Time well spent

Cereal Ingredients improves efficiency with the design of its newest process system.

Magnum Systems designed the process system for Cereal Ingredients. Among other items, the equipment included an 81-cu.-ft. surge hopper, a 36-in. diameter stainless steel cyclone surge hopper, a vacuum pickup hopper and conveyors. Source: Magnum Systems.

It was nine years in the making. That's how long it took Cereal Ingredients to develop the basic R&D and process technology it needed for a product line with any meaningful points of difference or even much volume. In fact, when Tim Moore, now vice president of manufacturing, joined the company in 1998, its fledgling product line was still co-manufactured. "As we brought in more business, we saw opportunities to re-engineer the process flow, improve the product quality, and significantly increase line speeds," says Moore.

A small, employee-owned start-up company, Cereal Ingredients manufactures several lines of food ingredients including Flav-R-Bites, a line of colored and flavored particles used in ready-to-eat cereals, bakery products and frozen inclusions. The company also sells fiber concentrates and functional dry filling mixes for sweet goods and swirl breads. It built its first plant in Kansas City in 1999 and recently built a new manufacturing facility on an eight-acre site in Leavenworth, KS. At 40,000 sq. ft., the phase I facility houses two manufacturing lines running 24 hours a day, six days a week. Moore says capacity additions are planned as demand dictates.

To keep pace with a growing market, Cereal Ingredients' new Leavenworth plant was designed to offer superb efficiency. "Our patented cold extrusion process and unique products enable us to achieve the particle size and the uniformity that our customers need," says Moore. Everything at the plant was self-engineered and Moore turned to Magnum Systems for help designing the process system. Magnum Systems includes two divisions—Taylor Products and Smoot—which enabled the company to provide Cereal Ingredients with the dilute phase pressure and vacuum systems, a negative airlift system and a bagging scale with bag sealer.

The process begins when the raw ingredients are mixed in a blender, discharged into a surge hopper, then transferred either directly to packaging or to the extrusion system depending on the product. Most of what Cereal Ingredients produces is transferred to the extrusion line where the product is extruded, dried and screened before packaging. All of the materials are handled in dilute phase pneumatic conveying systems designed by Magnum Systems before being packaged by the Taylor equipment into open mouth bags, bulk bags or totes. Moore says the self-contained system is easy to clean when changeovers between products occur.

"Magnum was instrumental in the system design," says Moore. "We learned a lot from our Kansas City plant, including what was working and what wasn't. That helped us to improve the systems at the new facility that much more." In fact, Cereal Ingredients now regularly achieves a 98 percent efficiency rating at the plant. "We're able to produce a very uniform, high quality piece," continues Moore. "It enables us to run very efficient lines, which keep our customers and CFO happy." ◆

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