

AUTOMATION EXEMPLIFIED

Methods Machine Tools Helps World Class Automotive Manufacturer Grow Via Full Complement of Machining Solutions and Automation.

Aggressive growth can be a heady thing for a manufacturer. Business is great, chips fly and expansion is inevitable. But at a certain point, having a growth strategy is essential for success, because haphazard growth can lead to problems, lost productivity, profits and opportunities along the way.

During growth, establishing partnerships with leading technological expertise is also critical. Gil-Mar Manufacturing Company (Canton, MI) is quick to agree on this advice. Gil-Mar, looking to meet these challenges, forged a key relationship with Methods Machine Tools, Inc., who played a crucial role in helping Gil-Mar expand smartly with exponential growth.

Gil-Mar is a large manufacturer based in Metro Detroit providing high-quality machining, fabrication and welding of parts for Tier 1 automotive and defense industries for over 30 years.

Gil-Mar operates out of three Canton, Michigan plants totaling 200,000 square feet, in addition to 2 facilities totaling over 500,000 square feet in Shanghai, China, which was established in 2004. Currently, Gil-Mar machines cast ductile iron steering link components and various engines and auxiliary brackets for Ford with a focus on the F-Series truck program, and a diverse component machining offering for Chrysler. They also make door hinge sets and frame mount housings for Ford via Tier 1 suppliers.

Work at their domestic facilities requires a multitude of equipment (120 machines) ranging from milling and drilling to broaching, assembly and more. Thirty-one of Gil-Mar's machines are from Methods, which in itself is telling.

Sustaining Growth – A Strategic Machine

Experiencing meteoric growth in the early to mid-2000's, Gil-Mar began a closer analysis of their production rates, machining capabilities, downtime and support. "After examining our machining operations, it became clear to us that some of our equipment lacked the technology and capabilities to run at the high performance levels necessary for our demanding applications and volumes," said Mr. Dave LaVigne, Plant Manager at Gil-Mar. "Average machines, lack of supplier expertise, and mediocre service and support led to increased downtime and losses."

During this period, Gil-Mar in one year's time also successfully launched 48 new major jobs and acquired a building to expand the Michigan operation. "There were a lot of moving parts," said LaVigne. "Around 2008 into 2009 it became pretty clear to us that we really needed to align ourselves with a highly skilled machine tool supplier that we could partner with, to arm us with not only leading machine tool technology and service, but the vision to help us automate and integrate machines and systems as a whole to enable smart manufacturing solutions for our growing application demands."

Gil-Mar's search didn't take them far. Methods Machine Tools, who has a full technology center in nearby Wixom, MI, provided the insight and horsepower for Gil-Mar to take notice. "It made complete sense for us to give Methods the nod. They have leading machine brands, excellent integration abilities, application engineering, service and support, and are only 15 miles away from us with a warehouse full of parts and machines under power," said LaVigne.

KIWA: A Horizontal Shift

In December 2009, the Gil-Mar/Methods partnership got off to a fast start through high performance horizontal machining centers with KIWA and Feeler machines. "We were experiencing breakdowns and poor service and support with the horizontals we were using," said LaVigne. "We wanted a new, serviceable machine with a good track record and value for the investment. When Methods showed us a KIWA KH-45, we were very impressed. The overall machine frame and casting is massive, very substantial. The machine is also exceedingly fast with chip-to-chip time of 2.0 seconds and tool change and pallet change times that blew away the machines we had. We have achieved 20% increases in throughput and uptimes are in the

high 90's with KIWA vs. the mid 80's on our previous machines. Our part quality has also greatly improved. The KIWA's are extremely repeatable and the spindle is always in the cut."

Gil-Mar is manufacturing spring hangers, motor mounts and frame components on KIWA machines on multiple Ford platforms, which has resulted in reliable, calculated productivity increases that have played a critical role in their growth trajectory. Put another way, since being introduced to their first KIWA horizontal, Gil-Mar has added 16 KIWA's to their operation, comprised of 14 HMC's and two VMC's, a testament to how productive, reliable and mission critical these machines are in Gil-Mar's manufacturing operation.

"Feeling" Automated

Building on the successes of the KIWA machining applications, in late 2014 Gil-Mar consulted Methods for solutions on a quandary they faced concerning a large contract opportunity to make cast stiffening brackets for a Chrysler engine.

"We had an dial index machine designed to handle an application like this but the flexibility was inadequate for the scope of the program and the production requirements," said LaVigne. "Our options were to either acquire a new dial index machine with a fixed spindle dedicated for the application in the price range of one to two million dollars, or come up with an alternative solution. We were keen on the latter, because frankly we were reluctant to make an investment of that magnitude, without having the ability to utilize it on other applications as well, in the event of a downturn or demand fluctuations" explained LaVigne.

Methods analyzed the challenge and the solution they proposed was automation with Feeler machining centers. "Feeler was totally new to us and initially, we weren't sure. But the unique engineering touches to the custom Methods-Feeler machines impressed us," said LaVigne. "We did our homework on Feeler and also visited the plant in Taiwan. The machines are rugged and reliable. To date we have had no issues, they have been operating for two years and are reasonably priced, offering an excellent value."

The Methods solution consisted of two Feeler FMH-500 horizontals running in tandem making suspension pairs and one Fanuc robot serving four Feeler VMP-800 verticals in a cell making the stiffening brackets. The Methods Feeler solution was a big success. “The yield per hour is running at 80% for half the cost compared to the dial index machine, and the cell only requires one machinist instead of two,” says LaVigne.

RoboDrill Cell: Taking Automation to the Next Level

With the Feeler automation cell fresh in mind, Gil-Mar was itching for the next opportunity to automate. And it didn’t take long. Late in 2014 they were presented an opportunity to manufacture door hinge sets for the Ford F-150, but tier one Midway demanded a high output-premium value solution. “We saw this as a large cradle to grave solution that Midway wanted – very fast, repeatable, reliable and affordable,” said LaVigne.

Gil-Mar right away challenged Methods to develop a solution for the program. “With a scope of 180,000 parts times four doors, and on-demand delivery and cost a key consideration, automation was essential,” said Thomas Saur, General Manager of Methods’ Michigan Technology Center. “Gil-Mar was also open minded on DFM (design for manufacturing) solutions, which helped in our conceptual and engineering phase.”

The Methods solution was a lights-out cell with six Fanuc RoboDrill D21LiA5, 30-taper four-axis VMC’s, two Fanuc robots, in addition to infeed and outfeed conveyors. Two operators load raw ductile iron blanks onto infeed conveyors that feed two operations: op 10-milling and drilling, and op 20-contouring and spot facing. Finished parts are then loaded onto outfeed conveyors for inspection. Production output is six minutes per cycle (three minutes per part, machined two at a time). Typically, 325 part sets are made per 10-hour shift.

It took Methods 14 months to conceptualize, develop, engineer, conduct run offs and training. “The Methods team did an extraordinary job,” said LaVigne. “They were dedicated and worked closely with us, making continual process improvements and refinements. It was a very

successful project, and for us a paradigm-shift into automation from dedicated, individual equipment.” The RoboDrill Cell has exceeded all goals for the F-150 door hinge contract, providing a lean solution with tight tolerances, representing a major success at Gil-Mar.

Partnering for Success

With Methods machining solutions running 24 x 7 at Gil-Mar, the response by LaVigne to the question ‘is the Methods/Gil-Mar partnership a success?’ is as automated as Methods’ solutions. “A resounding yes. From conceptual and engineering skills, to high quality machines and extremely responsive support, Methods Machine Tools has saved Gil-Mar literally hundreds of thousands of dollars through their innovative solutions, programming strategies, reduced cycle times and increased throughput.” Added Mr. Joe Ruicci, Gil-Mar’s Chief Operating Officer, “It is a fantastic relationship with a great distributor that stands behind the equipment they sell. For our company to grow and flourish in the future, we need strong experts such as Methods that possess the strategic strength and vision to help transform machines and metal into business success. From where we stand, that is what Gil-Mar is all about, and what Methods exemplifies.”

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