

>> BULK BAG FILLING

>> FEATURES:

- Filler spout with integral dust extraction
- Inflatable bag seal ring
- Automatic bag strap release
- 3-point load cell frame
- Quick acting butterfly powder shut-off; doubles as reject valve
- Bag inflation fan and valve
- Dust extraction valve
- Vibratory densification deck to stabilize powder
- Metal detection and separation
- Powder sampling



Economical & Accurate

Bulk bag fillers are an economical way to package a variety of powders and materials. Our engineers are capable of fully integrating a bulk bag unloading system to meet your bulk bag filling needs.

PPS bulk bag fillers combine precision weighing capabilities with flexible designs to deliver a cost-effective, accurate, and sanitary solution. Inflatable bag seal ring secures itself around the bag during filling to prevent valuable product leakage. Quick-acting butterfly valve serves as the powder shut-off while doubling as a reject valve during filling process.

Densification deck located below the bag vibrates at intervals throughout the filling cycle to compact material in bag and prevent product pile-up saving time and money. The heavy structural steel frames ensure a sturdy filling station.



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>> BULK BAG FILLING

>> OPTIONS:

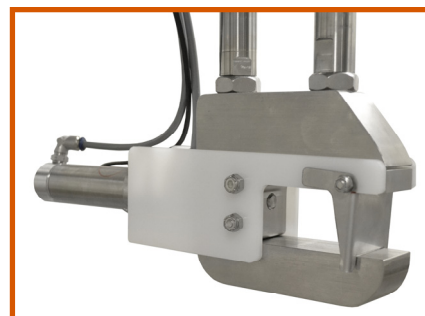
- Powder handling system to transport powders to the filler
- Impulse sealer in 304 SS for liner sealing
- Gassing provision
- Optional pallet handling system including palley dispenser, pallet conveyor and stretch wrapping



Shuttle Plate (left) with Densification Deck (right)



Control Panel



Automatic Bag Strap Release



Filler Spout with Inflatable Bag Seal Ring



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>> BAG DUMP STATION

>> FEATURES:

- Modular designs providing flexibility
- Hinged access door with gas struts
- Rugged bag shelf and removable grate
- Baffle to provide downdraft dust movement
- Controls nuisance dust, promotes cleanliness
- Ergonomic design for high capacity dumping operations and eliminating safety hazards
- Radius corners to promote powder flow & ease of cleaning
- Custom designs to suit application specifications



Bag Dump Station

Bag and drum dumping often create a dusty plume. Bag dump stations control this dust problem and assure a safe, dust free environment. Our bag dump stations also help eliminate the loss of valuable product that can happen in the bag dumping process.

PPS modular designs offer maximum flexibility and customization when it comes to integrating a bag dump station into existing design, or including it in a complete system design. FDA Food-Grade and USDA Dairy acceptance models are available, offered with stainless steel or carbon steel constructions. PPS bag dump stations are custom designed for your particular design specifications and requirements.

Design Features

Light-weight and hinged access door, shown open to the right, is designed with gas struts for easy opening and closing. Rugged bag shelf with removable grate offer comfortable bag dumping and maximum durability.

Ergonomically designed bag dump station helps eliminate safety hazards and protects workers from harmful and costly accidents and mistakes.



Sanitary design is our specialty. PPS bag dump stations are designed with minimal, flat surfaces and raised openings to have the cleanest operation possible. Multiple bag dumps come in many design configurations, including side-by-side, adjacent, opposite, and independent arrangements.



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>> BAG DUMP STATION

>> OPTIONS:

- Single- and dual-operator configurations
- Vibrating screens to capture oversize products and contaminants
- Removable bag grate mesh screens
- Removable bag shelf
- Magnetic grates
- FDA/USDA designs available
- Empty bag compactor
- Explosion-proof motors and controls
- Hopper discharge aids
- Remote dust collection and duct work sizing
- Special construction materials, coatings and finishes
- BFM® fitting snap-in flexible sleeve below bag dump

Integral Dust Collection

Integral dust collection designs are available when required. Reverse pulse-jet cleaning is used when shutting down the system is not convenient or not possible. A pulse of air is forced through the bag or filter cartridge to release the product build, allowing for optimum filtration efficiency to continue.

No external ducting or make up air is necessary for our design, which also prevents loss of product in the process. Efficiency stays at a high rate of 99%+, offering a clean and well-designed addition to your powder handling system.



CIP Option Features

- Water tight door seal
- Removable spray wand
- CIP vent
- Crevice free, self-draining design
- Dust collection isolation



Optional CIP Capabilities

PPS sanitary bag dump stations are constructed to meet USDA Dairy Standards, with the possibility for CIP capabilities where required.

CIP capable bag dump stations are designed for CIP after tool-free removal of the baffle and bag grate, with leak-free clamped door seal, and removable CIP spray ball and vent. Top dust collection system can be isolated with a BFM® fitting flexible connection.



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>> BASIC BULK BAG FILLER

>> FEATURES:

- Economic design
- Fill head & bag support arms height adjustable
- Forklift base for portability
- Vented fill spout
- Inflatable bag spout clamp
- Stainless steel frame
- Fill head control panel
- Standard platform scale



Economical & Customized

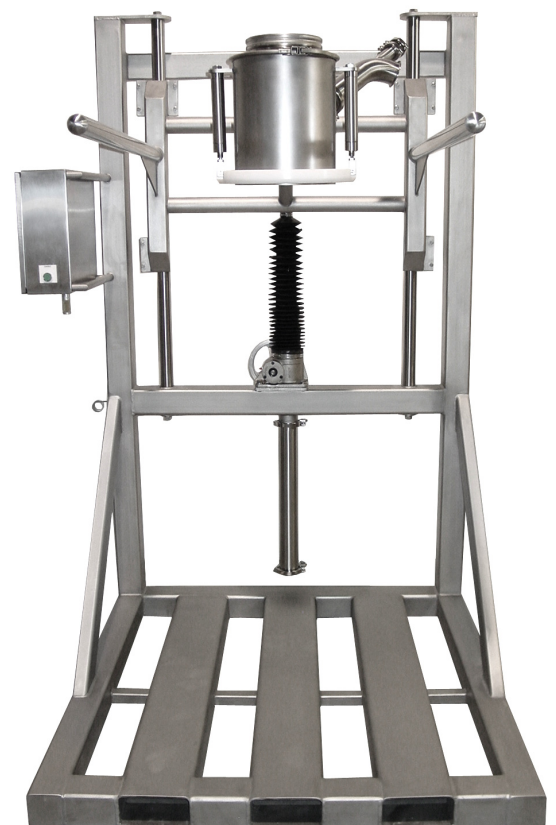
The PPS basic bulk bag filler highlights our economical design while incorporating features for USDA acceptance when filling dairy and food powders. "Easy clean" construction is made up of all stainless steel for sanitary applications with clear access to all cleanable areas.

Standard features of the basic bulk bag filler include easy strap height adjustment, a dust tight inflatable liner spout seal, bag liner inflation, and an integral dust venting system.

Simple operator controls allow for manual operation with clear, easy to execute phases for manual bag height adjustment and fill head controls.

Design

PPS basic bulk bag filler features a forklift base for easy portability from one location to another. The featured low profile design can be used with a pallet scale for gain-in-weight filling..



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>> BIN VENT

>> FEATURES:

- Adjustable pulse-cycle timing
- Wide range of filter media
- Top and bottom bag/cartridge removal
- Broad selection of internal coatings, special exterior finishes and insulations
- Materials of construction include carbon steel, stainless steel, and aluminum
- Food-grade constructions or designs that meet 3A dairy requirements



Bin Vent Filters

PPS Bin vent filters are an effective solution for dust control problems in bins, hoppers and silos. A bin vent will separate dust particles from the conveying air, either discharging the unwanted dust or reclaiming it for use again.

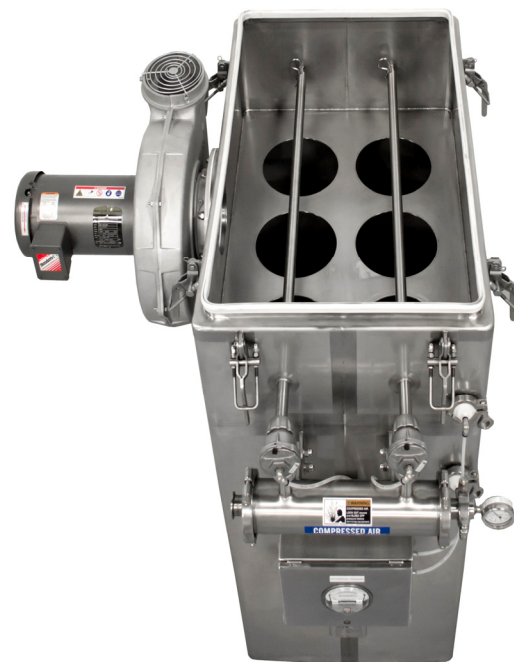
Dust particles are collected on the outside surface of the bags or pleated filter elements as the air stream passes through the filter media and up to the clean air plenum.

A pulse of predetermined compressed air is released into a distribution pipe, producing a shock wave along the length of the bag, dislodging the particles from the surface for product recovery.

Bin vent filters can be furnished to handle air volumes ranging from 50 to 5,000 cubic feet per minute. All bin vent filters are equipped with automatic on-line pulse-jet cleaning technology.

Top-load and bottom-load units are available with bags/filter elements being accessed from above the tube sheet or below the tube sheet.

Powder Process-Solutions will properly design a bin vent for optimum filtration efficiency, low energy consumption and long bag/pleated filter bag life. We have standard options available, but can custom build to fit your filtration specifications.



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>> BIN VENT

>> ACCESSORIES:

- Internal steel grid
- Roof top exhaust fan
- Quick release bag clamps
- Galvanized and stainless steel cages
- Pulse on demand
- Explosion proof electrical components
- Static grounding system
- David arm assembly
- Support legs
- Access platform



Top load design featuring PSI-Pleat pleated filter element installation.



>> Contact us with your design parameters.

>> Technical specifications and dimensions available on request.



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>> BLOWER PACKAGE

>> FEATURES:

- Choice of blower and motor in a standard package
- Heavy duty steel base, compact design
- V-belt or direct drive
- Adjustable motor slide base
- Enclosed drive guard
- Inlet (pressure only) and outlet silencers
- Inlet air filter (pressure only)
- Check valve (pressure only), relief valve and gauge accessories
- High gloss food grade epoxy or Steel-It enamel finishes
- Preassembled for easy installation
- Complete AutoCAD drawings
- Fast delivery
- Guarantee of factory warranties on all components
- Standard 1 and 2 year package warranties



Packages

Pressure and Vacuum Blower Packages are available for pneumatic conveying, aeration systems and industrial processes. You can specify your choice of components or simply tell us your air requirements and let us do the work.

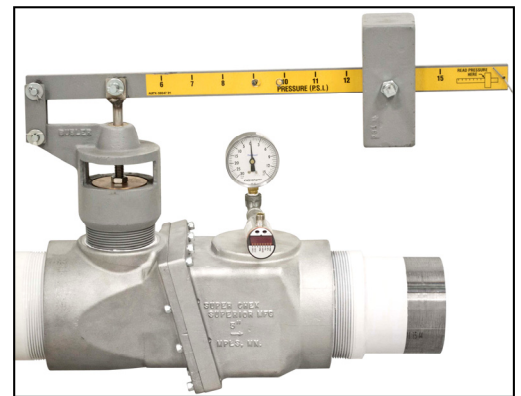
Either way, you get the most economical blower package designed and fabricated specifically for your application. No hassles, no delays, and no wasted time or costs due to multiple sourcing of necessary components.

Available Options

Many options are available for blower and vacuum packages. Custom designs including stackable, wall mount, and low profile configurations. Sanitary designs with formed angle base, tubular legs, and minimum ledges and corners are available as well as stainless steel construction.

Various controls are available like pressure switches, temperature switches, and others. Vibration isolation pads, heat exchangers for heating or cooling the gas stream, and ventilated acoustic enclosures are also available upon request.

Standard packages range from 5HP-125HP. All units customized for each application based on air flow requirements, altitude, and inlet/outlet pressure conditions.

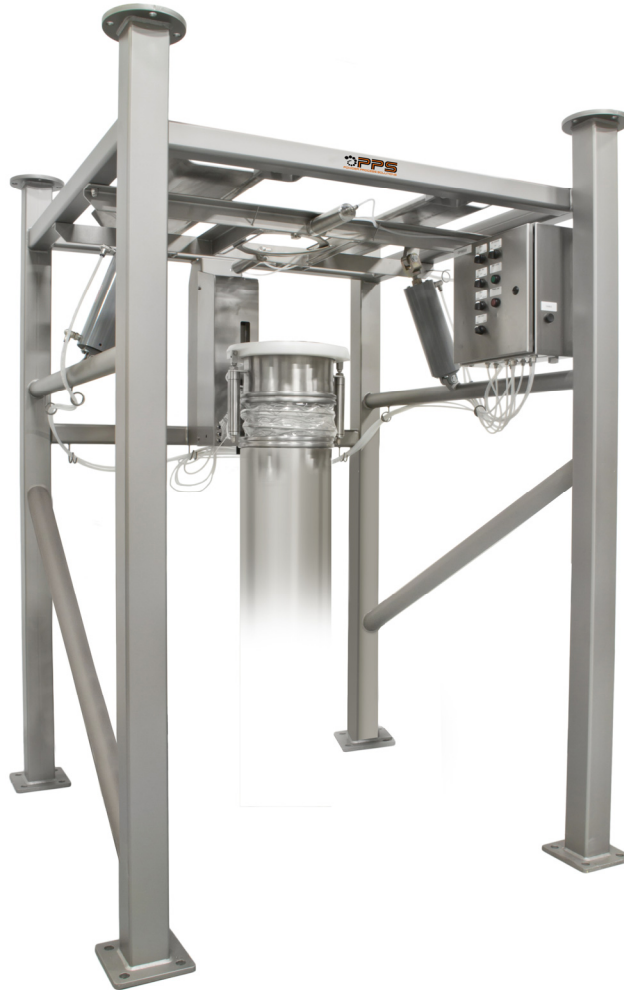


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>> BULK BAG UNLOADING

>> FEATURES:

- Standard modular designs
- Full platform design allows for bottom of bag to seal against support trap
- Bag closure pinch bars completely seal off bag spout for untying/retying
- Liner hook to prevent line from blocking discharge



PPS Bulk Bag Unloading

PPS bulk bag unloading systems offer safe, efficient, and dust-free methods, essential when handling bulk bags. PPS offers a range of equipment and options specifically designed for your process needs.

Our modular designs allow us to provide the equipment best suited for your product and application. All BBU systems are constructed to meet your sanitation guidelines including attention to product contact constructions, welds, and surface finishes.

Bag agitation, bag cinchers, spout stretchers, and other options may be added to increase efficiency and effectiveness of your BBU system.

Your Bag Unloading Solution

By understanding your material and special characteristics and abrasiveness, we are able to suggest equipment finishes, product contact selections, unloader frame requirements, and other equipment specifications that will keep your equipment running at optimum efficiency.

The PPS bulk bag unloader system provides an easy and safe method to lift, support, and discharge bulk bags. By eliminating dust and spillage, precious product is saved as well as the safety of your workers.

Discharge of product can be controlled with a variety of feed devices and weight controls to best suit your process requirements.



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>> BULK BAG UNLOADING

>> OPTIONS:

- Discharge spout tension; assures complete emptying of bag
- Liner tensioning system retracts the liner as the bag is empty; prevents spout from collapsing
- Integral bag dump station with BBU allows manual dumping of bags and drums
- Dust collection, either integral or remote
- Loss-In-Weight design; allows total control over amount of product dispensed
- Electric or pneumatic chain hoist with I-beam



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>> BULK BAG UNLOADING

>> FEATURES SHOWN:

- *Vibrating Tray Module* with integral dust collection handles a variety of bulk bag types—spouted and unspouted
- *Surge Hopper* increases available ingredient storage capacity, allowing operators more time to change out empty bags
- *Rotary Valve* provides an airlock and meters flow to downstream components and into a pneumatic transfer system
- *Delumper* assembly breaks down product lumps that may form within the bulk bag
- *Scalping Sifter* screens off any potential contaminant that would otherwise transfer to your downstream process

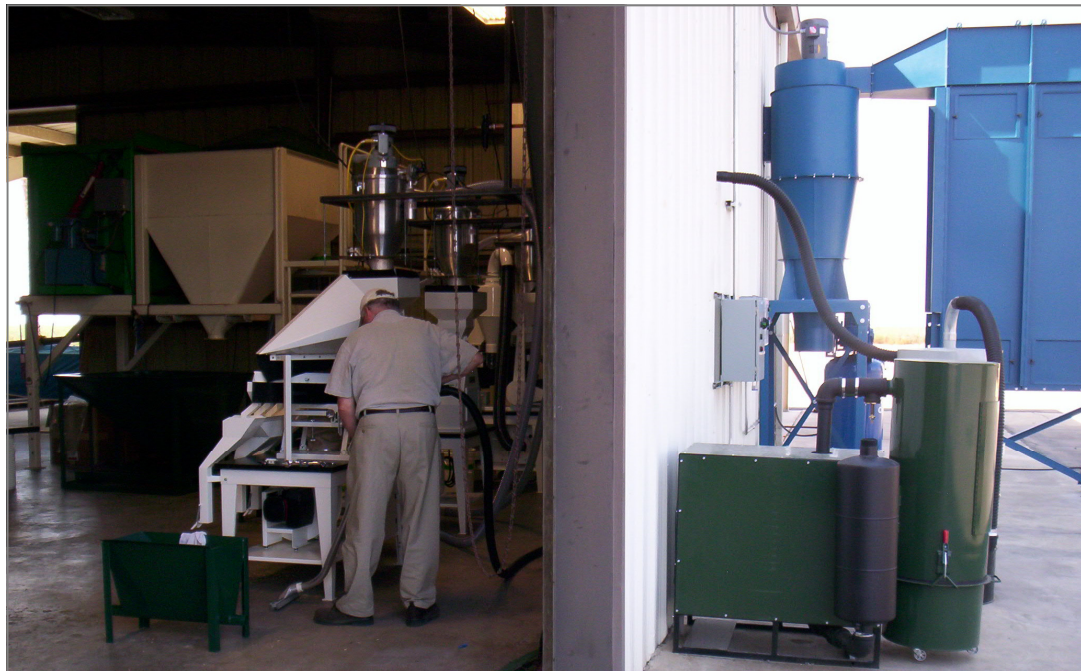


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>> CENTRAL VACUUM CLEANING

>> FEATURES:

- Centralized waste collection
- High capacity vacuum pump
- Systems designed for multiple simultaneous users
- High efficiency filtration systems with compressed air jet pulse cleaning
- 2nd stage backup filter
- Sanitary 304 SS construction
- Anti-static hoses
- Aluminum inlet hose connection valves
- Non-plugging pipework design
- Low maintenance design
- Easy to use



Cleanliness Redefined

Central vacuum cleaning systems are designed to enable the highest standards of cleanliness to maintain food, dairy and pharmaceutical plants.

Each system includes a centralized waste receiving hopper and vacuum pump connected to a reticulated pipe network throughout the required area, with inlet isolation flap valves at convenient locations. A variety of hoses and nozzle fittings are available to enable effective cleaning of all floors, walls, crevices, pipes, ductwork and machinery. Eliminates the inconvenience of portable vacuum cleaners.

Available Options

- Widest variety of hose and nozzle fittings—extensions, curved, corner, crevice etc.
- Explosion and flameproof designs
- Waste collection options—drums, bags, bins, etc.
- Continuous or intermittent dumping of collected waste
- Waste compaction systems
- Mobile collection systems



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>> CYCLONE RECEIVER

>> FEATURES:

- Food grade and sanitary constructions available
- Hinged and clamped cleanout door with safety switch
- Davit arm available on larger, sanitary units
- Optional load cells
- Optional discharge flanged for mounting of rotary valve
- Optional insulated side walls



Insulated side walls

High Efficiency Separation

High efficiency separation is found by integrating a cyclone into your powder processing line.

While the powder travels down the unit through a tangential spiral and settles, the air is forced up and out of the unit thus separating the air and product.

PPS cyclones are specifically designed with each application and product in mind. With premium efficiency and by integrating custom specifications with proven design standards, we are able to tailor our cyclone's to fit your specific application requirements.

PPS sanitary cyclones are fully welded and polished units with demountable features allowing for ease of disassembly and cleaning .



Food grade, non-stick coating



Quick take-apart design



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>> CYCLONE RECEIVER

>> BENEFITS:

- spec

Demountable Cyclone with Davit Support Feature



Quick clamps released pictured above. Hopper is easily lowered and pivots out for cleaning and inspection.



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>> DEHUMIDIFIER & AFTERCOOLER

>> FEATURES:

- 304 or 316 stainless steel and carbon steel
- USDA Dairy Construction
- Copper tube and aluminum fin coil
- O.D. tube, flanged or ferrule connections
- Insulated housing
- Temperature and differential pressure gauges
- Self acting water flow control valve



Dehumidifiers & Aftercoolers

Dehumidifiers and aftercoolers are used to control temperature and moisture levels of air in process and pneumatic conveying systems.

Computer analysis of heat transfer requirements assist in the proper selection of equipment to meet your specification.

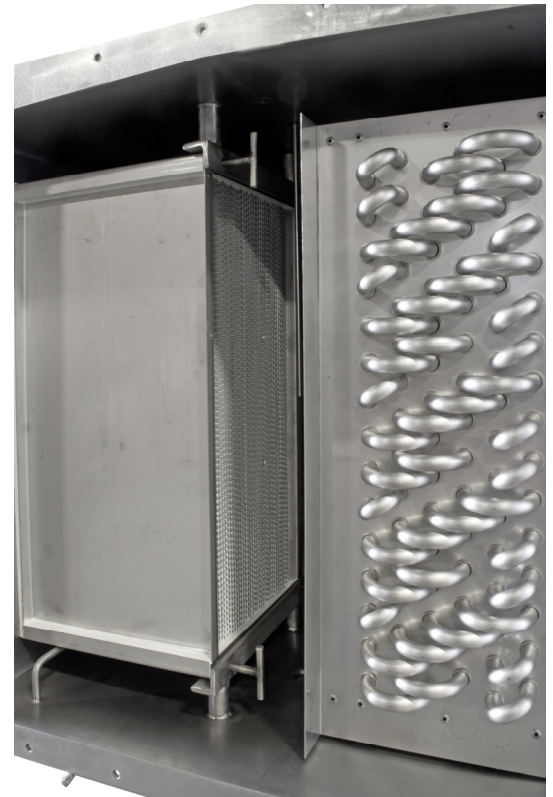
The dehumidifier in this situation lowers air temperature below the dew point for moisture removal, while the aftercooler raises air temperature to the proper temperature for your product.

Custom configurations, as seen to the left, are available to fit your equipment location and plant requirements.

Final Filters

Final filters provide ultra filtration of air and are required for stringent sanitation guidelines. The design features 304 or 316 stainless steel, similar to the dehumidifier and aftercoolers. USDA Dairy construction is available with HEPA grade filter providing 99.97% efficiency at 0.3 micron.

The filter is removable from the housing without the use of tool. Varying connections are available with a differential pressure gauge also provided.



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>> DUST COLLECTOR

>> FEATURES:

- Adjustable pulse-cycle timing
- Wide range of filter media
- Top and bottom bag/cartridge removal
- Broad selection of internal coatings, special exterior finishes and insulations
- Materials of construction include carbon steel, stainless steel, and aluminum
- Food-grade or 3A dairy accepted constructions



Dust Collection

We have years of experience designing dust collection systems to maintain the sanitation, safety and efficiency of your production environment. Our systems are custom designed based on the proven formula of Capture, Convey and Collect.



Our dust collection systems help processing plants comply with OSHA and NFPA regulations by controlling in-plant and environmental pollution.

Capture

We will evaluate the source of the dust and operational requirements to engineer the best hood design to capture dust at the source. Minimum capture velocities are required to pull the dust out of the atmosphere and away from the operator.

Convey

Duct is properly sized & routed to maintain a minimum conveying velocity. Incorrectly designed ductwork allows dust to settle, robbing system performance & creating unsafe conditions. A suction fan is selected for the calculated CFM & static pressure.

Collect

Dust must be separated from the air stream using an appropriate dust separator (cyclone, bag house scrubber, etc.). Collected dust must also be discharged from the separator in a safe manner for recovery or disposal.



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>> FILTER RECEIVER

>> FEATURES:

- Food grade carbon steel or sanitary stainless steel construction
- Hopper access door
- Clean air plenum access door
- Optional Fike explosion suppression system
- Optional support legs



Vacuum Filter Receivers

PPS vacuum filter receivers utilize solid design and quick release components and cartridges to successfully contain and separate material dust generated by pressure or vacuum pneumatic conveying systems.

Heavy duty construction and top of the line filters allow for maximum filtration, with a wide variety of custom sizes and configurations available to fit your application specifications.

Air Volumes & Designs

Access to interior and filters is made easy by designs utilizing the removable top cover or removable side cover. They both allow for access to product contact surfaces as well as filter removal and inspection. Access doors are always secured with hand knobs for a tight seal, but also allows for quick access for cleaning and maintenance.



Compact filter receiver



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>> PPS GASSING ELEMENT ASSEMBLY

>> FEATURES:

- Easy disassembly for servicing
- Replaceable element
- Robust design
- Standard connections



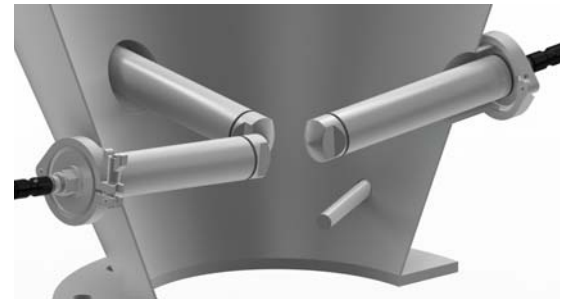
Design Specifications

Standard insertion lengths: 9.5", 11.5" & 15.5"
Mounting connection 3" sanitary ferrule
Gas supply line 1/2" OD or 12mm OD
All 316L stainless steel materials
FDA Approved gaskets and o-rings

PPS Gassing Element

Inert gases such as Nitrogen or mixture of Nitrogen and CO2 help to extend the shelf life and prevent product spoilage due to oxidation.

Typical systems are used with filling machines for cans, sachets, 25kg Bags, Bulk Bags and Bulk Bins.



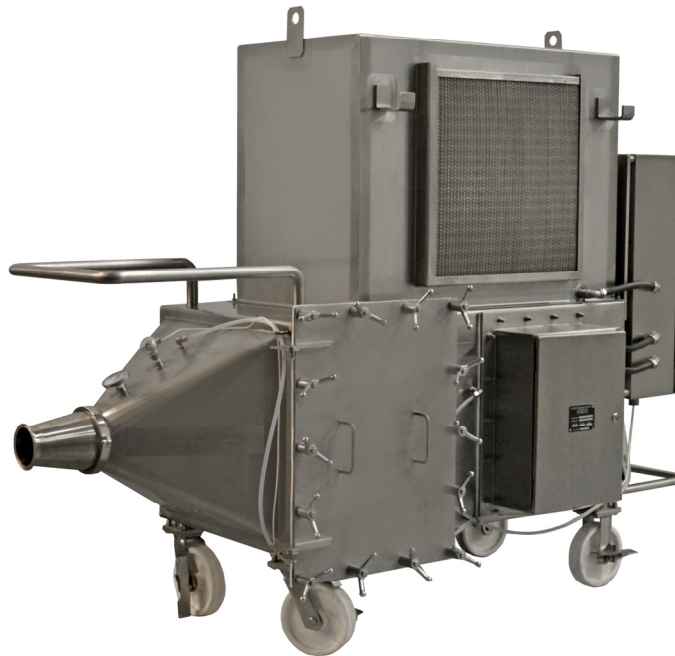
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*For full gassing system design & integration, contact PPS at sales@powder-solutions.com

>> HOT AIR DRYING

>> FEATURES:

- FDA Food grade and USDA Dairy designs
- Stainless steel or aluminum construction
- 10-15 HP regenerative blower pushes air over the heating coils
- 20-50 kW finned tubular electric air heater with safety cutout
- Coarse filter air inlet
- HEPA filter discharge—easily changed without tools
- Large swivel lock wheels for easy maneuverability
- 64" x 25" x 65" (LWH), 800 lbs.



Efficient Sanitation

Drying process powder piping after C.I.P. cleaning is essential for proper sanitation and to prevent build up of powder in the convey lines. Operating an existing positive displacement blower is less efficient and requires more time to completely dry the line.

Our air heater provides the air volume, pressure and temperature to efficiently dry your process powder lines.

Fast, safe and reliable drying is important, and we provide that with better control as well. Low horsepower, low maintenance design is also portable and easily moved by one person. It hooks up in minutes to process piping, and you are capable of C.I.P. and drying one line, while a second line is still conveying powder.

Panels and Options

Control Panel, pre-wired & tested includes:

- Start-Stop switch and E-stop button
- Run timer and alarm when cycle is complete
- Variable thermostat with security protection
- Hi-temp cut-out switch
- HEPA differential pressure gauge and switch
- Status indicator lights
- Control transformer and starters, fuse protected
- 20' cable with 3 pole 4-wire plug

Options include:

- Insulated cabinet
- Centrifugal fans for high volume, low pressure
- Regenerative blowers for high static pressure applications
- Stationary base



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>> LOW RATE METERING SYSTEM

>> FEATURES:

- Range of finishes, including USDA/Dairy
- Fast, tool-free disassembly
- Custom process connections
- Loss-in-weight or volumetric feed controls
- Stationary or mobile unitary frame
- Pre-wired and tested
- Totally self-contained

Low Rate Metering

Low rate metering systems are ideal for applications that require pneumatic conveying of powders with short distances and high accuracy. Convey rates between .015 and 1.25 cu. ft. per hour.

The complete feeder and conveying system consists of a regenerative blower, educator, final filter, powder hopper, screw feeder and control panel. All components are mounted on a sanitary frame.



Applications

Typical applications include:

- Vitamin and mineral dosing
- Powder reconstruction
- Reworking off-spec powder
- Flow agent addition

Components can be quickly disassembled in place and without tools for quick access.

Design is ideal for applications that require frequent disassembly for cleaning.



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>> LOW RATE METERING SYSTEM



- >> Contact us with your design parameters.
- >> Technical specifications and dimensions available on request.



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>> NITROGEN GASSING SYSTEMS

>> FEATURES:

- Evacuation/gas injection
- Gas purging (Flushing)
- Batch or Continuous
- Pre-gassing or post gassing systems
- Monitoring and control of residual oxygen levels.



Nitrogen Gassing Systems or MAP Systems

Modified Atmosphere Processing Systems (M.A.P) remove Oxygen and replace with inert gases. Oxygen promotes several types of deteriorative reactions in food powders including fat oxidation, browning reaction etc. Inert gases such as Nitrogen or mixture of Nitrogen and CO₂ help to extend the shelf life and prevent product spoilage due to oxidation. Nitrogen Gassing systems are used in packing whole milk powders and other food powders . Designed to evacuate Oxygen and replace with Nitrogen or similar gas mixtures to achieve less than 1% Residual oxygen.

Typical systems are used with filling machines for cans, sachets, 25kg Bags, Bulk Bags and Bulk Bins.

Control Systems

Systems include complete control systems for powder conveying, evacuation, Continuous on-line sampling provides Residual Oxygen measurement in real time and feedback control ensures performance to tight specifications.

Evacuation/Injection or Gas Flushing (purging)

Depending on process requirements, gassing systems may be designed to operate on a batch process of evacuation followed by inert gas injection, or on a continuous basis with gas flushing of a powder vessel creating laminar flow and stratified oxygen reduction also known as purging . In general gas flushing/purging systems are simple but will have relatively higher nitrogen consumptions compared to evacuation and gas injection process



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>> NITROGEN GASSING SYSTEMS

>> BENEFITS

- Low residual oxygen levels in finished product
- Extended shelf life in packed products
- Combined vacuum transport and pre-gassing systems



Vacuum Pre-Gassing

Combined Vacuum Conveying & Pre-Gassing Systems

These systems use a vacuum conveying system and vacuum pump to convey powder from one or more storage hoppers, fully evacuate the Oxygen, and then back flush with Nitrogen or Inert Gas. This eliminates the need for a separate convey system providing a significant saving on capital cost.

Post-Gassing Systems

Post-gassing is the process of gas replacement after filling; in other words gassing takes place after the product has been placed into its packaging.

Typical applications include post-gassing of products after packing into cans, sachets and pouches. These systems have very low gas consumption and require specialized technology.

Pre-Gassing & Post-Gassing Systems

Depending on process requirements, PPS uses two main technologies. These are commonly known as Pre-Gassing and Post-Gassing.

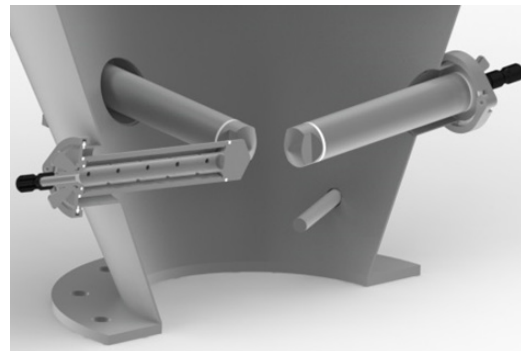
In both methods, oxygen is removed from the product and inert gas is introduced as replacement.

Both methods have their relative advantages and disadvantages: depending on factors such as product type, processing speed and cost of inert gases.

Pre-Gassing Systems

Pre-gassing is the process of gas replacement prior to filling, where the product is treated separately before filling process. Pre-gassing systems are designed in such a way to provide product with low and controlled residual oxygen levels to the packing machines.

Typical applications include pre-gassing of products before packing into bulk bags/bins/25 kg bags and boxes/drums.



Gassing Wands



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>> PRESSURE DENSE PHASE CONVEYING

>> FEATURES:

- Gentle conveying
- Mild steel and stainless steel construction
- Control system utilizes sensors to control dense phase convey rate
- Air-to-product ratio is maintained for reliable conveying, no plugging
- Compressed air as conveying medium
- Batch sequence operation
- Optional—continuous dense phase



Pressure Dense Phase Conveying

Each system is purpose designed and built to suit the application using a variety of technologies including fluidization, pulse phase, stepped convey lines, slugging, boosting, modulation and more.

PPS has a system to meet all applications:

- High capacity conveying
- Long distance conveying
- Gentle conveying of friable materials
- Sanitary conveying of food and dairy products
- Multi-product systems

Sequence of Operation

Product is loaded into the dense phase vessel to a pre-set level. The various valves are then shut and the vessel is pressurized to a pre-set level and the discharge valve then opens. Depending on the various options, a number of other valves are opened to enhance the product flow.

The product is sent over as a batch, once the vessel has emptied and the line has purged clean the vessel is stopped being pressurized and the product discharge valve is closed.

Excess pressure in the vessel is vented and the vessel is ready for a fresh charge of product.



Compressed air control panel



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>> PRESSURE DENSE PHASE CONVEYING

>> BENEFITS:

- Reduced wear on pipelines
- Low conveying velocity
- Suited to gentle conveying of agglomerated and abrasive powders
- Low air to product ratio
- Reduced filter area
- Minimum product breakage and degradation
- Minimum degradation of blended powders
- Compressed air as conveying medium eliminates the need of separate dehumidification

Design

The system design including vessel sizing is dependent on the product characteristics and the required throughput. In some applications, tandem vessels working in sequence should be considered.

Depending on the application, the equipment may be optioned with:

- Booster Valve
- Product Fluidizers
- Modulating Valve
- Inlet Surge Hopper

The pipe work specification is an important part of the system. This is determined by technical analysis of:

- Product
- Rate
- Distance
- Elevation
- Number of bends

On some systems, it may be necessary to include compressed air injection points along the line to maintain product flow. On higher-pressure applications, it is sometimes advisable to increase the pipeline size towards the end of the run to compensate for the air expansion as the pressure decreases.



Typical system valves and level controls



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>> PRESSURE DILUTE PHASE

>> FEATURES:

- Suitable for non-abrasive, non-fragile materials
- Typical conveying velocities of 4,000-7,000 FPM (feet per minute)
- Simple system operation & design
- Economical option for pneumatic conveying
- Easy operation

Pressure Dilute Phase

High air flow, low-pressure air is used in a pressure dilute phase system to convey powders. Pressure dilute phase conveying systems are simple to control, economical options for powders unaffected by high velocities such as whey, lactose, sugar, salt, whole grains, rice, cocoa, starch, and other products such as whey, lactose, sugar, salt, whole grains, rice, cocoa, starch, and other products.

Pressure dilute phase conveying, (also known as lean phase pressure conveying), generally uses positive displacement (Roots type) blowers providing air at up to 1 Bar g to convey materials through a pipeline to the destination where the air and product are separated by a filter or other system.

The product must enter the convey line, which is at a higher pressure, via a special feeding device, usually a rotary air-lock valve, or a venturi. The product is suspended in the airflow, moving at relatively high velocities, typically 4000-7000 feet per minute, depending on the particle sizes and densities.

Systems generally operate on a continuous basis—product is constantly supplied at the starting point, and arriving at the destination without interruption. This allows this type of system to be easily adapted for batching and continuous weighing applications.

Applications

Pressure dilute phase conveying systems are particularly suitable for systems which convey materials at low to high capacities over short to long distances, from single or multiple pick-up points to single or multiple destinations. These systems are versatile and adaptable for different materials and the low operating pressures allow lower cost pipelines and fittings. Frequently the most cost effective solution for typical conveying applications.

Specifications

Typical systems convey at low to high convey rates, typically from 1-50tons/hour. Velocities are typically 4,000-7,000 FPM, and conveying distances up to 200m and longer.



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> PROCESS SYSTEMS

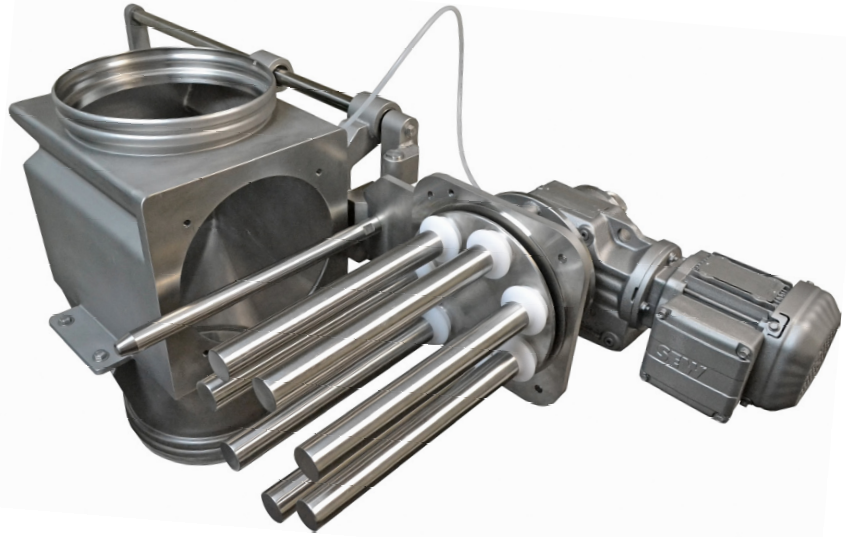


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>> ROTARY MAGNET

>> FEATURES:

- USDA Dairy Accepted
- >11,000 gauss rare earth magnet rods with rotary action provides maximum separation efficiency
- Standard 316/316L Housing
- Maintenance free direct drive, available in painted steel and stainless steel
- Sanitary air purged shaft seals with integrated air service package
- Customized inlet and outlet connections including BFM® fitting, tri-clamp, flanged, round or square



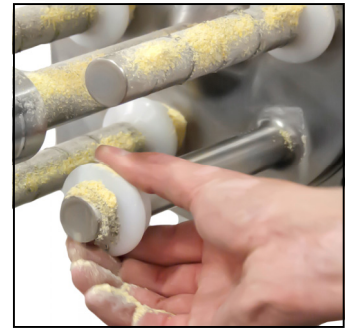
Rotary Magnet Benefits

Rotary magnets are designed to remove ferrous and weakly charged magnetic particles from product flows that tend to plug and bridge in stationary magnetic grates. The rotary action prevents the product from bridging the process stream while breaking apart soft lumps and cohesive materials. The rotary action also provides a superior product to magnet contact ratio versus conventional grate magnets.

Superior Design

The PPS rotary magnet's inlet concentrates product flow over the highest strength section of the magnet. Some other's designs allow flow over the weaker ends of the magnet rods where weakly magnetic particles like worked hardened stainless steel may not be captured.

Magnet cartridges are vacuum resin encapsulated within rods providing a more robust assembly that will not bend, crack, corrode, or lose magnetic strength as easily as other magnets on the market.



Magnets are cleaned completely outside the product zone.

Easy to Clean

Demountable design allows magnet rotor to be removed for cleaning without tools. Slide rails support weight of rotor and lock in place to hold rotor outside of product stream. Ferrous particles are removed from magnets with wiper rings.

Dummy plate available to allow full CIP of housing with rotor removed.

USDA Dairy Accepted

Rotary Magnet design and fabrication has been verified by a USDA AMS Dairy Grading Branch Inspector to meet the most stringent sanitary requirements in the industry. Contact PPS for a copy of the USDA Acceptance Certificate.

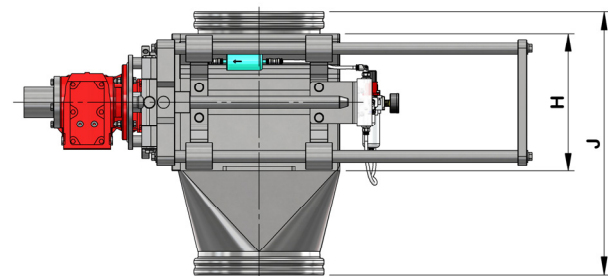
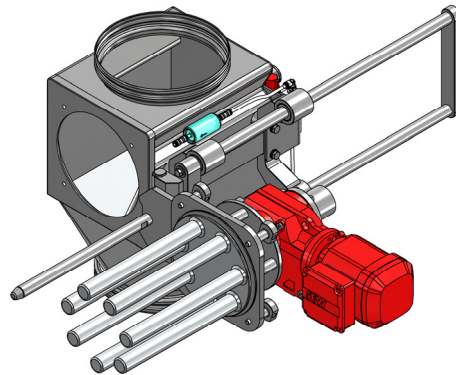
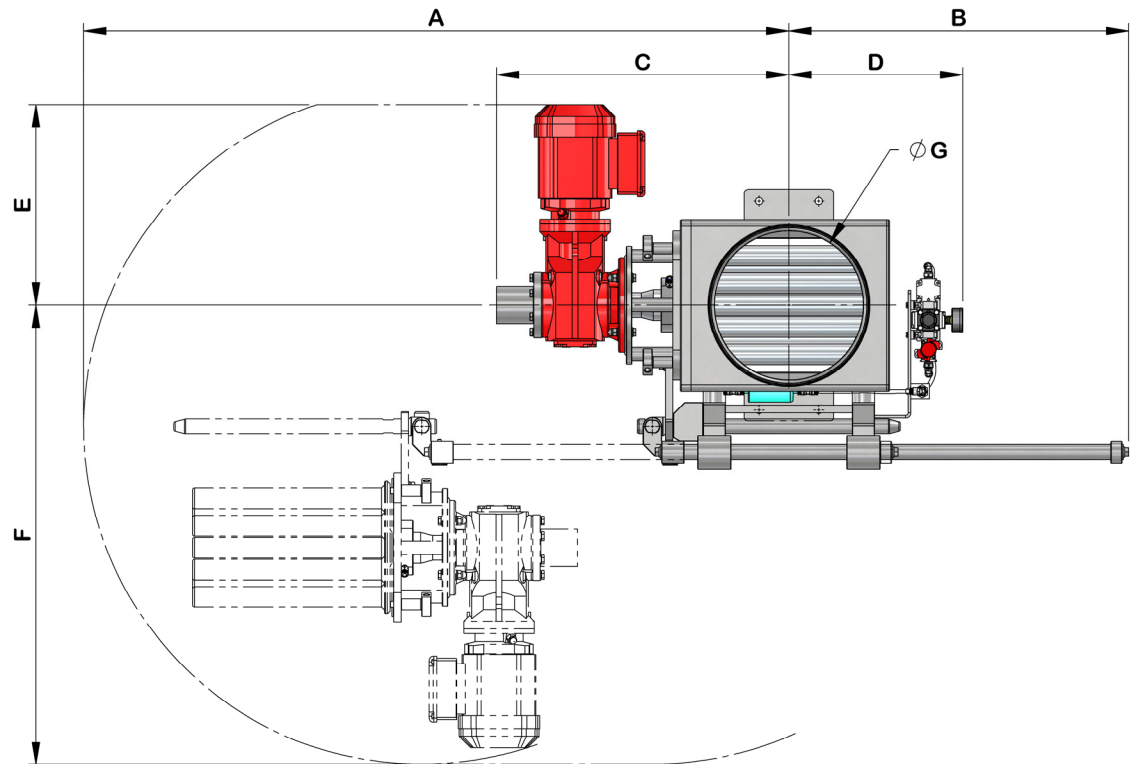


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>> ROTARY MAGNET

>> BENEFITS:

- Magnetic protection without restricting powder flow
- Magnetic rotor is demountable from housing without tools
- Precision machined assembly for dust-tight operation
- Sanitary housing design is self-draining, ledge and crevice free
- Housing inlet concentrates product flow over highest strength section of magnet.
- Resin encapsulated magnet cartridges prevent damage to magnet material



MODEL	A	B	C	D	E ₂	F	ØG, NOMINAL	H	J _{MIN.1}
RM-08	42.75	19.25	18.13	10.25	13.44	28.88	6" or 8"	10.00	16.56
RM-10	47.31	22.81	19.63	11.63	13.44	30.88	10"	11.50	19.56

1 Height dependent upon inlet and outlet options. Process connections available: flange, tri-clamp ferrule, tube stub, BFM® fitting (shown in drawing).

2 For standard SEW Eurodrive motor.

Call PPS for more info and to receive a drawing for your application.



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>> SANITARY SCREW FEEDER

>> FEATURES:

- Auger diameters from 4" - 10", screw lengths to 60"
- Stainless steel construction
- Air purged shaft seals
- Outboard bearings
- Fully demountable design for easy cleaning
- Meets 3-A sanitary standard 81-00
- Volumetric or Loss-in-Weight operation



VSF and VSFO

PPS Volumetric Screw Feeder (VSF) and Volumetric Screw Feeder with Overflight (VSFO) are used for applications where the controlled rate of product discharge is important to the process. Applications include discharge of smaller hoppers, bulk bag unloading, hand dump stations, and minor powder addition and batching systems.

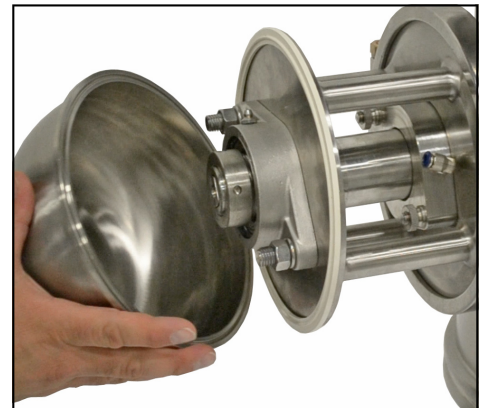
The VSF and VSFO models provide medium to high capacity screw feeding that meets the increasing demands of the food and dairy industry by providing a sanitary and quickly demountable screw feeder. VSF and VSFO models meet the requirements of 3-A sanitary Standard 81-00.

Designs & Characteristics

The PPS VSF and VSFO models are available with screw diameters ranging from 4" to 10" and screw lengths up to 60". The screw is available in any flight configuration.

Shaft bearings are fully outboard of the product area, protected by air purged shaft lip seals. The screw and tube are completely demountable for cleaning. Select from several inlet and outlet connections, including bolted flange, sanitary ferrule, BFM® fitting.

AC gear motor drive package direct couples to the screw shaft, and is available with many gear ratios. Optional variable frequency drive.



Outboard bearings with air purged shaft seals



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Overflight

The VSFO line, (Volumetric Screw Feeder with Overflight) incorporates custom flighting in the screw design to improve the feeding of non-free flowing powders.

Materials that tend to pack or interlock can build up on the shaft or in the screw feeder trough, which can in turn reduce the conveying capacity and consistency of the product flow.

The open space created between the auger and the overflighting in this design allows for the free movement of difficult materials and prevents them from building up. Consistent filling of the metering flights is also achieved for improved accuracy.

>> Contact us with your design parameters.

>> Technical specifications and dimensions available on request.



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>> SCREW CONVEYOR

>> FEATURES:

- Available in single screw, twin screw, or multi-screw units
- Micro feeders to mass flow feeders available
- Wide range of screw lengths
- Carbon steel, stainless steel, or combination construction
- Industrial grade, food grade, and sanitary designs available
- Standard auger flights with full pitch or custom variable pitch and conical auger designs
- U-trough, tube-trough, flared u-trough, and combination designs
- Horizontal or inclined installations
- Self-supporting frames and mobile carts available
- Fully demountable design for easy cleaning
- Loss-in-weight feeder designs custom built with integral multi-function controllers



Mechanical Conveying

PPS screw conveyors are used for applications where mechanical conveyance is the optimal way of moving product. Applications include discharge of smaller hoppers, bulk bag unloading, hand dump stations, and minor powder addition.

Screw conveyors provide consistent product conveying that meets the increasing demands of the food and dairy industry by providing a customized design with your specifications in mind.

The PPS screw conveyors are available in sizes ranging from micro feeders on up to mass flow feeders with a wide range of screw lengths available.

Designs & Characteristics

Designs are available in single screw, twin screw, and multi-screw units. Choose between a horizontal or inclined installation. Many trough variations available as well including u-trough, tube-trough, flared u-trough, and a combination tube and u-trough.

The screw and trough are completely demountable for cleaning when required for a sanitary application.

Select from several inlet and outlet connections including bolted flange, sanitary ferrule, and the BFM® fitting.

Shaft seals available include plate seals, lip seals, air-purged seals, and gland packing.



Shaft mount direct drive



Close-up of clamps



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>> VACUUM DENSE PHASE CONVEYING

>> FEATURES:

- Non-suspension flow
- Low conveying velocity—200 to 1000 FPM
- High solids to air ratios up to—40:1
- Multiple pick-up possible
- Gentle conveying—minimum product degradation
- Best suited to cohesive, fluidizable powders



Conveying Fragile Materials

Vacuum dense phase conveying systems are an ideal system solution when conveying fragile or abrasive materials. A vacuum dense phase conveying system allows for the gentle conveying of these materials while offering design flexibility and customization.

Applications

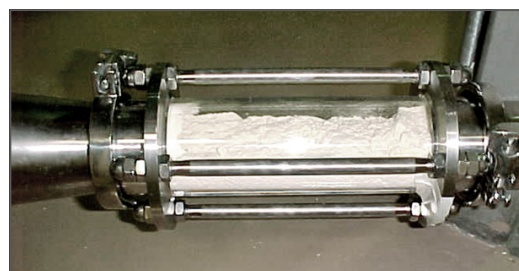
Dense phase vacuum conveying systems are particularly suitable for systems which convey materials at high capacities over short to medium distances, from multiple sources to a single or multiple destinations.

The low convey velocities and vacuum method make it particularly suitable for food, dairy, and pharmaceutical applications with friable or fragile agglomerated powders.

Operation

Dense phase vacuum conveying systems are high capacity vacuum pumps (up to 99% vacuum) to convey materials from a feed hopper or silo to a receiving vessel (also known as a vacuum hopper) where the air and product are separated by a filter. When this vessel is full, the vacuum is isolated and the conveyed product discharged into the destination silo. The product conveys through the pipeline at a controlled low velocity, usually in a fluidized state to reduce friction and pressure drop.

Valves and sensors are used throughout the system to control the applied vacuum and product fluidization settings and velocities at all parts of the system to ensure smooth, reliable conveying of the product.



Suited to

- Friable agglomerated powders
- Food and dairy powders
- High fat powders
- Heat sensitive powders
- Abrasive powders



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>> VACUUM DENSE PHASE CONVEYING

>> BENEFITS:

- Low powder damage
- Control systems utilize sensors to control convey rate
- Air-to-product ratio is maintained for reliable conveying, (no plugging)
- Low cost to convey from multiple sources

Vacuum Dense Phase

Powder Process-Solutions designs vacuum dense phase systems for powder, granules and agglomerates. Low volume, low density air is used to convey at low velocities, ensuring low product degradation at the destination. Depending on the application parameters, vacuum dense phase systems are used at controlled air to solids ratio to minimize product damage. This gives us the ability to design conveying systems with multiple sources and destinations

System Components

- Infeed point(s) to funnel powder and fluidize in a controlled manner as powder enters the convey line
- Gas booster points along the convey line to maintain control of powder velocity
- Vacuum receiver hopper(s) to collect conveyed powder
- Discharge valve (butterfly valve for intermittent discharge, rotary valve for continuous discharge)
- Air control valves and pressure monitoring
- High vacuum pump(s)
- PLC based control system with easy operator interface (HMI)



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>> VACUUM DILUTE PHASE

>> FEATURES:

- Suitable for sturdier powders
- Typical conveying velocities of 3,000-7,000 FPM (feet per minute)
- Economical conveying system
- Material is continuously suspended in the air
- No material accumulation in the convey lines

Dilute Phase Conveying

High air flow, low-pressure air is used in a pressure dilute phase system to convey powders. Pressure dilute phase conveying systems are simple to control, economical options for powders unaffected by high velocities such as whey, lactose, sugar, salt, whole grains, rice, cocoa, starch, and other products such as whey, lactose, sugar, salt, whole grains, rice, cocoa, starch, and other products.

Vacuum Dilute Phase Conveying (also known as Lean Phase Conveying) generally uses positive displacement (Roots type) exhausters providing up to 15" Hg vacuum to convey materials through a pipeline to the destination where the air and product are separated at a receiving vessel with a filter or a cyclone. Lower capacity systems are also available which use fans as the prime mover.

The product enters the convey line directly, or if metering is required, via a special feeding device such as a rotary valve or screwfeeder. The product is suspended in the airflow, moving at relatively high velocities depending on the particle sizes and densities.

The conveyed product is discharged from the receiving vessel either on a continuous basis by a rotary airlock or intermittently by valves.



Applications

Vacuum dilute phase conveying systems are particularly suitable for systems which convey materials at low to high capacities over short to long distances, from multiple pick-up points to a single destination.

These systems are versatile and adaptable for different materials and the low operating pressures allow lower cost pipelines and fittings. This method is frequently used for central vacuum cleaning systems and other applications which require a network of vacuum pipes to convey product to a single collection point.



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>> VACUUM FILTER RECEIVER

>> FEATURES:

- Various stainless steel finishes
- Selection of designs, including USDA/Dairy
- Modular designs, including clean air plenum, dirty air plenum and hopper
- Demountable design for ease of cleaning



PPS Vacuum Receiver

The PPS Vacuum Filter Receiver is a vessel designed for receiving product from a pneumatic conveying system. Vacuum filter receivers are installed on the receiving end of a PPS pneumatic conveying system.

Our design has a built in dust control (collection) system to serve as a compact, sanitary product receiver.

Think Differently

PPS has designed a customizable, compact, sanitary vacuum filter receiver. The customization allows for a design to suit many different rates and locations while being specific to each process and product.

Vacuum filter receivers can be used in pressure or vacuum, & dilute and dense phase systems.



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>> WEIGH BATCHING SYSTEMS



FEATURES:

- Accurate dosing systems
- Flexibility for variable recipes
- Sanitary and dust-free systems

Weighing & Batching

If your production process requires the accurate weighing of bulk materials and multiple ingredients, you may require a weigh batching system. A weigh batching system will improve efficiency, accuracy and sanitation.

Powder Process-Solutions offers a wide variety of weigh batching systems and components, and can be customized to meet your requirements.

Applications

- Gain-in-weight, loss-in-weight and continuous weighing systems
- Fast/bulk fill & slow/dribble filling with self tuning pre-act systems
- Multiple ingredient dosing systems for major, minor and micro ingredients

Recipe Management

Recipe management PLC automation using SCADA/HMI process visualization, inventory control, and reporting functions for management information systems.

Gain-In-Weight Systems

Gain-in-weight systems measure the weight of the material as it arrives at the receiving hopper. It can be used with a wide variety of feeding and conveying systems including pneumatic transport, screws, rotary feeders and vibratory feeders.

Loss-In-Weight Systems

Loss-in-weight systems measure the weight of the material as it is discharged from the weighing hopper. It can be used with a wide variety of feeding and conveying systems including pneumatic transport, screws, rotary feeders and vibratory feeders.

Suitable for

- Can be combined with pneumatic conveying systems
- Multiple ingredient and recipe systems
- Major and minor ingredient dosing capabilities
- Batch weights checked and confirmed during discharge

Suitable for

- Generally used with gravity discharge, but also can be integrated with pneumatic transport systems
- Ingredients can be weighed simultaneously into the same vessel and hence saves time
- Suited for minor and micro ingredients with high accuracies



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>> WEIGH BATCHING SYSTEMS

>> FEATURES:

- Integrated into gain-in –weight batching systems
- Applicable to major ingredient dosing
- Typical accuracies +/- 1% to 2%



Volumetric Feeding System

Volumetric feeding systems transport powder by use of a volumetric metering device that runs at a constant speed to then discharge the powder at a constant volumetric rate. Accuracy is contingent on the consistent bulk density of the powder and the ability to fill the device. Other components may be involved that ensure the bulk density of the material is in optimal condition to maintain a consistent product flow. Typical accuracies are +/- 1% to 2%.

Volumetric feeding systems may include:

- Rotary feeders and airlocks
- Screw feeders with single or multiple augers
- Customized feeding systems

FEATURES:

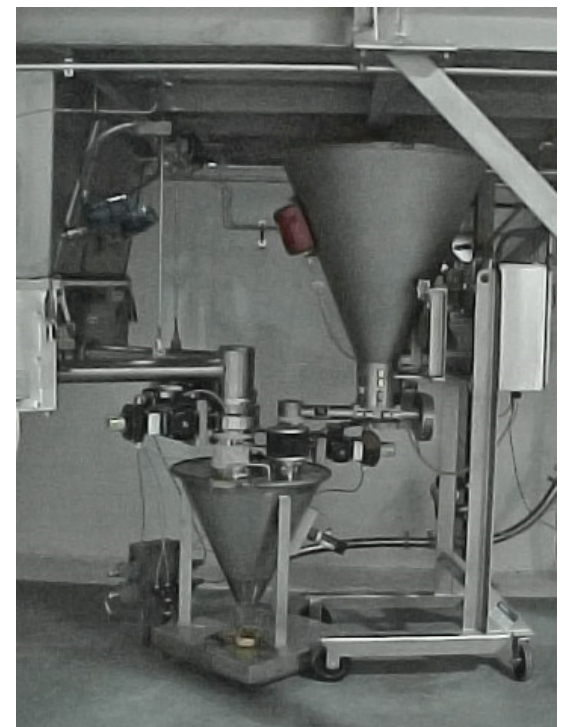
- Integrated into loss-in –weight batching systems
- Applicable to minor and micro ingredient dosing
- Typical accuracies +/- 0.25% to 0.5%

Gravimetric Feeding Systems

Gravimetric feeding systems are feeders used in conjunction with weighing systems to discharge the powder at a controlled weight per unit time. A scale control system is utilized to constantly monitor the feed rate, adjusting the speed to achieve the desired rate. Typical accuracies are +/- 0.25% to 0.5%.

Gravimetric feeding systems may include:

- Weigh hoppers
- Load cells
- Platform scales
- Systems are optimized and customized to meet customer and plant requirements



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