

Innovating Against the Tide

Despite the soft market, suppliers are providing more and better ways to manufacture splines.

Alex Cannella, News Editor

During a year with a strong dollar, tanked oil prices and a number of soft markets that just aren't buying, one might expect spline manufacturers to be experiencing the same tumult everyone else is. But when

I got a chance to speak with some of the suppliers to spline manufacturers at IMTS about how business is going, many of the manufacturing industry's recent woes never came up, and instead were replaced by a shrug and an "eh, business is doing pretty well." That casual optimism might have been influenced by an IMTS that was, all things considered, a success during a quiet year for industry growth (the third largest IMTS ever, and with more exhibitors than any previous year, to boot), but there are other signs of growth as well, most notably the fact that people are still coming up with new products instead of setting up camp for the winter.

Dry Broaching from Across the Sea

One of the biggest events in the spline industry that's happening right now is a partnership between Broaching Machine Specialties (BMS) and Ekin, an event catalyzed by their initial meeting at 2014's show. According to Matt Egrin, president of BMS, the two companies quickly took a shine to each other.

"Ekin's a large company," Egrin said. "They've got operations in five different countries, however have no facilities in the US. So when they came to the show two years ago, they came looking for somebody to partner with. And we met them, and immediately on a personal level, had a very good rapport with their personnel and decided that we like each other and maybe we should dance together."

Though they've been working together for a little over a year, Ekin and BMS's partnership is only just now coming

together. This year's IMTS was BMS's first time showing off Ekin products, and Egrin says that he's seen a positive reception to them.

"This IMTS is kind of the formal coming out party of our agreement, if you will," Egrin said. "We've got some very good interest already."

With the new partnership in place, BMS will be supplying machines made by Ekin, which is based in Spain, to the US market. Most notable amongst those products is the Rishem-10X1250X400 dry broaching machine.

Though dry cutting has been a part of the industry for over a decade, dry broaching itself has only come about in the last few years. The technology behind the Rishem is only a few years old for the broaching community and not yet widespread.

"Ekin, to my knowledge, is only one of two companies in the world that have this technology," Egrin said.

The Rishem is a table top internal dry broaching machine. Instead of using

coolant to keep temperatures down, the broach tool utilizes a special coating that dissipates heat and ensures chips don't stick to the workpiece. It also uses a vacuum system to suck chips away from the workpiece in much the same manner coolant washes it away.

Much like its dry cutting counterparts, dry broaching offers significant advantages over standard coolant-driven methods. There's the obvious benefit of not having to spend money on coolant or any other related costs, such as the draining and disposal of said coolant. Beyond saving on coolant costs, Ekin's Rishem also boasts a cutting speed of 40 meters-per-minute, four times faster than that of standard broaching systems.

The Rishem won't be the only Ekin product BMS will be selling going forward. They will also be selling all of Ekin's broaching machines that don't already overlap with their own products, including hard broaching, helical broaching and spline rolling machines.

"Right now, we're just acting as sales





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and service for the machine and tool product lines,” Egrin said. “But the long term goals, hopefully within the next 12-18 months, are going to be to open a JV operation near BMS in Detroit for the manufacture of broach cutting tools and service of broach cutting tools and spline rolling racks.”

Establishing the Standard

Another relatively new product spline manufacturers can take advantage of is Vargus’s stock milling cutters. In the four years they’ve been on the market, Vargus has expanded production of their stock cutters twice, with a third expansion in the works, just to keep up with demand.

“When this product first came out, we were quoting 10 a month,” Joe Magee, product manager at Vargus, said. “Now we’re up to 400 a month.”

Vargus’s stock cutters were inspired by necessity. As demand increased for their custom cutters, the company found their lead times stretching longer and longer, going from weeks to months. In an effort to cut down on lead times, the company established their line of stock cutters, which could still handle many

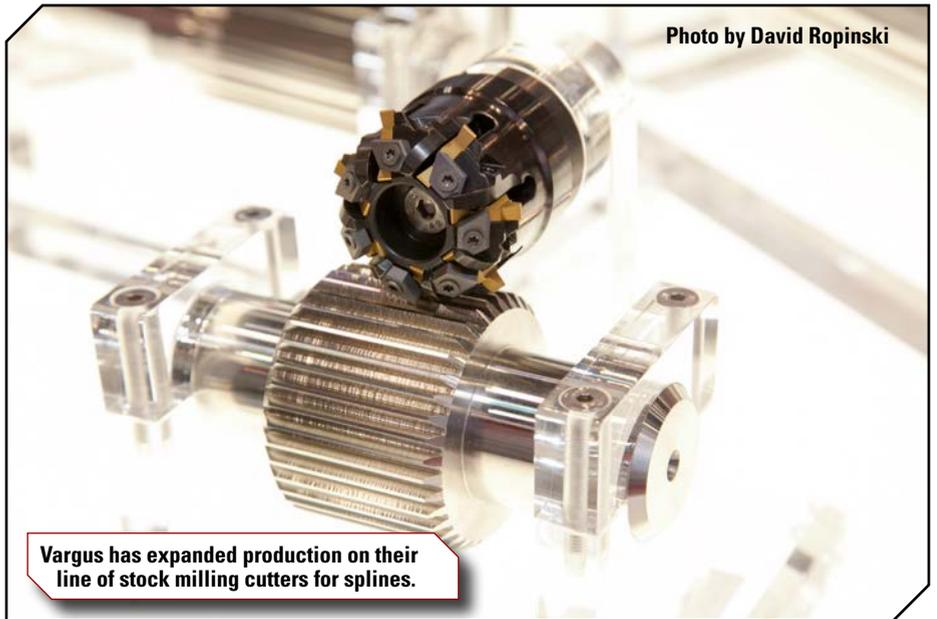


Photo by David Ropinski

Vargus has expanded production on their line of stock milling cutters for splines.

of their orders while decreasing turn-around time.

“Lead time went from six to eight to 10, sometimes 12 weeks. And the customer would then wait 12 weeks to get their tool...” William Jubran, mechanical engineer and marketing and business manager at Vargus, said. “To improve service, to improve support to the cus-

tomor, we have tools that we carry as standard tools in stock in the States.”

“You don’t need to recreate the wheel any time somebody wants something,” Magee said. “So that’s why we’re going to standard.”

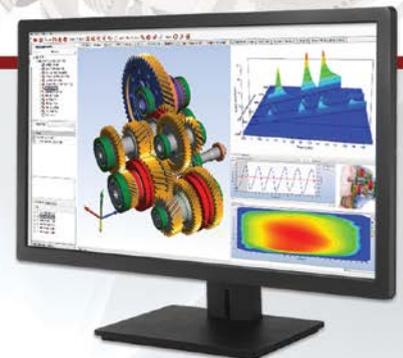
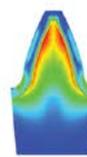
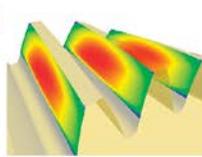
The system enables customers to decide what spline dimensions they need for a particular job, then select the

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proper cutters needed to produce what they're looking for. Vargus's stock cutters can cut most standard splines up to 6 inches in diameter. According to Magee, the system can cover 60 percent of splines manufactured today in America.

"It doesn't replace all broaching," Magee said. "If you have to come up to a sharp corner, you still have to broach it, but 65-70 percent of [spline jobs] do not include a sharp corner. When you want to reduce your manufacturing costs, you can go to a standard milling process and reduce your costs by 30, 35 percent."

Beyond the convenience of a system of standardized cutters, Vargus's cutters themselves boast some advantages for spline manufacturers such as lower setup costs and full profile grinding. The cutters are also accurate, reaching DIN 3962 Class 7 tolerances. The system also puts an emphasis on simplicity and ease of use with simple programming and design.

"This design is so simple, you can run it just on a standard milling cutter with an indexing hand..." Magee said. "You can buy one body and run 20 different spline sizes with that one body by buying stock standard inserts."

The automotive industry has been the primary field to take advantage of Vargus's standard milling cutters. Aerospace and defense manufacturers, meanwhile, have stuck with Vargus's custom cutters, which they will continue to provide alongside their new stock line.

Practicing the Basics

While some spline manufacturers' suppliers aren't feeling the effect of market forces such as the cost of oil or the strength of the dollar as keenly as other companies might be, they are wrestling with the same ever-present, industry-wide difficulties that have dogged the industry for years: tightening tolerances and a lack of talent in the workforce.

The General Broach Company is a good example of how to deal with those nigh-existential problems. They've managed to keep up with demands for class 5 and even class 4 splines, meeting tolerances of up to .0002 inches, and their process for doing so is surprisingly straightforward.

"You either have to upgrade your equipment, or you have to upgrade the process," Larry Stover, general manager at General Broach, said.

Upgrading your company's capabilities to meet increasing demand is a simple, almost no-brainer plan in theory, but also easier said than done. It's easy enough to buy a better, more accurate machine or find somewhere you can streamline your process, but all of that requires talent, people who know how to use the machines you're buying, and that puts your company on a collision course with existential problem number two.

"Just like everybody else, we find the same problems," Stover said. "There are not enough trained, talented people to be able to fill all the positions that's needed. In our business, it takes a good



Vargus's range of stock spline cutters goes up to 6 inches.

Photo by David Ropinski

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year to two years, maybe sometimes even three or four years to get somebody trained that can handle that. It's more than just pushing a button on a machine. You have to understand what's behind that move that that machine is making."

General Broach is taking multiple routes to deal with the skills gap, focusing not only on training the future generation, but also on retaining their current talent.

On the training front, General Broach is working alongside three colleges and 30 manufacturing businesses in Lenawee County, Michigan to build curriculums for high school students and get them interested in the industry. The program is gaining momentum and expanding, and has recently added mechatronics classes.

"We're getting kids interested in manufacturing, and that's what we need," Stover said. "That's the future."

General Broach also maintains common sense tactics to retain their employees. They make sure pay's competitive. They continue to offer training for their

employees. They focus on providing a family-oriented work culture.

"We don't want them to feel like they're in a dead end position," Stover said. "We don't want them to ever feel that way. Because the problem is, if they end up feeling that way, they move on. And then you've lost the knowledge that they had."

Like a lot of General Broach's solutions, their method for retaining their workforce sounds like standard, common sense stuff, but it's all too easy to neglect the basics of maintaining a healthy business, particularly when the clamps are on and business is tight as it is now for some manufacturers. Just like with our basics articles on more technical topics, sometimes it helps to be reminded of the basics, and General Broach's even-keel, steady mastery of them provides a good example of how to properly nurture your business.

Steady and even-keel are, in fact, good words for describing spline manufacturing as a whole right now. We may have had a soft year so far, but for spline mak-

ers, it's been business as usual, and business has been good. They've had a good IMTS, and they continue to move forward, slowly but surely. 

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Vargus's stock cutters come in many sizes and can handle approximately 60 percent of all spline cutting jobs.

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