

Nexus Precision and Speed Keep High-Tech Shop Profitable

(WATERTOWN, MA) – High Tech Turning Company is a small job shop turning out some pretty high-tech parts. Established in 1985, the company has 25 employees and an enviable compound annual growth rate of 30%. According to president and owner Paul Heanue, the shop has never had to lay anyone off, although admittedly it has been down to one shift at times.

High-Tech's growth comes from a base of more than 50 medical device, instrument, and industrial component manufacturers. Originally starting with a Swiss turning machine (hence the company name), High Tech Turning now has 10 Swiss screw machines, four CNC bar machines with milling and drilling, and five CNC high-precision vertical machining centers, the latest of which is the VC Nexus 410A from Mazak Corp. (Florence, KY). Materials the company commonly works with include ABS resins, all stainless steels, and all non-ferrous materials including Kovar, Invar, tungsten, and titanium. Turning projects are held to tolerances of plus or minus 0.0001 in., milling to plus or minus 0.00025 in.

The company has grown steadily, but it is not immune from price pressures from its customer base. "When I started this company in 1985, I could run a machine or two and make good parts," Heanue says, "but today our customers require perfect quality (and proof of it), just-in-time delivery, and competitive prices.

"Cost in this economy is more and more of an issue. No one wants to carry inventory, so everyone wants immediate, make-to-order delivery. We have to have the quality and the competitive price no matter what."

Recently faced with an 8% across-the-board price cut demand from a major customer, the company turned to its newest acquisition, its VC Nexus 410A from Mazak. "It's not always

the job, it's how fast you can get it on and off the machine that often makes the difference," Heanue explains. "The faster we push our Nexus, the better it cuts."

The Nexus 410A features a powerful 25Hp 12,000 rpm AC spindle motor that increases torque in the lower range and enhances performance in the high range. Spindle speed in the Nexus represents a 20% increase over previous models and horsepower is a 25% increase. The chip-to-chip tool-change time is 2.7 seconds.

"We absolutely had to cut time on existing jobs, and tool-change time is critical," Heanue explains. He went so far as to challenge a machine tool builder he was considering to put their claims of tool-change time to the test, but they never responded. "We've suspected for a long time that this builder overstates their claims. When we began dealing with Mazak, it was clear they took machine construction and specifications seriously."

Programming capability, along with well-laid-out electrical components also aid profitability. A program running on a Haas mini mill was loaded onto High Tech Turning's Nexus 410A, and without any changes the Nexus cut 45 seconds out of a four-minute cycle time, a nearly 20% reduction. Other medical parts run on the Nexus machine achieved nearly 50% reduction in cycle time, and an ABS component for a cough-assist machine run on the Nexus could not be run on High-Tech's other machining centers.

Precision linear guide ways are used on all Nexus 410A axes for maximum accuracy and rigidity. Rapid traverse rates of 1417 inches per minute are a result, as well as positioning accuracy of plus or minus 0.0002 in. High-gain digital AC servo motors are coupled directly to the ballscrews, eliminating the need for belts and gears that can otherwise negatively affect machine accuracy. Heanue's machine also has an optional NC rotary table package with an 8-in. diameter rotary table with 1.57-in. thru hole servo motor and servo amplifier.

The Nexus design is environmentally friendly as well. An automatic save-energy mode shuts the machine down when not in use, which can cut electric power consumption up to 20%. The Nexus grease lubrication system reduces waste oil 57%, and the absence of tramp oils

from the linear guide lubrication system extends coolant service life. In addition, all solenoids, valves, and fluid level gauges are mounted on a single panel, making a visual status check quick and easy.

“We always have to look at how we can cut cycle time out of a part,” Heanue affirms. “If you can’t get the job out of the shop quickly, you don’t get the job. With the Nexus, we feel we have the technology to address our customers’ concerns and still maintain a profit.”

About Mazak

A subsidiary of Oguchi, Japan-based Yamazaki Mazak Corporation, Mazak Corp. was first established in the United States in 1968, and the Florence, KY offices and manufacturing facility was opened in 1974. Currently the only Japanese machine tool company with US-based design and production facilities, Mazak has invested more than \$130 million in North American facilities since 1968. From advanced multi-tasking machine tools, vertical and horizontal machining centers and turning centers to fully automated Palletech Manufacturing Cells, Mazak-engineered developments provide customers tangible value-added benefits and the most productive machine tools available. Application assistance from 10 regional Mazak Tech Centers is always accessible. For more information, contact the Mazak Corporation at (859) 342-1700 or visit the Mazak website at www.mazak.com.

#