

► BY JOHN DEDIC, KMT WATERJET SYSTEMS



All images: KMT Waterjet Systems

Innovative waterjet cutting drives growth for stainless steel fabricator.

Deep in southwest Missouri is a success story based on building food processing equipment and conveyors—and using waterjet cutting. FBN Metal Products Inc. and sister company Snap Lock Inc., Battlefield, Mo., specialize in those products and operate a growing, fast-paced machine shop that performs about 90 percent of its cutting using waterjet.

After founding FBN in 1986 as a stainless steel cutting and fabrication job shop, owner Frank Norton found customers asking him to make more and more parts for food processing equipment. Soon he was building entire machines and production lines. Using his experience and creativity, Norton was able to devise custom solutions for companies, carving out a solid market position for FBN.

Norton soon spotted demand for a modular conveyor line. “During visits to customers, I noticed that production lines were changed often,” he said. “Each time a line was changed, complete conveyor lines had to be disassembled and discarded. So we created Snap Lock, a modular, sanitary conveyor line for food processing plants that provides the ability to change the production line by quickly adding or removing sections.”

Snap Lock was an immediate success. To keep up with growing demand, Norton purchased a waterjet machine 5 years ago equipped with a high-pressure pump from KMT Waterjet Systems (at the time Ingersoll Rand Waterjet). The waterjet table measures 6'x12', and the machine has a special stone-mode setting for cutting stone and a sensor that

touches the workpiece material and changes the cutting head's Z-axis so it's close enough to cut the material, typically from 1/8" to 1/4", but not too close.

“Waterjet is the best way to cut stainless and leave a clean, square edge without any heat-affected zone,” Norton said. Because waterjet is a cold-cutting process, the edge of the cut material is not hardened. This allows FBN to tap holes easily and consistently using a roll tap.

The waterjet machine proved to be more than just a cutting machine for making stainless conveyor parts; it became a draw for new business. FBN began receiving requests for quotes for products made from other materials, including ceramics, plastic, aluminum, reinforced rubber, stone and glass. According to Norton,

the versatility of the waterjet machine has helped FBN diversify beyond the food industry.

To help companies choose and design custom parts, FBN uses a cut-quality scale that demonstrates the trade-off between price per cut and edge quality. The scale allows customers to choose a faster cutting speed and lower part price when edge quality is less important, and a slower cutting speed and a higher price for a part with demanding edge requirements. Customers can also choose different cutting speeds for different sections of the same part.

Continuous Improvement

FBN continuously improves its waterjet cutting operations. The shop regularly performs test cuts and brackets cutting speeds on new materials supplied by customers, working to speed up parts production. John Stoelting, waterjet machine operator, experiments with speeds, pressures and feed rates for various workpiece materials, shapes and thicknesses to achieve superior results.

Recently, FBN was one of the beta testing sites for KMT Waterjet's Autoline II abrasive cutting head. Stoelting provided extensive feedback on the Autoline II's head performance, and he noted that the new design reduces clogging and has an inlet that allows him to easily connect the abrasive feed hose by sliding it over a barbed, carbide fitting. This enables him to see that it is firmly connected. In addition, the inlet confines wear to the wear insert, eliminating wear on the cutting head body. The cutting head also simplifies the process of changing the abrasive mixing chamber, which is positioned on top of the insert body for easy access, and includes a weep hole to indicate when the orifice is seated

correctly against the nozzle tube. Also, a T-screw retains the focusing tube, which can be used without tools like the cutting head itself.

Stoelting and Norton are also interested in the new KMT IDE abrasive cutting head, which simplifies abrasive cutting heads because it has the diamond orifice, wear insert and body integrated as one piece. The KMT IDE, due to be introduced in June, will eventually replace the Autoline II.

With waterjet cutting, companies like FBN have been able to gain valuable experience by creatively using the technology and pushing machines to their limits. And innovation is one of the key ways for U.S. companies like FBN to compete against manufacturers down the block—and across the ocean.

For more information about FBN Metal Products Inc. and Snap Lock



Frank Norton, owner of FBN Metal Products Inc., left, discusses parts production with John Stoelting, waterjet machine operator.

Inc., call Frank Norton at (800) 538-2830 or visit www.fbnmetal.com. △

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Conference provides technical, practical information

Waterjet machine suppliers work directly with companies like FBN Metal Products Inc. to help them learn how to use waterjet technology to its fullest potential, but information on technology, best practices and safety is also available from the WaterJet Technology Association at its biennial American Waterjet Conference, held in Houston. This year's conference, which takes place Aug. 19-21 at the Marriott Westchase Hotel, also includes a boot camp to help shops win new business. A preconference workshop starts the event Aug. 19 with a review of the basics of waterjet equipment and safety.

The conference's exposition will be Aug. 20-21 and will consist of displays of abrasives and abrasive waterjet accessories, nozzles, pumps, valves, hoses, fittings, lances, orifice inserts and CNC robotics. The displays will include equipment for cutting, shaping, surface preparation, hydroblasting, tank cleaning, industrial vacuuming/air moving and sewer/pipe cleaning.

Along with the exposition will be on-site demonstrations of various waterjet applications. Demonstrators will teach conversion of pressures, preventive maintenance and field repair.

For more information on the conference, visit www.wjta.org.