Rural Job Shop Work Expands

Whitworth Tool Die & Stamping (Hardinsburg, KY) employs more than 200 skilled workers and an array of production equipment, including 16 Okuma CNC horizontal turning centers.

Founder Kenny Whitworth describes his Okuma machines as "top notch." That sentiment is shared by Whitworth's production manager, Tom Dyer.

Whitworth Tool began as a family business in Kenny Whitworth's garage in the spring of 1998. His goal was to build a tool and die company that provided the highest quality service at a speed that would meet his customers' needs.

Once Kenny and his son, Jared, began producing products for their customers, word got out and demand grew to become more than two people could handle. More equipment and more employees were added to cover the workload. It quickly became apparent that the garage was not big enough to accommodate the rapidly growing business.

In October 1999, Whitworth Tool moved into an 8800 ft^2 (817-m^2) facility, which would allow the business to flourish and expand. During this time, the company began providing more services such as die maintenance, reverse engineering, and small-scale production work. These new services, along with its core services, allowed Whitworth Tool continued growth at a steady rate. Within a few years, it was clear that the current facilities were too small to accommodate continued expansion.

In September 2002, Whitworth Tool moved to a 39,000 ft^2 (3623 m^2) where the company operates more than 100 machines, running 24/7. The company has also added more services to meet its customers' needs. New services include press spotting, CMM certification, and large-scale production work.

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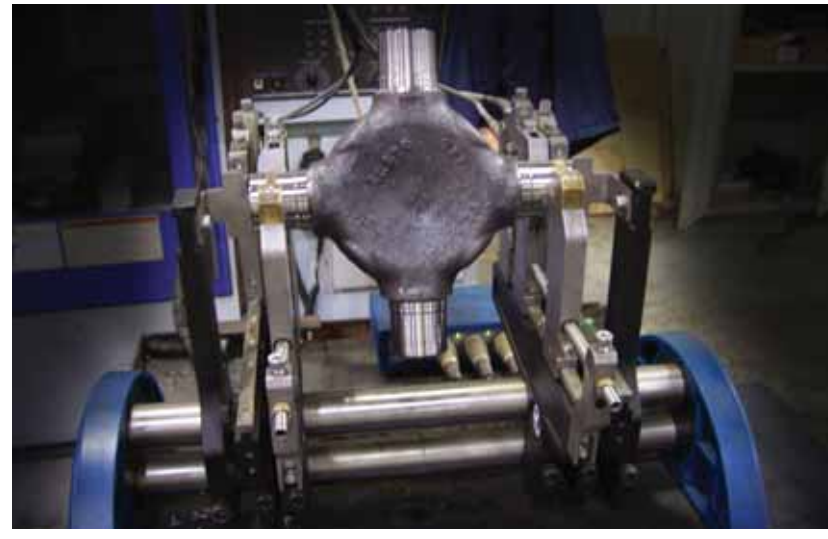
"More than 90% of the production in our turning department is done on Okuma lathes," Dyer points out. "So, when one of our customers cut the tolerance on a part we'd been producing to ±0.002" [0.05 mm] from ±0.010" [0.25 mm], one of the things I did was visit the Okuma Partners in THINC Center in Charlotte, NC.

"There I saw the integration of Marposs' Quick SPC software into the Okuma THINC control. That, and the Marposs Quick Set modular gage, were exactly what we needed. Being able to see them work in a real-world environment at the center made the decision to bring the technology into our plant very simple," Dyer adds.

The part is a cross trunnion used in the rear axle of heavy-duty trucks. It has four cylindrical legs attached to a center section, very much like the center cross of an automotive universal joint. The trunnions are machined from forgings on a pair of Okuma L370 CNC horizontal turning centers at the rate of 700 per day.

Whitworth installed the Marposs Quick Set gage between the two machines, and installed the Quick SPC software in one of the THINC controls. Marposs Quick SPC software is a statistical process control and quality management package that runs on



A Marposs Quickset modular bench gage at Whitworth Tool is used to measure finish-machined cross trunnion parts produced on two Okuma L370 turning centers. Measurement data from the gage are processed and stored via the Marposs Quick SPC statistical software on the Okuma THINC control.

Operators are guided through the measurement sequence by visual prompts on the THINC control. A color-coded graphical display provides an instant visual check of part quality.

a PC or PC-based control using the Windows operating system. It includes the Q-DAS statistical package and fully-compliant qs-STAT data storage.

The modular Quick Set gage measures the length of the legs and two diameters. The part is then turned 90º to measure the other pair of legs. This entire operation is completed in a few seconds, enabling one operator to tend both machines.

Gage readings are automatically fed to the Quick SPC software. Results are displayed as a green, yellow, or red bar indicating a part meeting specifications, a part nearing the tolerance limits, or a part out-of-tolerance. Marposs also supplied a Visual Work Instruction including a graphic representation of the part.

"We tried it on one machine," Dyer says, "and it worked so well we quickly started collecting data from both of them. We're inspecting every part and capturing all of the data. The customer has not asked for it, but if they ever do we can provide complete traceability for all of the parts.

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"The only way it could work better is if the whole process was automated, and that's already being planned, along with the implementation of the Quick SPC software's ability to automatically update the machine control with real-time feedback," Dyer says.

"We've seen that work in Charlotte, too," Dyer says. "So we know it will work here in Hardinsburg."■