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As a leader in the production of military parachutes, Mills Manufacturing's position on quality has ensured its success. PAGE 118

SPECIAL SECTION: AEROSPACE

The aerospace industry is never short on innovation, which is great news for the U.S. economy.

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SPECIAL SECTION *Aerospace*

Precision Gear Inc. / www.precisiongearinc.com / 2010 sales: \$33 million / HQ: College Point, N.Y. / **Employees:** 142

Products: Spur, crowned, helical and cluster gears, and spined shafts / **Briggs Forelli, president:** "We have 26 nations in 142 people."



PGI'S CLIENTS INCLUDE OEMS SUCH AS SIKORSKY, HONEYWELL, ROLLS-ROYCE ENGINES AND GENERAL ELECTRIC.

PRECISE PLANNING

PRECISION GEAR FOCUSES ON CONTINUOUS IMPROVEMENT THROUGHOUT ITS OPERATIONS, INCLUDING A NUMBER OF RECENT ENVIRONMENTALLY SUSTAINABLE EFFORTS. **BY ALAN DORICH**

For Precision Gear Inc. (PGI), failure is not an option. The College Point, N.Y.-based company specializes in manufacturing parts for the aircraft and jet engine industry, including external and internal spur, helical, cluster gears, elongated shafts, splined shafts, high-speed shafts, free wheel cams shafts and hydraulic assemblies.

Most of the components produced are for aircraft engines and helicopter drive systems, mandating most items to be ground after heat treatment (carburizing or nitriding). Many of PGI's parts are Flight Safety Critical.

PGI started operations in 1936 and began manufacturing gears in the

1960s, President Briggs Forelli says. Today, the company serves such OEMs as Sikorsky Aircraft, Honeywell International, Rolls-Royce Engines, the U.S. Government and General Electric.

"We have been in a small, niche business for many, many years," Forelli says, noting that the company only produces aerospace quality gears to the American Gear Manufacturers Association's (AGMA -2000-A88) Class of 11 to 15. "Most commercial grade gears are much lower on that scale, like 9, 10 or 11."

He also says that in the last decade, the automotive industry has followed the lead of the aircraft business, by grinding its gears, as well. "In the last

decade, automotive transmission gearing tolerances have tightened through gear grinding and auto transmission gears performance has improved," he says. "Because more gears are ground these days, transmissions don't really break down as much."

A DIVERSE TEAM

Forelli joined his family's company in 1987 and has enjoyed participating and watching it grow. "When I started, we were [employing] 60 people," he says. Today, PGI employs a staff of 142 skilled machinists and indirect labor from different regions.

"We have 26 nations represented in 142 people," he says. "My father used to tell our customers that at Precision Gear, we do not sell a product. We sell our people's time and skill set."

PGI's staff commutes into College Point from all neighborhoods in Queens, Brooklyn, Long Island and the

FOCUSED ON CUSTOMERS

In addition to utilizing green technology, PGI has focused on using state-of-the-art machine tool technology to provide clients with the best products. "This technology will provide us with the capability of manufacturing aircraft hardware to a degree of quality, consistency and affordability that is unique in our industry," the company says.

PGI says its growth, combined with the technology, offers customers the opportunity to develop and expand their manufacturing requirements. "These machine tools provide us with a manufacturing ability that assures our current and future customers of quality deliveries per contract," the company says.

The company's processes are customer-focused as well. "Upon receipt of a contract, [the client's] order is thoroughly reviewed to ensure compliance with specifications and special requirements," PGI says.

"All contracts and customer schedules are monitored daily by PGI's Production Control Dept. When changes occur in a customer schedule, an immediate analysis on how it will impact schedules is made and if the change cannot be met, the customer will be notified immediately," PGI says. "Our quality assurance department conforms to ISO 9001:2000, AS9100 Rev.B and includes a full complement of precise calibrated measuring instruments and gages traceable to NBS standards."

Bronx. People even come from Westchester, Connecticut and New Jersey. But finding a qualified machinist is not easy in the Northeast. "If you live in Brazil and you are a machinist, that's considered to be a prestigious occupation," he says. "It doesn't seem to be a big deal in the United States anymore."

POWERING UP

PGI has not let green initiatives pass it by. Two years ago, the company installed two 80-kilowatt solar panel systems on its rooftop. At the time, Forelli says, it was the largest of its type in New York City's five boroughs.

With 244 solar panels, the system saves PGI about 12 percent annually on its electric costs and during the summer months, it produces 10 percent of PGI's power requirements.

"It was a pretty simple business decision," Forelli explains. "We had an opportunity to fix our leaky roof, produce our own energy, reduce our carbon footprint and have the state and federal government help you pay for the project."

QUALITY CONSCIOUSNESS

Customer satisfaction and continuous improvement drive management and labor to achieve better results. PGI recently opened its new quality clinic, which replaced its material review board (MRB). "It enables us to cut down the time it takes to write cause and corrective actions," Forelli says.

The company also has implemented lean manufacturing in its operations. PGI has two lean projects in the works with Rolls-Royce and Honeywell, and it is completing three more on its own.

Forelli says one project was to use 5S in the broaching department. "As part of the program, we literally retrained the people in the department," he says. "It has really helped us in broaching and we look forward to taking what we learned and applying those lessons in other departments."

One key member was Quality Manager Naldo Pena, who implemented the quality clinic. "Naldo is a Six Sigma Black Belt and he's been instrumental in managing our lean projects this year," Forelli says.

Last year, PGI's sales were down considerably from the prior year, Forelli admits. "Lead times in the aerospace gear business can vary from 24 weeks to 60 weeks, depending on the raw material lead time," he says. "Once the material has been received, the machining and processing lead time is about 12 to 20 weeks.

"Next year will be better than this year," he predicts, explaining that PGI is remaining busy with military programs, and the commercial market is enjoying an upswing.

"The business is pretty cyclical," Forelli explains. "We're pretty diversified between military and commercial [business]." **mt**

CUSTOMER SATISFACTION AND CONTINUOUS IMPROVEMENT DRIVE PGI ALWAYS TO ACHIEVE BETTER RESULTS.



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