

## Live Tooling Helps Eliminate Workflow Issues

**F**or many US manufacturers, the last several years have brought with them an array of difficult choices.

Cheap overseas labor has caused customers to demand lower prices. In these situations, suppliers must often choose to redesign their products to lessen costs, reduce profits by lowering prices without decreasing costs, or keep prices constant and risk losing business.

The Kinetic Company (Greendale, WI), a manufacturer of high-quality industrial knives primarily serving the steel and paper industries, found itself faced with this very dilemma.

C.L. Masters founded the company in 1947 in Greendale, originally operating the business out of his garage. By establishing a firm reputation for providing high-quality industrial knives, the company has experienced steady growth throughout its history.

Kinetic currently occupies a state-of-the-art 60,000-ft<sup>2</sup> (5574-m<sup>2</sup>) facility in which all operations are performed in-house, a level of vertical integration unmatched in its industry. When relatively inexpensive labor and diminished quality began to drive down average market prices, Kinetic refused to turn its back on what had served as the key to its success.

In its quest to minimize costs, Kinetic began looking for equipment that would bring flexibility to the shop and lower machining costs per part by increasing efficiency. The company decided to invest in an SL-403 turning center from Mori Seiki USA Inc. (Irving, TX).

“We knew that Mori Seiki had a reputation for producing durable machines that provided high speed and accuracy,” says Paul Lewandow-



**Jeff Kulinski loads a part into Kinetic's NL2000 turning center with subspindle and bar feeder.**

ski, project engineer at Kinetic. “We needed something that could stand up to the challenges of hard turning and Mori seemed to be the best fit.”

The SL-403 outperformed Kinetic's initial expectations, increasing the productivity of its turning department. Unfortunately, the unique particulars of its market led to continued challenges.

“Most manufacturers our size are dealing in large lot sizes,” says Jared T. Masters, vice president of Kinetic. “We deal in very small runs. We produce cir-

cular slitting knives for the steel industry and those run in batches of 48. The bar-shear knives we produce, also for the steel industry, often go through in runs of two or four.”

Dealing with relatively small lot sizes, Kinetic often found itself at a disadvantage. Many products would start in the turning area, move across the shop for milling operations, and then return to be finished with turning. Because setup times could take up to an hour, regardless of lot size, it made sense to prioritize larger batches

in the milling department. This resulted in a high inventory of work-in-process moving very slowly through the shop.

To combat this long-standing problem, Kinetic began looking for fresh alternatives. Out of this search came the company's first expedition into turning centers containing live tooling. In late 2004, Kinetic purchased a Mori Seiki NL2500 with the live tooling option. Knowing that a variety of processes carried out by the machine involved a level of complexity beyond what its operators had been exposed to, Kinetic approached integration of the machine with great care.

"When we first brought the NL2500 in, Mori provided onsite training to those responsible for running the machine," says Masters. "They continue to provide us with technical expertise whenever we need their support. Additionally, we've worked with tooling supplier Sandvik Coromant and CAM supplier MasterCAM to ensure that we're using the machine to its maximum potential."

The shift paid off. Many of the parts that previously required an inefficient and time-consuming detour through the milling department are now fully completed on the NL2500. Setup times have been reduced as parts can be completed in one setup. More important, possessing a turning center with live tooling eased the backload of the work-in-process flowing to the milling department. From the point when an order was initially received to when it shipped, turnaround time had averaged over 10 weeks. Through the use of the NL2500, this time span has shrunk to eight weeks and Kinetic believes the time will soon be reduced to six weeks.



**Slitting cutters for the paper industry.**

In addition to diminished turnaround times, the NL2500 has resulted in cost savings for Kinetic. On a knife specifically designed for the steel industry, total machining cost was reduced by 30%.

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"The NL2500 has definitely justified its purchase," says Jeff Kulinski, lead machinist in Kinetic's lathe department. "The overall rigidity of the machine, coupled with strong performance by the live tooling, provides real cost-savings to our operations."

To benefit from further efficiencies, Kinetic ordered another turning center from Mori Seiki, this time an

NL2000, again with live tooling. The machine arrived in April of 2004 and has already served to further dilute the bottleneck of unfinished parts waiting on milling operations.

Kinetic selected the optional sub-spindle for the new NL2000. Coupled with a bar feeder, the company hopes to expand its business by using automation to become cost competitive on parts that have gone to foreign markets over the last several years.

"In addition to our premium products, we used to have a very strong presence in the area of commodity slitting knives for the paper industry," says Masters. "Foreign competition eroded a lot of that business for us. Using the NL2000 with a bar feeder, we're able to get the price down to a point where we're once again competitive on that front." ■