

QCAST ALUMINUM - CASTING FOR EFFICIENCY WITH IMC SUPPORT

ABOUT QCAST ALUMINUM CO. Located in New Berlin, Pennsylvania, QCast Aluminum Co. is a family owned, high-quality manufacturer of aluminum sand castings for commercial industries. QCast manufactures all their products in the USA and can produce excellent finishes and parts of all sizes, including prototypes and small to large production runs from 1 oz. to 300 lbs. They work with customers to develop a mutually beneficial long-term relationship and have a strong commitment focused on service, quality, deliverability and affordability. They have grown to become one of the highest quality sandcasting companies at the most competitive price.

THE CHALLENGE. Working with Pennsylvania MEP's strategic partner PennTAP, who sponsored an E3 project (Economy, Energy & Environment), the Innovative Manufacturers' Center (IMC), part of the Pennsylvania MEP and the MEP National Network™, was engaged to facilitate a value stream map (VSM) to determine why QCast's production was unable to meet desired delivery times for their customers. The scope of the value stream map began with the core preparation area of production and ended at the finishing area.

MEP CENTER'S ROLE. The IMC team discovered, through the mapping process, that the work in process (WIP) materials for the finishing area were stored in scattered locations, causing delays. In addition, adding to production flow delays, finishing operators performed excessive amounts of searching, stretching, reaching and bending for the parts, resulting in additional non-value added efficiency losses. It was evident that in addition to the overproduction of parts, their multiple locations in the finishing area took time away from actual finishing work.

After completing the current state map the project team, facilitated by the IMC, determined the "future state." QCast wanted to exceed customer expectations by utilizing an effective pull system that would generate a 7-day throughput with a 4-week lead time, 99% on time delivery and a 100% quality level by September 1, 2023. Through the input of the QCast team, the IMC generated a series of challenges for the company to tackle and record the results over the next several weeks. The first two target conditions were designing a 'supermarket' that would visually control the work in progress inventory levels to 3-5 days and to improve the efficiency of the belt sanding area to 85%. After continued experimentation with various aspects of the tumbling process including time, media and actual parts to be finished, the company has calculated that they could increase finishing productivity by up to 300%.

"The value stream mapping exercise conducted by the IMC enabled us to visually see the overall production process and the areas we needed to target for improvement. Without this process, QCast may not have identified the key areas needed to meet our overall objectives. We look forward to continuing to work with the IMC in the future."

-Terry Arnold, General Manager

RESULTS



4 created or retained jobs



54% reduction of WIP sitting at the finishing stage

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