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Gartland Foundry Takes Lead in Compressing Leadtimes

With steady reinvestment and a customer-driven culture, this century-old iron foundry is reinventing itself in a niche of quick, as-needed deliveries—in as little as 5 days.

Michael J. Lessiter, Special to *MODERN CASTING*

Gartland Foundry
Terre Haute, Indiana



- Year Founded:** 1902 (as Terre Haute Foundry).
- Metals Cast:** Gray and ductile iron.
- Processes:** Green sand molding (20x16 and 20x24 mold sizes on the two automatic machines), induction melting, coldbox, shell and oil sand coremaking, and electrostatic painting.
- Size:** 100,000 sq ft.
- Key Customers:** Baldor Electric, Mueller Co., Rancho Suspensions, Reliance Electric, General Electric and McDonald & Miller.
- Key Markets:** Electric motor (60% of total), pump, agriculture, appliances and special industry machinery. Jobs run from 2 oz to 75-lb.
- Active Patterns:** 2500 (400-500 run regularly).
- 2003 Sales Forecast:** \$8.8 million
- Employees:** 85
- Corporate Officials:** William G. Grimes, president; David Grimes vice president-finance; Dan Crumbacher, vice president-sales; Bill Pennington, vice president-operations.

With casting orders seemingly leaving the country at the drop of a hat, Gartland Foundry, Terre Haute, Indiana, has been positioning itself to service customers a bit less likely to rely on foreign sources.

Who on earth would that be, you ask? The answer—the agile manufacturers that don't want any castings delivered unless there's a matching purchase order from its own customer.

With continual capital investments geared toward maximum productivity and flexibility (including a half-million dollar coreroom modernization in July) Gartland has staked its future on a niche of quick turnarounds. It is delivering castings in as few as 5 business days from the time of order, with 3-4 weeks typical across the board—cutting the industry norm in half.

What may be most impressive is that this transformation occurred in a 100-year-old foundry, where traditions don't usually die easily. To pull it off, and continue to meet 98% ontime deliveries, it has taken a can-do attitude, teamwork and what one buyer called "a whole lot of hustle." Describing the root of the culture at Gartland, President Bill Grimes said, "we recognize that if you miss the opportunity to give the customer what they want, you won't get too many other chances."

Getting There

Gartland arrived at its leadtime initiative in the early 1990s, but not exactly by its choosing. "It was a matter of self-preservation," Grimes said. "Baldor Electric challenged us. They wanted to make and ship motors in just three days and didn't want any inventory. We were at

a 42-day leadtime, and they said it was unacceptable. Like many foundries, we had a mental stigma that we could only do so much in a given day."

Bill Kropp, senior buyer at Baldor Electric, Fort Smith, Arkansas, recalled the 1992 meeting, which he referred to as a "day of reckoning." Gartland was reluctant to move from its finely tuned cost system, which was based on minimal mold runs of 100. A 30-year relationship appeared to be on the line. Finally, Kropp recalled, Grimes and then-chairman Frank Fazzari stepped up and said, "we're going to do it."

The foundry began by taking Baldor's top three jobs and reducing deliveries to 20 days. Then, they took the top 10 jobs and got them to 15 days. This was at roughly the same time that the capital projects began, which opened up melt capacity, and the foundry made changes such as keeping a bank of certain cores on hand. Within a year, Gartland was down to 5 days on Baldor's most time-critical jobs.

Based on the success with Baldor, Gartland extended this service competency to other customers. "When a lot of other foundries—often quoting 8 weeks and still missing them—were saying no way to this sort of thing, it gave us an edge. We're not going to be the cheapest foundry. Our real advantage is in the speed. If delivery is what's ultimately important, you can just about set your watch by us."

Explained Kropp, "A foundry can ask for 8-10 leadtimes, but quantities that far out are only a guess for buyers. We have no idea what we need that far out, but we do know dead-nuts two weeks out. American foundries have improved their quality a lot in the last

10 years, but many have not yet embraced delivery. We are at two-week leadtimes with our customers, so our suppliers also need to be on board with that schedule."

How it Works

While the process of consistently meeting short deliveries has as many variables as the casting process itself, the foundry's automatic mold lines are vital components. The two lines, installed in '92 and '99, see 10-16 pattern changes a day, with some quantities as few as 5-10 molds.

But the real key, agree the Gartland team, is Christie Milligan, production control and purchasing manager. Joining the foundry in 1992 from Iowa Malleable, she is the one who has been given full power to decide when and where to run all jobs. That means no second-guessing, nor any knee-jerk reactions following a customer's call to the front office.

"We schedule one day at a time," said Milligan. "It enables us to react more quickly. We tried a weekly schedule a ways back, but it was pretty much worthless as it changed constantly."

Every day at 10 a.m., Milligan picks up all orders from the fax, mail and email and starts penciling things into a schedule for the following day. Customers know that 10 a.m. is the magic hour, and that every minute is critical. What



Production Control Manager Christie Milligan informs President Bill Grimes of the next day's schedule, which she pencils in every day at 10 a.m. "We do what we do through straight hustle and teamwork," Milligan says of the 98% ontime delivery record. "There are no secrets or complexities to our system."

happens next, said Milligan, is one of those few instances in which the old-fashioned pencil and paper actually outperform the computer. "We don't spend time doing data entry for scheduling, checking reports or worrying about the computer's garbage-in and garbage out. We see an order that needs to be run and we get on it."

While scheduling, she considers the corerom and patterns so that she knows what can be put on the line first-thing the following morning, and what jobs require cores and/or tooling work. She's also thinking ahead in regard to special irons, which are poured only twice a week. Much of the job, she said, is knowing the customers and their leadtime

needs and who has kanban programs, etc. Kropp said Milligan and Baldor's expeditor are on the phone daily.

The foundry is quick enough to occasionally ship samples the same day as they receive the tool, and regularly meets 5-day turnarounds for certain customers. On established jobs, 2-4 week leadtimes are now the norm.

Vice President of Sales Dan Crumbacher, a 35-year casting sales veteran who joined Gartland in 2002, recalled his first call back to the foundry to schedule a job for a new customer. "Having been in an environment where 6 weeks was the norm to get samples on new tooling, I called Christie to see when we could promise samples to the customer. She said, 'Dan, you've to give me a week.' I knew right then that this was a different kind of operation."

Kropp said that Gartland's system doesn't appear to be anything real sophisticated, just "plain old-fashioned hustle." "It all boils down to the attitude and work ethic of the people," he said. "Every foundry talks quality and delivery, but not all come through. They've proven it can be done."

Walking around the dock area which was stacked with about 80 boxes, Grimes said, "Close to 100% of what we made yesterday is ground, finished and ready to ship today. With the exception of the electric motor parts, which require the

Reinvestment Rules at Gartland Foundry

Gartland has invested \$7.5 million in capital projects over the last eight years, all meeting a distinct need in their recipe for quick service to customers. Below is a brief timeline of recent improvements that allowed the foundry to double its revenue in a five-year span in the 1990s, without adding a square inch to the building.

1995—constructed a new building to house two 8000-lb coreless induction furnaces and ancillary equipment, eliminating the cupola (last used in 1999 and removed during the July shutdown). "Three people now do what used to take nine on the cupola five years ago," said Grimes.

1997—complete overhaul of the sand system (including new penthouses) and the installation of fully computer-controlled systems for optimum sand conditions and consistency. "The guys who could make great castings in any type of sand conditions are a dying breed," he said.

1999—installed 20x24 automatic mold machine (allowing quick pattern changes), along with a 136-mold handling unit (featuring three molds to a car). The machine is

"One of my dad's principles was that you need to invest 2.5 times what you're depreciating every year."

averaging 80-90 molds/hr, and the handling system allows 45-60 minute cooling times.

2001—installed a new media drum and integrated shakeouts between the two automatic molding lines.

2003—modernized the corerom, installing two new coldbox machines, mixers and scrubbing equipment.

"One of my dad's principles was that you need to invest 2.5 times what you're depreciating every year or else you'll get caught with an antiquated facility. We've probably averaged that over time and continue to follow that as a game plan." Future plans call for an improved shipping dock to provide for even better flow.

Had Gartland pulled the trigger on some of the investments earlier, Grimes is confident the foundry would have seen a greater return. "If we had not done these things, we just wouldn't be competitive today. If you intend to stick around for a while in this business, you have to have the technology and equipment or you're cutting your own throat." **MC**

For a list of major production equipment at Gartland Foundry, visit www.moderncasting.com

electrostatic painting (which can take a 1-1.5 days) and those we send out for contract machining, we harvest nearly everything we've cast within a day."

Keys to Success

Production flow is an absolute must-have for the foundry's chosen niche. Citing from *The Goal*, Grimes said that you can't have the bottlenecks that restrict your flexibility to move product through the facility. "A lot of foundries are handcuffed due to their facilities, but with the exception of the greenfields, our 100-year-old operation is arguably as light on its feet as any because of how we've restructured our plant."

A lot of this flexibility came through its capital projects (see "Reinvestment Rules at Gartland Foundry" sidebar), particularly in molding equipment that allowed quick pattern changes and freed up floor space. "Our mold machine and handling investment five years ago eliminated numerous mold floors and freed up about one-third of the building," he said. "The physical plant and layout is probably half the battle, the other 50% is mental."

Quick to credit the team ("schedules

All in the Family: A Celebrated History

One of 12 brothers in very much a foundry family, Peter Valentine Gartland founded Gartland Foundry in Terre Haute, Indiana in 1920. By the early 1900s, the Gartland family was involved in more than 30 plants in Illinois, Ohio, Indiana and Michigan.

When Peter Gartland died suddenly in 1937, his wife, Delight, ran the 150-employee foundry for 14 years, through the depths of the depression and war years by producing gray iron castings for

lawnmowers, typewriters, sewing machines and electric motors. In 1951, son-in-law William M. Grimes (married to daughter, Betty) joined the company to take over the reins and began a period of growth and technological innovation.

Upon William M. Grimes' death in 1994, sons William G. Grimes and David Grimes, assumed the duties of president and vice president-finance, respectively. The brothers represent a third generation of foundrymen. **MC**

mean nothing unless the guys on the floor can get it done"), Milligan said it takes a fully dedicated staffer to look after the schedule. "You can't have a plant manager spending 30 minutes at the end of the day on the schedule." The fact that she also has purchasing responsibilities for the foundry ensures that there won't be any finger-pointing if the material isn't there and ready to go.

In addition to a dedicated scheduler, Milligan offered the following advice for another foundry seeking to compress their leadtimes. First, patternmakers must be able to react and make the repairs quickly. Second, a strong material management system is needed so you know what cores and other things are ready and what must still be done. Most important, all the management people, from the top down, must have the mindset that you've got to do whatever it takes to make it happen. This translates to every area, including maintenance, which must be able to fix machinery on the fly.

"It's really all teamwork," she said. "I don't know of any foundry who couldn't do what we're doing if they committed themselves to it."

Summarizing the plant's commitment to the delivery record and customer satisfaction, Crumbacher noted that the foundry has retained a second shift even when the backlog has dropped. He also contrasted Gartland with other foundries who set goals of 70% ontime delivery. "That means that at any time, 30% of the customers might be angry. We're hitting 98% consistently, and questions are still asked about what went wrong on the 2% of orders shipped late."

Benefits to Both

While Gartland was essentially cornered into the rapid casting business, it has differentiated the foundry as well as made for just good business. Grimes explained: "When you make castings and hold them, you're sitting on dollars. You've got to pay your scrap, labor and operating costs immediately. If you've got castings sitting there or tied up as work in progress, you're depriving yourself of the sales dollars you're owed and you could have problems with quality recognition. And then, if the customer ends up taking 60 days to pay, you've taken a double-whammy on your buck.

"By making and shipping in a tight timeframe, we're converting our costs to sales dollars that much quicker."

More importantly, the customer keeps its dollars free and reserves the chance to make part changes as needed. According to Kropp, Baldor tries to make only as many motors as they have orders for, and keeps less than one week's inventory. "If a foundry runs 100 parts and we only need 50, those boxes are going to block production at one of our two plants." Instead,



While several jolt-squeeze machines are still in use, the two newer automatic mold lines do the heavy lifting in meeting the quick turnarounds. Patterns are changed as many as 15 times a day on each molding line.

he said, the foundry could have used that mold time to run someone else's parts who needed them.

Kropp said that foundries must understand that they are "in the business of doing what they can to make the customer more efficient, not doing what makes themselves run better." While Baldor buys castings offshore, U.S. foundries do have an advantage over China, Mexico and Brazil, he said. "It's delivery and your ability to keep your customers happy—what it's all about.

"We'll sell and ship just one motor if that's what the customer wants. We're doing the same thing on our end that we're asking of our casting suppliers."

Gartland will not sell castings on consignment or warehouse parts that won't be used for two months. "We don't want to inventory parts and neither does the customer. We say, 'just tell us when you want them and we'll get them there.'"

Net Impact

When asked about the net impact of this fast turnaround service, Crumbacher admitted that "it hasn't tilted the scales back in our favor against foreign foundries. You won't change those buyers' minds until they've gotten burned. But when that happens, they'll have inventory in three places to worry about—in their plant, in the containers on the water and those still being cast overseas."

All sights must be set on service, he said. "You can't give customers an excuse to want to go offshore. When a



A \$500,000 coreroom modernization was completed in July, which added two new core machines, a mixer, amine supply system, scrubber, sand heater and conveyor.



foundry misses a delivery or has a quality issue, they're asking for it."

The foundry's delivery performance has piqued other customers' interest (they receive many word of mouth referrals) and preserved a portion of the work that might otherwise have been totally lost to foreign foundries. Said Grimes: "Many customers have moved a lot of work offshore, but some have left a big chunk with us because they know we can get them back up to 80-90% of their needs in a short period of time if things fall apart on them."

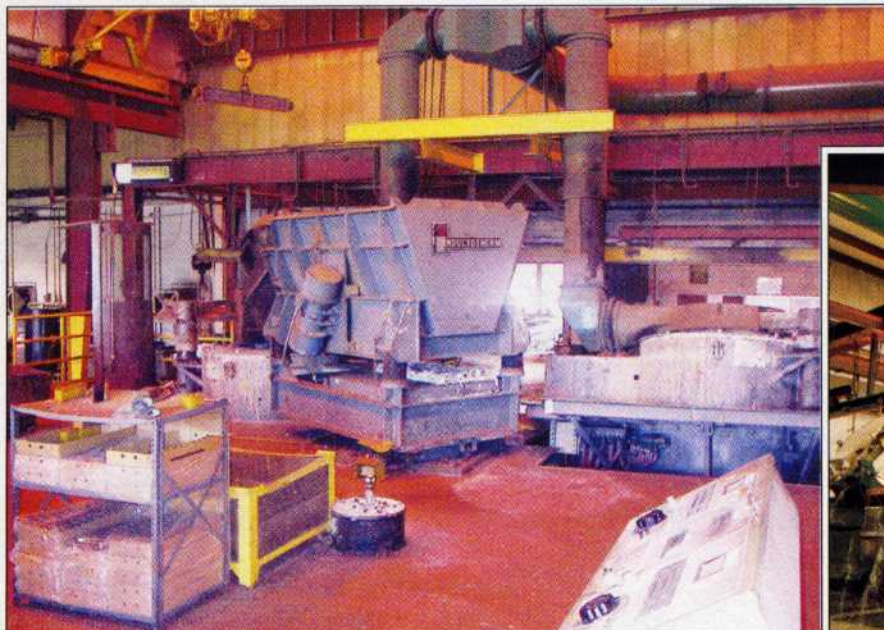
Crumbacher added that one cus-

tomers showed him the price he was offered from a Chinese source, but stayed with Gartland despite the significant price gap. "Some buyers will pay a little more for what you can do for them. Those who do a true value-analysis on inventory and leadtime reductions know that they're better off paying more than worrying about not being able to ship their end product because of a bad or late casting."

"We're in a time where we need to do whatever we can for the customer, without doing something stupid, of course," said Grimes. "Once you know what the customer wants, everything else just has to happen to get there." **MC**

For More Information

For a list of production equipment at Gartland Foundry, visit www.moderncasting.com



Gartland eliminated its cupola in 1995 when it chose electric melting for better flexibility and efficiency. The new building (featuring a poured concrete basement for water and controls) includes two coreless induction furnaces that can supply iron at a rate of 5 tons/hr.