

# MULTI-PHASE PRODUCT PUMP

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## Models

- ▶ **Model PH Horizontal** – used in areas where there is limited headroom available.
- ▶ **Model PI Inclined** -high capacity with good clean-out and can be used for most applications
- ▶ **Model PV Vertical** – High capacity and offers total clean-out between operations

## Convey Line Sizes

The Product Pump Systems are supplied in 2" and 3" pipe sizes as standard. The system also uses smooth bore flex hose when the application is suited. Routing of the small diameter pipe or hose makes installation easy for the user.

## CONVEYING CAPACITY

The Multi-phase Product Pump will convey from 50 to 300 cu. ft. per hour. The actual capacity is dependent on the convey distance and flow properties of the material conveyed. The system offers the flexibility to convey materials from 5 lbs. per cu. ft. to 200 lbs. per cu. ft.

**ADVANCED  
TECHNOLOGY  
PROVEN DESIGN**



The Young Industries Multi-Phase Product Pump is a compact, self-contained, low velocity pneumatic conveying system that is easily installed, for conveying of powders and granular materials.

The system operates with compressed gas and in most cases, plant compressed air is adequate for conveying with no need for blowers or other compressors. Typical systems operate at 20-40 PSIG. The Multi-Phase Product Pump is an excellent choice for conveying products from Bulk Bag Unloading or Bag Dumping operations. It has a low profile making it easy to mount under existing equipment for conveying to a process vessel.

The Product pump is manufactured per the ASME code and is UM stamped. It is manufactured to the highest quality standards to give the user long service life.

## OPERATION

The Multi-Phase Product Pump operation cycle starts when the inlet butterfly valve opens to allow the product to gravity flow into the vessel. The valve closes, and the compressed gas starts conveying the product through the convey line. For longer conveying distances, an inline check valve is positioned in the convey line to seal the down-stream air pressure prior to venting the pump. After the convey cycle, the Product Pump is vented, and the operation is repeated for transfer of product.



# MULTI-PHASE PRODUCT PUMP

## CONVEYING “POOR FLOWING” POWDERS

The Multi-Phase Product Pump is used for many applications where fine cohesive powders or pigments are conveyed to one or several discharge vessels. Young Industries Transflow Powder Fluidization is used with the Product Pump and adjoining equipment to assure that powders flow freely from the system inlet to the process vessel at the system discharge. The fluidization process allows the Product Pump to convey these poor flowing powders at high rates.

## CONTROLS

The Product Pump has a PLC controlled system that operates the timing sequence of the pump. It is easily adjustable to allow “fine tuning”. The PLC is housed in a NEMA 4 or NEMA 7,9 enclosure. Because the timing sequence is quite simple, the controls for the pump can be incorporated in the users control system in place of a separate controller. The control panel can be customized to add controls for other equipment as needed by the system requirement.



Model PV 308-350 Vertical Multi-Phase Product Pump with NEMA 4 control panel



Model FBD10-3-C Filter Bag Dump Station with PI 308-125 Multi-Phase Product Pump

## FEATURES

- ▶ High capacity Conveying that can use Plant compressed air or compressed nitrogen
- ▶ Low velocity conveying minimizes degradation and abrasion
- ▶ Transflow Powder Fluidization for conveying fine cohesive powders
- ▶ ASME “UM” code stamp for high-quality, long service life
- ▶ Uses 2” or 3” pipe or smooth bore hose for convey line
- ▶ PLC controls offer the maximum flexibility for sequencing the Product Pump, NEMA 4 or NEMA 7,9 enclosures available
- ▶ Low Headroom design available when space is limited
- ▶ Available in carbon steel, 300 series stainless steel, or other special alloys
- ▶ Low CFM compressed air conveying requires smaller filtration for the system discharge
- ▶ Low headroom filters are offered for the Filter Receiver at the system discharge

# MULTI-PHASE PRODUCT PUMP



Low headroom HW Filter Receiver uses horizontal filter bags. A Model HC Rotary Valve is used as an airlock to discharge powder to the process below



Model P310-125 Multi-Phase Product Pump used to convey powders from a station where paper bags and bulk bags are discharged



Model PI310-125 Multi-phase product Pump for conveying powder from Bulk Bag Unloading Station

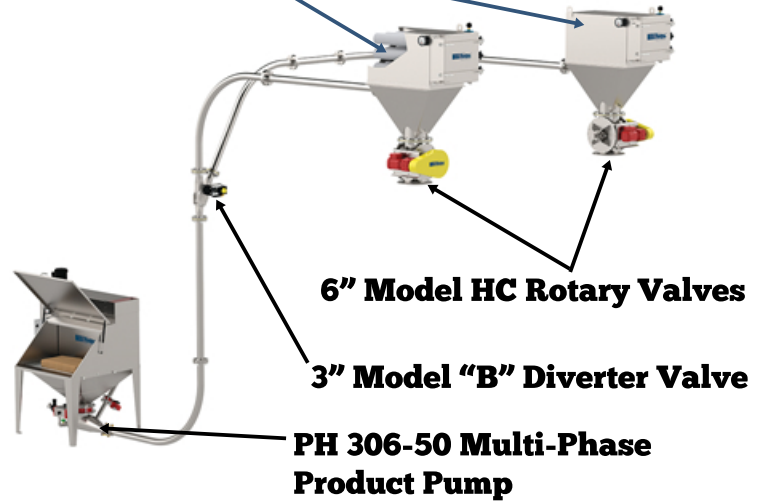


FBD42-8 Filter Bag Dump Station with PH 206-50 Low Profile Multi-Phase Product Pump

# MULTI-PHASE PRODUCT PUMP

The Multi-Phase Product Pump is used to convey powders and granules from a bag dump station to either of two Filter Receivers positioned above process vessels. A Young Industries Model B Swing Gate Diverter Valve with pneumatic actuator directs the product flow to either of the two receivers.

**HW 36-9 Filter Receivers**



**HW 42-12 Filter Receiver**

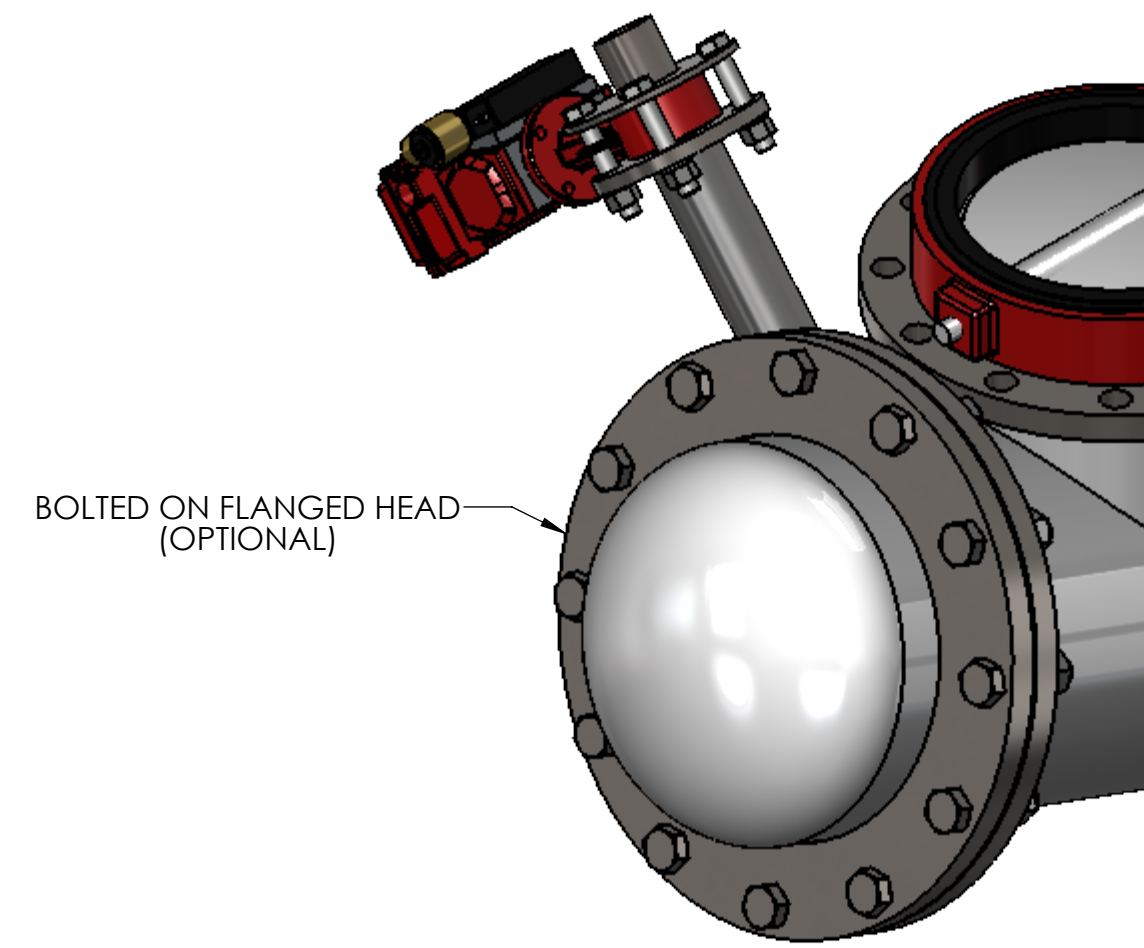
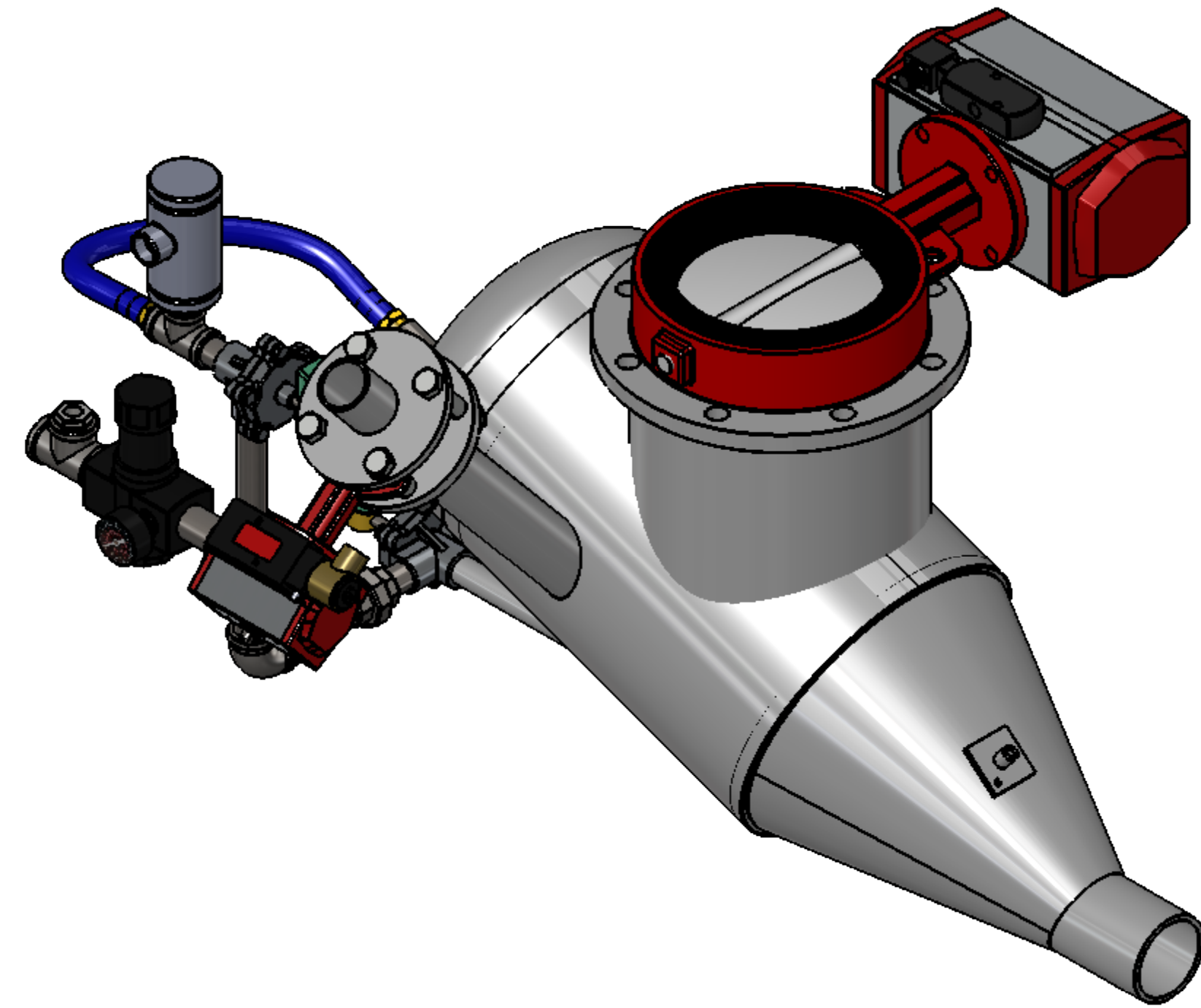
**Bulk Bag Unloading Stations**

**8" Model HC Rotary Valve**

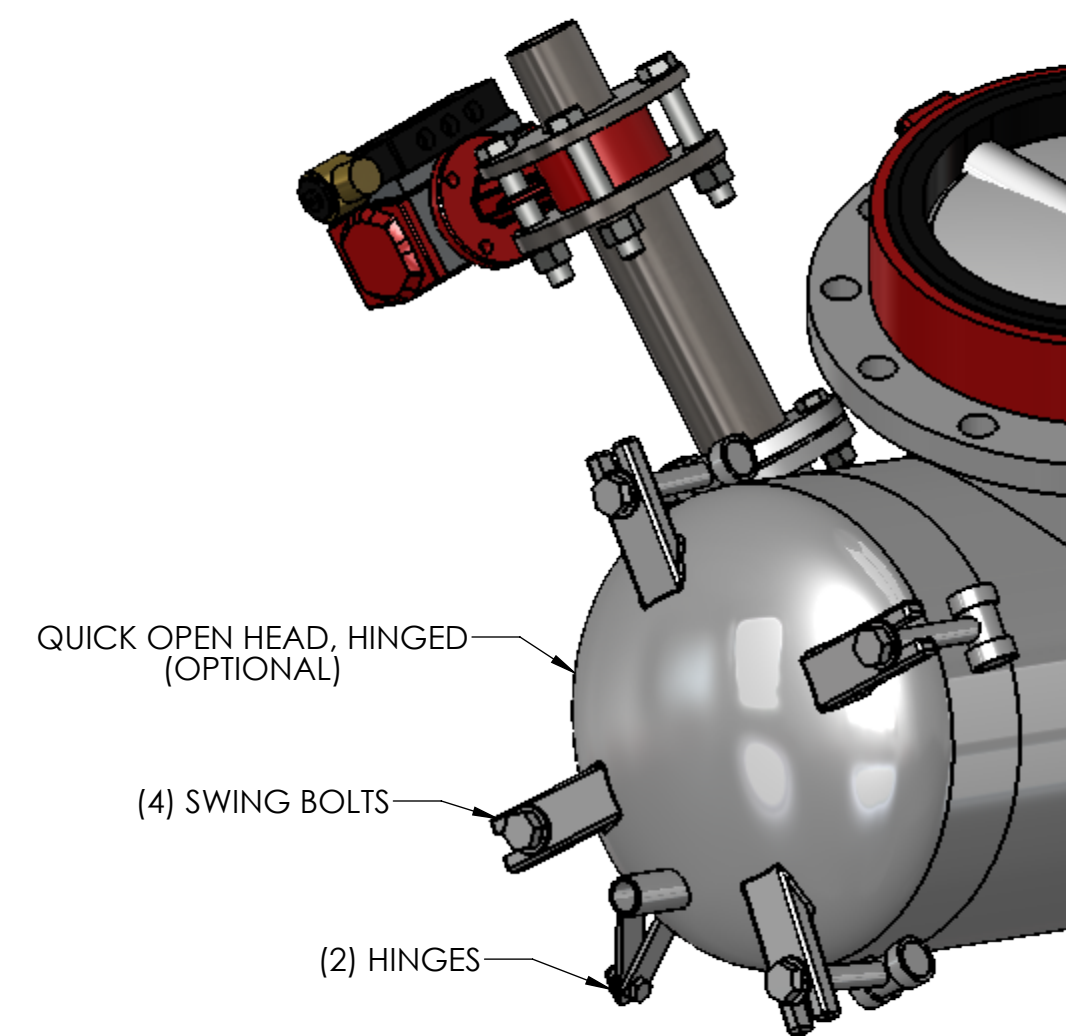


A high capacity Dual Bulk Bag Unloading System uses PI 310-125 Product pumps to convey to a single Filter Receiver positioned above a process vessel. The System delivers material to the process at a rate of 200 cu. ft. per hour.

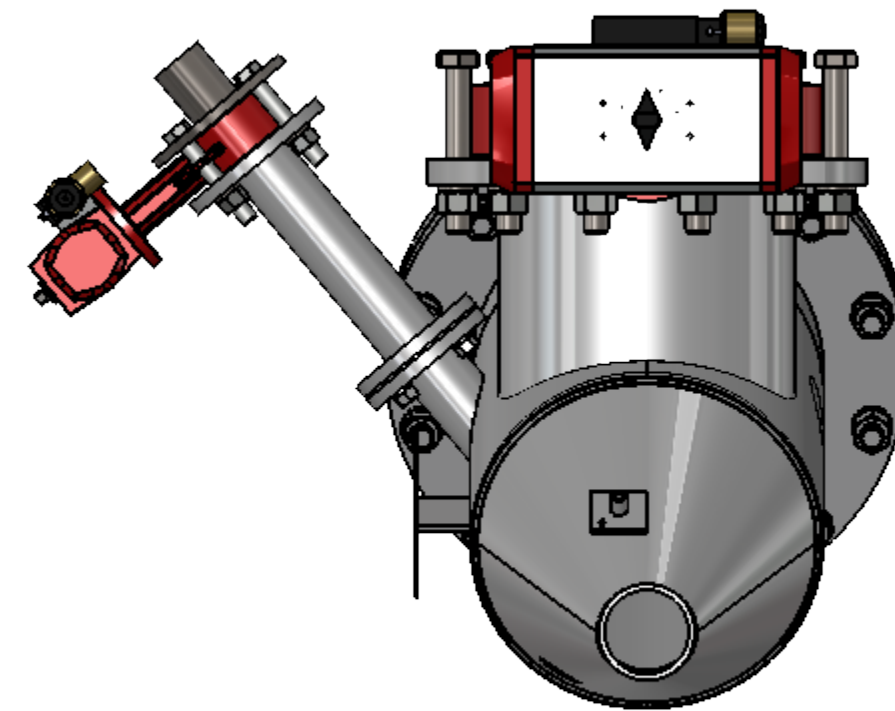
**PI 310-125 Multi-Phase Product Pumps**



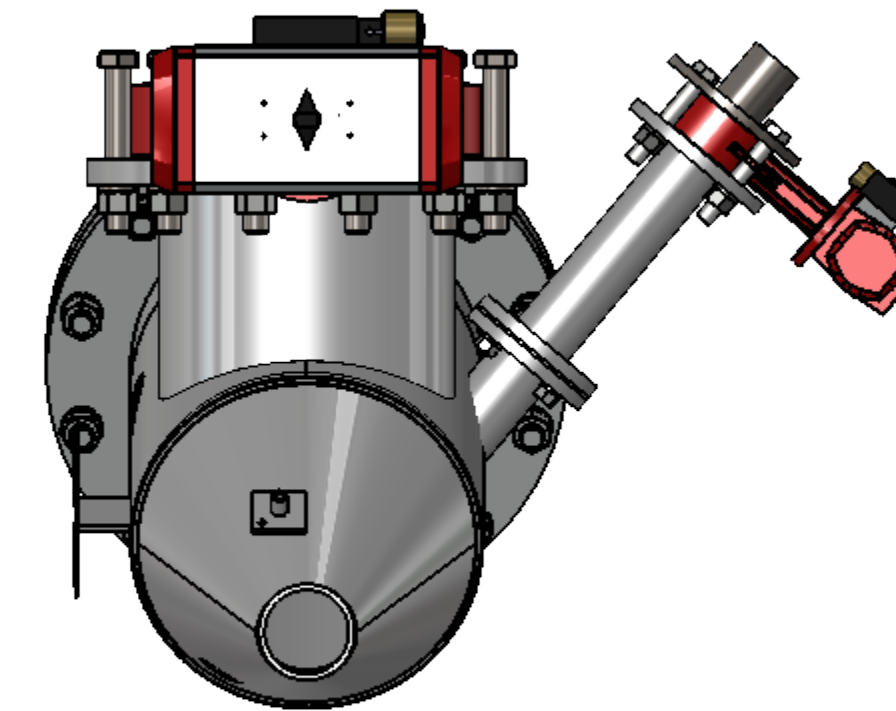
**REMOVABLE FLANGED HEAD**  
(SEE NOTE NO. 3)



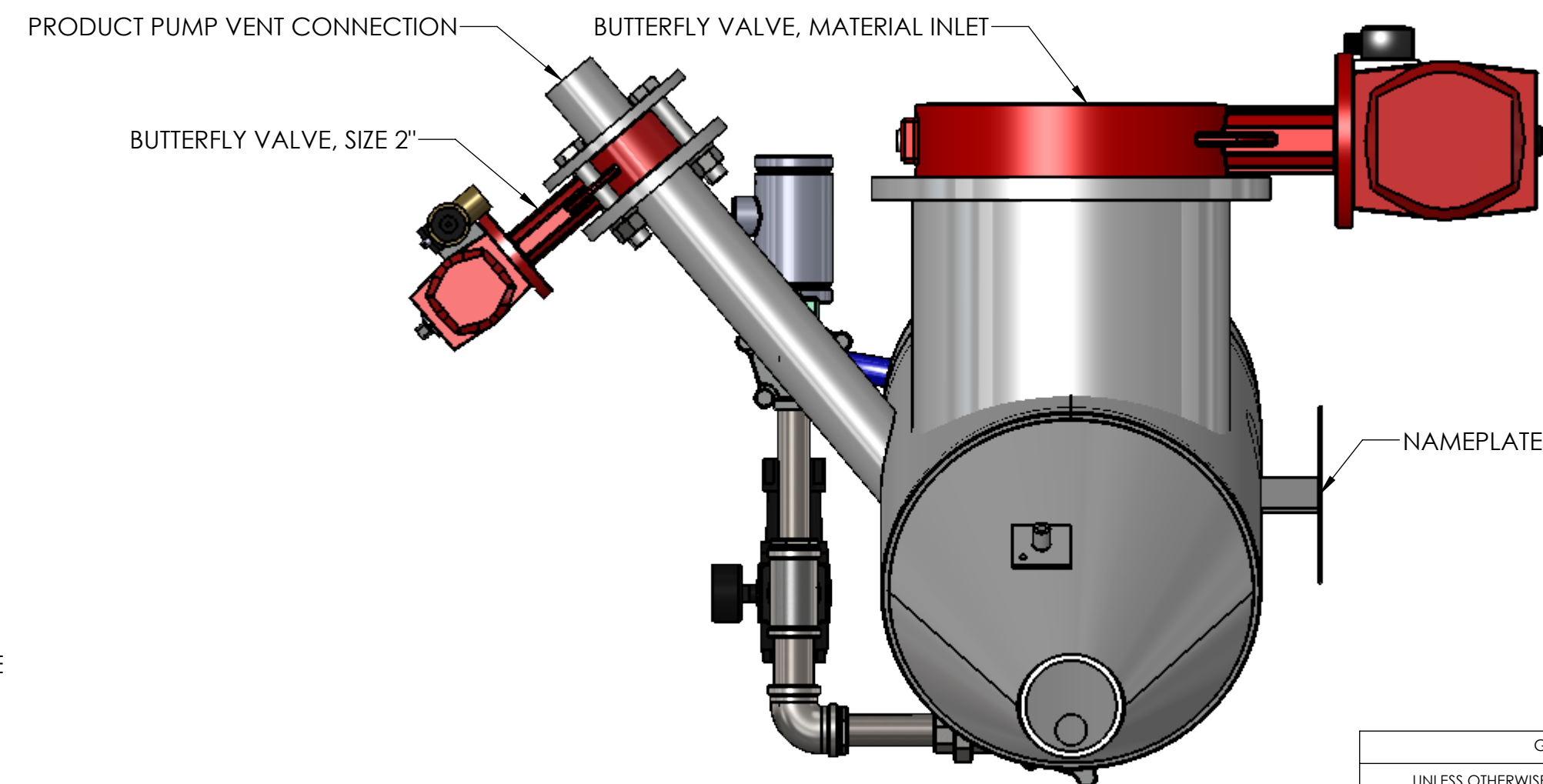
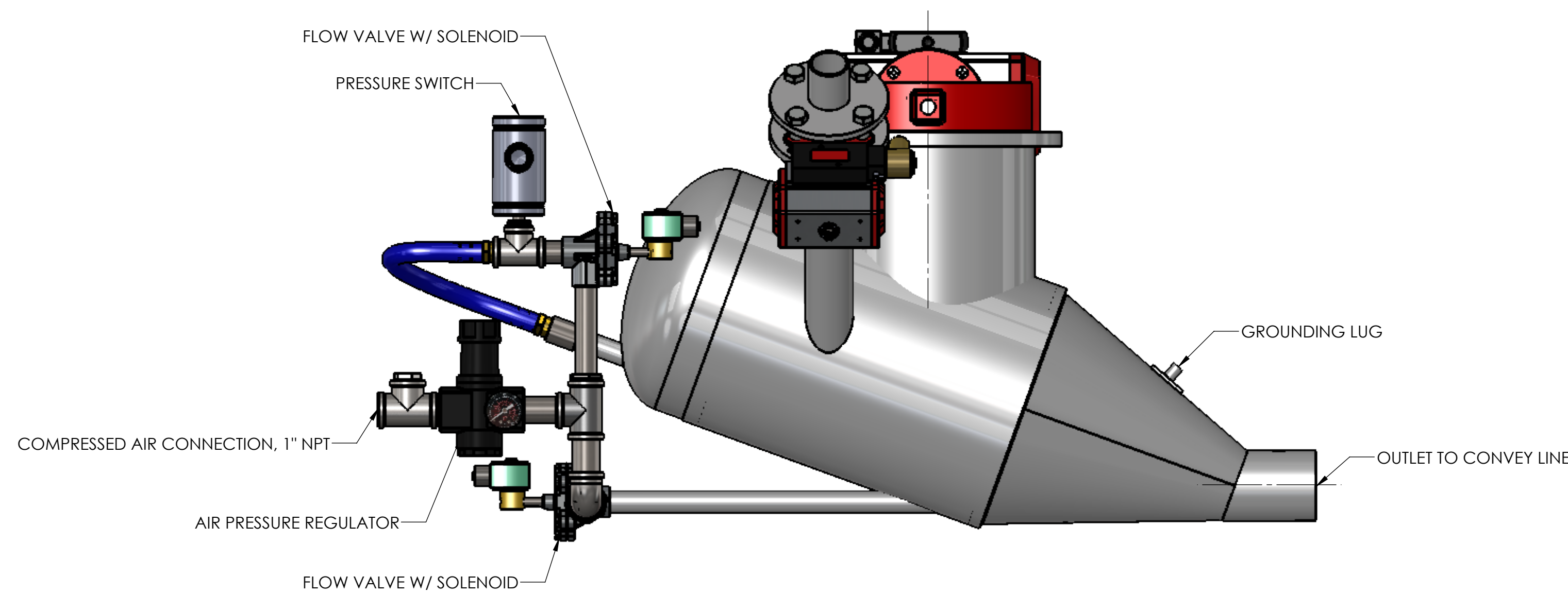
**QUICK OPEN HEAD**  
(SEE NOTE NO. 3)



**LEFT HAND ASSEMBLY**  
(SEE NOTE NO. 4)



**RIGHT HAND ASSEMBLY**  
(SEE NOTE NO. 4)



MODEL NO.	INLET VALE SIZE	CONVEY LINE SIZE (PIPE)	MAX. CONVEY DISTANCE (FT.)	MIN. CYCLE TIME (SEC.)	AVERAGE CFM	MAX. CAPACITY (CU. FT./HR)
PI 206-50	6.00	2.00	500	4	50-80	125 *
PI 306-50	6.00	3.00	500	4	70-100	175 *
PI 208-125	8.00	2.00	400	10-15	100-130	175 *
PI 310-125	10.00	3.00	400	10-15	150-250	250 *

\*CAPACITIES ARE ESTIMATED. ACTUAL CAPACITY CALCULATED BASED ON MATERIAL CHARACTERISTICS.

**NOTES:**

1. ALL HOUSINGS ARE DESIGNED FOR 150 PSIG AND ASME CODE 'UM' STAMPED.
2. PRODUCT PUMPS CAN BE SUPPLIED WITH THE CONICAL PORTION AND SHELL LINED WITH YOUNG INDUSTRIES TRANSFLOW® FLUIDIZATION MEDIA.
3. CONVEYING GAS PRESSURE SUPPLY TO BE BETWEEN 20 AND 40 PSIG. GAS SUPPLY PRESSURE TO OPERATE THE BUTTERFLY VALVES TO BE 80 PSIG MINIMUM.
4. PRODUCT PUMPS CAN BE SUPPLIED WITH THE VENT ORIENTATION AS A RIGHT OR LEFT HAND ASSEMBLY. SPECIFIED BY CUSTOMER.
5. PRODUCT PUMPS CAN BE SUPPLIED WITH REMOVABLE BOLTED ON HEAD OR HINGED HEAD W/ SWING BOLTS. SPECIFIED BY CUSTOMER.
6. PRODUCT PUMPS CAN BE SUPPLIED WITH AREA CLASSIFICATION OF NEMA 4, 7, 9 AND CURRENT OPTIONS OF 24 VDC OR 120 VAC. SPECIFIED BY CUSTOMER.
7. PRODUCT PUMPS CAN BE SUPPLIED WITH A CONTROL PANEL ONLY WHEN SPECIFIED BY CUSTOMER.
8. OTHER SIZES OF PRODUCT PUMPS ARE AVAILABLE UPON REQUEST.

**MODEL NUMBER BREAKDOWN:**

**PI 206-50**  
 └─ CUBIC FEET HOLDING CAPACITY  
 └─ INLET VALVE SIZE  
 └─ NOMINAL CONVEY LINE SIZE  
 └─ PUMP ORIENTATION

UNIT WEIGHT  
LBS

GENERAL TOLERANCES	
UNLESS OTHERWISE SPECIFIED THE FOLLOWING SHALL APPLY	
MACHINING - .XX= .02 .XXX= .005 ANGLE= .50°	
SURFACE ROUGHNESS HEIGHT 63 MICRINCHES OR LESS	
FABRICATION - UNDER 6 6 TO 24 24 TO 60 OVER 60	
± .06 ± .12 ± .19 ± .25	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	

REV. NO.	DESCRIPTION	DATE	BY
REVISIONS			
CUSTOMER:			
CUSTOMER PO NUMBER:			
YOUNG JOB NUMBER:			
TITLE YOUNG INDUSTRIES PRODUCT PUMP, MODEL 'PI' INCLUDED UNIT			
THE YOUNG INDUSTRIES, INC. HUNTSVILLE, PENNSYLVANIA 17756 TELEPHONE: 717-546-3165			
DRAWN BY: BMF		DATE DRAWN: 10/27/16	
CHECKED BY:		SCALE=1:5	
DRAWING NUMBER <b>S-20993-01</b>	SHEET 1 OF 1	REV:	