

Bulk Bag Fillers And Dischargers: Selecting The Right System For Your Application

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The worldwide acceptance of bulk bags has resulted in tremendous changes in bulk material handling practices. In some instances, even the pharmaceutical industry now uses bulk bags to replace rigid Intermediate Bulk Containers since their associated filling and discharge systems offer them proven advances in a hygienic and “high containment” operation. Bulk bags also eliminate the need for cleaning and re-validation procedures.

Bulk Bag Discharging

There are a number of companies who offer Bulk Bag Dischargers as an accessory for other equipment. Quite often, their product and experience reflects this! Given the potential for problems with all but the freest flowing of materials, it is essential to select a supplier for whom Bulk Bag Dischargers are a key product line. Spiroflow Systems has more than 35 years of materials handling expertise and is among

those setting the standards in high containment bulk bag delivery systems.

High Hygiene Clamping Device

Loose liners in bulk bags can pose problems for processors and can be the cause of dust and spillage during both discharge and disposal when the bag is empty. Spiroflow offers a liner spout clamping system that assures total containment of the bag contents. A two-way process, containment prevents exposure of the operator and the environment to hazardous products and conversely ensures that neither the operator nor the environment contaminate the product.

The new clamping device only requires a spout length of 19 in. (475mm). This makes it easy for the operator to manipulate the spout into the clamping system. The clamp is operated either pneumatically or manually. The clamp may also be used for unlined bulk bags, clamping directly to the bag spout.

The hygiene spout is housed within a containment enclosure usually connected to a filtration system. Access to the hygiene clamp is through large double doors or a glove compartment, depending on the hazard level. The containment enclosure may be fitted with an integral "safe change" HEPA filter.

During discharge, the bag and liner are kept in tension to promote a smooth flow of product and to ensure the bag is totally emptied. Tensioning also prevents distension of the bag and/or liner and avoids it becoming entangled with moving parts of the downstream process or integral conveyor below.

Integral Liner Clamping System

Another recent innovation is that some bulk bag manufacturers are offering bags with an integral liner clamping system. Spiroflow, for example, as an option in their sanitary model includes a provision to accommodate such clamping systems. This is another example of the ever-increasing armoury of "total containment" developments for those involved in the discharge of hazardous or sensitive materials from bulk bags. The system is designed for bulk bags with formed liners and is ideal for dairy, food, fine chemical and pharmaceutical applications where high degrees of containment are essential.

A liner clamping system typically includes a docking seal comprising of two interlocking rings secured to the liner spout - usually custom fitted by the bulk bag manufacturer. When ready to empty, the bulk bag is lifted onto the discharge station and the liner, with the docking seal pulled down and mated with a special docking unit by way of a clamp. The bag can then be untied and the product released in a dust tight manner with no contamination of the product, the operator or the environment.

Looplifter®

Looplifter® holds the loops open of any bulk bag allowing the forklift operator to handle the FIBC without either leaving the seat or seeking any external assistance.

Looplifter® allows the loops to be “squashed” downward when further bags are stacked on top. Even after lengthy compression, the loops always return to a fully open position.

Quick Disassembly Bulk Bag Discharger

In response to the pharmaceutical industry in particular but, equally well suited for dairy and some food applications, Spiroflow has introduced an all-new Bulk Bag Discharger. This Discharger is well suited for critical applications where hygiene and/or rapid dismantling without tools are essential to avoid microbiological growth and/or cross-contamination between batches.

Other Developments

Bulk Bag manufacturers are now offering bags with side tunnels instead of loops. Side tunnels are in fact rolled-over extensions of the side panels. These also make it easier for lift truck operators to pick up a bag without manual assistance.

Another development, Pallet-Less bulk bags, is one of several innovations that make the need for separate pallets a thing of the past. Not only do Pallet-Less bulk bags include integral forklift locations that contribute to overall hygiene, they free up more space for the product that is particularly important when loading bulk bags into ISO containers.

Recent Developments in Bulk Bag Filling

Perfectly upright and stable bulk bags can now be filled to the required weight in less than one minute. A minute is also about the time it takes to rig a new bag into position and to remove a filled bag at the end of the cycle. This typically equates to a filling rate of around 20 bags an hour. This all happens dust-free and without spillage. Upright and stable bags are essential if the bags are to be stacked, transported by highway or loaded into shipping containers at a port.

A typical Bulk Bag Filler includes many of the latest state of the art developments. For example, new bag fillers such as those from Spiroflow are furnished with programmable controllers designed to increase filling accuracy and cycle speed. Automatic gain-in-weight systems monitor and control the filling process within an accuracy of +/- 1 percent. These fillers are ideal for companies seeking NEPT approval.

There are also many custom features available including:

- Retracting bag hooks that simultaneously open and close all bag hooks for fast attachment/detachment of the bulk bag loops to the filler.
- A filling nozzle and inflatable mechanical seal between the filler and the bag for a sanitary, dust-free operation.
- Pneumatically powered support arms that let the operator adjust the height between filling cycles to accommodate various sized bulk bags.

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- Liner inflation device that ensures the integrity of the bulk bag by inflating the liner with ambient air, creating slight positive pressure to remove any wrinkles that may cause instability or subsequent difficulties during discharge. It also ensures full maximum material capacity. Air displaced through filling is vented through the annulus that surrounds the filling spout.
- Electric or pneumatic vibrators that improve material densification and compacting during the filling process for better storage and transport. Timed vibrations also occur during the weighing cycle at predetermined intervals. The vibration technique employed by Spiroflow, for example, ensures that it is exerted in the vertical plane only for maximum effect.
- A roller bed system that ensures faster off-loading of filled bags to increased productivity. An automatic bulk bag loop releasing mechanism enables filled bags to be automatically removed by a roller bed system. This system ensures faster off-loading of filled bags to increase productivity.

For more information about this article, contact Spiroflow Systems, Inc. at 704-291-9595, FAX 704-291-9594 or e-mail info@spiroflowsystems.com [1]. Spiroflow can also be found on the web at: www.spiroflowsystems.com [2].

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