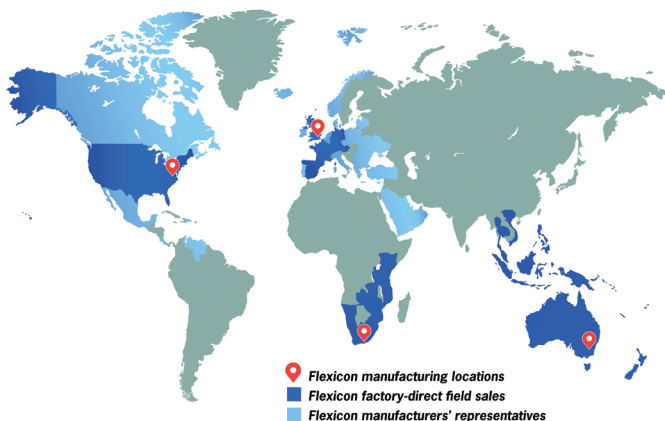




Bulk Bag Dischargers, Flexible Screw Conveyors Double Output at Peanut Butter Facility

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flexicon®

USA

FLEXICON CORPORATION
Tel: +1 610 814 2400
E-mail: sales@flexicon.com
Web: www.flexicon.com

UK

FLEXICON (EUROPE) LTD
Tel: +44 1227 374710
E-mail: sales@flexicon.co.uk
Web: www.flexicon.co.uk

AUSTRALIA

FLEXICON CORPORATION
(AUSTRALIA) PTY LTD
Tel: +61 7 3879 4180
E-mail: sales@flexicon.com.au
Web: www.flexicon.com.au

SOUTH AFRICA

FLEXICON AFRICA (PTY) LTD
Tel: +27 41 453 1871
E-mail: sales@flexicon.co.za
Web: www.flexicon.co.za

SPAIN

FLEXICON EUROPE SPAIN
Tel: +34 930 020 509
E-mail: ventas@flexicon.es
Web: www.flexicon.es

FRANCE

FLEXICON EUROPE SAS
Tel: +33 7 61 36 56 12
E-mail: ventes@flexicon.fr
Web: www.flexicon.fr

GERMANY

FLEXICON EUROPE GmbH
Tel: +49 173 900 78 76
E-mail: vertrieb@flexiconeurope.de
Web: www.flexicondeutschland.de

SINGAPORE

FLEXICON SINGAPORE PTE LTD
Tel: +65 6778 9225
E-mail: sales@flexicon.com.sg
Web: www.flexicon.com.sg

INDONESIA

FLEXICON SINGAPORE PTE LTD
Tel: +62 81 1103 2400
E-mail: sales@flexicon.co.id
Web: www.flexicon.co.id

Bulk Bag Dischargers, Flexible Screw Conveyors Double Output at Peanut Butter Facility

NUNDA, NY — Two bulk bag dischargers and five flexible screw conveyors have doubled peanut butter production capacity at Once Again Nut Butter's new 37,000 sq ft (3440 sq m) dedicated peanut butter facility. The discharger/conveyor system delivers up to 3500 lb/h (1590 kg/h) of raw peanuts to each of two roasters, for a total of 7000 lb/h (3175 kg/h). The new line offers dust-free operation and improves operator safety.

Since the new plant handles all of the company's peanut products, the older facility established in 2004 for all nut and seed products, will be able to operate peanut-free. Almond butter and other products made in a peanut-free facility appeal to customers concerned about peanut allergens, providing Once Again with a competitive advantage.

Feeding the new line are two Flexicon BULK-OUT® bulk bag dischargers positioned side-by-side. Both are "BFC" models equipped with a cantilevered I-beam, hoist, and trolley that lift and position the bag in the discharger frame without the need for a forklift. Five flexible screw conveyors, also from Flexicon, move the peanuts through successive steps of the process.

In the older plant, bulk bags containing peanuts were hoisted above the roaster and emptied directly into it. Compared to direct-emptying, "the bulk bag dischargers in the new plant are safer, automated, and improve ergonomics for the operators," says Peter Millen, process engineer at Once Again. The dischargers and conveyors enclose the peanuts, protecting them from contamination while preventing dust from escaping into the facility. Moreover, the new roaster is too tall to suspend a bulk bag above its infeed hopper.

Once Again installed the two bulk bag dischargers side by side, allowing one frame to discharge material while the other is reloaded, and to provide redundancy in the event one of the systems is offline.

The flexible screw conveyors transport the raw peanuts from the dischargers to a gravity separator and a de-stoner that remove foreign matter before the peanuts are discharged into a roaster, improving product quality over the direct-emptying method.

How raw peanuts are processed into peanut butter

Raw peanuts arrive in bulk bags weighing 2200 lb (1000 kg). The operator attaches the bag straps to the lifting frame, and actuates the electric hoist and trolley using a pendant to position the bag in the discharger frame.

The bag's outlet spout is pulled through an iris valve which closes around the spout, preventing material flow. The operator then unties the drawstring, closes the access door, and releases the valve slowly to



Side-by-side beam-and-hoist style bulk bag dischargers allow for one frame to discharge material while the other is reloaded.



From the hopper of each discharger, a flexible screw conveyor transports raw peanuts to the gravity separator.

prevent bursts of peanuts from displacing air and dust from the 5.5 cu ft (156 l) capacity hopper into the plant environment. A hinged lid on the hopper also permits manual dumping from hand-held sacks.

The dischargers are fitted with pneumatically actuated FLOW-FLEXER® bulk bag activators, which increasingly raise and lower opposite bottom edges of the bag into a V shape as it empties and lightens, promoting complete evacuation.

Flexible screw conveyors 20 ft (6.1 m) long transport peanuts from each of the discharger's hoppers at a 45 degree incline before discharging into a gravity separator, which removes any foreign material that is lighter and less dense than peanuts, such as twigs or peanut shell pieces.

From the gravity separator, a third flexible screw conveyor, this one 15 ft (4.6 m) long and inclined at 45 degrees, takes the peanuts to the de-stoner, which removes any material that is heavier and denser than the peanuts, such as pebbles or metal fragments.

Peanuts are then loaded into a silo by one 50 ft (15 m) long pneumatic conveying line, and unloaded from it by another 50 ft long pneumatic conveyor line that terminates at the roaster. Roasted peanuts then proceed via a 70 ft (21 m) long pneumatic conveyor line to a blancher, which removes the peanut skins. Another 70 ft long pneumatic conveyor delivers the blanched peanuts to two holding silos.

From each silo, a 15 ft (4.6 m) long flexible screw conveyor feeds peanuts to a roasted peanut transfer bin. From each transfer bin, a flexible screw conveyor transports peanuts to a 90 ft (27 m) long pneumatic conveyor line terminating at the final grinding phase of the process.

All of the flexible screw conveyor tubes measure 4.5 in. (114 mm) O.D. and house a flat-wire spiral of the same pitch tested to yield optimum efficiency. Each conveyor's drive motor rotating the screw is controlled by a variable frequency drive. The peanuts discharge from the conveyor below the point where the screw connects to the drive motor, preventing material contact with seals or bearings.

"For cleaning, the flexible screw is removed through a clean-out cap at the lower end of the conveyor tube, after which all components are blown down and/or vacuumed, and wiped clean with a surface sanitizer," says Millen.

Why the bulk handling system was specified

Millen says, "A bulk bag discharger and flexible screw conveyors from Flexicon have reliably handled sesame and sunflower seeds in the original plant for several years. The equipment was familiar to plant staff, so it made sense to bring that technology over to peanuts."

As part of specifying the unloading and conveying systems, the company's peanuts were run on full size equipment in the supplier's test laboratory. "This provided data on attributes such as density and flow characteristics in order to establish design parameters, including different angles for running the flexible screw conveyors and product feed rates," says Millen.



The motor sits forward of the flexible screw conveyor discharge, preventing material contact with seals or bearings.

Founded in 1976, Once Again Nut Butter is an employee-owned company that processes natural and organic products such as honey, sesame tahini, and butters made from peanuts, almonds, cashews, and sunflower seeds. Once Again provides these products to retail, private label, food service, industrial, and export customers.

Once Again Nut Butter Collective, Inc.

+1 585-468-2535

customerservice@oanb.com

www.onceagainnutbutter.com



Bales of hemp awaiting shipment to processors.



From each transfer bin, a flexible screw conveyor transports peanuts to a pneumatic conveyor line terminating at the final grinding phase of the process.



From each transfer bin, a flexible screw conveyor transports peanuts to a pneumatic conveyor line terminating at the final grinding phase of the process.





The hinged lid on the hopper permits manual inspection.



Once Again makes its peanut butters in a new, dedicated peanut butter facility.

flexicon®

USA

FLEXICON CORPORATION
Tel: +1 610 814 2400
E-mail: sales@flexicon.com
Web: www.flexicon.com