
Casting the Part

Jeff Miller, Wyman-Gordon Castings

When an airplane needs a vital part, who does it call?

When a hospital needs a mechanical substitute for a knee or hip, to whom does it turn?

Wyman-Gordon Castings. This subsidiary of Precision Castparts, Corp. manufactures key components for both the aerospace and medical industries—including aircraft turbines, impellers, industrial turbines, prosthetic implants, airframes, and other commercial products. Headquartered in Portland, Oregon, PCC maintains successful casting and forging factories throughout the United States and Europe, and enjoyed sales of \$1.67 billion for fiscal year 2000.

Problem

With many customers waiting to be serviced, it was very

frustrating for Wyman-Gordon Castings not be able to project ahead of time how many resources they would need, when they would need them, or when the job would be completed for their customers. This was extremely hard on both the company and the customers. Sometimes, due to limited capacity, inventory would pile up. Other times there would be an extreme demand for certain parts and the company would have to scramble to fulfill their orders. Timing was crucial in filling orders. Sometimes an order would involve a thousand dollar part for a 30M engine for a \$300M airplane that needed to be shipped within a certain time frame or contract penalties would apply. The current system greatly impacted the way orders were taken, and also on employees who may have to

At a Glance

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Solution

After discovering ProcessModel, PCC decided that this simulation model would greatly improve their work flow. They weren't disappointed.

Results

ProcessModel is providing the means to meet aggressive schedules for customers with fewer late orders and predict the results ahead of time. No longer was it a guessing game when it came to figuring it out. By correcting inefficiencies, Wyman-Gordon Castings was able to meet existing inventory reduction plans and project in advance future needs.



work long and extra hours to make sure orders were turned out in a timely manner.

Wyman-Gordon Castings wanted to better serve their customers, reduce overtime for their employees—and at the same time—reduce the amount of inventory on their manufacturing floor to make space for new business.

Solution

Wyman-Gordon Castings investigated several solutions. They looked at fairly large corporate systems designed for prediction and analysis, but the attendant corporate price tags and system maintenance requirements (i.e. MIS and corporate horsepower) made them look elsewhere.

One day, after discovering ProcessModel, Wyman-Gordon Castings decided that this simulation model would greatly improve their work flow. They weren't disappointed.

After all data was input, ProcessModel helped them identify bottlenecks and provide feedback, pinpointing areas for improvement. For instance, it helped reveal bottlenecks in the mold-making portion of the casting process (i.e. backlogged inventory). ProcessModel would also demonstrate why there was excessive inventory, and test solutions for the problem.

Results

ProcessModel is providing the means to meet aggressive schedules for customers with fewer late orders and predict the results ahead of time. No longer was it a guessing game when it came to figuring it out. By correcting inefficiencies, Wyman-Gordon Castings was able to meet existing inventory reduction plans and project in advance future needs (for example, capital equipment, staffing, and process changes). This was vital because often investment casting required an expensive six-to-twenty month investment in tooling and process development for the customer. If orders could not be produced in a timely manner, it could mean the loss of substantial amounts of both time and money.

Because of the innovation of simulation modeling through ProcessModel, Wyman-Gordon Castings will be able to meet their customers' needs and predict accurately when the job order would be completed. This was crucial because often Wyman-Gordon Casting would have twenty to thirty companies, all wanting orders fulfilled in simultaneous time frames. In addition, the company would be aggressively seeking new customers.

Before ProcessModel, it was a veritable juggling act, and sometimes the balls would fall when trying to fulfill and seek new customers. However,

through ProcessModel, Wyman-Gordon Casting was able to organize schedules and inform each customer exactly when and how each order could be fulfilled, while continuing to reduce inventory and leadtime.

FIND OUT MORE

***About the Author:** Jeff Miller has 17 years of experience in aerospace manufacturing and investment casting. Jeff has developed casting solutions for a variety of customers including GE, PWA, ABB, Rocketdyne, Aerojet, and Westinghouse. He currently manages foundry operations for Precision Castparts Corp (PCC) at the Small Structural Business Operation in Portland, Oregon. His degree in mechanical engineering and interest in computers provided the basis for increasing responsibility in assignments at all of PCC's Portland facilities.*

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