cutting slope of water jet. during the cutting process, it can do angle compensation to confirm the incision Completely vertical. The cutting accuracy is 0.1mm, can totally meet the requirements of a variety cutting. This equipment has achieved good results in a number of cutting areas, mainly in significant decline of the processing costs and greatly improve of the processing efficiency.

5 Axis Water Jet

The 5 axis water jet cutting machine equips with the A axis (jet swing axis) and C axis (rotating axis) based on the original 3 axis water jet cutter. These two axes can make the cutting head swinging at any angle during the cutting process, and this machine can calculate the real-time cutting trajectory by using the preset angle model of numerical control system, after that the calculation result will be corrected according to the material properties and thickness of the cutting workpiece. With 5 axis control system and 3D programming software, our water jet cutting machine can achieve true three-dimensional dynamic cutting. This machine can cut the product cross section without inclination, and cut bevel at any angle, as well as cut the workpiece vertically, especially cut cone, curved impeller, gear, etc.

This 5 axis waterjet cutter can cut any angle within $\pm 60^\circ$, it solves the traditional problem of water cutting inclination, and achieves 2D/3D cutting easily. The line cutting accuracy is $\pm 0.1\text{mm}$, angle cutting accuracy is $\pm 0.1^\circ$. Our machine is applied to cut bevel surface, straight surface, conical surface, circular surface, rotating surface, groove, chamfer, and arbitrary surface. It can meet the high precision machining demands of mechanical manufacturing, rail transportation, automotive manufacturing, and composite materials processing.

