

Manufacturer Harnesses Supplier Expertise to Implement New Technologies



Paul Verhoest, Executive VP of GPR, worked with Sandvik Coromant to implement several multi-tasking machining centers from Mazak, allowing set-ups to be reduced from 27 to three.

With the plethora of challenges facing today's American manufacturer, keeping abreast of new technology can prove to be a time-consuming and costly process. Many companies simply do not have the manpower to dedicate a full-time employee to tracking, testing and implementing innovative products, but failing to do so can result

in a competitive disadvantage. Fortunately, some suppliers are helping to shoulder the burden by offering more comprehensive service to their customers. For a manufacturer in Fairfield, NJ, the involvement and expertise of cutting tool supplier Sandvik Coromant has allowed integration of new technologies while still focusing on and expanding its core competencies.

Celebrating its 30-year anniversary, GPR Company was founded by three machinists in 1979. Over the years, the company experienced significant success moving into larger facilities with better equipment as it grew. Today, the company occupies a 25,000 sq. ft. state-of-the-art facility, employs over 40 people and has seen revenues increase by over 125% since 2000. GPR possesses a strong reputation among its customers,

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Implement New Technologies

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offering comprehensive manufacturing services from engineering to production to assembly to testing. As with any success story, the company has faced its share of difficulties. While it surmounted many challenges on its own, GPR has recently experienced the benefits of having a partner in tackling these situations.

In 1986, GPR was awarded a contract for manufacturing vacuum chambers for the semiconductor industry. The company quickly developed expertise in the production of these products and was soon entrenched in the industry. While the focus provided substantial benefits for many years, it led to disaster after the turn of the century.

"We got to the point where over 80% of our work was for the semiconductor industry," said George Verhoest, President of GPR. "When the dot-com bubble burst, we found ourselves in a pretty bad situation. Then 9/11 happened and things went from bad to worse. Once we recovered from those blows, we knew it was time to diversify."

In 2002, GPR hired a new sales executive with the goal of branching out into other areas. By spreading its work across multiple industries, it hoped to minimize the negative effects of a slowdown in one industry.

"When I was brought on, we imme-



CoroDrill 880 is a balanced drill that is suited for high productivity drilling, providing low machining cost per hole with a high penetration rate, the company said.

diately started looking at areas where GPR's expertise and core competencies could provide value to customers," said Gary Horman, Vice President of Sales. "We identified military work and commercial products as two key areas to be targeted. Today, our customer base is approximately 40% semiconductor, with the rest being made up of those other two industries."

On top of diversification, GPR also wanted to increase its flexibility in meeting varying levels of demand. The company had already entered into the flexible manufacturing area by purchasing a Mazak Pallatech system that incorporates two H5800 machining centers and is robotically fed by sixteen pallets. Additionally, GPR also had established a three-machine H4800 sys-

tem, also fed robotically, with sixteen pallets. Still, the company wanted to be more competitive in the 5-axis machining world. To this end, it purchased and implemented several multi-tasking machining centers from Mazak Corporation in Florence, KY. The first of the multi-tasking machines was an INTEGREX 200-IV ST. In 2007, this was followed by an INTEGREX 1060 V/6-II that was integrated with a Mazak H6800 machining center and 24-pallet high rise Pallatech system. As the technology was unfamiliar to GPR, the company looked at working with a tooling supplier to obtain help on tooling up the machine and learning its cutting processes. This proved to be the first step in redefining the relationship between GPR and Sandvik Coromant.

"The expertise of the guys from Sandvik Coromant proved invaluable in getting the new technology into our shop and integrating it as smoothly as possible," said Paul Verhoest, Executive Vice President of GPR. "They've helped us implement two more Mazak machines since then. Even more importantly, we realized that their knowledge could be a powerful tool in helping improve other processes in our facility."

After adopting multi-tasking technology, GPR routinely moved jobs from conventional horizontal or vertical centers to the new machines. In the instance of a large steel chamber produced for a customer in the semiconductor industry, shifting production from traditional machines to a multi-tasking machine allowed set-ups to be reduced from twenty-seven to three. Unfortunately, another challenge arose with the job.

The component in question starts as a solid forged block of 1045 steel that must be hollowed out. GPR was plunge milling the 16- x 14- x 14.5-inch cavity and experiencing significant problems.

"We'd previously done all the roughing out of the component on a large boring mill," said Paul Verhoest. "With a plunge mill on the INTEGREX machine, we just weren't getting the stability we needed. Tool life, chip evacuation and the length of the process were all big issues."

To determine GPR's options, Sandvik Coromant representative Tony Wild spent several days at the facility, working with Paul Verhoest to gather and evaluate information on the process. Substantial analysis led the team to a rather unconventional solution. Rather than plunge milling the cavity, it was recommended that it be plunge drilled with a 2.5-inch, 3 x diameter CoroDrill 880.

Initial testing of the CoroDrill 880 yielded impressive enough results for it to be implemented, which led to even more dramatic savings. With the new tool, the cavity was plunge drilled to a depth of 7.5-inch with a step-over of 70% of the drill's diameter. Then an extended Coromant Capto holder was used to perform the same operation to the cavity's full depth of 14.5-inch.



By switching from plunge milling to plunge drilling with a Sandvik Coromant CoroDrill 880 and Mazak INTEGREX 1060 V/6-II, GPR reduced machining time from 30 hours to 12 hours.

Changing from plunge milling to plunge drilling with the CoroDrill 880 immediately increased process stability to acceptable levels. In addition to reducing tool costs, this allowed the part to be run during GPR's unmanned, lights outs operations on evenings and weekends. Process time also dropped significantly. While the cavity had previously required 30 hours of machining time, the combination of the INTEGREX 1060 V/6-II and CoroDrill 880 finished it in just 12 hours.

Today, GPR routinely relies on Sandvik Coromant for information on new tooling technologies and machining processes. This allows the company to focus its resources on its own core competencies and strategies for achieving success.

"I look at Sandvik Coromant like my own personal firefighter," said Paul Verhoest. "When we have a problem in the shop, their guys are here to help us take care of it as quickly as possible. They also help alert us to problems we might not even have recognized yet."

While the current economic crisis has hit manufacturers across all spectrums, GPR has found itself better positioned to weather the storm than it was earlier in the decade. Business has dropped less than if the company was still focused solely on the semiconductor industry and a backlog of advance orders from a variety of customers has allowed the company to stay busy in spite of slowing sales. Through strategic thinking and partnerships, GPR has provided a tremendous example of the steps a company can take to make it through tough times.

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