



Seth Larkin, lathe department manager, checks a part just completed on the Mazak Integrex 200-IV multi-tasking machining center. The Integrex has a 120-tool changer, dual spindles for milling and turning. Milling spindle is 12,000 rpm. Lathe spindle is 5,000 rpm.

All in the Family

***How a Silicon Valley Job Shop with a
Hundred-year Machining Family History
Applies Mazak's Integrex 200-IV to
Slash Costs and Improve Quality.***

How many times have you heard someone talk about a father and son by saying, “Like father, like son?” Meaning, of course, that the son has inherited a lot of the father’s traits. But at Scotts Valley, CA’s Larkin Precision Machining, Inc., to be accurate, that old phrase has to become, “Like great grandfather, like grandfather, like father, like grandson, like great, great grandson.”

“That’s because my great grandfather started a machining business back in the early 1900s,” says Rob Larkin, company president-CEO, “and then my grandfather had a shop in Los Angeles with 300 employees. Then my father had a machine shop with his dad in Santa Ana, CA, serving the military-defense industry. Finally, about ten years ago, my brother, John, and I formed Larkin Precision Machining with my son, Seth, here in the silicon valley. So, I guess, if it’s possible to have machining in your blood, we have it.”

Whatever the Larkin family has in it’s blood, it has helped them to be successful as a machining job shop.

“Before we started Larkin precision, my brother and I worked fifteen years for a large machine shop in Sunnyvale,” Larkin says. “The company was more or less a captive shop for Applied Materials, and when we started, there were fifteen employees. Seth worked there, too, sweeping floors after high school, and then became a manual machinist, which is what my brother did, too. When we left to start Larkin Precision, they had 230 employees. We learned a lot about how to do things the right way while we were there.”

Rob Larkin (left) and lathe department manager, Seth Larkin, discuss specifications for a new job to go on the Mazak Integrex 200-IV multi-tasking machining center.

“After we started our company, my dad kept working at the other place for a while,” adds Seth Larkin. “He worked there all day, and then he’d come over to the shop and help us. Back then my uncle and I didn’t know much about CNC, so my dad would come by in the evenings and write programs for us and show us how to set offsets and that kind of thing. It was a big learning curve for us to make the transition, but we learned a lot of it on our own, too. Pretty soon we were doing all the setups without help.”

”Since then Seth has worked his way up to where today he’s one of the best CNC lathe set up guys I’ve seen,” Larkin says. Right now he’s our CNC lathe department manager.”

Going Complex

Like most fledgling companies, Larkin Precision started small.

“We didn’t have much when we started,” says Larkin. “We had our tool boxes, and we had a little bit of money. The main thing we had was some people who really trusted us and vouched for us to help us finance some equipment. Of course, like most people starting out, we bought lower-budget equipment. We didn’t really plan long term, you know. The way it worked was, I’d a job that needed a piece of equipment, then I’d call the distributor and say, ‘Hey, I need a machine now. I’d get what they had in inventory.’”

“Back then it was just the three of us,” adds Seth Larkin, “and not much equipment. Today we have some pretty advanced machines here. We’ve come a long way since then.”

“Right. We have twenty-seven employees working in a 16,000-square-foot facility,” Larkin says. “We have an excellent battery of equipment, including vertical and horizontal mills, a well equipped quality control department, and we have two excellent machines in our CNC lathe department. We also have complete in-house welding and testing capabilities.”

In the beginning Larkin was doing mostly semi-conductor work, he says.

“At first that was a good market, but then that business started moving offshore,” he says. “So, we had to make a decision. Did we want to compete with every shop on the corner or were we going to stake out a niche that would sustain us through whatever came our way.”

“We decided to go for more complex, difficult to machine work,” Seth Larkin says. “Jobs with lots of shapes, tight tolerances, things other shops might not want to handle.”

“I went to our customers and said, ‘Give us your headache jobs,’” Larkin says, “and they did. That, in turn, has forced us to change our equipment philosophy. We’re working mostly for aerospace and defense markets now. We’re getting lots of tough jobs that require a lot of setups, but nothing with high volume. Most of our runs are 50 to 100 parts, only sometimes up to 1000. Unless you figure out a way to produce those parts economically, they’ll eat you alive.”

Seth Larkin: “A lot of our work has two or more mill ops



and two or more lathe ops. We had a lot of tooling changes. We had to do first article inspection at each operation, which frequently caused lines in the inspection department. All the setup time and handling was robbing our profits and slowing our delivery times.”

Mazak Integrex-IV Multi-Tasking

“We went looking for an answer,” Larkin says. “And for us that turned out to be the Mazak Integrex 200-IV mill-turn machine. It was a big move for us, but it has worked out better than we ever imagined. It’s perfect for our repeat parts and smaller quantities. Where we used to have four or five setups and needed different workholding solutions for each op. Now we’re getting perfect parts off in one setup, and setup for repeat jobs is extremely fast.”

“The Integrex has a 120-tool magazine,” Seth Larkin says. “When you’re running families of parts requiring the same group of tools and similar operations, this machine is ideal. The Integrex has two 5-axis spindles with x, y, z, c and b motion. The horizontal spindle is 12,000 rpm. the lathe spindle delivers 5,000 rpm. Both have 8” hydraulic 3-jaw chucks. We don’t use a bar feeder, but a lot of times people are interested in the through-hole size to know how big a bar they can feed through the spindle. In our case, we typically don’t fit the material inside the spindle. Tool changing is fast, and with 120 tools, we don’t have to worry much about adding new tools. That’s a big time saver.”

“The main thing is that the machine delivers very high-quality parts without needing much attention,” Larkin adds.



View of the 120-tool turret on the Mazak Integrex.



Set Larkin checks a tool path on the Integrex 200-IV's Mazatrol controller. "The Maztrol allows me to program simple parts very quickly," he says. "I like the system a lot."

"Previously all the cycle times on the different ops were short, so the operator didn't have time for anything else. Where we used to have an operator tied up constantly watching all the different operations, the operator now is free to do other things, like inspection or running the 2-axis lathes. Not only does this machine provide a lot of time and cost savings, it delivers higher quality parts. That's because you don't have the potential for error you get when you're always changing setups. Another really huge advantage of this machine is that it helps in our marketing efforts. With this machine, I don't have to push the customer to buy so many parts at a time. On repeat parts, setup is so easy, we're able to give customers just-in-time delivery."

Learning Curve

Larkin says his and his son's backgrounds were working with Fanuc controls, so moving to a Mazatrol control required a different mind set.

"It wasn't just switching over to the Mazatrol Matrix control that was the challenge," Seth Larkin says. "With multi-tasking, we had to learn a whole new approach to machining. That took some time to learn to get the machining sequence right. Also, on most lathes, you have to use round stock. With the Integrex we can use both square and round. That has been very useful, too."

"The Mazatrol is good for simpler programming," Larkin says, "but for more complex programs, we use Geo-

Path MazaCAM CAD/CAM, which generates Mazatrol programs for us. We don't have to write G-code and then pump it into the Integrex via the EIA capability. I think GeoPath worked with Mazak to add that capability, probably because Mazak is the largest machine builder in the world."

"I went to Mazak's techcenter along with one other of our employees to learn the system," says Seth Larkin. "Mazak did an excellent job of teaching us and servicing our account."

"Dale Grant, the Mazak rep in our area told us, 'If you buy a machine from me, you get me for life,'" Larkin says. "So far he's lived up to his word. Basically, this was a scary buy for us, so I wanted the manufacturer to stay involved. Essentially I wanted to buy a partnership with Mazak, and that's what I got. We've been very happy with their service and the reliability of the machine."

The Larkin Family's Future

Where to in the future for the Larkin family business?

"Basically, I want to be as fully automated as possible," Larkin says. "The Integrex is our first step in that direction, but we want to go a lot further. It's a PC-based machine, and it's part of our network, so when it's running lights out, I can dial in and check up on it. But we want to go all the way with automation, which I believe is the best way to stay competitive in today's market. And, of course, with the reliability and service we've received from Mazak, they're definitely in our future." ■