



Selecting a Bulk Bag Discharging System

The popularity of flexible intermediate bulk containers (also known as FIBCs, big bags, or bulk bags) has grown significantly over the past few decades due largely in part to the advancements in weaving technologies and the widespread use of an extremely durable, recyclable material called polypropylene. Woven polypropylene bulk bags generally offer a lower cost of packaging and transporting bulk materials over traditional methods.

If your company handles powdered bulk solids on a regular basis, it is very likely that you too will be faced with the challenge of selecting a bulk bag unloading system that meets your specific application requirements. This can be a daunting task because there are many suppliers that offer basic unloading equipment, but only a few manufacturers capable of designing a system for your specific application requirements.



The most critical items to consider when selecting a bulk bag unloading system are the unit's capabilities and quality. Capability needs to be thoroughly considered before making your investment. A quality material handling equipment supplier will have much more experience and will know the right questions to ask in order to help you determine your individual application needs. From a distance, the appearance and design of most bulk bag unloading systems look the same, however the benefits and capabilities are generally not.

The process of bulk bag unloading is much more complicated than "emptying a bag". For example, how significant is dust-control in your application? Many materials being handled today are irritating to breathe, hazardous, explosive, or extremely expensive. This makes proper material handling, and dust control a mandatory capability, not a desired option. For the greatest level of dust control, look for a manufacturer whose system utilizes a dust-tight bag spout access chamber. This feature discourages material spillage, and when combined with a rear mounted dust take off stub, provides

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more effective dust control than systems without an enclosed bag spout access chamber. Optional dust collection systems can collect dust generated at the discharge point, and return them to the product stream, and draw any dust generated during disconnection of the bag discharge spout away from the operator.

An even more sophisticated approach is to use a bag spout clamping system within the bag access chamber. Although designs vary, some manufactures have been known to use specially formulated seals and pneumatic cylinders to dock the bag discharge spout to a fixed outlet transition housed within the access chamber. This type of system can provide a dust-tight unloading process, allowing the discharge of dusty or hazardous materials with ease. Operators often find pneumatically actuated spout clamping systems easier to use than manually actuated versions.

Another fundamental capability is the ability to obtain complete product discharge from your bulk bag. Because cost savings are one of the reasons companies are commonly switching to bulk bags, it only makes sense that a complete product discharge is necessary in order to prevent those cost savings from being lost. Several flow-promotion techniques have been used in the past to help assist in a complete product discharge. The successes of these flow-promotion techniques have varied from being spectacular to completely non-effective.

If your material is especially challenging, look for an aggressive massaging weldment with an open pipe frame that allows for significant bag penetration. If the base of the bag is uniformly compressed with typical bent sheet metal massaging plates, flow promotion may be less effective. Some manufacturers even offer heavy-duty, or hydraulic massaging systems for the most problematic materials.

Having the ability to stop the material flow for partial bag discharging is a very important factor in many applications. Manual iris and various pinch valves have been used in the past with varying degrees of success. The column of material flow coming out of the bulk bag can be very dense, and in several cases iris or pinch valve assemblies have been known to fail, or simply unable to close on the bag discharge spout. If bag spout closure is important to your application, be sure to choose a system that has adequate strength and durability for your application requirements.

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Even in relatively simple applications the bag-unloading unit is generally integrated with other material handling solutions. Buyers need to ask themselves how their unit needs to be integrated with their existing equipment, and does the supplier have the necessary experience to ensure that the controls and features will work properly together. A very common example would be using a vibratory feeder or gain-in-weight scale system to effectively handle and transport the material to the proper point after being discharged from the unit.

What about the units overall quality? Quality not only affects the long-term durability of the proposed system but may affect operator safety and the buyer's return on investment. Safely unloading these containers starts with a strong foundation. The bulk bag frame must be robustly constructed so as to adequately support the demand of many years of loading the unit. Some manufacturers try to cut as much cost as possible from a unit by reducing the amount of structural support. Be sure to ask your supplier about the size and thickness of the support frames before you commit to an investment that may not perform up to your expectations.

The suppliers' design experience, fabrication expertise, finishing, component selection, and assembly all play an important part in providing a quality unit.

When considering quality it is important to not only look at the unit itself, but also the past reputation of the supplier. Are you being sold a standard unit that will hopefully function as promised or are you investing in a custom designed, piece of material handling equipment? If you plan on owning your unit for ten years or more, will the chosen supplier be around to service your account and help answer your questions in the future?

There is no universal solution for every application and every set of circumstances. A qualified supplier will be proud to provide numerous examples of their custom designed equipment, and will be pleased to offer a custom solution for your unique needs. The demand and use of these bulk bags will continue to accelerate. Be sure that when you make your move and invest in a system for your company, carefully consider the capability and quality of the system being proposed.

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