Automated Manufacturing System Quadruples Production

Research Products Company, headquartered in Salina, Kansas, manufactures food additives for the baking and grain milling industries. Products include flour bleaching and maturing services, vitamin and mineral premixes, and others that help the company's customers create nutritious food for their consumers. To develop these products, Research Products Company offers customers a virtually limitless variety of custom blends—containing the correct amount of folic acid, niacin, riboflavin and other vitamins—to meet final product label claims.

After a fire destroyed the manufacturing process Research Products Company had in place, the company had two options: either rebuild using proven equipment comparable to what had previously been used, or investigate ways to automate the manufacturing process, which could increase productivity.

Partly due to the challenging and unusual consistency of the company's products, the latter option had never been tried at Research Products Company. In the manufacturing process that was destroyed, the company was working with powders containing extremely fine particles that has physical properties like water—meaning it will splash and ripple if disturbed, making automated handling difficult.

Research Products Company president, Monte White, minimized downtime by seeking out companies that were able to help them make this decision quickly and wisely. After reviewing many companies—including vertical specialists—White selected KSolutions, which provides project management, manufacturing consulting, and control system design for industries ranging from automotive to agribusiness, consumer goods manufacturing and more. KSolutions, also based in Salina, Kansas, took the customer through a discovery process in determining the

ideal automated solution for its manufacturing needs.

“KSolutions asked us questions [about our manufacturing process that] no one ever asked before. They looked at our business as if they were the owner, making sensible business decisions,” White said.

Along with asking the right questions, KSolutions investigated all aspects of the company’s operations to develop an appropriate system. The company also provided a scope of work and managed the installation of the new manufacturing process.

At Research Products Company, raw product is introduced into the system in a variety of forms, from bags to boxes to supersack totes. KSolutions and Research Products Company looked at usage per product, the raw ingredient availability and the company’s history of products sold to determine the size and type of system required for each raw ingredient, in order to properly introduce it into the conveyance equipment. KSolutions then made sure the batching system was ISA S88.01-1995 or S88 compliant, which was a necessity. As product recalls are a potential in any food industry, raw ingredient tracking became a big part of the project.

RSBatch® by Rockwell Software served as the backbone of the data tracking system. Each product is produced in a batch format that is tracked through the system from raw ingredients through packaging. Barcode scanners placed throughout the system allow for data entry, and barcode printers print the product’s name and lot number on the final package.

Now marquees are located along the wall in the company’s blend room and display status and faults for all plant floor equipment—including equipment from various manufacturers. The system is truly integrated from raw ingredients through packaging, as reports from the system can be tied directly into Research Products Company’s business software. This allows the company to track raw ingredients from original purchase through production: accurately monitoring stock, the amount of ingredients used throughout production, and the amount of product the company produces.

An additional challenge was developing a solution that accommodated varying package sizes. Previously, Research Products Company offered its customers the choice of receiving 20 or 50 lb. bags of product. Customers enjoyed the flexible bag options—which was unique to this market—and Research Products Company offered a significant advantage over its competition. The 20 lb. bags, however, had always presented a problem, as they had to be filled manually, which was time consuming and labor intensive. With the new, faster, automated process, the company’s manufacturing speed was optimized to the point that manually filling the bags was no longer possible.

After months of work and research with equipment makers, KSolutions came up with a solution: a state-of-the-art automated 20 lb. bag filling system for Research Products Company’s dough conditioners, enrichment additives and enzyme

products. Because of the difficulty of handling the company's fine powders, nearly every piece of equipment purchased for the automated system had to be tested by running actual product through it. Product was then sent to several equipment manufacturers, and KSolutions and Research Products Company worked to monitor the testing process. While some of the equipment suppliers could not handle the difficult, water-like properties of the product and gave up, others worked with KSolutions' engineers to build new equipment that could handle this challenging task. The solution allows Research Products Company to maintain its competitive edge, saves the company time and manual labor while keeping customers happy.

"We were used to doing all of our own design and build," Monte White said. "KSolutions was a one-stop shop. Design, build, and install. Their project management allowed us to concentrate on our daily business during the construction phase."

Bringing in a set of eyes with experience in a wide range of industries and applications resulted in a modern, more efficient manufacturing plant with enhanced production and greater capabilities for Research Products Company. The manufacturing process is currently fully automated and has shown an increase in production by 400 percent. KSolutions also geared the new system toward the future.

"We quadrupled our single shift production, but the system is capable of much more with multiple shifts, and we designed it for expansion," White explained. "KSolutions helped us move beyond our initial expectation to a future vision."

For more information on KSolutions, visit http://www.ksolutionscorp.com *[1]. To learn more about Research Products Company, visit* http://www.researchprod.com/home.htm *[2].*

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