

Goldens' Foundry Reduces Inspection Times by Over 90% using a FARO Edge



The fast, and easy, setups with the Edge have greatly impacted the overall efficiency of the floor. Total check time for parts that once took 45 minutes and three position changes on a traditional CMM, are now done in only 2 and half minutes using the FARO Edge – a reduction of over 90%.

FARO[®]

Goldens' Foundry and Machine Company (www.gfmco.com) is a value-added manufacturer of cast, machined, and assembled components for the capital and durable goods industries. Over the last 125 years, Goldens' has become casting consumers' one-source resource for their top-of-the-line ductile iron and gray iron needs. With headquarters in Columbus, Georgia and its plant in Cordele, Georgia Goldens' serves industries as diverse as construction machinery, agricultural machinery and equipment, medical and surgical equipment, pumps and compressors, mechanical power transmissions, trucks, and petroleum.

Working diligently to provide continued growth and development in their methods, Goldens' exceeds expectations through continuous improvement. Through continual attention to quality control and relying on their qualified staff, Goldens' meets their goals and customer expectations.

Goldens' commitment to lean manufacturing principles benefits productivity and output and, ultimately, benefits their customers most of all. The company takes a systematic approach to identifying and eliminating waste. The company's implementation and dedication to 5S and its manufacturing strategy to improve productivity and eliminate waste is apparent in each facility. They effectively monitor each aspect of their production process to identify areas where they can improve.



In order to be a leader in ductile iron and gray iron castings, Goldens' must continually be prepared to learn from their difficulties and accomplishments. Goldens' dedication to constant improvement guides their quality control department.

Problem

Goldens' Foundry utilizes a variety of standard core processes to provide the best core for each job. With the variety available to them, the company provides the most cost-effective and practical approach to producing cores that result in a superior casting.

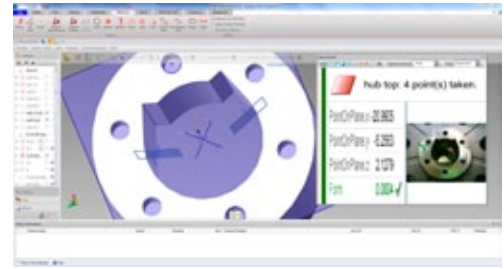
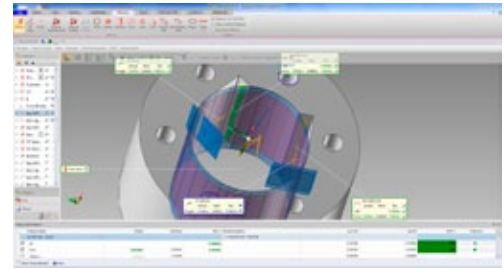
In addition to large and small casting capabilities, Goldens' also utilizes a centrifugal casting that is unique in the foundry industry. The process requires a special mix of knowledge, practices, and skills that differ greatly from other types of foundry operations. In Goldens' centrifugal casting process, molten iron is poured into a hollow cylindrical mold spinning on a horizontal or vertical axis at speeds generating 40 to 70 Gs of centrifugal force. This force distributes the molten metal, promotes directional solidification, and improves casting integrity by forcing impurities to the inside surface. When the casting has cooled, it is removed from the mold. Castings may be machined in follow-up processing to produce defect-free components with excellent properties.

To ensure these properties, each casting must be inspected. This can present a real problem. The size of a cast can be 40 x 30 x 30 inches and weigh 250 pounds. The bores, bolt holes, threaded holes, milled surfaces, and casted features all need to be measured and verified. This work was previously done using a traditional fixed CMM and hand tools. These methods proved inefficient as the CMM required complicated and even cumbersome set ups. The measurement range of the fixed CMM was not large enough and that created the need for the hand tools. To work around this, parts had to be arranged in multiple setups, often requiring a hoist in order to check the entire part.

Solution

“Obviously, this was not a perfect solution with respect to our practice of productivity, efficiency, and eliminating waste,” said Jason Gallahair, an engineer at Golden’s. “To correct, or improve, this process we looked for a more user-friendly and portable system that was scalable to our application while still adhering to our principles of value.”

The complete solution they were looking for was found in the revolutionary FARO Edge ScanArm. The Edge is a portable CMM, a measurement arm, with an easily interchangeable contact and non-contact measurement capability. The system allows Golden’s to check an entire part, on all sides, in one set location. The system reduced the setup time for large, multi-sided parts. The maneuverability of the Edge allows a user to reach all of the needed part features. This kind of flexibility is just not possible with a fixed CMM where you are often met with situations where if you can’t reach a feature, you are required to move the part, re-fixture it, and then measure again.



Return on Investment

“Though there was some skepticism and misunderstanding, at first, in how the FARO Edge was going to be used, now it’s one of the busiest pieces of equipment on our shop floor,” said Josh Shorey, a quality control tech at Golden’s. “After a three-day training class, our users were fully proficient in programming and checking parts with the Edge.”

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“Golden’s even gained recognition from an important customer by scoring a perfect 100-percent on their metrology capabilities after purchasing their FaroArm,” added Mr. Gallahair. “This customer is a FARO user too.”

The company saved 85 man hours on just one part number in the first six months after implementing FARO into their processes. Golden’s have seen a reduction in time, an improvement in their processes, and a savings in money – all key components to their overall dedication to continuous improvement.