

www.macequipment.com / HQ: Kansas City, Mo. / Employees: 350 / Services: Pneumatic conveying and air filtration systems / Ernie Iznaga, vice president of operations: "We are not making widgets; we are making highly engineered solutions to solve customer-specific problems."

RAPID PROTOTYPING

MAC EQUIPMENT CONTINUOUSLY STRIVES TO INTRODUCE NEW PRODUCTS AND MEET ITS CUSTOMERS' REQUIREMENTS. BY LIBBY JOHN

EVEN IN A SLOW ECONOMY, MAC IS INTRODUCING NEW PRODUCTS BECAUSE OF ITS USE OF 3P PRODUCT DEVELOPMENT.



MAC Equipment strives to continuously improve its product lines and spends significant time, money and effort on product development – a distinctive quality that sets it apart from its competitors, Vice President of Operations Ernie Iznaga says. "Typically, most companies will take a year or more to develop a new product," he says. "MAC has done an exceptional job fine tuning its "3P" (Production-Preparation-Process) product development process and can perform the rapid prototyping of new products very quickly.

"Using Lean manufacturing and 3P principles, we can get a small group of experts together, come up with a conceptual design, and create a working model in our manufacturing plants in the space of a week," Iznaga says. "During a week long 3P event, we can make several real models, test them and make sure the tests meet or exceed our performance expectations. The 3P process coupled with our vertically integrated manufacturing approach provides MAC with a tremendous competitive advantage."

Its latest innovation, a low-profile air filtration system called the SpaceSaver, was developed using the 3P process. With about a dozen in-house experts, the company was able to design a prototype of the product in a matter of days. "In one week, we went from a blank sheet of paper to a working prototype model," he says. "Since then, we're gone through two or three design improvements and, enhanced the unit's performance. We're doing some Beta testing now and the performance results have been terrific."

The company, based in Kansas City, Missouri, specializes in custom engineering and manufacturing of pneumatic conveying and dust collection systems,



THROUGH KAIZEN AND POKA-YOKE, MAC HAS IMPROVED PRODUCTIVITY, ADDED SERVICES AND INCREASED CAPABILITIES.

and offers solutions to air filtration and material management challenges for the process industry including food, petrochemical and agriculture industries to name a few. It was founded in 1969, and has plant locations in Sabetha, Kansas and Houston, Texas plus an office in Cincinnati, Ohio.

In the next several months, the company plans to introduce new products for the petrochemical and sugar markets. “MAC and our parent company, Clyde Process Solutions, have a pretty diverse portfolio of products serving a variety of industries. Some of our key growth areas include the petrochemical and sugar industries. We are developing product lines that in some cases will revolutionize material handling and provide unprecedented levels of safety and reliability to our customers in those industries,” Iznaga says.

EXCEEDING EXPECTATIONS

MAC’s new product lines were developed with input from employees, suppliers and customers. “The customer didn’t tell us how to design it, but we wanted to make sure we had their voice in the design,” Iznaga explains.

Establishing long-term relationships with our customers is important, he adds. “I think MAC does a great job of getting close to customers and [producing] custom-engineered solutions to fit that customer,” he says. “We are not making widgets; we are making highly

engineered solutions to solve specific problems. We take every available opportunity to spend time in the field working alongside customers to understand the problems they see.”

The current economic conditions have been challenging to the firm, Iznaga acknowledges. “We feel the pain along with our customer,” he says. “It is a capital-intensive business. Unfortunately, sometimes customers have to delay orders because they’ve been affected by the economy. Fortunately, we’ve been able to stay close to the customer during these difficult times and when they do place orders, they place them with us.”

Staying diversified has helped the company overcome the weak economy. “We work in a variety of industries, not just one – petrochemical, plastic, food, agriculture – so when one market like construction is down, [the rest are doing well],” he says. “[Recently] food and agriculture have been stable. We’ve really benefitted from that diversification strategy.”

MAC is a member of UK based Clyde Process Solutions –which provides material handling solutions for process industries – and Iznaga believes that partnership will help it along its path of diversification. “We’re looking at entering a wide array of markets,” he says. “We’re not putting all our eggs in one basket.”

The path to diversification was established before the economic collapse, but that event stressed the need for this

initiative. “When the economy does turn-around, we’ll be very well-positioned, even better than today,” he says.

FOCUSED ON LEAN

In January 2009, MAC started to implement Lean processes. “MAC has a strategy to continuously improve the way we design and manufacture our products,” Iznaga says. “We have people at both plants with extensive Lean training. Every eight weeks, we have kaizen events at the plants and select areas and different processes to improve. The shop employees are happy to see the improvements in the factories and often request kaizen events in their work areas. Many of them have been through lean training and understand the philosophies. In fact, many of the kaizen improvement ideas come from our factory workers. Our shop folks are truly outstanding. They were initially a little nervous but since then, they have embraced Lean and have made it their own.”

The company also implemented quality improvement processes designed to improve quality at the source such as Relentless Root Cause Analysis and “poka-yoke,” commonly known as mistake-proofing. “Using the kaizen approach, we try to put mistake-proofing into processes so the operator doesn’t just check quality through inspection but also builds quality into the process itself. In this way we have fewer defects, if any, by the time the product is ready to be shipped to the customer,” he explains.

Iznaga describes the Lean transition as a “phenomenal success.” “In Houston, we’ve been able to improve productivity by greater than 30 percent and reduce the square footage required for production by well over 25 percent,” he says. “In Sabetha, we’ve improved not just productivity, shop cleanliness and organization we’ve also been able to introduce new services to the customer such as a rapid rebuild program for airlocks and expand our ability to machine valves to extremely close tolerances.” **mt**