

A U S T R A L I A N

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Bulk bag conditioner ends blockages

Personal products manufacturer Fillcare Ltd, of Pontyclun in the UK, was unable to discharge a waxy, non-flowing material from bulk bags, a problem it solved by installing a bulk bag conditioner.

A subsidiary of France's Fareva, Fillcare is a formulator and packager of cosmetics, pharmaceuticals, food, and home care products. Its Pontyclun plant in Wales is a third-party manufacturer of shampoos, hair conditioners and skincare products.

The company had installed a bulk handling system consisting of a bulk bag discharger with a pneumatic vacuum system to transfer materials to a mixer. Compared with its previous method of dumping of 25 kg bags manually, the semi-automated system promised to reduce raw material and labour costs while improving quality.



Block-Buster bulk bag conditioner loosens non-free-flowing, waxy material that caused blockages and downtime.

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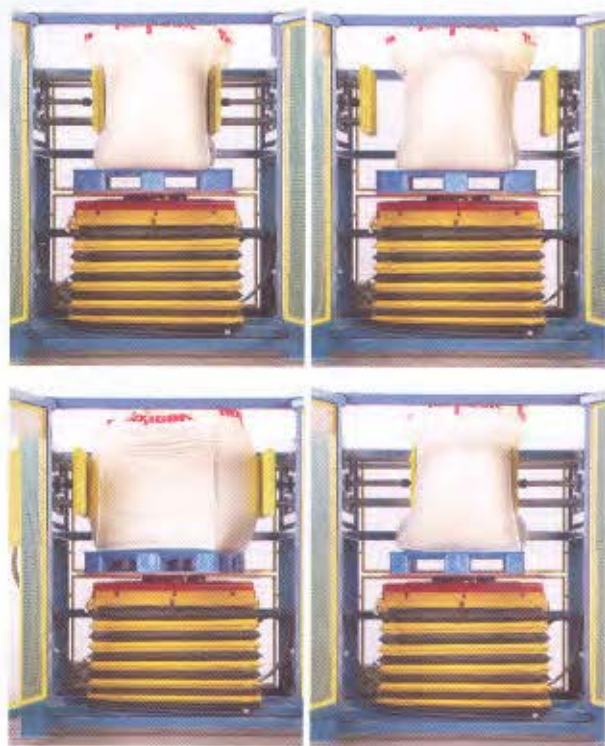
The system performed as expected with one exception: a fatty alcohol in the form of wax flakes could not be discharged consistently from the bulk bags in which it was received.

The flakes have a minimum angle of repose of 60 degrees, and soften at room temperature, forming clumps. During shipping and storage in bulk bags they also pack, cake and solidify. As a result, the pneumatic flow promotion devices integral to Fillcare's bulk bag discharger proved unable to loosen the material, prevent bridging, or otherwise cause it to flow consistently through the bulk bag spout into a surge hopper. Additionally, the material would not flow consistently into the hopper and rotary airlock valve and into the pneumatic conveyor.

Workers were frequently required to stop production in order to manually dislodge blockages at the bag discharge spout, negating a portion of the new system's intended benefits.



Hydraulic conditioning plates on opposing sides of the bag loosen the material.



The number and pressure of hydraulic ram actuations, the height of the turntable, and the number of 90-degree rotations are adjustable, allowing the user to maximise efficiency according to material characteristics.

Conditioner breaks bottlenecks

Fillcare solved its material flow problem by installing a Block-Buster bulk bag conditioner manufactured by Flexicon (Europe) Ltd. The equipment consists of a robust, freestanding frame equipped with two hydraulic rams, and a platform that raises, lowers and rotates.

Located in the warehouse where palletised bulk bags are stored, the conditioner is equipped with a four-sided safety cage with interlocks preventing operation when the doors are open. The system controller and hydraulic pump, which are mounted on the exterior of the safety cage, required one electrical connection for operation.

When the process calls for a bulk bag containing the waxy ingredient, plant personnel forklift it onto the platform of the bulk bag conditioner.

The platform raises the bulk bag hydraulically to a user-selected height before contoured conditioning plates on the hydraulic rams press opposing sides of the bag, loosening the material.

The turntable then rotates 90 degrees allowing the rams to press the adjacent sides of the bag. The controller enables operators to set ram pressure, number of pressing cycles, turntable height, and the number of 90 degree rotations to ensure that all bag contents are sufficiently loosened to flow from the bag.

Conditioned bulk bags are transferred from the bulk bag conditioner directly to an adjacent area of the plant where they are loaded into the bulk bag discharger. With the waxy material fully conditioned, the pneumatic flow promotion devices of the bulk bag discharger are now effective at raising and lowering opposite bottom sides of the bag into a V shape, directing material through the bag spout and promoting complete discharge from the bag, while ensuring the flow of material into the conveyor inlet, with little or no manual intervention.

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