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We have built up valuable experience and rock-solid relationships with our clients over the years and have a very good understanding of what our clients' requirements are. We assist clients with their networks and manage and grow the network according to each client's needs. We offer professional, affordable service and advice to assist clients with their IT infrastructure.

**DUST-FREE TRANSFER OF POWDERED FOODS**

Atchison Topka improved the efficiency of its British operations by consolidating multiple food distribution centres into a single facility that transfers powdered food ingredients from bulk bags into tanker trucks.

The plant's new closed-loop bulk transfer system consists of a bulk bag discharger integrated with pneumatic conveying equipment that blows bulk material into the trucks, while recirculating displaced air and recovering dust from the airstream.

While the facility would be handling a variety of food ingredients, analysis showed that most exhibited bulk densities of approximately 650 kg per cubic metre. Most were free- or semi-free flowing, with an angle of repose of 40-60°. One of the ingredients, however, was relatively hygroscopic and prone to bridging, so the equipment needed to prevent caviation.

At the heart of the bulk transfer system (manufactured by Flexicon) is a Model BFC bulk bag discharger configured with a cantilevered L-beam, electric hoist and trolley, flow promotion devices, and a hopper equipped with a rotary airlock valve. The dilute-phase pneumatic conveying portion of the system consists of a positive displacement pressure blower, pneumatic conveying line and a filter receiver located downstream from the bulk tanker truck. Automated controls orchestrate operation of the flow promotion devices, rotary airlock valves, blower and filter receiver. All material contact surfaces throughout the system are of 304 stainless steel, finished to food standards.

**How it works**

To start the process, a forklift or pallet jack is used to place a bulk bag in front of the discharge frame, where an operator attaches four bag loops to clips on the unit's bag-lifting frame and, using a pendant, activates the hoist to raise the bag, and the trolley to move it into the frame, after which it is lowered onto the spout connection point.

A Spout-Lock™ clamp ring, which is mounted on a Tele-Tube™ telescoping tube, securely connects the clean side of the bag spout to the clean side of the equipment, after which the telescoping tube exerts continuous downward tension onto the bag spout. The operator then releases the bag spout's drawstring, allowing material to fall freely into the hopper with no dusting.

Flow Flexer™ plates raise opposite bottom edges of the bag into a steep V shape, loosening compacted material, while constant downward tension exerted by the telescoping tube as the bag empties/elongates promotes complete discharge from the bag.

Material in the hopper is fed through a rotary airlock valve and pneumatic pickup adapter into a pneumatic line that runs horizontally for one metre and at an incline before penetrating the exterior wall of the building to discharge material into a tanker trailer.

A return line vents displaced air and dust to the filter receiver, which collects any carry-over material.

The design of the bag-to-truck solution uses modular components, allowing the distributor to repurpose its process for other applications, such as transferring powders from trailers to bulk bags, or new materials with varied handling characteristics. The dust-tight bulk bag discharger with enclosed pneumatic conveying prevented contamination of the product and plant environment, eliminated the need for a clean room, and simplified quality control procedures.

The Droitwich facility builds on the distributors 20-year record for clean, safe handling of food materials and maintaining rigorous standards for public health and safety.

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