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ELECTRONIC MEDIA PRESS RELEASE

Finding the Right Machine Technology to Increase Production
How one company used its machining centers to focus on results

Everett S. Jakuboski
Vice President of Operations
LPI

As a job shop specializing in the complete manufacture of precision components for a number of industries, the consistent implementation of productivity-enhancing machining technologies is critical to the success of our business. In moving to adapt a more agile platform where every one of our machines are set up to perform all of the machining a given part requires, LPI's production has evolved from using custom-made, dedicated machinery to the latest high-speed machining technology. This evolution began several years ago when the company first started using CNC machining centers. I was walking through a trade show when I first saw the YCI Supermax line vertical machining center. I knew the machines had the potential to generate a majority of our complex geometry parts required on short runs. It was manufactured by Yeong Chin Machinery Industries, located in Taiwan and represented in North America by YCI Supermax, Santa Fe Springs, California.
We purchased the YCI Supermax machines primarily to run aluminum parts. The trend toward aluminum will continue, I believe, and actually increase in the aerospace, automotive and computer industries. All of these industries are using more aluminum in order to keep weight as low as possible. Aluminum milling, in fact, has grown 50% from just a few years ago. In aircraft production, for example, aluminum is replacing composites in many applications because the parts are easier and less expensive to produce and machine. With the FV102A's advanced technologies, high-speed machining feature and multiple vises, we can shorten the cycle time to take advantage of this burgeoning market. High-speed CNC machining centers also go further today than ever before. Thanks to improved performance and precision, they're able to carry many jobs nearly to completion that previously would have required extensive handwork. The resulting significant increase in labor productivity is precisely one of the reasons why we added a pair of FV102As to our shop.

Efficient manufacture of precision components

Acquiring the Supermax FV102As has enabled our company to manufacture parts in a small or large volume with exacting consistency for the dimensioning of the part from first piece of last. When it came to making an investment in machining technology, we selected YCI Supermax because we thought they would provide us with the best return on investment. We checked out their equipment carefully — they're built tough with hardened and ground box/ways, dynamically balanced spindles, rigid and robust bed construction, hardened and ground ballscrews — all of which leads to precise and stable machining.
We especially liked the X and Y travel — 40.1 and 20.4 inches, respectively. It gives us the ability to use multiple vise setups. It also has the faster processor for high-speed machining, a high-speed 24-tool swing arm ATC system and a bi-directional, random-access tool magazine. The ATC's large tool capacity allows permanent-set tooling to be stored in the magazine, minimizing our tool set-up time for more efficient operation.
Another key benefit was the machine's automatic pallet changer (APC). The APC's high-speed rotary mechanism completes one cycle of pallet changing in 12 seconds. This means our operators are able to load, unload, inspect parts and set up jobs while the alternate pallet is in the machine. This has dramatically increased our productivity by eliminating unnecessary downtime and machine idle time. We are confident that with the increased time savings, this feature alone will help the machine pay for itself very quickly. In addition, the APC's compact design allows us to
save valuable space on our shop floor area.

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The machine also helps LPI achieve unwavering precision with its unique Isolated Direct Drive (IDD) design. The spindle motor is directly coupled to the spindle unit, eliminating the noise, backlash, and vibration that are normally found on machines with a spindle driven by belts or gears. In addition, the IDD design allows the CNC controller to get exact feedback of spindle speed. This ensures the best performance of rigid tapping.
I was also especially impressed with the user-friendly Fanuc controller. It features extended memory, AICC software, a full alphanumeric keyboard, and 6,000 RPM high-speed rigid tapping. The controller also has an RS-232 interface for easy uploading and downloading of CNC programs. Since we had significant experience using high-end CAD packages, we were accustomed to using computers to program every detail graphically.

Financial rewards

The primary benefit for us is the ability to increase revenue because we are able to compete on a cost basis. I believe that acquisition of the FV102A has enabled LPI to reduce cost while at the same time gaining better control over its operations. Instead of sitting in an office and watching red lights go on and off — so you can gage things like machine uptime — we now can get direct, real-time access to the most critical measurements where the tool meets the part. This is what will allow our company to compile an electronic record of the kind of analysis and decision making that can turn our shop into a world-class competitor.
Obsolescence was another issue we had to deal with. Machine tools are large capital assets that are meant to last a long time. It's not unusual for a company to keep a machine tool for at least 20 years. That's like a millennium when you're talking about computers and software where companies want to take advantage of constantly improving processors, component parts and software functionality. We really expect to operate our FV102A for a long time — 20 years does not seem like too much of a stretch. And because we expect the equipment to pay for itself within one or two years, we feel we've made a smart investment. Already, we've experienced financial rewards with increased revenue due to a large volume of work with a minimum amount of overhead. In addition, we've certainly been able to take on a larger cross section of work.
Every day our shop supervisors report productivity, utilization and efficiency of every machine in our plant. Their reports also show any deviations in quality over the past 24 hours. This prevents small problems from turning into major productivity or quality issues. Day in and day out, our FV102As consistently score right near the top.
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