



Machining

Evolution of Tooling: How to Meet Just-in-Time Customer Demands

Don Sears | Oct 31, 2017

What You Need to Know:

Lakes Precision's 50 employees produce more than 20,000 types of perishable tooling parts and accessories in a 25,000-square-foot facility in Three Lakes, Wisconsin.

An alarmingly high tool replacement rate from milling hardened steel resulted in downtime from frequent tooling changeovers—which negatively affected production output.

A diagnostics test and guidance about new tools and how to use them helped improve quality and production while reducing tooling costs.

A visit from an unexpected but experienced metalworking specialist leads to tangible tool quality and milling improvements—and a \$33,000 reduction in annual costs for Lakes Precision. Read how.

Three Lakes, Wisconsin, in Oneida County is surrounded by many more lakes than just the three in its name. Hurl a Frisbee in this vacation area in the Northwoods, and it's likely to get wet.

Founded in 1881, Three Lakes has a long history of meeting the needs of much larger places and businesses. Before it officially became a town, the area was home to logging companies that **supplied the wood** to help rebuild Chicago after the Great Fire of 1871.

A Global Wire Processing and Wire Tooling Supplier

Today, Three Lakes is home to a global powerhouse in perishable tooling for the wire processing industry: **Lakes Precision**. For 26 years, the company has been a key parts supplier to the wire cutting and wire stripping industry. Think electrical wiring components on the inside of so many things: a car door, a handheld gaming console, a laptop, a hairdryer—and so many more consumer, industrial and automotive products.

"Anything to do with wire, when it comes to cutting it, stripping it, terminating it and crimping tools. That's what we do," says Herb Stuckart, vice president of manufacturing at Lakes Precision. Stuckart

has been with the company since shortly after its inception in 1991.

Lakes Precision's 50 employees make more than 20,000 types of parts and accessories, with specialization in custom tooling and PVD coating. The company's products include stripping and cutting blades for wire processing machines and manufacturers such as Artos, Carpenter, Delphi, Yazaki, Toyojamco, Kodera, Komax, Schaefer-Megomat, Schleuniger, ShinMaywa and many others. In addition, its 25,000-square-foot manufacturing facility in Three Lakes offers subcontract manufacturing services for specialized parts end to end, using creep-feed grinding, as well as computer numerical control and direct numerical control machining.

"We're in Vietnam, China, Europe, in Mexico, the U.S. and Canada. We ship all over the world," Stuckart says. "For some customers, we are their sole supplier."

Everything is manufactured in the Three Lakes ISO 9001-2015-certified plant, though the company has an additional office in El Paso, Texas.

Balancing Wire Processing Quality and On-Time Delivery

As a parts manufacturer, having reliable machining tools that consistently deliver a quality product is critical. The company operates in a highly competitive market in which customers make exacting demands and increasingly ratchet up their inspection operations, Stuckart says. If parts are off, even by the tiniest degree, there are other suppliers that customers can turn to.

"Perishable tooling is like a pair of scissors," Stuckart says. "They wear out. And when they wear out, the customer demands on-time delivery. That means the tooling that we're purchasing to manufacture to make a product needs to arrive on a timely basis too. It's almost like a just-in-time situation. You anticipate, but you always have surprises."

For Lakes Precision, quality begins with its own manufacturing environment. It manages internal surprises, in part, through a strong quality-assurance operation. It's also relies on trusted partnerships with rapid-delivery tooling suppliers.

"We have a really good track record," says Kris Plapper, manager of quality assurance at Lakes Precision, who has been with the company for 26 years. "We have a 99.98 percent track record on customer returns." Translation: Lakes Precision has virtually no returned products from customers.

But that doesn't mean it isn't consistently looking to improve its internal operations. Case in point: Its milling operation.

"Plain and simple: They were willing to take the time to make sure what they were suggesting worked."

Herb Stuckart

Vice President of Manufacturing, Lakes Precision

New Milling Process: Improving Production Through Feed Rate, Optimization

During a routine service visit to Lakes Precision in September of 2016, Kris Hanson, an **MSC** metalworking specialist, inquired about the milling operation after Plapper told him about some nagging issues with hardened steel. The special steel, which can be a tricky material because it has to be worked carefully without removing its built-in heat-treated layer, was burning through the company's incumbent tooling inserts, Plapper says. Also, there are a lot of little things to watch out for when cutting edges, such as avoiding fractures, she adds.

"You have to maintain those sharp corners," Stuckart says. "And you can't just break them away like you would when you are roughing something."

The alarmingly fast rate of tool replacement caused downtime because of the frequent tooling changeovers—which was negatively affecting production output, Plapper says. It was also negatively affecting Lakes Precision's tooling costs.

"And the finished product needed to be better," Stuckart says.

Hanson, who has 23 years' experience in machining, asked if he could run some diagnostics to capture key data, such as cycle counts and cutting feeds, for the milling operation. Then, once he isolated the trouble areas, Hanson asked if Lakes Precision would be willing to test a different tool with a higher feed rate that he expected would reduce tooling costs and increase production.

But it wasn't only about knowing the right product to choose, exactly. It was, in part, his patience that won over Lakes Precision's team, Stuckart says. Plus, he showed an understanding of how to use a tool and insert in the way the newer insert was intended, he says. No company wants to just switch tools out without knowing if the new tool will work.

"Plain and simple: They were willing to take the time to make sure what they were suggesting worked," Stuckart says. "It wasn't once through the door and be back next week to take the order. They were trying to provide a service that would help us."

During his initial time with Lakes Precision, Hanson stuck around and offered his advice to the floor shop machinists on the intensity that the new part could handle. He also allowed them to try out the part for several weeks to make sure it was capable of doing exactly what was needed.

"The inserts that they brought in, and the work MSC did with the operators increased the feeds and speeds," Stuckart says. "Because at times an operator runs gun-shy a little bit. When something is running smooth, they hate to push that envelope. So MSC helped them push the envelope, which achieved a better result."

Reliability and Speed for Less

"There was a lot of extra work trying to get the parts up to snuff with the old way they were doing it," Plapper says. "Now they're smooth; they're good."

The result has been less tooling changeovers, a more reliable insert and a more efficient process. Plus, with an estimated reduction of nearly \$33,000 a year in tooling costs, Lakes Precision has improved its overall production quality and positively impacted its financials.

"We saw increased production, which opened up more room on the machining center," Plapper says. "And the cost savings on the inserts that go in to the tooling is phenomenal."

That's money in the bank, Stuckart says. "It helps the bottom line, and I can buy more tools."

When asked if she thought the Lakes Precision team would have known what to do if Hanson hadn't advised them on possible other options, Plapper responded: "No. We wouldn't have known. Without them, we wouldn't have gone out there to the shop and said, 'Hey, let's try this.' "