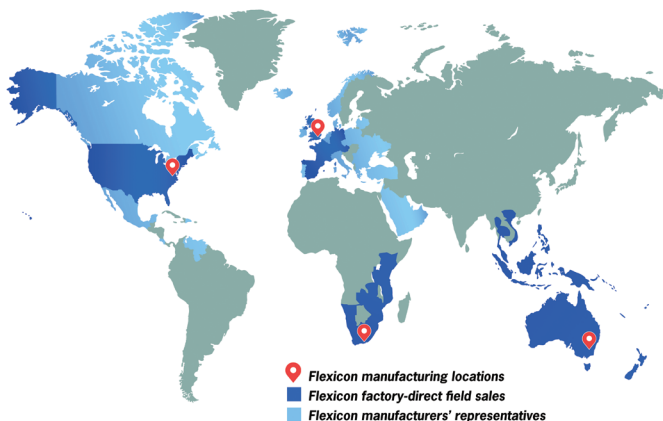


# FLEXICON CASE STUDY



*Polymer resins are safely conveyed and accurately dispensed into kegs, boxes or bulk bags using this self-contained Flexicon Automated Filling Station*

## Flexible Screw Conveyor and Bulk Bag/Drum Filler Maximize Packaging Efficiency for Chemical Producer



📍 Flexicon manufacturing locations  
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## Flexible Screw Conveyor and Bulk Bag/Drum Filler Maximize Packaging Efficiency for Chemical Producer

When Hodgson Chemicals sought a flexible and reliable conveyor system, adaptable to filling bulk bags, kegs and boxes, it turned to Flexicon for an efficient solution.

Increased productivity, greater accuracy and improved working conditions are among the benefits provided by Flexicon's automated convey/filling station, chosen for packaging the range of high value, polymer resin formulations produced by the Hodgson Chemicals Ltd. at the Flemingate site, Beverley, East Yorkshire, part of the performance chemicals division of the international BTP plc group.

Flexicon's involvement with the powder handling at Hodgson Chemicals' Beverley plant dates back to 1996 when the first of a series of flexible, spiral conveyors were installed to transfer product between the various stages of drying.

The latest bulk packaging contract required Flexicon to design a system capable of accepting polymer powders directly from the process finishing dryer and elevating it from a surge hopper to the weigh/filler. Material is safely elevated from the hopper and delivered, without damage to the bulk bag filling station via a Flexicon flexible screw conveyor, which features a self-centreing action as it rotates in the tube.

Materials such as polymer resins used in the manufacture of textile coatings, personal care products and adhesives, have a critical bead size. It is therefore, vitally important to the quality control of the finished product that no damage occurs during transfer by the conveyor.

The proven integrity of Flexicon flexible screw conveyors was chosen by Hodgson Chemicals because of the particular advantages offered by this simple, low maintenance technique for the gentle handling and controlled delivery of powders. The totally enclosed design of the UHMW polyethylene conveyor tube has helped to ensure that the dust emission is well within the Environmental Protection Act guidelines governing the handling of powders.

The rugged inner spiral is the only moving part in contact with product and is easily removed by staff for thorough cleaning at the end of a production campaign.

Reliability of operation was also a key factor in deciding on a mechanically based filling method. The plant operates 7-days a week on 12 hour shifts. The demand was for a packaging system to work continuously with minimal downtime between offloading full bags, boxes or kegs by fork lift truck.

"This higher level of flexibility has helped us to increase output and reduce costs, while maintaining product quality" says Ian Hogan, Site Engineer for Hodgson Chemicals, Flemingate Site.



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He added that the automated filling process has enabled the Company to comply with EU safety directives. At the same time, it has provided a beneficial result in releasing staff from the previous task of manhandling awkward and heavy loads, allowing them to perform more productive duties.

Of paramount importance, the system has provided a higher level of weighing accuracy than was previously possible with manually controlled filling. A simple push of the button initiates each automatic filling sequence. Pre-determined weights are selected by the operator, depending on the type of packaging requirement per batch. Products are filled into 800kg and 600kg bulk bags. The machine also accommodates 4 x 150kg kegs and 400kg boxes, which are filled using an adapter. This is manually connected beneath the filler spout when required.

The self-contained weigh/filling frame is mounted on four Toledo load cells, which work in combination with a single PLC based control package. The controller is suited for all filling applications and features a gain-in-weight totalling display. All weigh data can be communicated to a printer or central management control system.

To maximise product compaction the support platform is equipped with vibrators that automatically operate throughout the fill cycle. An inflatable neck seal ensures a dust tight bag connection and a pre-filling bag inflation system enables a positive bag shape and correct positioning on the pallet.

The system employs a pneumatic valve on the filling head that works in combination with the controller. This signals the conveyor feed to reduce speed at a pre-programmed weight. The valve is activated to reduce product flow gradually, before closing at the end of each weigh cycle. This final, accurate trickle feed technique avoids overfilling of the product.

Even with the bag changeovers, the operator requires no assistance. Re-setting the height when switching from one bag size to another is a simple matter of turning a handle that raises or lowers the bag support frame and integral head. Pneumatic, retractable bag loop supports simplify the placement and removal of the bags. The simultaneous release or locking action is activated by push-button control.

According to Hodgson Chemicals, the system has satisfied target performance standards on all counts, resulting in significant improvements to reliability and accuracy of the packaging process. The Company has expressed satisfaction also with the technical support and after sales back-up provided by Flexicon.



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