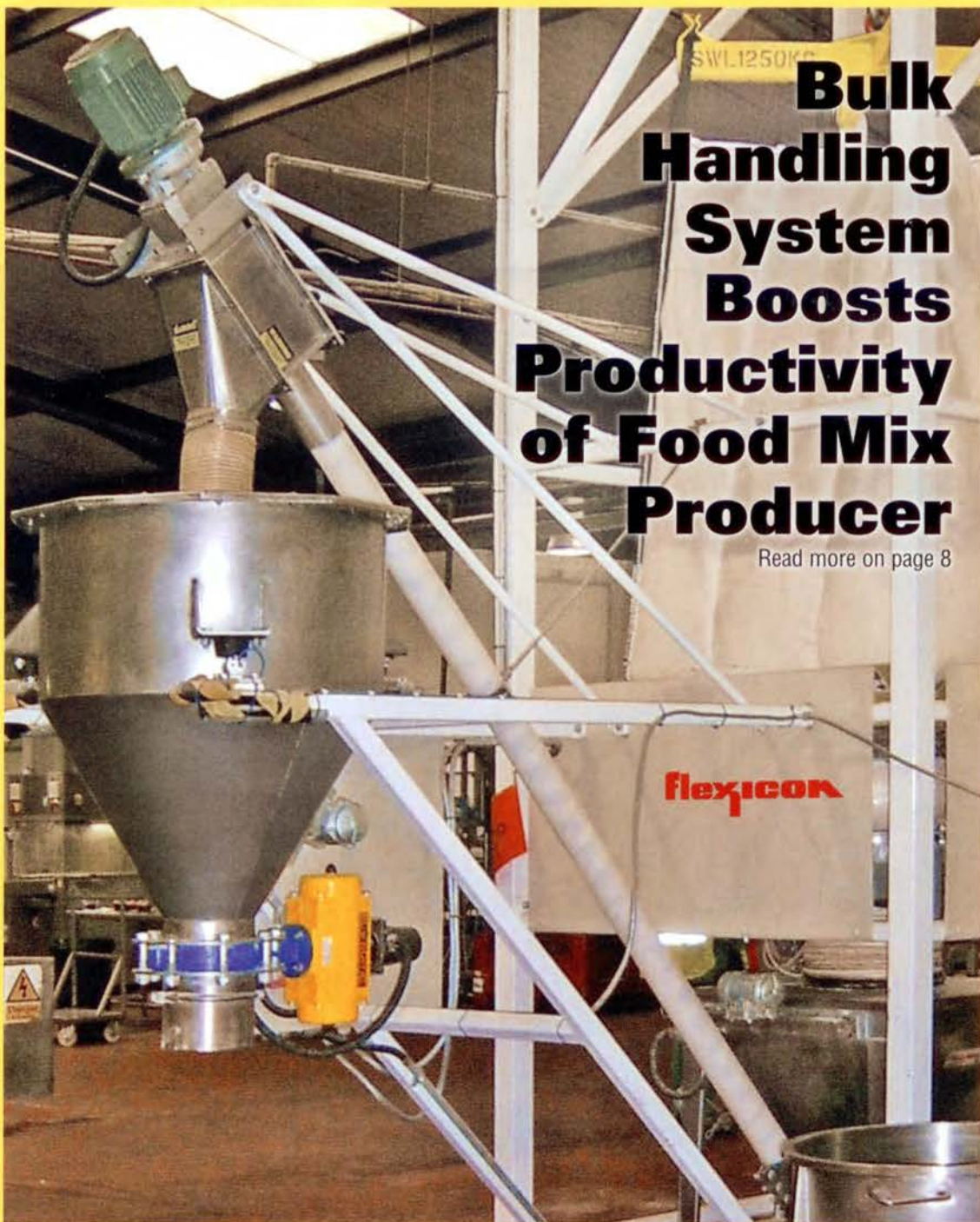


POWDER BULK SOLIDS

The Source for Dry Processing and Bulk Handling Technology



Bulk Handling System Boosts Productivity of Food Mix Producer

Read more on page 8

Specifying Weighing Systems

Specifying a weighing system is complex and involves consideration of several factors, including the required range, level of tolerable uncertainty in the results, etc.

Read more on page 6



Bagging/Packaging Spotlight

Taylor Products' V2200 heavy-duty vertical form-fill-seal machine can handle any product requiring laminate film structures and polyethylene films.

Read more on page 18



Weighing Focus

This minor/micro ingredient system from Prater-Sterling maintains accuracy regardless of supply bin capacity or the number of automated ingredients.

Read more on page 35



Weight Display

The compact and powerful RD-1550 combines more features and more benefits for a smarter approach to communicating weight values. This IP69K-rated device with large 1½-in. display is viewable at up to 50 ft, indoors or out. Its five-button keypad makes this remote display an economical approach to putting basic indicator function in a secondary location. The water-tight unit is daisy chainable and usable with a wide selection of peripheral equipment.

Rice Lake Weighing Systems, Rice Lake, WI
715-434-5168 www.ricelake.com/laserlt



Rotary Scalpel

The BatchHouse Rotary Scalpel offers a new level of precision in dispensing small increments of material into a batch or package. With the precision of a surgeon's scalpel, it can deliver +/- 0.5 g, independent of batch size. The

Rotary Scalpel technology can be utilized to handle a variety of materials, even fines such as flour. The patent-pending technology utilizes two innovative key components: a large inlet specially designed to insure consistent material flow into a rotary feed drum; and a pneumatic "scalpel." Upon receipt of a set-point weight, the pneumatic scalpel will smoothly "knife off" from a filled vane of the rotary feed drum the precise amount of material needed to complete a batch or fill a container. Unneeded material remaining in the same vane is recycled back to the material source, eliminating all waste.

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Bulk Handling System Boosts Productivity of Food Mix Producer

By optimizing its product flow, weigh batching, and mix handling systems, Dawn Food Products Inc.'s Evesham, U.K., facility decreased the time and labor needed to handle food mixes while containing dust.

Dawn is one of the world's largest producers of food bases, mixes, fillings, toppings, and flavorings that are sold to industrial bakeries and used within Dawn's facilities to bake privately-labeled cookies, cakes, donuts, muffins, and other food products.

The company originally packaged its mixes in 55-lb bags. By switching to a bulk bag materials handling system, it reduced personnel from seven to four, while speeding production and improving plant safety.

A bulk bag weigh batching system conveys dry ingredients from bulk bag to a gain-in-weight hopper that discharges into mobile wet mixing vessels.



Emptying Small Bags Was Labor Intensive

Dawn's ingredients go through a dry, then a wet mixing process. Originally, after the dry mixing process, operators were manually emptying the 55-lb bags of dry mix to the wet mixing line and final baking. A typical 1.1-tn batch of dry mix filled 40 bags. The bags were sent to one of three destinations: Evesham's in-house bakery to make baked goods; a sister plant in The Netherlands to make baked goods; or to commercial bakeries.

Emptying the 55-lb bags into the 331-lb-capacity wet mixing vessels was time consuming and labor intensive. Each bag had to be handled and split separately. In addition, the fine dust created by manually opening and emptying bags was difficult to contain. Furthermore, Evesham's Dutch sister plant preferred to receive mixes in bulk bags.

Shifting From Small Bags to Bulk Bags

The company invested in a new bulk solids handling system, including a sanitary stainless steel bulk bag discharger, weigh batching system, and flexible screw conveyor, from Flexicon (Europe) Ltd.

Flexicon conducted trials at its test laboratory in Herne Bay, UK, to evaluate the performance characteristics of muffin powder and chocolate powder mixes, which have bulk densities of 41 and 35 lb/cu ft, respectively. Both were semi-free-flowing, having angles of repose between 45 and 60 degrees.

With the new system, a dedicated tote bin is filled from either of the two dry mixers and transferred to a loading frame above a 1.1-tn bulk bag. The bin's contents are discharged into bulk bags, which are used internally to feed the wet mixing line, or shipped to the Netherlands sister plant. Dawn Foods continues to package a portion of its output in 55-lb bags per the original procedure to sell to commercial bakeries.

Bulk Bag Unloader Automates Flow

Filled bulk bags intended for the wet mixing line are placed on the plant floor in front of the Flexicon Model BFC bulk bag discharger, which is equipped with a cantilevered I-beam and electric hoist and trolley that raise and position the bag.

A manual Spout-Lock clamp ring that sits atop a pneumatically actuated Tele-Tube telescoping tube allows secure, dust-tight connections to the bag spout, and maintains constant downward tension on the spout, elongating the bag as it empties to promote flow.



The Spout-Lock clamp ring and Tele-Tube telescoping tube create a fast, dust-tight connection between the bag spout and receiving hopper.

Dual, pneumatically actuated Flow-Flexer flow promotion devices raise and lower opposite bottom edges of the bag into a steep V shape to direct material towards the outlet spout and promote total evacuation.

The bag discharges into a 5.3-cu ft receiving hopper with a low level sensor that signals the controller to stop the conveyor when the hopper nears empty.

A 10-ft-long flexible screw conveyor moves material from the surge hopper to a 5.6-cu-ft weigh hopper mounted on load cells, first at high speed, then at a dribble feed rate, stopping once the accurate batch weight has been gained.

The controller then actuates an 8-in. pneumatic butterfly valve, discharging the mixture into one of the wet mixing vessels, which blends it with water. The wet mix is then discharged into a depositor that applies the dough to



A control system with full function weighing indicator starts and stops the conveyor and actuates a slide gate.

trays for in-house baking. Dawn ships the muffins, chocolate cakes, cookies, and other finished products to such well-known customers as McDonalds and J. S. Sainsbury.

The switch from manual dumping of 55-lb bags to automated

handling of 1.1-ton bulk bags improved speed and efficiency, reduced the number of workers needed and improved safety, while eliminating dusting and improving product quality.

Flexicon Corp. (Bethlehem, PA) designs and manufactures bulk

handling equipment and custom-engineered and integrated plant-wide systems that transport, discharge, fill, weigh, blend, deliver, and/or feed a broad range of powder and bulk solid materials. For more information, visit www.flexicon.com

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