

# BULK BAG UNLOADING SYSTEMS

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Bulk Bag Unloading Frame With  
Monorail and Hoist



Short Bulk Bag Support Frame For User  
Provided Hoist

## Bulk Bag Unloading Systems For Dry Bulk Materials

Young Industries is a world leader Bulk Bag Discharging Systems. We design and manufacture equipment ranging from a single Bulk Bag Unloading Frames to a complex Discharging Systems with provisions to weigh, convey and control with “state of the art” PLC systems.

Our Application Engineers gather critical information for the equipment design:

- a. Floor space available
- b. Type and size of bulk bags to be unloaded
- c. Available headroom
- d. Flowability of product from the bag
- e. Flow properties of the product
- f. Combustible properties if applicable
- g. Discharge rate required
- h. Conveying equipment or metering requirements

We evaluate all factors and design the equipment to meet the exact needs of the process. For those situations where the powder being handled is a combustible dust, we follow NFPA guidelines and work with the customers designated AHJ (Authority having Jurisdiction) to design a system that addresses the safety requirements.

**ADVANCED  
TECHNOLOGY  
PROVEN DESIGN**

# BULK BAG UNLOADING SYSTEMS

## Unloading Frame With Hoist

The safest and most efficient method to handle and unload bulk bags is the Unloading Frame Assembly complete with monorail and hoist. Young Industries Bulk Bag Unloading Frames are designed for safely handling bulk bags weighing up to 4000 lbs. Our Bulk Bag Lifting Brackets are load tested per OSHA 1926.251 & 1926.251 (a) (4). Standard frame sizes are 5 ft. or 6 ft. square with special sizes as needed also available. Normal frame heights vary from 12 ft. to 25 ft. in most applications. Our Frame assemblies are constructed of 4" square heavy wall tubing for excellent durability. Our frames are provided with support pans for the bulk bag to rest on during the unloading sequence. The pan acts as a seal around the bag bottom for dust containment and provides safety when an operator is accessing the bulk bag under the pan. When needed we can offer the frame assembly in 300 series stainless steel construction. Electric or Pneumatically operated chain hoists are normally provided for these unloading systems.



Bulk Bag Unloading Frame with Access Hopper



Dual Bulk Bag Unloading Systems with Access Platform



Bulk Bag Unloading System with Pneumatic Conveying

# BULK BAG UNLOADING SYSTEMS

## Low Headroom “DFB” Unloader

Young Industries has designed and patented a Bulk Bag Unloading System for low headroom applications. The Direct from Bag Unloader “DFB” is designed to unload bulk bags in as little as 8 ft. of available headroom. The “DFB” has a support base which can be positioned stationary or portable with casters. The provided lifting bracket is supported with a fork lift while the bulk bag lifting straps are connected to the bracket. The bracket with bag is then lifted with the fork lift and placed on to the lifting mast socket. With the bag suspended on the pneumatically powered mast, the bag can be raised or lowered easily. The “DFB” Unloader will normally use a bag spout clamping system since there is minimal headroom. From the “DFB” Unloader Young Industries can provide any number of conveying, metering, or weighing systems to the process.



Lifting Bracket Placed on Fork Lift



Bulk Bag is Attached to Lifting Bracket



Bulk Bag is Transported by Forklift to The “DFB” Unloader



Bulk Bag/Lifting Bracket Lowered on to “DFB” Mast



Bulk Bag is Positioned and Spout Clamped to Discharge Cone



Bag Spout is Untied for Delivery of Material to Process Vessel

# BULK BAG UNLOADING SYSTEMS

## Bulk Bag Lifting Safety:

Young Industries Bulk Bag Unloading Systems are designed with operator safety as a main consideration. Bulk Bags can weigh up to 4000 lbs. and are lifted as high as 25 ft. in standard Bulk Bag Unloading Systems. It is important that the system and all components are designed with safety in mind. Hoists used with our systems comply with current safety standards for lifting equipment.

Lifting Brackets that are connected to the chain hoist are manufactured by Young Industries and undergo in house quality control checks and load testing. Every Lifting Bracket is tested to comply with OSHA code 1926.251 and 1926.251(a)(4).

### Bag Lifting Brackets



Standard Lifting Bracket



Low-Profile (10" - Offset) Lifting Bracket



Load Testing Low Profile Lifting Bracket



Unloading Frame With Low Profile Lifting Bracket

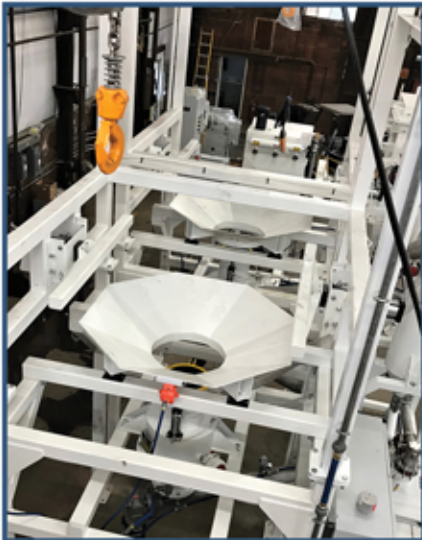
# BULK BAG UNLOADING SYSTEMS

## Safe Access to Untie the Bulk Bag Discharge Spout

Once the bag has been lifted into position, the next operation is to position the bag so that the operator can safely access the bulk bag spout without reaching directly under the suspended bag. Young Industries offers several standard available features to make this part of the operation safe.

The most common method we use to have an operator safely untie a bulk bag is to position a safety pan on our support frame that allows the bag to rest on the pan while the operator accesses the spout through a hinged door positioned below the pan. The pan is designed for the 4000 lb. load of the bag. The pan has a large opening to the Access hopper below to allow most any size discharge spout to be handled.

For those systems where a pan cannot be used, we supply safety bars that are positioned to allow the operator to untie the bag spout from a position under the bars. This is done more on Bag Spout Clamping Systems where open access is needed to position the bag around the clamp system.



Dual System With Support Pans

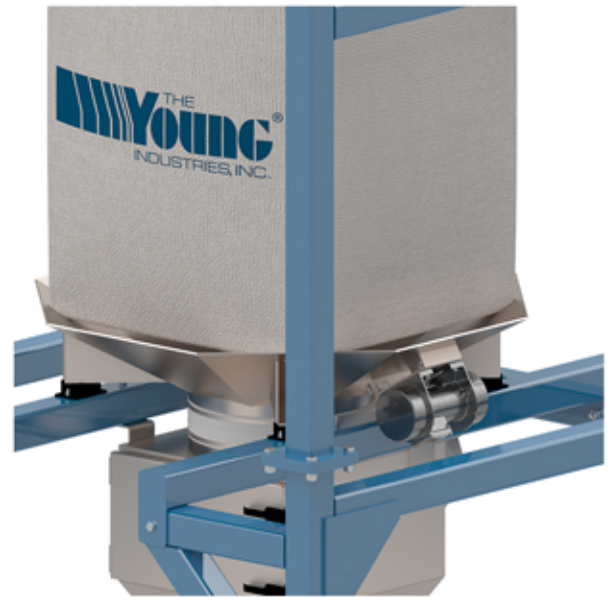


Clamp Ring Assembly With Support Ring



# BULK BAG FLOW ASSISTANCE

Many powdered materials stored in bulk bags can be a challenge to discharge. Powders can be compacted due to shipping and stacking of bags, making it difficult for powders to discharge. Some powders are just naturally cohesive and have very bad flow properties. Many times, powders are stored in poorly designed bulk bags with flat bottoms or small discharge nozzles. For discharging a wide range of powders and granules, Young Industries provides both vibratory and massaging systems to assist in the flow of powders from bulk bags.



## Vibratory Support Pan

Young Industries Bulk Bag Discharging systems utilize a bag support pan for dust control and operator safety in most applications. The bulk bag rests on the pan while the operator unties the bag spout from a hinged access door below the pan. Since the bag rests on the pan while it is being unloaded, adding vibration to the pan is easy and effective. The vibratory pan is provided with a high intensity, pneumatic or electric vibrator. The vibration is transmitted to the powder in the bag to keep powders flowing. The pan is provided with vibration isolation pads mounted between the pan and the support frame to minimize transmitting vibration to the frame.



# BULK BAG FLOW ASSISTANCE

## Side Breaker Bar Massager

The most basic bag massager we offer is the Side Breaker Bar Massager system. This system has massaging bars positioned on opposite sides of the frame. A single pneumatic cylinder powers each bar. Typically, the Breaker Bar is positioned near the bottom of the bag. The Breaker Bar pushes on the side of the bag to keep sluggish flowing materials moving. The sequencing of this system can be applied by operating personnel when needed or can be initiated from a control panel. This massaging system is used in conjunction with the bag support pan.

This massager is used for powders that on occasion may experience bridging at the bag discharge spout. The force exerted by the bar on the side of the bag causes the internal powder bridging to collapse and free flow.

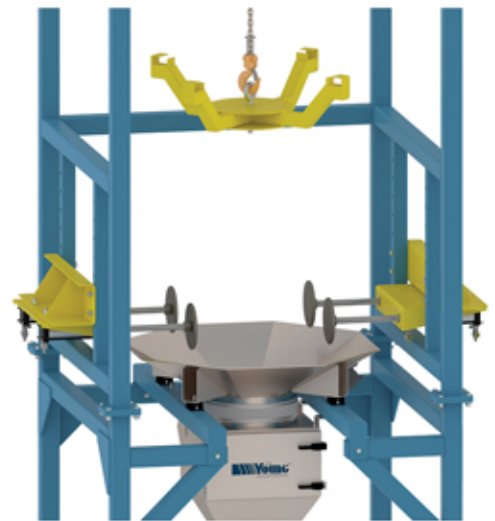


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## Side Disc Massager

Our Side Disc Bag Massager system uses air cylinders equipped with round pusher discs to exert pressure on the side of the bag. The system has four-cylinder powdered discs that exert pressure to the side of the bag. The independently powered discs exert more force on the side of the bag than the Side Breaker Bar Massager. The position (height) of the cylinders from the bottom of the bag is adjustable. This massaging system is used in conjunction with the bag support pan. It is an excellent choice for most powder handling systems and still provides the bag pan for dust containment and safety. The sequencing of this system can be applied by operating personnel when needed or can be initiated from a control panel.

This Bag Massager is used for those powders that are cohesive and tend to flow poorly through most of the unloading operation.



# BULK BAG FLOW ASSISTANCE

## Bottom Bag Massager System

Young Industries Bottom Bag Massager System is truly unique to the industry. Our Bag massager paddles are multi-angled designed to massage the bottom side of the bag, as well as the spout of the bag. The system is powered by large pneumatic cylinders to put pressure against the bag and discharge spout. We provide this system in two configurations

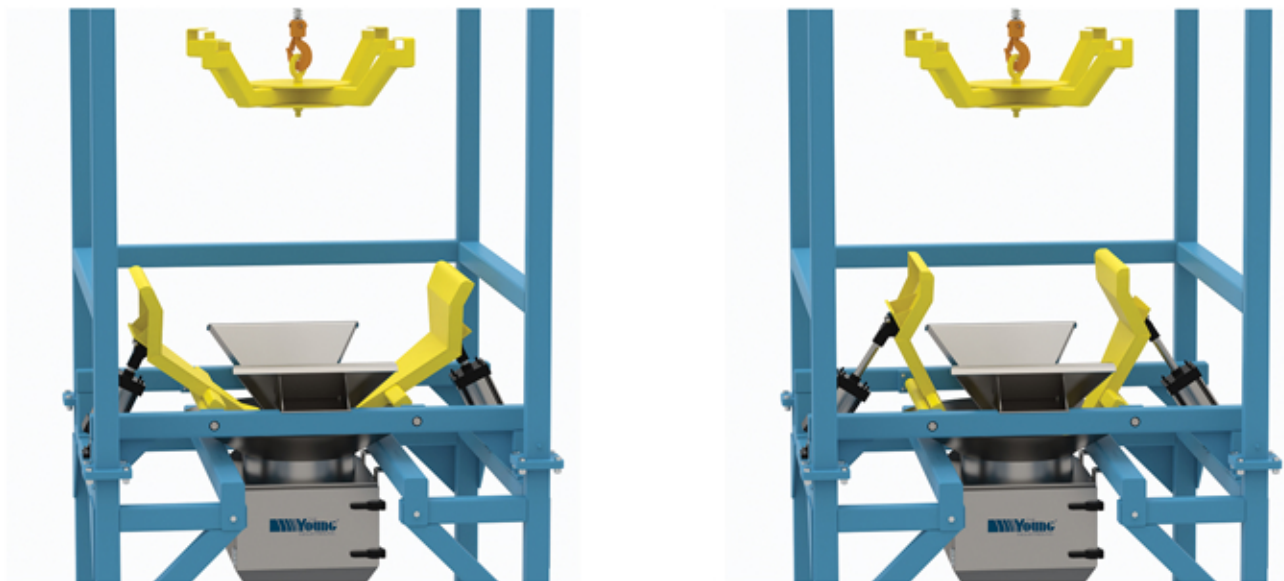
### Two-Paddle Massager-

The two-paddle massager utilizes two stationary paddles and two heavy-duty bag massager paddles. The massager paddles are positioned opposite each other to massage two opposing sides of the bag.

### Four-Paddle Massager -

For the most demanding applications we provide our multi-angled Massager system with four-cylinder powered massaging paddles. This system exerts pressure on all four sides of the bag and spout. This system provides the maximum amount of force on a bag for those applications where powder is agglomerated in a bag, or the powder is “sticky” or cohesive.

Our Bottom Bag Massager Systems are used for those powders that can be hard and agglomerated in the bag. For those materials where bridging occurs in the bag spout, Young Industries Angular paddle exerts force to spout itself to keep powder flowing.





# BULK BAG ACCESS HOPPERS

Young Industries provides Access Hoppers with hinged door for easy access to the bulk bag discharge spout. The hopper has a top entry nozzle for the bulk bag spout to enter and is normally size 16" or 20" diameter to provide the maximum flexibility to handle most any size diameter discharge spout. A manually operated Closure Valve can be supplied in the top nozzle to provide a means to keep the bag spout closed while the operator is untying the spout itself.

The Bulk Bag Access Hoppers can be provided with as much volume as mandated by the application. For those applications where headroom is limited a small hopper may be provided under the access door with discharge into metering or conveying equipment. For non-combustible powders when there is sufficient headroom the hopper may have a capacity to meet or exceed the capacity of the bulk bag itself. For systems where minimal operator involvement is requested, a hopper having a volume equal to or greater than the volume of the bag is recommended.



## BULK BAG/ PAPER BAG DUMP STATIONS

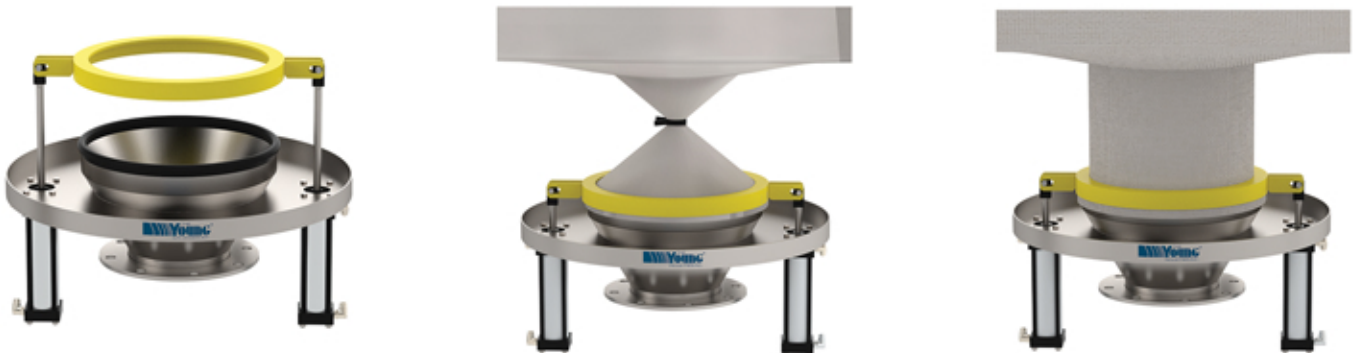
There are systems that require the addition of products from Bulk Bags and Paper bags. For those applications, Young Industries has a Dual Station with a hinged door for access to the Bulk Bag discharge spout, and a larger, separate opening for dumping paper bags.

# BULK BAG SPOUT CLAMPING SYSTEMS

Young Industries offers two standard types of clamping systems. Both systems use pneumatic cylinders to clamp the bag spout around a nozzle that is attached to a hopper below.

## Open Design Clamp

This clamping system operates with pneumatic cylinders to assure that the clamp firmly holds the bag spout. The clamping system consists of a stub with extruded seal around the periphery. A clamp which connects to the pneumatic cylinders is raised when the spout of the bag is placed around the seal. When the bag spout is in position the clamp is lowered on to the stub and a tight seal is achieved. The open clamp is normally used in conjunction with our low headroom DFB unloading systems. The open clamp design takes minimal space while having excellent access to the bag spout.



## Enclosed Clamp Design

Like the open clamp design, this also operates with pneumatic cylinders to assure that a tight clamp seal is maintained. This clamp differs with the open clamp in that there is an exterior stub which is connected to the hopper below and directs any residual powder that falls (while the empty bag is removed) to the hopper below. This system offers superior dust containment.

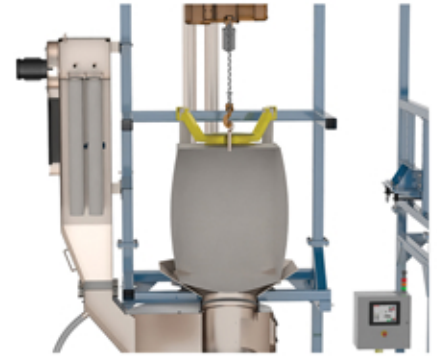


# BULK BAG DUST CONTROL SYSTEMS

Young Industries offers dedicated dust collection systems for our Bulk Bag Unloading equipment. Our dust collection systems utilize continuous cleaning pulse jet filters for superior operation. We offer several different arrangements of dust control.

## Frame Mounted Dust Collection

Our Frame mounted dust collection systems have the dust collection mounted to one side of the unloading frame assembly. This design uses a vertical Uni-cage pulse jet filter and fan to control dusting from the discharging equipment positioned below the filter. The dust collector is connected to the access hopper through a chute. Powder and dust is drawn into the dust collector and pulsed from the filters to fall back into the access hopper below.



## Self-Contained Dust Collection

For those systems where there is not sufficient space to allow for the Frame mounted dust collection system, Young Industries offers smaller, Self-Contained Horizontal Pulse Jet filter and fan mounted integral with the access hopper. This system offers effective dust collection in a compact design.

Young Industries Dual Bulk Bag/ Paper Bag systems can also be supplied with the Self-Contained Pulse Jet Filter and Fan option. These units have a higher volume fan and more filtration area for control of dust generated from dumping paper bags or unloading bulk bags.

## HEPA Filtration

When the need arises for HEPA quality or secondary filter protection, Young Industries offers our filters complete we secondary HEPA quality filtration. This secondary filter both provides premium quality filtration and as protection in the event the primary filtration develops leakage.