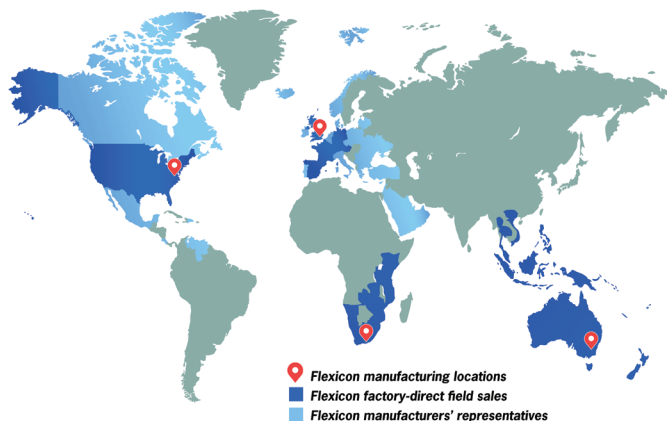




In the main processing room, two 15 ft (4.6 m) flexible screw conveyors transport raw products to the roasters from two bulk bag dischargers.

Nut Butter Output Increases Five-Fold With Bulk Bag Unloaders, Flexible Screw Conveyors

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Nut Butter Output Increases Five-Fold With Bulk Bag Unloaders, Flexible Screw Conveyors

ASHLAND, OR — MaraNatha Nut Butters was founded in 1982 in Ashland, Oregon, when the husband and wife team of Robert and Chris Plotnik began delivering dried fruit from the California Central Valley to natural food stores in Oregon and Washington. As the distribution company grew, the family began producing their own specialty peanut and nut butters under the MaraNatha label. As the line grew in popularity, the Plotniks concentrated on manufacturing nut butters. Today, MaraNatha is a leading manufacturer of organic and natural nut and seed butters.

As demand for the all-natural almond, peanut, cashew and macadamia and sesame tahini butters escalated, the company boosted output by increasing production rates and, as importantly, by reducing downtime between batches.

Limitations of the existing system

The company was using bucket-style conveyors to move peanuts, almonds, cashews and sesame seeds to various production areas throughout the plant. Using this equipment had two drawbacks: it was time consuming to clean and was too slow to meet demand. “We were filling only 20 to 30 jars per minute with the bucket-style conveyors,” says the company’s operations manager. “And, they required two hours to clean between production runs because there were hundreds of buckets attached to a chain, all of which had to be disassembled and cleaned between products. The need to reduce sanitation time and get more pounds per hour out of the equipment necessitated installation of an entirely new bulk handling system.

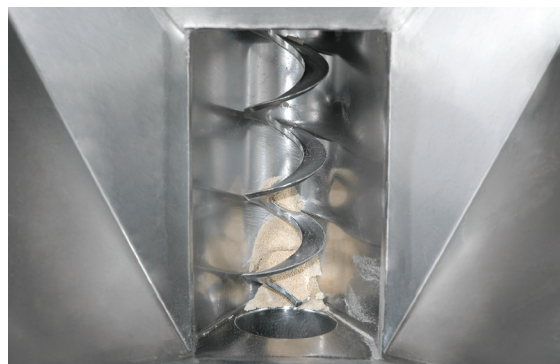
“Because everything we manufacture is a Class 1 allergen, we need to be able to clean all direct-contact equipment as thoroughly, but swiftly as possible,” continues the operations manager. “We decided to go with a system of bulk bag unloaders and flexible screw conveyors from Flexicon because the flexible screw conveyors require less time to disassemble, clean, sanitize and reassemble between different product runs.”

Replacement equipment cuts downtime, boosts production

The installed system includes five model BFC bulk bag unloaders and flexible screw conveyors. Although each piece of equipment is not dedicated to a particular product, individual bulk bag unloaders are associated with a flexible screw conveyor that transports work in progress or raw materials to various rooms within the plant. Two 15 ft (4.6 m) long flexible screw conveyors featuring stainless steel tubes were installed in the roasting areas to convey raw products, such as nuts and sesame seeds, to the roasters. “We specified stainless steel in the roasting rooms instead of plastic because of the ambient heat,” the manager says.



In the roasting room, bulk bag discharger empties almonds into hopper as a flexible screw conveyor transports them to the roaster. A POWER-CINCHER® flow control valve cinches the bag spout concentrically, allowing leakproof retying of partially empty bags.



Roasted cashew pieces in hopper flow into the flexible screw conveyor's intake adapter, and are conveyed to the grinding process.

Three conveyors are used in other areas. One 15 ft (4.6 m) long unit feeds peanut, almond and other nut products to an industrial line, which processes materials and fills pail or barrels. Two others, 25 ft (7.5 m) long, convey raw product to the processing equipment, which processes the material into product that is eventually placed in jars for retail sale.

Sanitizing these conveyors has proven less time consuming. A removable clean-out cap at the intake end of the conveyor tube allows reversing of the screw to evacuate any residual material, removal of the flexible screw for sanitizing and flushing of the conveyor tube in 45 minutes, versus two hours for the bucket-style conveyors.

The flexible screw conveyors consist of a stainless steel spiral inside an enclosed tube driven by a washdown-duty motor located at the discharge end. MaraNatha specified other food-grade features including stainless steel hoppers and flexible screws. The manager says the simple design and operation of the equipment outperforms the bucket-style conveyors it replaced. "We're filling up to 150 jars per minute with the new system versus 20 to 30 jars with the old one."

The BFC unloaders in the MaraNatha facility are configured with cantilevered I-beams with electric hoists and trolleys for loading and unloading bulk bags without a forklift.

The two unloaders in the roasting rooms are equipped with SPOUT-LOCK® clamp rings that make an air-tight connection between the clean side of the bag spout and the clean side of the equipment, preventing contamination of the product and plant environment. The clamp rings are located at the top of TELE-TUBE® telescoping tubes that maintain constant downward tension of the bag spout to promote complete evacuation of the bag as it empties and elongates. Immediately above the clamp rings are pneumatically actuated POWER-CINCHER® flow control valves that cinch the bag spouts concentrically, allowing retying of partially empty bags with no leakage of the nut fines used in MaraNatha's operation.

The three unloaders in the production room utilize conventional iris valves instead of the clamp rings and telescoping tubes described above, because a sealed connection between the bag spout and the hopper is unnecessary. To operate, the bag outlet spout is pulled through the open iris valve, the valve is closed, the bag spout drawstring is untied, and the access door is closed. The valve is then opened slowly to prevent uncontrolled bursts of material into the hopper, reducing the escape of dust.

"We started in a 14,000 sq ft (1301 sq m) building and we now have 45,000 sq ft (4181 sq m) in three buildings, a warehouse in a neighboring town and a distribution center in Northern California," he says. "The new equipment helped us achieve this growth by allowing us to produce five times more product due to the ease of cleaning and more efficient performance."



Operator dumps cashews into hopper as flexible screw conveyor transports them to the grinding process.





A flexible screw conveyor discharges raw nuts through a transition adapter and downspout into the main process mill.



MaraNatha is a leading manufacturer of organic and natural nut and seed butters such as this No Stir Organic Peanut Butter.

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