

High Pressure Waterjet

A water jet is a cutting tool capable of slicing metal or other materials by using a narrow stream of water at high velocity and pressure, or a mixture of water and an abrasive substance. The process erodes the materials in the same way as water erosion found in nature but accelerated and concentrated through high pressure. It is often used in the fabrication or manufacture of parts for machinery and other industries. It is used in applications in the mining to aerospace industries where it performs operations such as cutting, shaping, carving, and reaming.



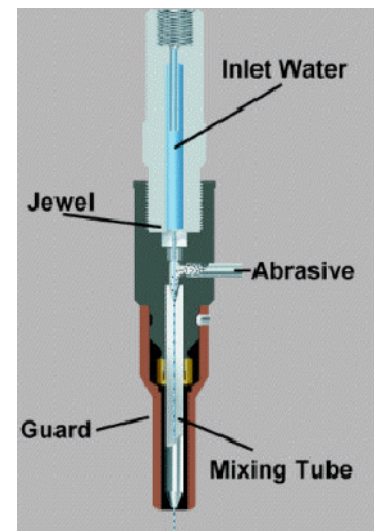
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The water jet is usually connected to a high-pressure water pump (Viatran supplies units at 60K PSI) where the water is then ejected from the nozzle, cutting through the material by spraying it with the jet of high-speed water. Adding suspended grit or other abrasives, such as garnet and aluminum oxide, can accelerate this process. Because the characteristics of the cutting stream can be easily modified, water jets can be used to cut materials from processed food to exotic metals. There are few materials that cannot be effectively cut with a water jet cutter. Two of these are tempered glass and certain ceramics are resistant to water jet cutting. Water jet cuts are not typically limited by the thickness of the material, and are capable of cutting materials over a foot (30 cm) thick.

An important benefit of the water jet cutter is the ability to cut material without compromising the material's inherent structure. The effects of heat are minimized by the water jet. This allows metals to be cut without harming or changing intrinsic properties.

Water jet cutters are also capable of producing intricate cuts in materials as small as a human hair. The kerf, or width, of the cut can be changed by adjusting the nozzle, as well as the type and size of abrasive. Typical abrasive cuts are made with a kerf in the range of 0.02" to 0.05" (0.508 to 1.27 mm). Nonabrasive cuts can be as small as 0.003" (0.0076 mm) and up to 0.013" (0.33mm).

These small cutters can make very small detail possible in a wide range of applications.



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**VIATRAN**



Viatran supplies our model 570 to the manufacturer of water jet machinery. The 60,000 PSI transmitter is used to control the nozzle pressure for the water jet cutter.

The Viatran model 570's all stainless steel, hermetically sealed, strain gage, shock and vibration proof design, coupled with its ability to with stand millions of high pressure cycles, has become the high pressure water jet industry standard.

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