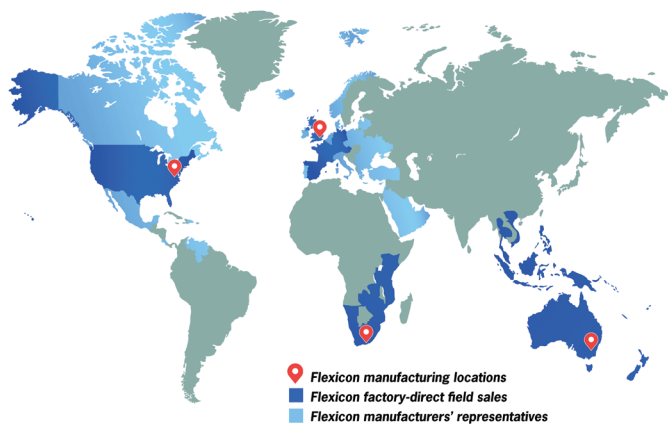




Flexicon (Europe) Ltd. designed and installed two Bulk Discharge Handling Systems at cookie maker Simmens of Edinburgh Ltd. One is for medium-grain oatmeal (left), the other for fine-grain oatmeal.

Bulk Handling System Gives Baker Big Gains in Productivity and Economy

R-0167



📍 Flexicon manufacturing locations
■ Flexicon factory-direct field sales
■ Flexicon manufacturers' representatives

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 Handling System Gives Baker Big Gains in Productivity and Economy

EDINBURGH, UK — When Simmers of Edinburgh Ltd., a specialty cookie maker, set out to modernize its process plant, the company looked for ways to improve the handling of bulk oatmeal bags used in preparing several brands of cookies. The goal was to automate the process as much as possible and convert operations to bulk load quantities of 1-tonne (2204-lb) from the 35-kg (77-lb) bags that were manually handled throughout the plant.

Simmers processes three grades of oatmeal — pinhead, medium, and fine grain — in its 2232-sq-m (24,000-sq-ft) Edinburgh plant. Each grade was delivered in 35-kg (77-lb) bags. Workers would transfer the bags from incoming pallets to plastic pallets, loading each with up to 20 bags. The palletized bags would be moved about 30-m (100-ft) through the warehouse to a processing station. Eight-bag batches of different grain combinations were then split open by tear tabs and manually emptied into an 800-mm-high (31-in) vessel for mixing with other ingredients.

Manual handling of bulk bags was inefficient and costly

The operation had numerous drawbacks. These included dust emissions, which raised worker-health issues, product loss due to spillage and bag residue, and quality-control problems stemming from manual emptying of the bags into the mixer. There was also the expense of purchasing oatmeal in 35-kg (77-lb) bags versus larger sizes, and disposal costs for many tens of thousands of empty bags annually. In addition, legislation was pending that would limit the weight of bags handled by workers to 25-kg (55-lb), thus raising the possibility of Simmers having to order oatmeal in even smaller and costlier quantities.

The solution Flexicon developed was simple and efficient. The company designed and installed a Bulk Bag Discharge System that handles 1-tonne (2204-lb) bags of medium-grain oatmeal. This grade was selected because it is the type most commonly used in mixing by Simmers. The Bulk Bag Discharge System has six components: a bulk-bag frame mounted on four load cells; cantilevered I-beam with electric hoist and trolley; 200-L (7-cu-ft) hopper; 7-m-long (23-ft) flexible screw conveyor, powered by a 1.5-kw (2-hp) motor; and a loss-in-weight control panel.

All food-contact parts were fabricated of high-grade stainless steel or, in the case of the conveyor tube, ultra-high-molecular-weight polyethylene. Both materials meet local food-safety regulations. Due to space limitations, the Bulk Bag Discharge System was installed in the warehouse, separated from the factory by a wall.

Transporting and mixing the oatmeal is more efficient and accurate with Flexicon's Bulk Bag Discharge System. A 1-tonne (2204-lb) bag is transported to the discharge station on a pallet jack. With the hoist and trolley, the operator positions the bulk bag above the hopper. An iris valve restricts product flow while the operator unties the bulk bag discharge spout. Once the bag is untied, the iris valve is opened and oatmeal flows into the hopper.



Flexicon added a 7 m long (23 ft) flexible screw conveyor to transfer oatmeal from the discharge station to the mixing area.



The flexible screw conveyors from both Bulk Discharge Handling Systems run parallel into the mixing station.

A low level sensor in the hopper automatically alerts an operator when more oatmeal needs to be loaded.

From the hopper, material is gravity-fed into the throat of the flexible screw conveyor. The self-centering screw conveys the material at a 15-degree upward angle through the wall separating the warehouse from the factory. The loss-in-weight function provided by the Flexicon control panel automates the operation of the flexible screw conveyor, delivering most of the required batch at high speed and slowing the conveyor speed to a trickle near the end of the batch to achieve high accuracy. At the end of the conveyor, on the opposite side of the wall, oatmeal is gravity-fed through a transition adapter to the mixing vessel in the process area. Flexicon installed start/stop controls at the discharge station and at the end of the conveyor in the process area for maximum safety.

Bulk discharge system improves product handling and quality control

Flexicon's Bulk Bag Discharge System was an unqualified success for Simmers. Dust emissions have been substantially reduced; manual operations have been minimized; quality control has improved due to the system's automated metering function; greater economies of scale were achieved by purchasing medium-grain oatmeal in 1-tonne (2204-lb) bags; and bag-disposal costs have significantly decreased.

The system worked so well that Simmers had Flexicon design and install a second unit, for pinhead-grain oatmeal. Spurring this move was passage of the legislation that reduced the weight of bags workers manually carry to 25-kg (55-lb), which would have meant ordering and disposing of more smaller bags.

The second bulk bag discharge system, installed next to the first, discharges into a smaller 80-L (2.8-cu-ft) hopper. A 2.9-m-long (9.5-ft) flexible screw conveyor runs laterally from the discharge station to clear an obstructing silo in the factory area, then transfers material at a right angle to a second flexible screw conveyor, 7-m (23-ft) long, which penetrates the wall to the factory area where the pinhead-grain oatmeal gravity-feeds through a transition adapter into the mixing vessel. As with the original system, start/stop controls were installed at the discharge and mixing stations.

The Bulk Bag Discharge System that Flexicon engineered for the pinhead-grain oatmeal achieved all of the benefits of the first, including notable advantages in cleanliness, production efficiency, quality control and economies of scale. Together, these systems permit Simmers to eliminate the disposal cost of some 89,000 paper bags annually.



USA

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