# Water jetting: A versatile, green alternative

*KMT Aqua-Dyne*

For more than 40 years, water jet systems have been a flexible, reliable alternative in cutting and blasting. Currently, water jetting has a considerable degree of presence in the industrial world, and can be found in a spectrum of establishments including aluminum plants, electrochemical plants, refineries, construction sites, oil and gas fields, and airports.

The utility of water is as malleable as the substance itself. While some innovative companies continue to find new uses for water jetting, it is well-established that the jets can be used precisely for cutting, economically in hydrostatic testing applications, safely and easily in surface preparation, cleanly in hydrodemolition and effectively in general industrial cleaning.

There are five critical elements that set water jet cutting apart — cost savings, versatility, near-net shape cutting, the ability to cut almost any material wide range and the ability to complement other processes such as laser machining, plasma cutting and punch pressing.

Another application for water jetting is in hydrostatic testing, in which water jetting is a cost-cutting alternative mainly by virtue of its low material cost: water. In order to force water into a pipe to test the structure's ability to withstand pressure, all that is necessary is a water source, a pump and a jet. In fact, in most applications, the water does not even need to be particularly clean. Offshore oil rigs, for example, may test their pipes with salt water at pressures of up to 20,000 psi. That water must always be pristinely clean in water jets is a common misconception; only at the highest pressures must the water be free of impurities.

In the field of surface preparation, water blasting has a few important advantages over other forms of blasting, the most important being the removal of the risk of inhalation of air particles by the device operator. The water molecules in the air will not cause respiratory illnesses such as silicosis in the way that particles created by some other methods, such as sand blasting, are known to do. Also, when using a water jet, there is no overspray of property-damaging grit to settle on houses and cars in the vicinity.

Water can also be used in hydrodemolition applications to demolish concrete, bridges, highways and stripes on roads and runways. The most popular alternative method — jackhammering — generates a troublesome amount of noise pollution and creates numerous safety hazards. Water jetting also has the unique ability to strip concrete from a structure without damaging the rebar underneath.

Perhaps the most important application of water jetting is in industrial cleaning, where the jets can shoot water out in enough pressure to take off anything from rubber to bauxite. The savings obtained through the system's efficiency and safety add up quickly during the regular cleaning of the hundreds of heat exchangers in a refinery.

**The rotating hose device**

KMT Aqua-Dyne has improved upon its advanced water-jet design to create the rotating hose device (rhd). The rhd works by utilizing a rotating nozzle at the end of the hose that can be controlled via a panel. This freedom of control improves the jetting process in a number of important ways.

First of all, the rotating head offers superior cleaning. The operator inserts the device into the surface to be cleaned. Then, by using the control, the speed and uniformity by which the high-pressure assembly advances through the pipe can remain consistent, guaranteeing a uniform cleanliness throughout and eliminating guesswork. The nozzle can take on anywhere from two inches of inside diameter (ID) to 60 ID, and has been inserted more than 1,500 feet inward.

Secondly, the rhd offers superior safety to the user. While the pipe is being cleaned, the operator maintains a safe distance of 20-30 yards. By effectively removing the person from the application site, risk of injury is practically nonexistent.

Last of all, the rhd is a spark-free device, able to be used in areas where flammable materials lead to precautionary conditions. Because there is no sand or abrasive, there is no risk of ignition from particles colliding. Also, as the nozzle creeps down the pipe, it rides on a cushion of water in safe suspension from the metal sides, eliminating the risk of spark from a metal-on-metal scraping.

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