2018 PLANT OF THE YEAR: KRAFT HEINZ
ADVANCED AUTOMATION ENHANCES SAFETY AND QUALITY
Welcome Food Ingredients, Ltd. required a more efficient system to re-bag granular sugar used to manufacture its sauces, pastes, dressings and dips for food industry customers.

Food hygiene procedures require sugar and other granular ingredients to be decanted into food-quality plastic bags weighing 22 lbs., but previous methods proved complex and time consuming.

The Nottinghamshire, United Kingdom-based company now accomplishes the task in one-third less time with less labor by using an automated bulk bag weigh batching system with an integral flexible screw conveyor from Flexicon Europe.

In addition, the system helps Welcome Food Ingredients stay in compliance with ATEX requirements, which are the European Union standards governing atmospheres that are potentially explosive due to dusts, vapors or gases.

"With the old process, we received sugar on 1-ton pallets, comprised of forty 55-lb. bags," says Tony Swann, safety, health and environment manager for Welcome Food Ingredients. "We used a combination of vacu-lifters and manual handling in an eight-stage process to transfer the sugar into appropriately sized plastic bags before they could be loaded into the cookers. The new transfer system has reduced re-bagging to just three stages."

One-ton bulk bags are positioned alongside a Flexicon BULK-OUT BFC-S-X stainless steel bulk bag discharger, which has an integral cantilevered I-beam with an electric hoist and trolley. The bag straps attach to a cross-shaped lifting frame, and the hoist lifts the bag into position on the discharger frame. An ATEX-rated earth clamp is then attached to the bag.

The operator attaches the clean side of the bag spout to the clean side of the discharger by means of a SPOUT-LOCK clamp ring, which is mounted atop a TELE-TUBE telescoping tube that maintains constant downward tension on the bag as it empties and elongates, promoting material flow into the 3.9-cu.-ft. hopper.

From the hopper, a 10-ft.-long, 4.5-in. diameter flexible screw conveyor transports sugar to a 1.4-cu.-ft. capacity conical stainless steel weigh hopper resting on three load cells.

A gain-in-weight control system meters sugar into the weigh hopper at the maximum feed rate. The load cells transmit weight gain information to the controller, which steps down the feed rate to a trickle and stops the conveyor immediately before reaching the target weight to compensate for material in flight.

Weighments of sugar are discharged dust free through a slide gate and downspout into a 22-lb. capacity blue plastic bag that is clamped beneath the weigh hopper. Once filled, the bag is manually tied off and placed in a plastic storage stillage. The weighing and filling cycle is repeated for subsequent bags.

"The bulk bag discharger and filling system has simplified and improved what was a complex, multi-stage handling process," explains Swann. "Each week, we typically re-bag around 30 tons of sugar, sometimes operating for 20 hours per day. With our old method, we were handling the equivalent of 100 tons of sugar per week.

"Our staff disliked having to manually handle 55-lb. bags and are now more comfortable with packing 22-lb. bags using the new equipment. It also offers benefits for the future, as it can be extended if required. Additional items of equipment like sieves can be incorporated if our customers request their use," he says.

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