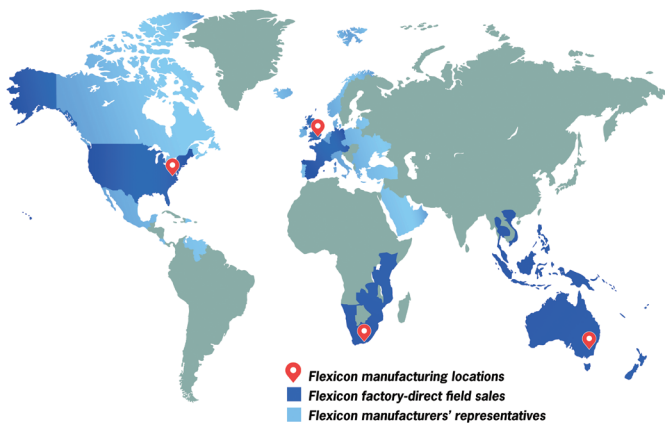




Globepak Produces 360+ Sports Nutrition Products on Seven Bulk Handling Lines

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CENTURION, SOUTH AFRICA — With the popularity of sports nutrition products booming in South Africa and beyond, Globepak (PTY) Ltd., a wholly-owned subsidiary of the USN Group of Companies, needed to keep pace with growing demand. However, the intermediate bulk containers and rigid auger conveyors at the company's former 4,000 m² (43,000 ft²) facility were unable to transfer mixtures from blenders to packaging machines at required rates. "They were starving the packaging lines," says Jose Da Costa, head of DC Weighing and Control (Germiston), the firm that engineered and built Globepak's new 14,000 m² (150,700 ft²) plant.

To handle the volume, Da Costa specified the bulk bag dischargers and flexible screw conveyors, comprising the Flexicon system. In addition, DC Weighing designed, manufactured and supplied the electrical control systems and provided full integration and production start-up support. The DC Weighing team provided a full turn-key installation solution to Globepak, which included mechanical and electrical installation, along-with integration into the plant production system.

Completed in 2021, the facility employs larger blenders and high-speed packaging machines, which are fed by a new automated bulk transfer system supplied by Flexicon Africa (PTY) Ltd.

Each of the plant's seven lines spans 15 m (49 ft) and relies on a Flexicon model BFC BULK-OUT[®] bulk bag discharger with a 250 L (8.83 ft³) capacity hopper and a 4.5 m (15.8 ft) long flexible screw conveyor to transfer mixed ingredients from bulk bags to packaging machines. "All are under automated control for continuous filling and accurate package weights," says Waldo van der Walt, Globepak General Manager.

'No-touch' process faster, easier

To prevent cross contamination, the bulk handling lines and their dedicated operators are separated from adjacent lines by a curtain. Each BFC bulk bag discharger is equipped with a cantilevered I-beam with electric hoist and trolley that suspends a bag lifting frame above the bag for connecting bag loops to Z-CLIP[™] bag strap holders at floor level. The operator then hoists the bag into the discharger frame using a hand-held pendant, eliminating the need for a forklift.

At the bag spout interface, the operator secures the clean side of the bag spout to the clean side of a SPOUT-LOCK[™] clamp ring positioned atop a TELE-TUBE[™] telescoping tube, which applies continual downward tension as the bag empties and elongates, directing material through the bag spout to completely discharge into the floor hopper below.



View from both ends of automated packaging line, with bulk bag discharger and packaging machine. It is one of seven identical lines.



Operators attach bag loops to the lifting frame with Z-CLIP[™] bag strap holders and hoist it into the discharger using a pendant.



The bag spout is attached to a SPOUT-LOCK[™] clamp ring atop a TELE-TUBE[™] telescoping tube which applies downward tension for complete discharge into the hopper.

From the hopper, the 4.5 m (15.8 ft) long BEV-CON™ flexible screw conveyor transfers material to the packaging line at a 45 degree incline. The conveyor's 90 mm (3.5 in.) diameter plastic tube houses a self-centring, flexible stainless steel screw, which is the only moving part contacting the material. The screw is driven beyond the point of discharge, preventing material contact with seals or bearings.

"We now have a no-touch process. The material remains completely sealed during the entire transfer from bulk bag to packaging machine, assuring no contamination up to the filling point," says van der Walt.

Feeding packaging lines without interruption

Low- and high-level sensors on each packaging machine surge hopper signal a PLC when to start and stop its respective flexible screw conveyor, allowing non-stop operation.

An alarm sounds when a bulk bag becomes empty, alerting the operator to load a full bag and press 'restart'. "The flow to the packaging lines is continuous, with consistently accurate package weights," says van der Walt.

The system handles USN's line of 360 different products — mostly whey protein based — whose characteristics range from sticky to free-flowing to fine and dusty. "The BEV-CON spiral design accommodates all of the materials very well," says Da Costa.

15 Minute changeovers

Cleaning and product changeovers proceed smoothly. In 15 minutes, an operator can clean the conveyor tube and spiral and load a new bulk bag with a different flavour. "GlobePak can run chocolate powder, for example, and then quickly switch to strawberry flavour, with no issues," Da Costa says. To clean, the operator opens the conveyor tube end cap, pulls out the spiral, and blows it off with compressed air. "No product sticks to the tubes," he says.

The cleanliness of the bulk handling system and its operation complies with Good Manufacturing Practices, meeting pharmaceutical specifications, as nutritional supplements in South Africa are recognised as pharmaceuticals.

Expanding markets and production capacity

With their diverse range of products and newfound production capacity, USN are eyeing additional European, UK and US markets, and looking at launching a plant in Kenya to service central and west Africa.

Da Costa adds that Globepak has seen "massive improvements" with the bulk handling system, all the while keeping running costs low and conserving floor space — and with ample capacity to accommodate future growth. "The packaging machines are never hungry."



Operator initiates a bulk transfer cycle. PLC control provides for continuous filling and accurate package weights.



From the discharger's floor hopper, the flexible screw conveyor transfers mixed ingredients to the packaging machine hopper and packaging line. Material remains fully enclosed, preventing contamination.

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The flexible screw conveyor's drive is located beyond the point of discharge, preventing material contact with seals or bearings.



Material transferred by the bulk handling system.



Creatine Transport is one of USN's diverse products manufactured in the Centurion plant, ranging from amino acids, whey protein, plant-based proteins, and creatine.

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