

UltiMAX[®] Bulk Bag Unloader Product Specifications



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A. UltiMAX[®] Bulk Bag Unloaders System Overview

The UltiMAX[®] Bulk Bag Unloaders from Erie Technical Systems are designed to safely discharge bulk materials in bulk bags. All our units are manufactured with heavy walled structural tubing and other heavy-duty materials. Each system has been designed with simplicity and ease-of-maintenance in mind. Manufactured as a modular machine, additional features and options can be added as increased throughput or automation is required in the future.

Bag Sizes and Standard Ranges:

- Minimum Size: 28" x 28" x 35" Tall
- Maximum Size: 48" x 48" x 75" Tall
- Maximum Weight: 1 Ton Unit 2,000 lbs.
 2 Ton Unit 4,000 lbs.

Note: These are the standard ranges. Custom sizes and designs are available.

The UltiMAX[®] bulk bag unloader is broken into three modular sections:

- The BBU Top Section includes a forklift frame for manual loading using a forklift or can be upgraded to include a hoist frame & hoist.
- The BBU Middle Section is built to accommodate the height of the tallest bag being unloaded.
- The BBU Base Section houses many of the options and is the heart of the system.



Figure 1 – UltiMAX[®] Bulk Bag Unloader with Hoist Frame, SS Untie Box, Flexor Paddles, and Load Cells

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B. UltiMAX® Bulk Unloading System Options

In addition to the three basic frames, the Bulk Bag Unloaders are available with a variety of standard options, each of which is outlined below. Custom modifications are also available in addition to these standard features.

1. Bag Untie Box

The Bag Untie Box allows for the operator to handle the bag spout in an enclosed area to reduce dust generation when preparing the bulk bag for the unloading process. The Untie Box includes a hinged, sealed door that is closed during discharge to capture any additional dust produced while emptying the bulk bag.

- Dust-tight door seal.
- Lockable latch on door
- Tapered inside to ensure product flows out of box.
- Heavy Gauge carbon steel construction
- 304 Stainless Steel Option Available



Figure 2 - Common Options: Carbon Steel Untie Box, Carbon Steel Flexor Paddles, and V-Form Valve

2. Paddle Flexors

Paddle flexors are a useful option if the bulk material being unloaded tends to set up during shipment. This option provides a means to condition the bag to enhance the flow out of the bag into the process. The two ribbed flexing paddles can move from a flat position to a combined angle of 85 degrees (nearly vertical). It is designed with bag conditioning ribs which engage the bag to break up lumps or agglomerations of material in the bulk bag.

- Operated by two (2) 4" x 14" Pneumatic Cylinders
- Heavy duty construction with conditioning ribs
- 304 Stainless Steel Option Available
- Optional adjustable pulse timer



Figure 3 - Flexor Paddles in Up Position (Untie Box Removed from Image)

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3. V-Form Valve

The V-Form Valve option provides a means to pinch the discharge spout of the bag. This allows operators to untie or re-tie bulk bags safely. The valve is actuated with two pneumatic cylinders that move the v-formed bars toward each other. The bars bunch and pinch the bag off at the outlet spout. This valve is operated manually with an

option for automatic actuation. The V-Form Valve is ideal for applications where removal of a partially empty bag is needed.

- Two (2) 2.5" x 6" pneumatic cylinders
- Toggle Valve Operation
- Able to stop product flow in static and flowing conditions.
- Stainless Steel Construction



Figure 4 - V-Form Valve Closing Off Product Flow for Bag Re-tying.

4. Dust Containment Tube

The dust containment tube option is mounted inside the Untie Box. It extends up near the entry point of the bag outlet spout. The bag outlet spout, once untied, extends down inside the tube and further contains the dust when discharging a bag. Additionally, the dust containment tube can be helpful with free-flowing materials and materials with low angle of repose, by lowering the discharge point below the door opening.

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5. Product Gate Valves

Erie Technical Systems offers three versions of gate valves with our UltiMAX[®] bulk bag unloaders. We offer a simple manual valve, a pneumatically actuated valve, and an automatic product valve for use in loss-in-weight applications.

Manual Gate Valve

The Manual Gate Valve is a simple sliding gate valve operated by hand to control the flow of material out of the bottom of the untie box.

- 8" Manual gate valve
- Constructed of 304SS and UHMW-PE slider plated.
- Includes 10" Square to 8"round transition.



Figure 5 - Manual Slide Gate Valve in Fully Open Position Mounted Beneath Carbon Untie Box

Pneumatic Product Valve

The pneumatic product valve option adds 10" roller gate valve to the unloader. The valve is actuated by a pneumatic toggle and can be stopped at any position to meter flow out of the untie box.

- 10" Square roller gate valve
- 304 SS product contact surfaces, aluminum frame
- Pneumatic toggle valve operation
- Includes 10" square to 8" round stub transition.



Figure 6 - Pneumatic Product Valve Attached to Stainless Steel Manual Pinch Ring

Automatic Product Valve

The automatic product valve option includes the pneumatic product valve and adds two (2) 24VDC solenoids, three(3) 24VDC position switches and a junction box. This package provides 3-position control for increased accuracy loss-in-weight applications.

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6. Bag Spout Pinch Ring

As an alternative to the Untie Box, the Bag Spout Pinch Ring will pinch the bag spout for allowing flow out of the bag. Once the operator has placed the bag into position, the bulk bag outlet spout is stretched over the product flow tube. The pinch ring is lowered to trap the bag spout and provide a dust tight seal. The pinch ring is available in either manual or pneumatically operated versions.

- Used in place of the Untie Box
- Manual or Pneumatic operation
- Soft rubber seal to prevent bag damage.
- Simple to Operate Design
- Carbon Steel and Stainless-Steel Options



Figure 7 – 304SS Pneumatic Pinch Ring

7. Electric Hoist and Trolley

The electric hoist and trolley option replaces the forklift frame and supports with a new top hoist frame, a bag lifting frame, an I-beam, and a hoist with motorized trolley. The hoist can lift the bulk bag into position without the use of a forklift.

The capacities and speeds of the hoist will vary depending on customer specifications and application.

- 1 Ton or 2 Ton capabilities
- Fixed or Variable Speed Hoist
- 230V or 460VAC input power
- Control pendant
- 15' vertical lift
- Bulk bag lifting frame.
- Select front, sides, or rear load position.
- Carbon Steel Construction
- Stainless Steel Option Available



Figure 8 – UltiMAX[®] Bulk Bag Unloader Hoist Frame, 1 Ton Capacity

• Includes festooning and power wiring to junction box at rear of top frame.

Capacity	Speed	230V Amps	460V Amps	НР	Weight
1 Ton Fixed	17 FPM	11.0 A	5.5 A	2.54 HP	221 lbs.
1 Ton Dual	27/9 FPM	11.4 A	5.7 A	2.94 HP	269 lbs.
2 Ton Fixed	9 FPM	11.0 A	5.5 A	2.54 HP	231 lbs.
2 Ton Dual	13/4 FPM	11.4 A	5.7 A	2.94 HP	280 lbs.

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8. Door Interlock Switch and Safety Shutoff

The Untie Box can be equipped with an optional door interlock switch that will allow for an output to be triggered when the Untie Box door is opened. While the primary purpose of this feature is to trigger dust collection efforts to begin pulling air from the Untie Box when the operator opens the door, an additional safety shutoff can be provided.

As seen in Figure 9, the Door Interlock Switch with Safety Shutoff incorporates a small junction box into the UltiMAX[®] Bulk Bag Unloader that acts as a pneumatic safety shutoff. When the Untie Box door is open, pneumatic components in the Untie Box, such as the Flexor Paddles and V-Form Valve, will not actuate.



Figure 9 - Safety Shutoff Controls for Door Interlock Switch

9. Load Cell Kit and Weight Indicator

Installing a load cell kit on the UltiMAX[®] Bulk Bag Unloading System allows for monitoring of product dispensed from the bulk bag. The standard load cell kit is designed to monitor bags up to 5,000 lb. The load cells are bolted directly to base frame and are provided with mounting plates for attachment to the floor. The optional digital weight indicator provides a local display of the weight on the scale.

- Four (4) 10,000 lb. load cells constructed from alloy steel. Stainless Steel and NTEP are available.
- Integral leveling pads
- NEMA 4X SS load cell summing box.
- 25-foot (7.62 meter) home run cable to connect from load cell summing box to the weigh indicator
- +/- 0.1% Accuracy
- Repeatability of +/- 5lb



Figure 10 - Weight Indicator

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10. Loss-In-Weight Control Package

Full automation can be achieved with the UltiMAX[®] Bulk Bag Unloaders by incorporating an Allen-Bradley PLC automated control package. When purchased with the Load Cell Kit, the PLC control package can be programmed to dispense specific target weights. The PLC will start and stop an external device, such as the Automatic Product Valve, when target weights are reached.

- NEMA 4/12 Control Panel
- Fused Disconnect
- Branch Circuit Protection
- Allen Bradley Micro850
- 5-Port Ethernet Switch
- 7" Color Touchscreen HMI
- 24VDC Integrated Power Supply



Figure 11 – UltiMAX[®] Bulk Bag Unloader with Loss-in-Weight Control panel, Load Cell Kit, and Automatic Product Valve.

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11. Additional Options

- 304SS Food Grade Construction
- Vibratory Pan
- Knife Assemblies
- Integral Dust Collector
- Integral Bag Break

• Discharge Options

- Rotary Valve
- Lump Breaker
- FlexMAX[®] Flexible Screw Conveyor
- Vibratory Tube Feeder
- Pneumatic Pickup



Figure 13 - Forklift Load UltiMAX[®] Bulk Bag Unloader with Bag Piercing Knife and Flexible Screw Conveyor on a Portable Cart.



Figure 12 - 304SS UltiMAX[®] Bulk Bag Discharger With 1-Ton Hoist, paddle flexors, and Flexible Screw for Food Grade Application



Figure 14 – UltiMAX[®] Bulk Bag Unloader with Vibratory Pan, Manual Pinch Ring, and Pneumatic Product Valve. Designed for Outdoor Service.

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