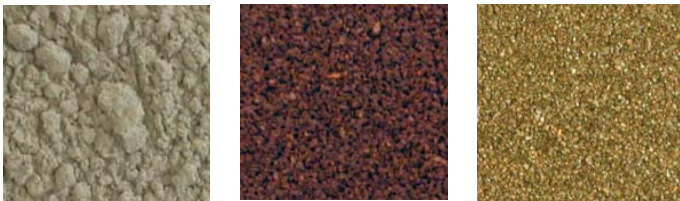


DYNAMIC AIR INC.



16 Pneumatic Conveying Concepts



Dynamic Air Inc. Corporate Headquarters, St. Paul, Minnesota, USA



Dynamic Air Ltd., Milton Keynes, United Kingdom



Dynamic Air Ltda., Sao Paulo, Brazil

Let's Dispel Some Myths, Right Away

Everybody Claims That His System Is The Best For Every Application

Fact: Dynamic Air is world renowned for its pneumatic conveying systems.

1. Each Dynamic Air system is custom-designed, with over 15,000 systems worldwide.
2. Our systems utilize the best available technology to achieve the optimum performance characteristics at the highest efficiencies.
3. Our systems provide the ultimate in reliability with capacities as low as a few hundred pounds (100 kg) per hour to over 400 tons per hour and distances exceeding 5000 feet (1500 m) in length.
4. Dynamic Air has developed 16 different pneumatic conveying concepts, utilizing both pressure and vacuum for handling a wide variety of dry bulk solids and process applications.
5. Our systems and services are comprehensive. (Complete systems can include weighing, batching, blending, mixing, lump breaking, storage, complete electronic control equipment and more.) *And* we offer complete layout and design, a state-of-the-art full scale test facility and the highest caliber of technical expertise in the business.

This brochure explains how our systems can improve efficiency, reliability and overall quality of your material-conveying process. But keep in mind that manufacturing the highest quality systems in the world is only part of our success story. Dynamic Air has built its reputation on *listening* to our customers, designing custom systems to fit specific and unique needs, and providing outstanding field support services on a worldwide basis.

We are the world's dense phase pneumatic conveying specialists

We are a manufacturer.

Our systems are recognized as second to none for their reliability and performance. And they go beyond pneumatic conveying to include a full range of components for a complete material handling system: air-activated gravity conveyors, switches, bag breakers, batch weighing systems, diverter valves, mixers and blenders, dust control equipment, automatic bag openers, lump breakers, aerators, bin discharge systems, silo blenders, feeders, rotary spouts, powder pumps, storage bins and hoppers, and much more, any of which can be designed into a Dynamic Air system.

We provide complete systems.

Any truly high performance system is more than hardware. Dynamic Air is a world leader in dense phase pneumatic conveying because of our people and the expertise they can bring to your material handling design problem.

We are *listeners* first and foremost. We never walk into a client's plant with standardized plans in our back pockets and off-the-shelf "compromise" solutions. Instead, we merge our bulk handling expertise with your unique process knowledge to design a custom system for your application.

We have a fully equipped testing laboratory.

If you have a new material that must be tested or if our knowledge of your material is limited, we will test your special material in our full scale test facility.



Complete systems for storage, conveying, weighing, batching and blending - including steel structures.

In our testing lab, we determine conveyability, material-to-air ratios, material velocities, hygroscopic effects, build-up tendencies, dust collector requirements, degradation, segregation, filling times, conveying times, optimum conveying pressures, air volumes, aerated bulk densities and any other test data that might be required. Little is left in doubt.



Full scale testing facilities.



Multiple conveying lines fit easily into tight spaces.



Weighing/batching and conveying system including storage silos and steel structures.



A comprehensive installation for conveying carbon black.

Our capabilities include weighing, batching, feeding, mixing and drying



Bulk bag and small bag unloaders discharge carbon black into multiple dense phase Full Line Concept® conveying systems.



High density vacuum system conveying carbon black.



Full Line Concept® pneumatic conveying system conveying corn.



Mixing & conveying systems.



Mobile Truck Lance™ filling a truck.



Dense phase pneumatic conveying systems.



Multiple 20 cu. ft. (0.6 cu. m) surge bins with Modu-Kleen® 669 bin vent filters.



Bin discharging & conveying systems.



Storage silos are filled by a Full Line Concept® conveying system.



HDV™ high density vacuum Full Line Concept® conveying system located inside a truck unloading building.



Batching & conveying systems.



Dense phase transporter with a Vibra-Jet® bin discharger conveying detergent.



Dyna-Slide™ high precision feeders convey material from 200 cu. ft. (6 cu. m) surge bins to weigh hoppers.



Storage & feeding systems.

When it comes to pneumatic conveying of bulk granular materials, our 16 conveying concepts are state of the art!

With over 40 years of building highly efficient dense phase and dilute phase pneumatic conveying systems, you can be assured that Dynamic Air technology is the latest and the best in the industry. We have developed many firsts in the industry, such as our dense phase Full Line Concept® system, which significantly reduces material degradation and/or abrasion, lowers maintenance and has tremendous energy savings over conventional pneumatic conveying systems.

Dynamic Air offers 16 different pneumatic conveying concepts:

- Four different vacuum conveying systems
- Twelve different pressure conveying systems.

Each system has its own unique set of operating characteristics for pressure, conveying line velocity, efficiency and performance. Because each and every material to be conveyed reacts differently under a

given set of operating conditions, it is extremely critical to match the system operating characteristics to the material to be conveyed in order to achieve the most desired conveying performance and to provide the best value to you, the customer.

Our 16 different pneumatic conveying concepts have the ability to convey at almost any conveying velocity desired to suit a given material to be conveyed.



We can convey many materials with conveying velocities as low as 50 feet per minute (0.25 m/sec) using our HDV 8000 dense phase pneumatic conveying system and, using our LDP 2000 dilute phase pneumatic conveying system, we can convey at velocities well over 7000 feet per minute (35 m/sec). Plus our conveying capacities range from just a few hundred pounds (100 kg) of material per hour up to 400 tons per hour and conveying distances exceeding 5000 feet (1500 m) in length.

In addition, our pneumatic conveying systems become highly efficient when they employ our unique patented DC-5[®] Air Saver technology and are unmatched for performance and reliability. These systems can handle even the most difficult of materials, plus they significantly reduce the energy requirements and convey material at much lower conveying line velocity with higher conveying line densities and reduced dynamic loading.



When our DC-5 Air Saver technology is employed on lower pressure systems using less than 15 PSIG (1 barg), in many applications we can lower the conveying line velocity well

below the normal saltation velocity. Depending on the material being conveyed, we also can reduce energy requirements and drastically improve system performance and reliability.

The Result:

Gentle handling of heavy abrasive and non-abrasive materials that cannot tolerate degradation. For many fragile crystalline and granular materials there is no finer material handling process. Dynamic Air's 16 different pneumatic conveying concepts can offer a more gentle treatment of system components as well. Because of lower velocities, system wear and related breakdowns are minimized.

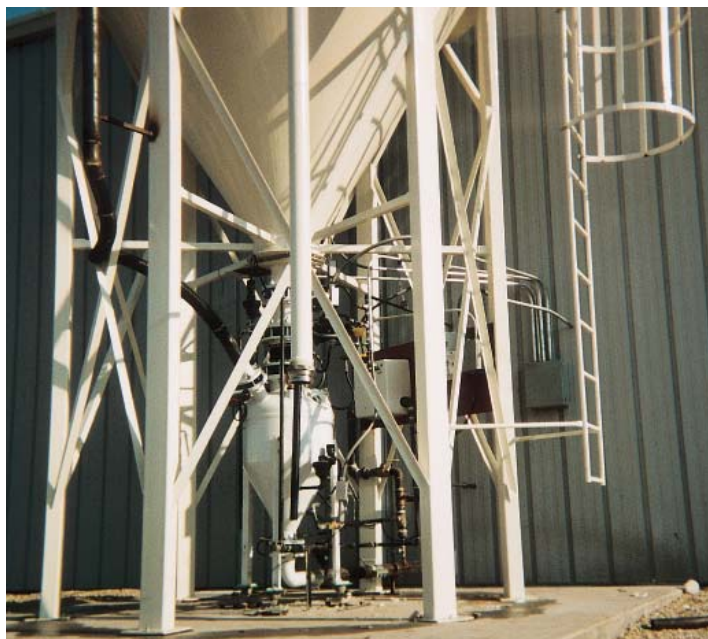
Dynamic Air pneumatic conveying systems are:

- Energy and labor efficient
- More reliable, because of our DC-5 Air Saver technology
- Flexible to design in tight plant environments
- Easy to install with minimum disruption to existing plant production
- Clean - because the system totally contains the material conveyed
- Friendly to the environment
- Equipped with fewer moving parts
- Lower in initial investment costs
- Lower in maintenance



Typical materials conveyed are:

alumina, aluminum oxide, baby formula, ball clay, barite, bauxite, bentonite, borax, calcium carbonate, calcium chloride, carbon black, cement, roasted coffee beans, green coffee beans, cullet, detergent, feldspar, fine coal, flour, fluorspar, fly ash, foundry molding sand, glass batch, glass beads, ground meal, gypsum, iron oxide, kaolin clay, kyanite, lime, litharge, magnesium, milk powder, peanuts, PVC resin, quartz, roofing granules, salt, silica sand, soda ash, sodium sulfate, steel chips, sulfur, sugar, talc, titanium dioxide and more.



Dynamic Air's exclusive DC-5[®] Air Saver technology is the key to complete control of your material through the entire conveying line

One of the secrets of a successful and highly efficient pneumatic conveying system, whether it is a high pressure dense phase system or a low pressure dilute phase system, is trying to achieve an optimum pressure balance. Many systems operate in what we call an unstable and/or unbalanced pressure condition. This means the conveying system can be using either too much compressed air or not enough compressed air, both of which are undesirable.

When excessive compressed air is used to convey a given material, the conveying velocity will be too high and the result can be material breakdown or excessive wear on the system. Also, the system will use excessive energy, and therefore maintenance becomes higher and reliability is reduced. When not enough compressed air is used, the convey rate may be too low and it's even possible that conveying line plugging can occur.



It is also important to understand that every system must constantly fight friction, and that this friction is usually not evenly distributed throughout the conveying line. For instance, tubing bends are a major cause of friction in a pneumatic conveying system and they can easily be responsible for more than 50% of the total resistance of the pneumatic conveying system. The straight tubing in a system, however, has a much lower level of friction than a tubing bend.

Other friction factors which must be considered are components such as conveying line couplings, diverter valves, elevation changes, etc. Also, the shape, density and cohesiveness of each material to be conveyed create another variable which adds to the total friction factor, thus impeding the conveying process even further.

Therefore, the frictional resistance seen in the conveying line will vary considerably from system to system and throughout a given system, depending upon the components used plus the length of the conveying line and the conveying velocity. These varying and unbalanced frictional forces in a pneumatic conveying system, if not pressure balanced properly, can cause unstable and undesirable pressure and velocity conditions, resulting in poor performance and an unreliable and inefficient conveying system.

In order to create the optimum pressure balance in a pneumatic conveying system and to counteract the varying forces of friction, the compressed air must be properly and timely distributed for a smooth flow of material through the conveying line.

The pressure balance control must also be precise and instantaneous. If the pressure balance control reacts too slowly or overcompensates, the flow of material through the conveying line will be disrupted and the performance compromised.

To effectively counterbalance all the friction factors normally inherent in a pneumatic conveying system, Dynamic Air has developed the DC-5 Air Saver technology which accurately controls and pressure balances the pneumatic conveying system.

The DC-5 Air Saver technology achieves the proper pressure balance because it automatically senses the conveying system conditions and reacts instantaneously and accurately without overcompensation. Thus material is conveyed through the conveying line in a smooth controlled manner and at the desired conveying velocity, to optimize the conveying process for higher performance and reliability.

The DC-5 Air Saver technology is adaptable to almost any type of Dynamic Air pneumatic conveying system regardless of the conveying pressure or vacuum. The DC-5 Air Saver technology is one of the most

unique products ever developed by Dynamic Air and is another first in the field, making Dynamic Air an innovator in the field of high performance pneumatic conveying systems.



Benefits of the DC-5 Air Saver technology

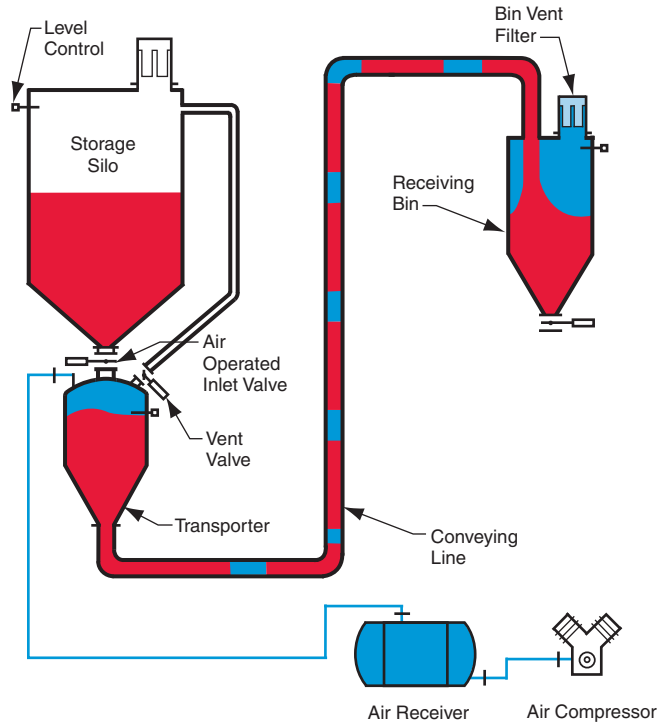
- Decreased energy consumption
- Improved system reliability
- Ability to convey very fragile materials
- Ability to convey highly abrasive materials
- Ability to convey difficult or cohesive materials
- Ability to convey heavy materials
- Ability to start and stop the conveying process with a conveying line full of material
- Reduced “dynamic loading” at pipe bends by controlling the conveying velocity
- Reduced dust handling requirements
- Reduced material degradation

16 Pneumatic Conveying Concepts

HDP 1000 Brute Force Concept™ Dense Phase Pressure System

The HDP 1000 Brute Force Concept Pressure Conveying System is a dense phase, high pressure, low to medium velocity, batch conveying system. It is generally used for conveying medium to high density, heat sensitive, semi-abrasive and/or abrasive materials over shorter distances. Examples include silica sand, plastic pellets, salt, quartz, whole grain, corn, oats and barley.

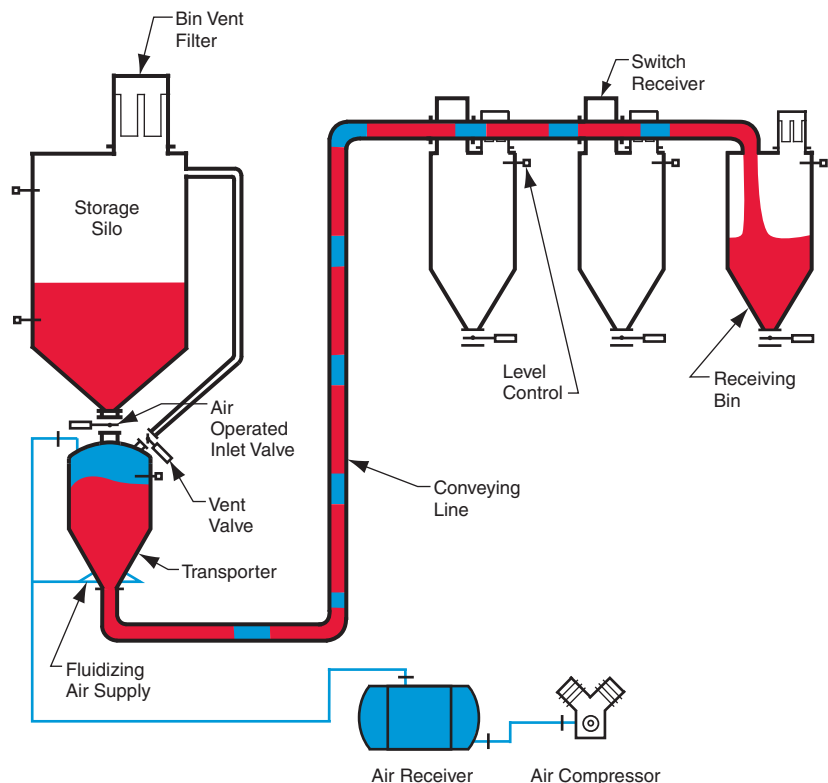
Typical conveying velocities are generally about 1000 feet per minute (5 m/sec) and the conveying pressure up to 60 PSIG (4 barg). A pressure vessel is used to feed material into the conveying line and the air supply, up to 100 PSIG (7 barg), is supplied from a high pressure air compressor.



HDP 2000 Fluidizing Concept™ Dense Phase Pressure System

The HDP 2000 Fluidizing Concept Pressure Conveying System is a dense phase, medium to high pressure, low to medium velocity, batch conveying system. It is generally used for conveying medium to high density, heat sensitive, semi-abrasive and/or abrasive materials under 100 mesh particle sizes. Examples include bentonite, cement, starch, silica flour, ball clay, kaolin clay, and alumina.

Typical conveying velocities are generally in the range of 1000 to 5000 feet per minute (5 m to 25 m/sec) and the conveying pressure up to 60 PSIG (4 barg). A fluidizing type pressure vessel is used to feed material into the conveying line and the air supply, up to 100 PSIG (7 barg), is supplied from a high pressure air compressor.

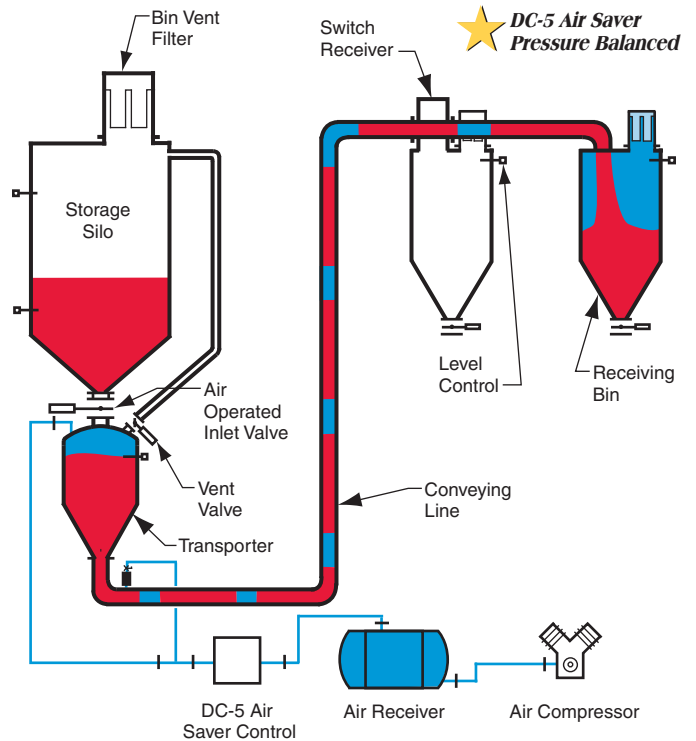


HDP 3000 Conventional Concept™ Dense Phase Pressure System

The HDP 3000 Conventional Concept Pressure Conveying System is a dense phase, medium to high pressure, low to medium velocity batch type conveying system. It is generally used for conveying high to medium density, heat sensitive, semi-abrasive and/or very abrasive, cohesive and/or very fragile materials in almost any particle size range. Examples include silica sand, glass batch, granulated sugar, powdered sugar, plastic pellets, bentonite, cement, starch, silica flour, ball clay, kaolin clay, zinc oxide and alumina.

Typical conveying velocities are generally in the range of 100 to 1000 feet per minute (0.5 m to 5 m/sec) and the conveying pressure up to 100 PSIG (7 barg) pressure.

This concept uses a non-fluidizing type pressure vessel to feed material into the conveying line at maximum density and utilizes DC-5 Air Saver technology to minimize and optimize the high pressure air which is supplied by a high pressure - up to 100 PSIG (7 barg) air compressor.

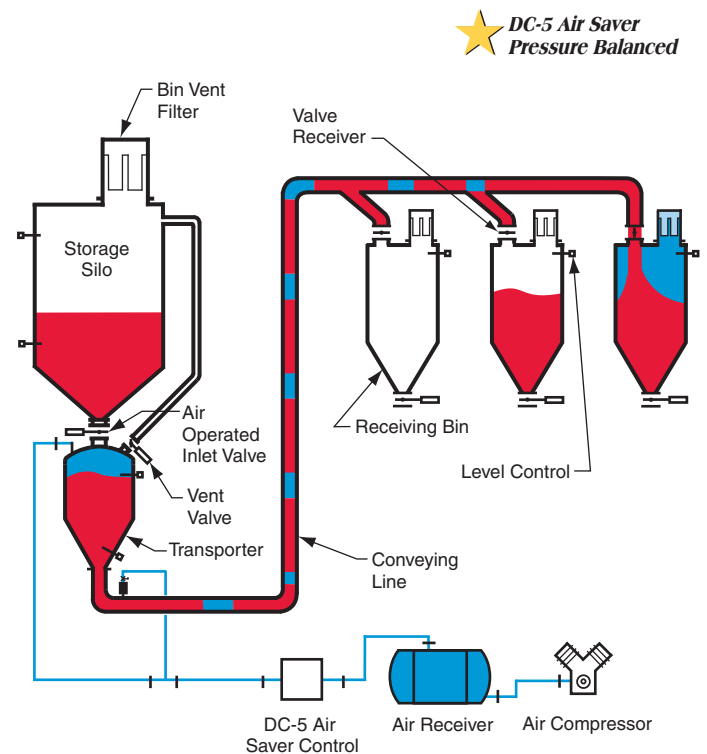


HDP 4000 Full Line Concept® Dense Phase Pressure System

The HDP 4000 Full Line Concept Pressure Conveying System is a dense phase, medium to high pressure, low to medium velocity, batch type conveying system. It is generally used for conveying medium to high density, heat sensitive, semi-abrasive and/or very abrasive, cohesive, and/or very fragile materials in almost any particle size range over long distances. Examples include silica sand, glass batch, granulated sugar, powdered sugar, finished breakfast cereal, coffee beans, plastic pellets, bentonite, cement, starch, silica flour, ball clay, kaolin clay, zinc oxide and alumina.

Typical conveying velocities are generally in the range of 100 to 1000 feet per minute (0.5 m to 5 m/sec) and the conveying pressure up to 100 PSIG (7 barg).

This concept uses a single, non-fluidizing type pressure vessel to feed material into the conveying line at maximum density. DC-5 Air Saver technology is used to minimize and optimize the high pressure air which is supplied by a high pressure - up to 100 PSIG (7 barg) - air compressor. This concept does not need diverter valves but uses valve receivers which provide a distinct maintenance advantage as they are located on the silo tops for easy access.



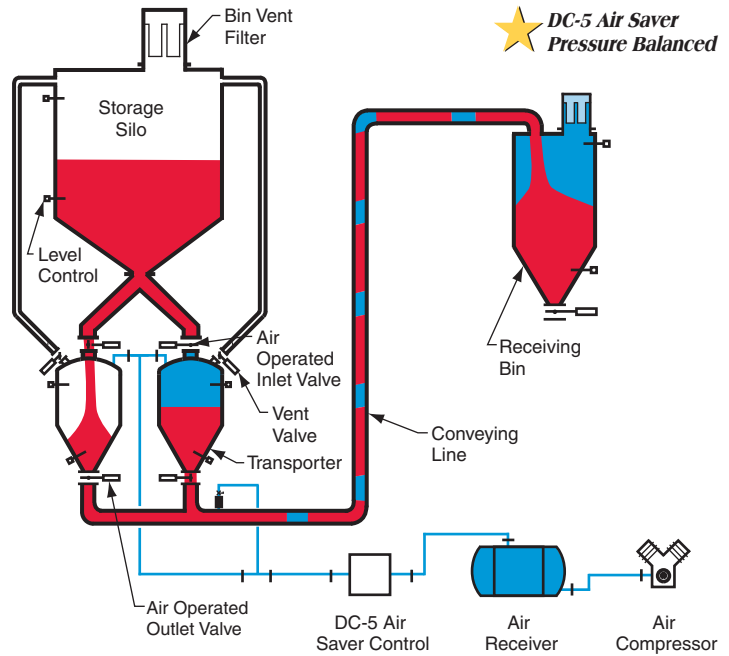
16 Pneumatic Conveying Concepts

HDP 5000 Full Line Continuous Concept® Continuous Dense Phase Pressure System

The HDP 5000 Full Line Concept Continuous Pressure Conveying System is a dense phase, medium to high pressure, very low to medium velocity, continuous conveying system. It is generally used for conveying medium to high density, heat sensitive, semi-abrasive and/or very abrasive, cohesive, and/or very fragile materials in almost any particle size range over long distances. Examples include finished laundry detergent, silica sand, glass batch granulated sugar, powdered sugar, finished breakfast cereal, coffee beans, plastic pellets, bentonite, cement, starch, silica flour, ball clay, kaolin clay, zinc oxide, pelletized carbon black and alumina.

Typical conveying velocities are generally in the range of 100 to 1000 feet per minute (0.5 m to 5 m/sec) and the conveying pressure up to 100 PSIG (7 barg).

This concept uses two non-fluidizing type pressure vessels which operate alternately to feed material into the conveying line at maximum density. DC-5 Air Saver technology is used to minimize and optimize the high pressure air which is supplied by a high pressure - up to 100 PSIG (7 barg) - air compressor.

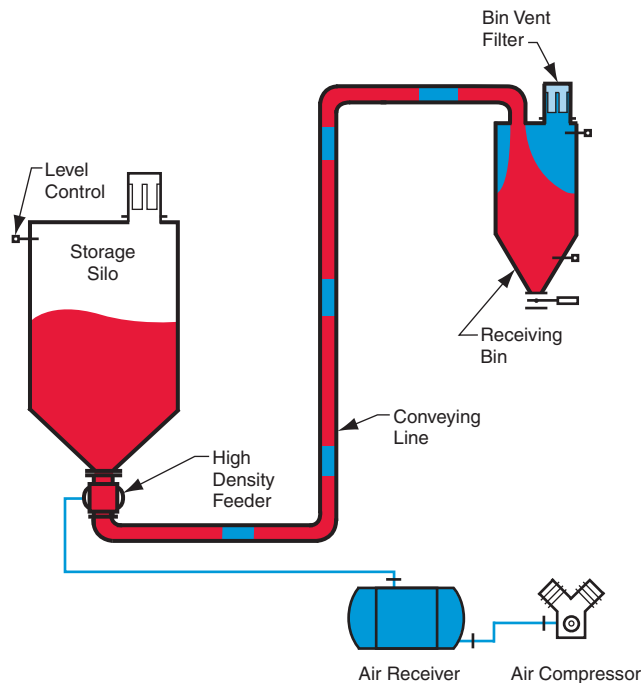


MDP 2000 Pressure Concept™ Continuous Dense Phase Pressure System

The MDP 2000 Pressure Concept Conveying System is a dense phase, low pressure, medium velocity, continuous conveying system. It is used for conveying low density, heat sensitive, and non-abrasive materials over shorter distances where high pressure compressed air is available. Examples of materials that can be conveyed include plastic pellets, detergent powder, wheat, barley, corn, oats, limestone, coffee beans, granulated sugar, ball clay and boric acid.

Typical conveying line velocities are 2000 to 3000 feet per minute (10 m to 15 m/sec) and the conveying pressure is up to 15 PSIG (1 barg).

This concept utilizes a high density feeder to control the feed rate into the conveying line. The air is supplied by a high pressure - up to 100 PSIG (7 barg) - air compressor.

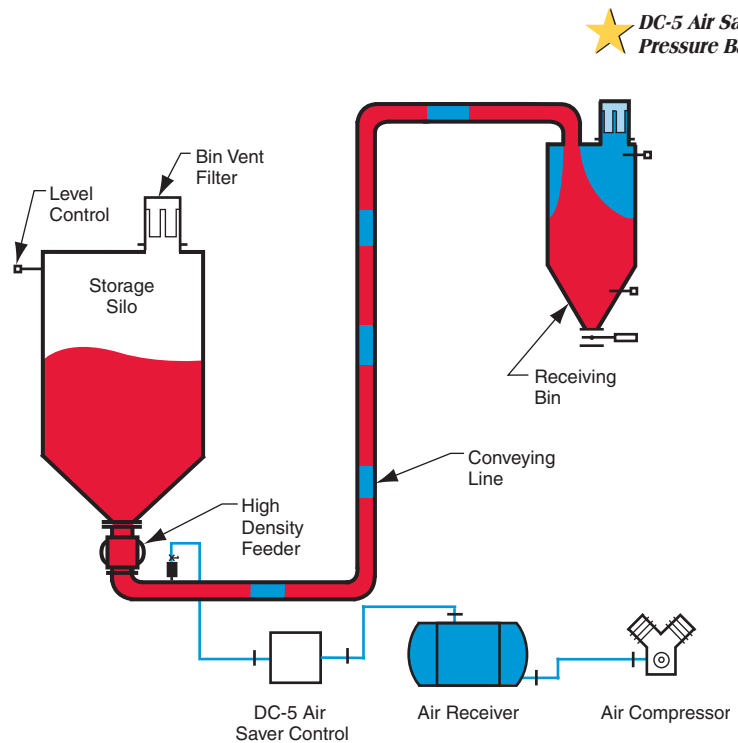


MDP 4000 Pressure Concept™ Continuous Dense Phase Pressure System

The MDP 4000 Pressure Concept Conveying System is a dense phase, low pressure, low to medium velocity, continuous conveying system where compressed air is readily available. It is used for conveying low or medium density, heat sensitive, non-abrasive and/or friable materials over shorter distances. Examples of materials that can be conveyed include plastic pellets, finished detergent powder, limestone, coffee beans, granulated sugar, ball clay, boric acid, finished breakfast cereals and pelletized carbon black.

Typical conveying line velocities are 1000 to 2000 feet per minute (5 m to 10 m/sec) and conveying pressure is up to 15 PSIG (1 barg).

This concept utilizes a high density feeder to feed the material into the conveying line and DC-5 Air Saver technology to minimize and optimize the high pressure air which is supplied by a high pressure - up to 100 PSIG (7 barg) - air compressor.

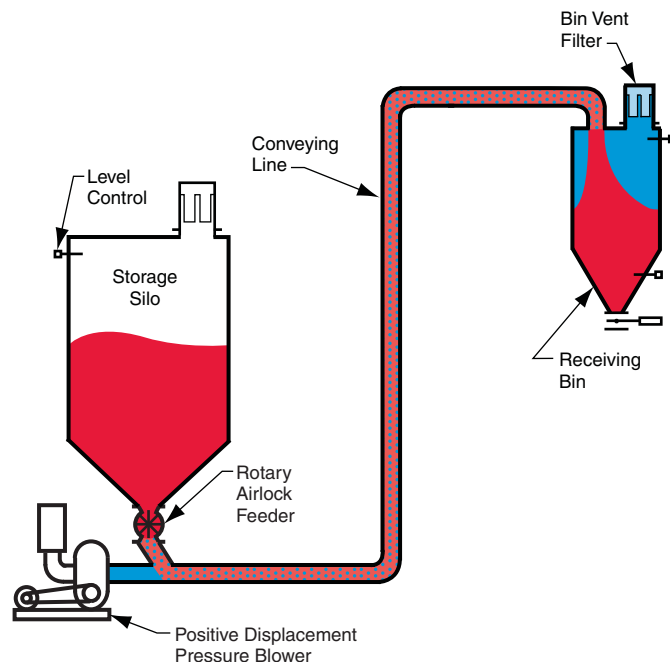


LDP 2000 Pressure Concept™ Continuous Dilute Phase Pressure System

The LDP 2000 Pressure Concept Conveying System is a dilute phase, low pressure, high velocity, continuous conveying system. It is generally used for conveying low to medium density, and non-abrasive bulk solids where degradation of the conveyed material is not a concern. Examples of materials include flour, sugar, salt, grain, malt and plastic pellets.

Typical conveying velocities are generally in excess of 4000 feet per minute (20 m/sec) and conveying pressure is up to 15 PSIG (1 barg).

This concept utilizes a rotary airlock feeder to control the feed rate into the conveying line. A low pressure positive displacement blower is used for the air supply.



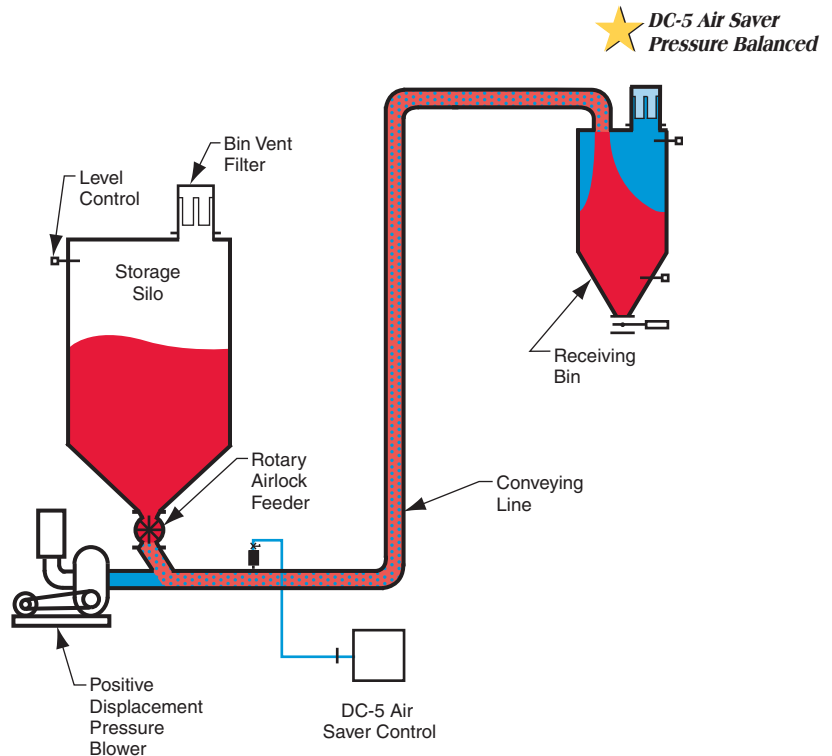
16 Pneumatic Conveying Concepts

LDP 4000 Pressure Concept™ Continuous Dilute Phase Pressure System

The LDP 4000 Pressure Concept Conveying System is a dilute phase, low pressure, medium velocity, continuous conveying system. It is generally used for conveying low to high density and/or non-abrasive materials where degradation of the conveyed material is somewhat of a concern. Examples include iron oxide, coffee beans, pinto beans, flour, fine chemicals, grain, malt, plastic pellets, sugar and salt.

Typical conveying velocities are generally about 2000 feet per minute (10 m/sec) and conveying pressure is up to 15 PSIG (1 barg).

This concept utilizes a rotary airlock feeder to control the feed rate to the conveying line. DC-5 Air Saver technology is used to minimize and optimize the low pressure supply air which is supplied by a low pressure positive displacement blower.

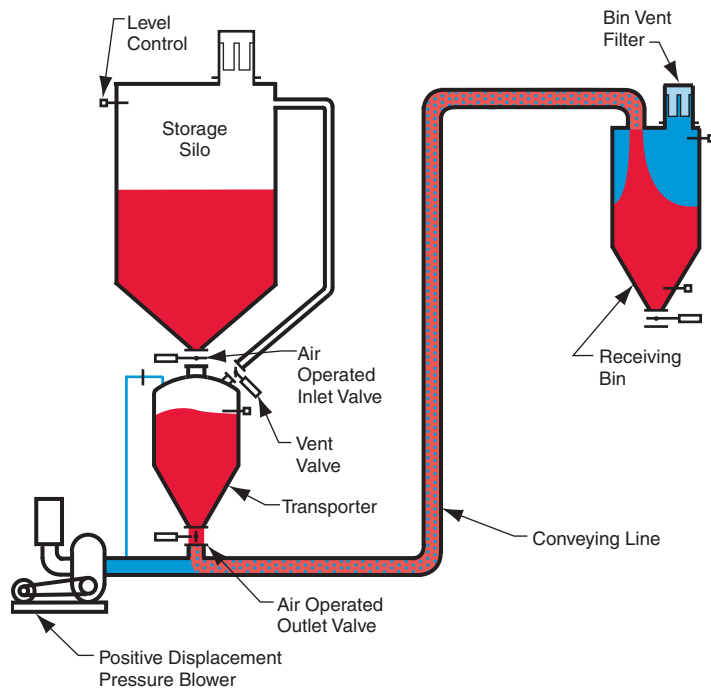


LDP 6000 Pressure Concept™ Batch Dilute Phase Pressure System

The LDP 6000 Pressure Concept Conveying System is a dilute phase, low pressure, medium velocity batch conveying system. It is generally used for conveying low to high density, fluidizable, mildly abrasive materials that are not heat sensitive. Examples include sea coal, silica flour, bentonite, soda ash, cement, fly ash, alumina, and hydrated lime.

Typical conveying line velocities are generally about 2500 feet per minute (12.5 m/sec) and the conveying pressure is up to 15 PSIG (1 barg).

This concept uses a pressure vessel to feed the material into the conveying line while air is supplied by a low pressure positive displacement blower.

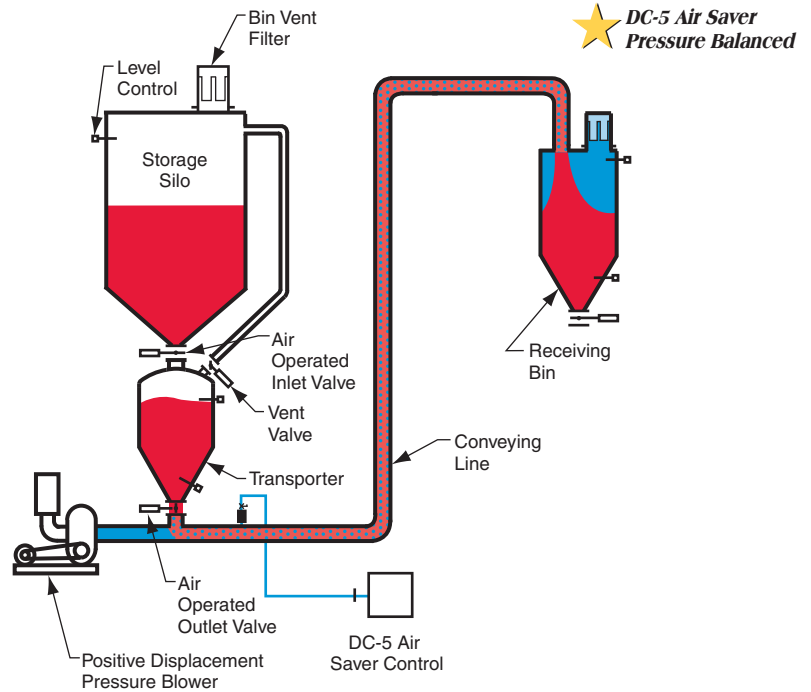


LDP 8000 Pressure Concept™ Batch Medium Phase Pressure System

The LDP 8000 Pressure Concept Conveying System is a medium phase, low pressure, low to medium velocity, batch conveying system. It is generally used for conveying medium to high density, semi-abrasive, fluidizable materials which can be somewhat difficult to convey. Examples include coffee beans, powdered chocolate, ground limestone, calcium carbonate, alumina, iron oxide, cement and silica flour.

Typical conveying velocities are generally about 1500 feet per minute (7.5 m/sec) and the conveying pressure is up to 15 PSIG (1 barg).

This concept utilizes a pressure vessel to feed the material into the conveying line and DC-5 Air Saver technology to minimize and optimize the low pressure supply air which is supplied by a low pressure positive displacement blower.

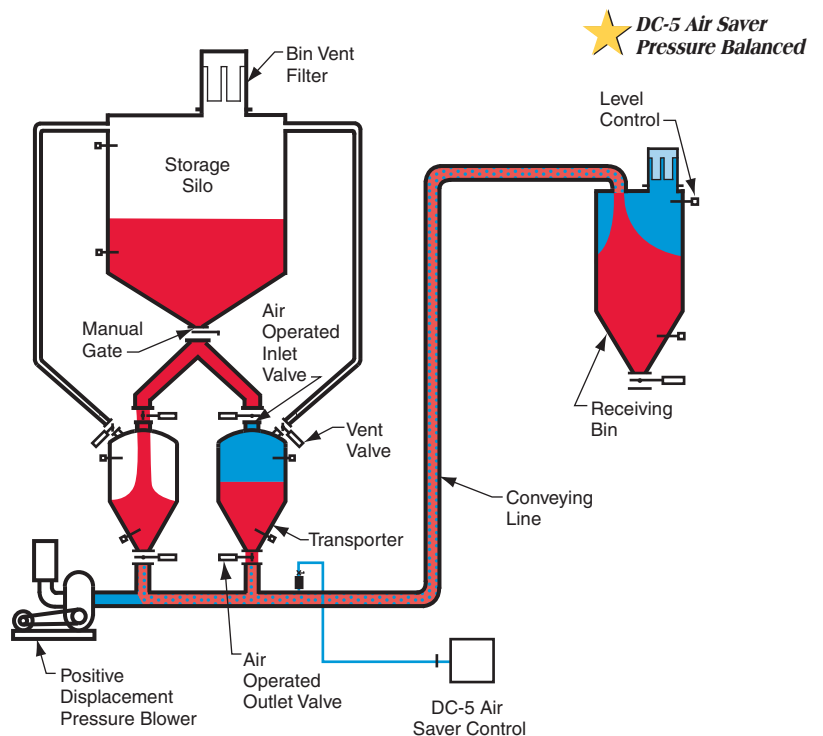


LDP 10,000 Full Line Pressure Concept™ Continuous Medium Phase Pressure System

The LDP 10,000 Pressure Concept Conveying System is a medium phase, low pressure, low to medium velocity, continuous conveying system for longer distances. It is generally used to convey medium to high density, semi-abrasive, fluidizable materials which can be somewhat difficult to convey. Examples include coffee beans, powdered chocolate, ground limestone, calcium carbonate, alumina, iron oxide, cement and silica flour.

Typical conveying velocities are generally about 1500 feet per minute (7.5 m/sec) and the conveying pressure is up to 15 PSIG (1 barg).

This concept uses a pressure vessel to feed the material into the conveying line and DC-5 Air Saver technology to minimize and optimize the low pressure supply air which is supplied by a low pressure positive displacement blower.



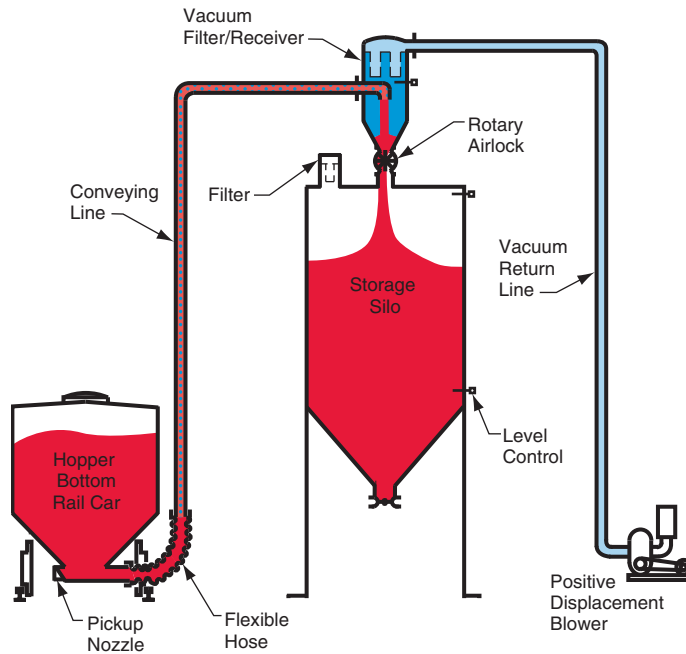
16 Pneumatic Conveying Concepts

LDV 2000 Vacuum Concept™ Continuous Dilute Phase Vacuum System

The LDV 2000 Vacuum Concept Conveying System is a dilute phase, high velocity, low pressure, continuous vacuum conveying system for shorter distances. It is generally used to convey low to medium density and non-abrasive materials. Examples include flour, kaolin clay, plastic pellets, grain, malt, corn, starch and plastic resin.

Typical conveying velocities are generally in excess of 4000 feet per minute (20 m/sec) and vacuum conveying pressures of up to 15 inches (381 mm) of mercury (hg).

The material is fed into the conveying line on a continuous basis by vacuum which is supplied by a low pressure positive displacement blower. The system includes a vacuum pickup nozzle, vacuum conveying line, a vacuum filter receiver, a rotary airlock feeder and a positive displacement blower.



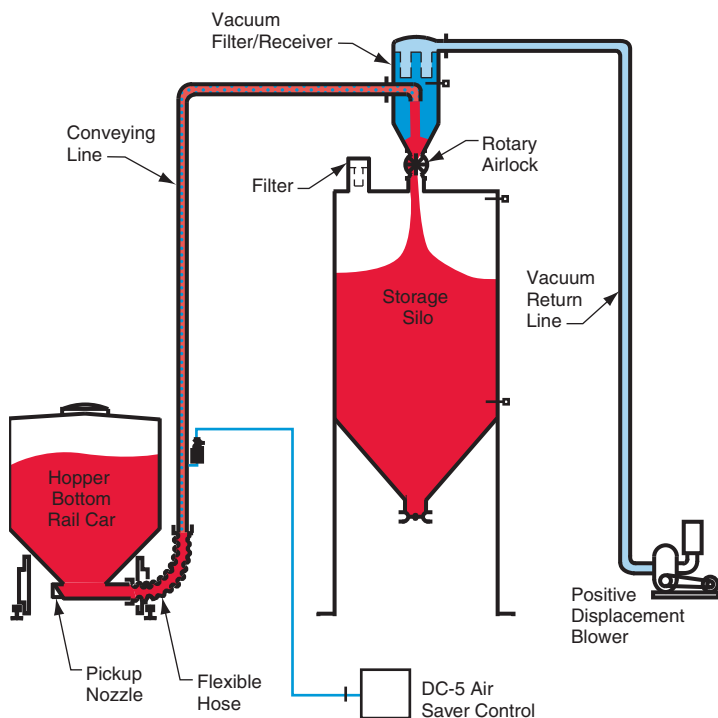
LDV 4000 Vacuum Concept™ Continuous Dilute Phase Vacuum System

The LDV 4000 Vacuum Concept Conveying System is a dilute phase, medium to high velocity, low pressure, continuous vacuum conveying system for shorter distances. It is generally used to convey low to high density, non-abrasive and semi-abrasive materials. Examples include iron oxide, titanium dioxide, silica flour, cement, and limestone.

Typical conveying velocities are 1000 to 3000 feet per minute (5 m to 15 m/sec) and vacuum conveying pressures of up to 15 inches (381 mm) of mercury (hg).

The material is fed into the conveying line on a continuous basis by vacuum. DC-5 Air Saver technology is used to minimize and optimize the low pressure supply air which is supplied by a low pressure positive displacement blower. The system includes a vacuum pickup nozzle, a vacuum filter receiver, a rotary airlock feeder and a positive displacement blower.

★ DC-5 Air Saver
Pressure Balanced

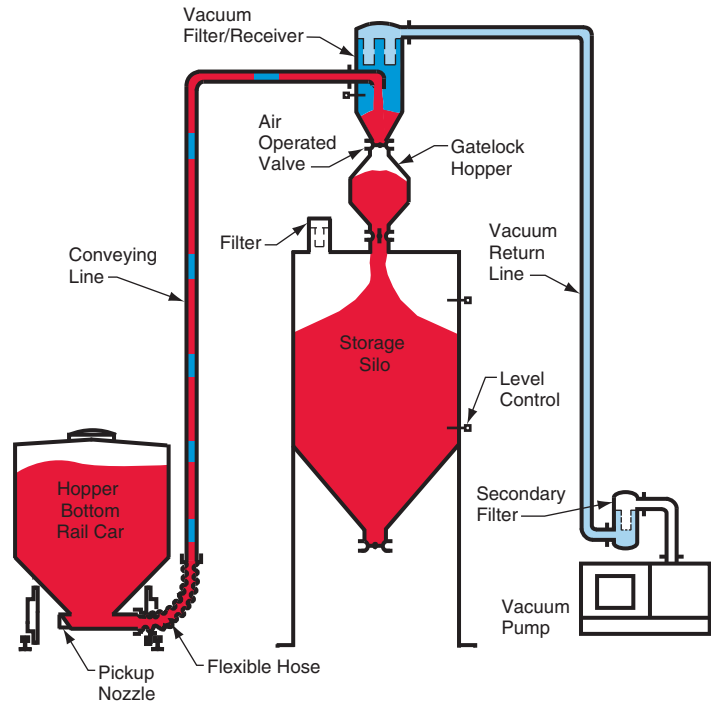


HDV 6000 Vacuum Concept™ Continuous Dense Phase Vacuum System

The HDV 6000 Vacuum Concept Conveying System is a dense phase, medium velocity, high pressure, continuous vacuum conveying system. It is generally used to convey low to high density, granular or pelletized, and semi abrasive materials. Examples include plastic pellets, granulated sugar, salt, coffee beans, pinto beans, and peanuts.

Typical conveying velocities are 300 to 1000 feet per minute (1.5 m to 5 m/sec) and vacuum conveying pressures of up to 29 inches (737 mm) of mercury (hg).

The material is fed into the conveying line on a continuous basis by vacuum which is supplied by a high pressure vacuum pump. The system includes a vacuum pickup nozzle, a vacuum conveying line, a vacuum/filter receiver, a secondary filter and a vacuum pump. For continuous conveying applications, a gatelock hopper with an inlet and outlet valve is installed at the discharge of the vacuum receiver.



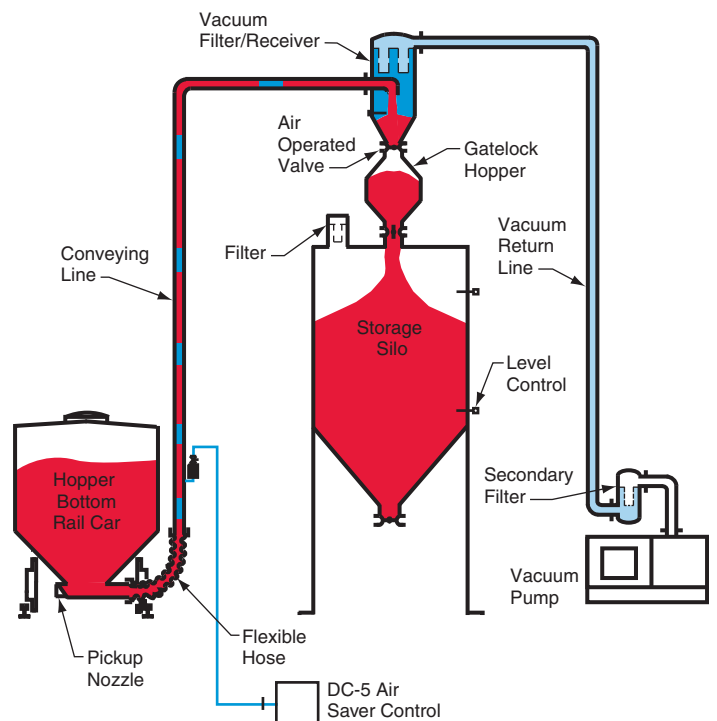
HDV 8000 Vacuum Concept™ Continuous Dense Phase Vacuum System

The HDV 8000 Vacuum Concept Conveying System is a dense phase, low to medium velocity, high pressure, continuous vacuum conveying system. It is generally used to convey low to high density, friable, and abrasive materials and/or other materials where degradation or abrasion is a concern. Examples include plastic pellets, breakfast cereal, granulated sugar, salt, coffee beans, pinto beans, finished detergent, pelletized carbon black and silica sand.

Typical conveying velocities are 50 to 800 feet per minute (0.25 m to 4 m/sec) and vacuum conveying pressures of up to 29 inches (737 mm) of mercury (hg).

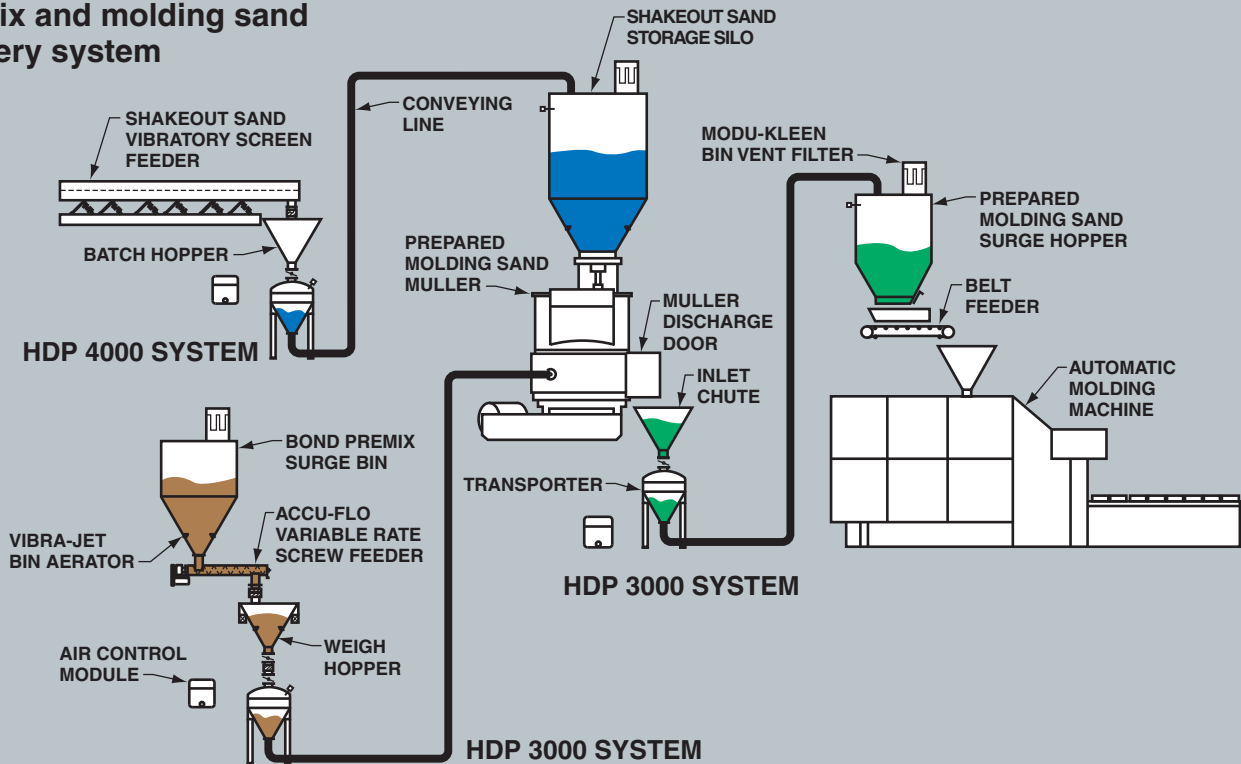
The material is fed into the conveying line on a continuous basis by vacuum. DC-5 Air Saver technology is used to minimize and optimize the pressure supply air which is supplied by a high pressure vacuum pump. The system includes a vacuum pickup nozzle, a vacuum conveying line, DC-5 Air Saver controls, a vacuum filter receiver, a secondary filter and a vacuum pump. For continuous conveying applications, a gatelock hopper with an inlet and outlet valve is installed at the discharge of the vacuum receiver.

★ DC-5 Air Saver
Pressure Balanced

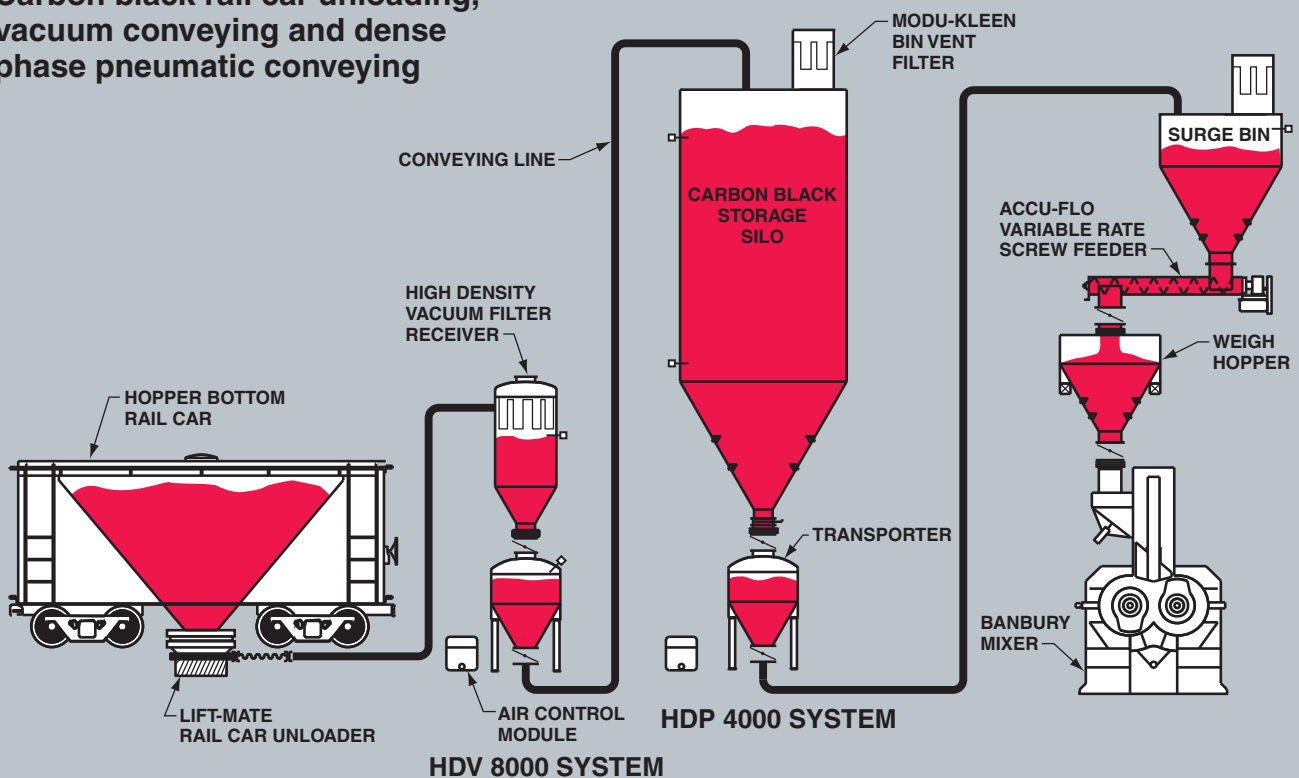


System Applications

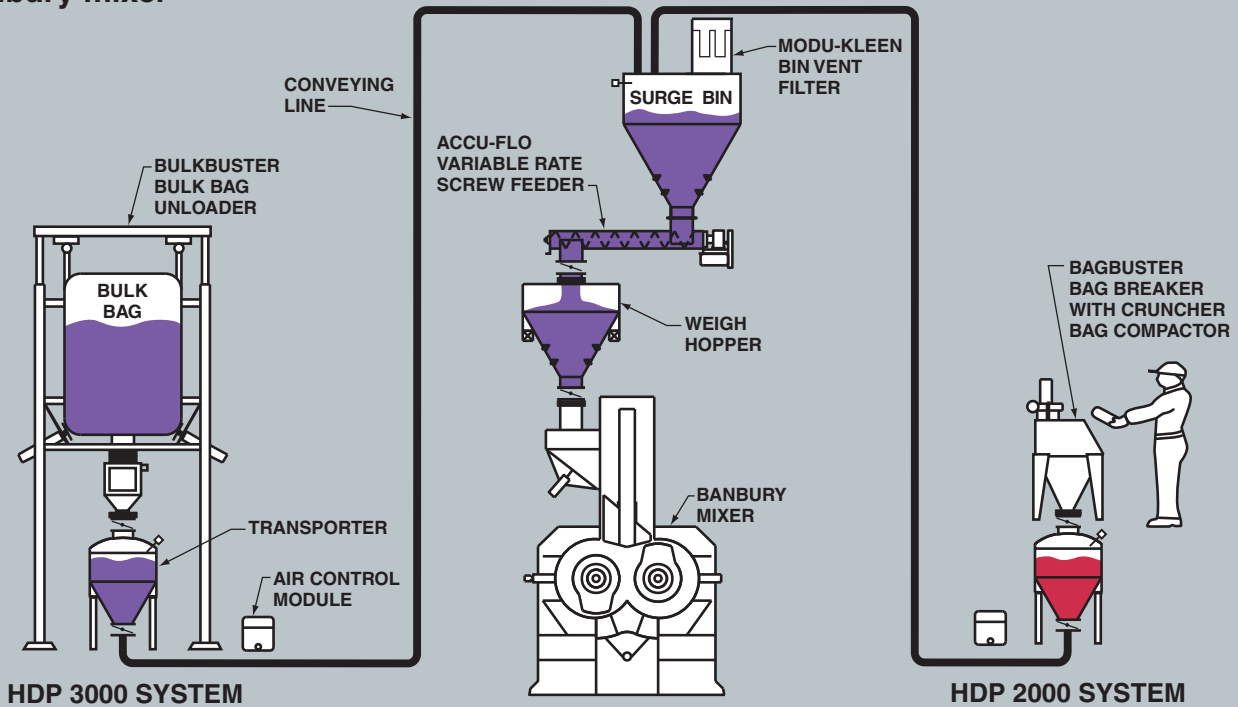
Foundry shakeout sand, bond premix and molding sand delivery system



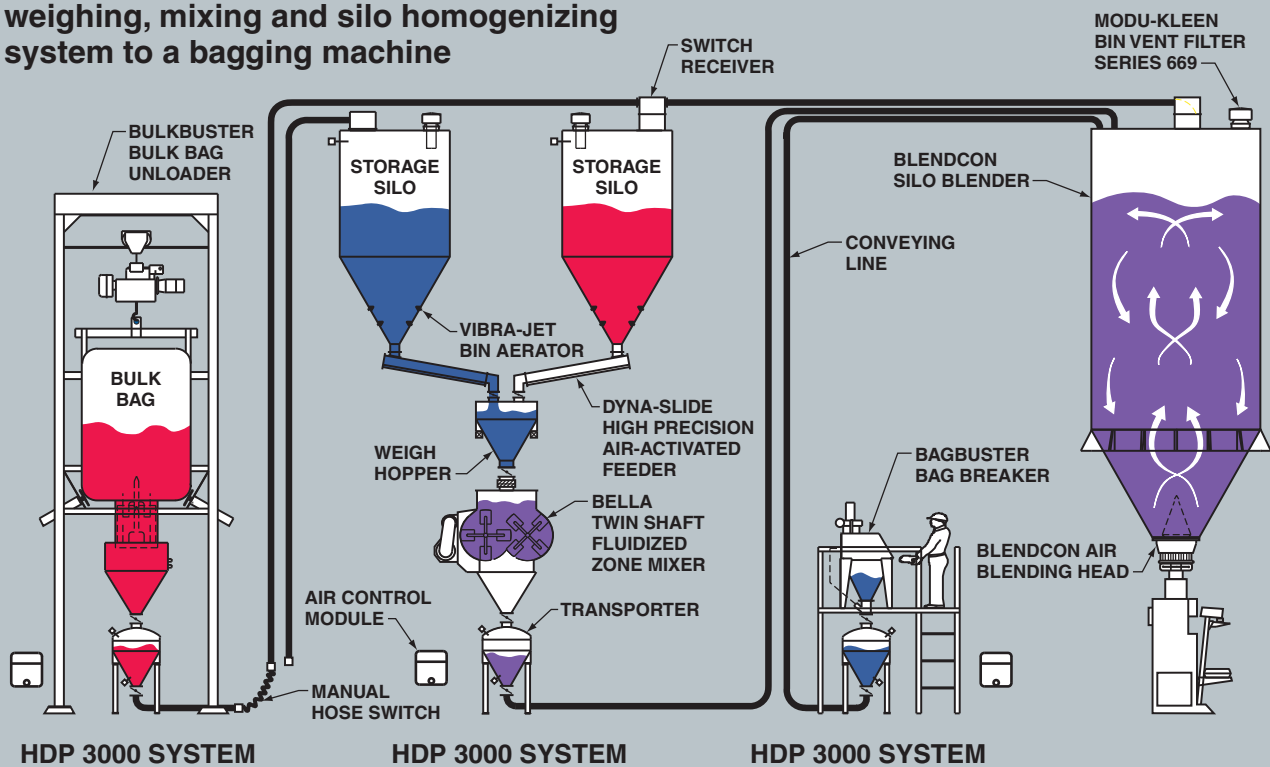
Carbon black rail car unloading, vacuum conveying and dense phase pneumatic conveying



Carbon black bulk bag and small bag unloading and weighing system to a Banbury mixer

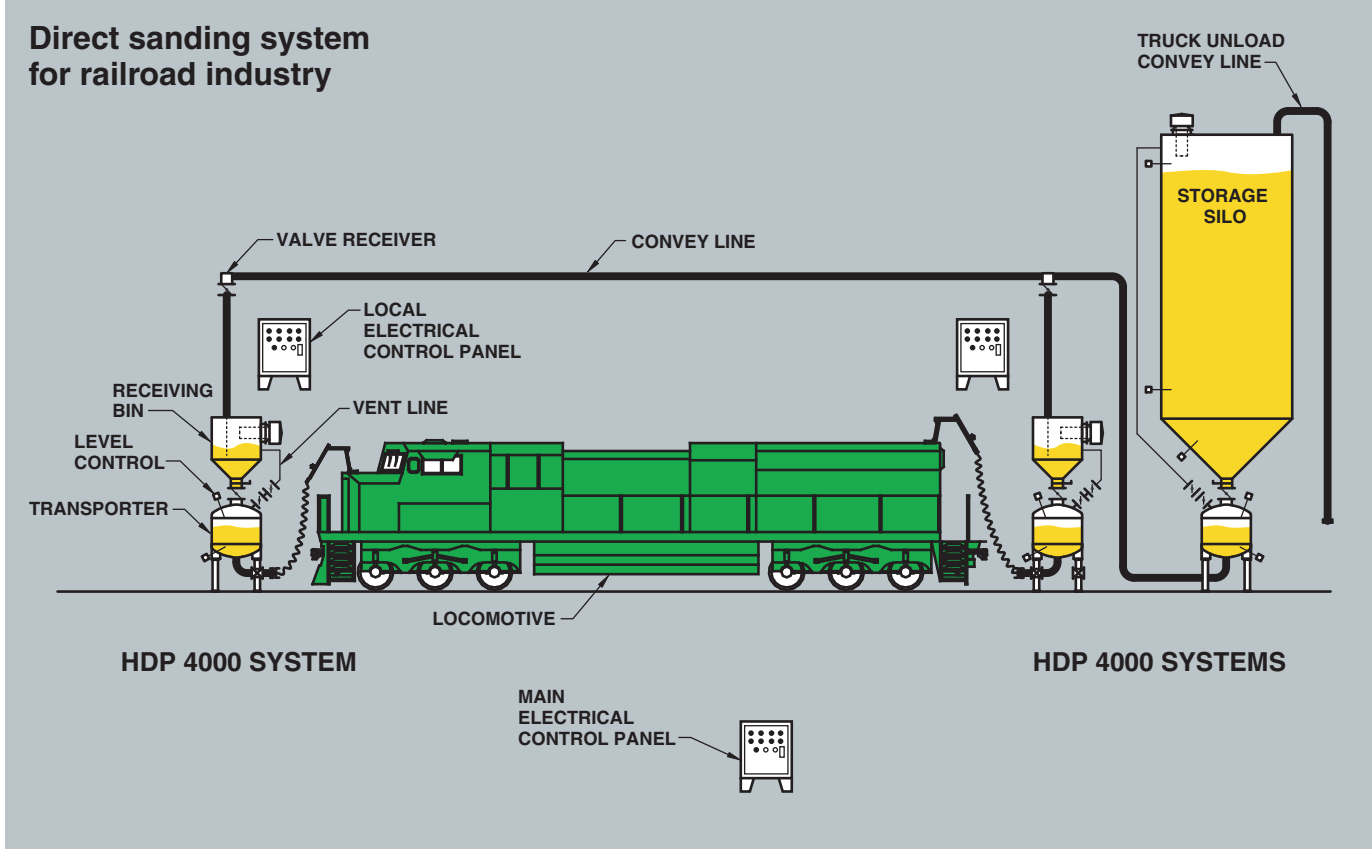


Small bag and bulk bag unloading to a weighing, mixing and silo homogenizing system to a bagging machine

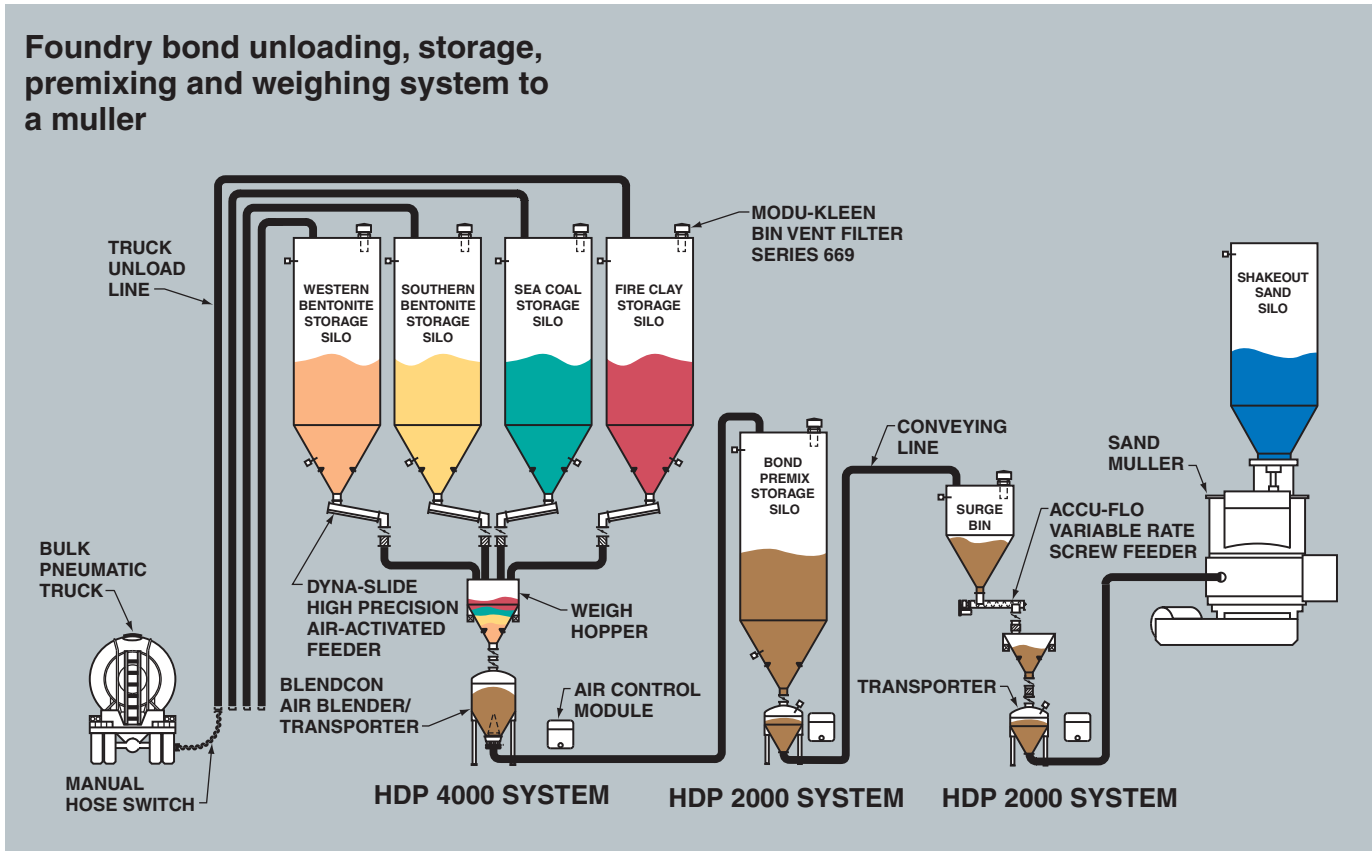


System Applications

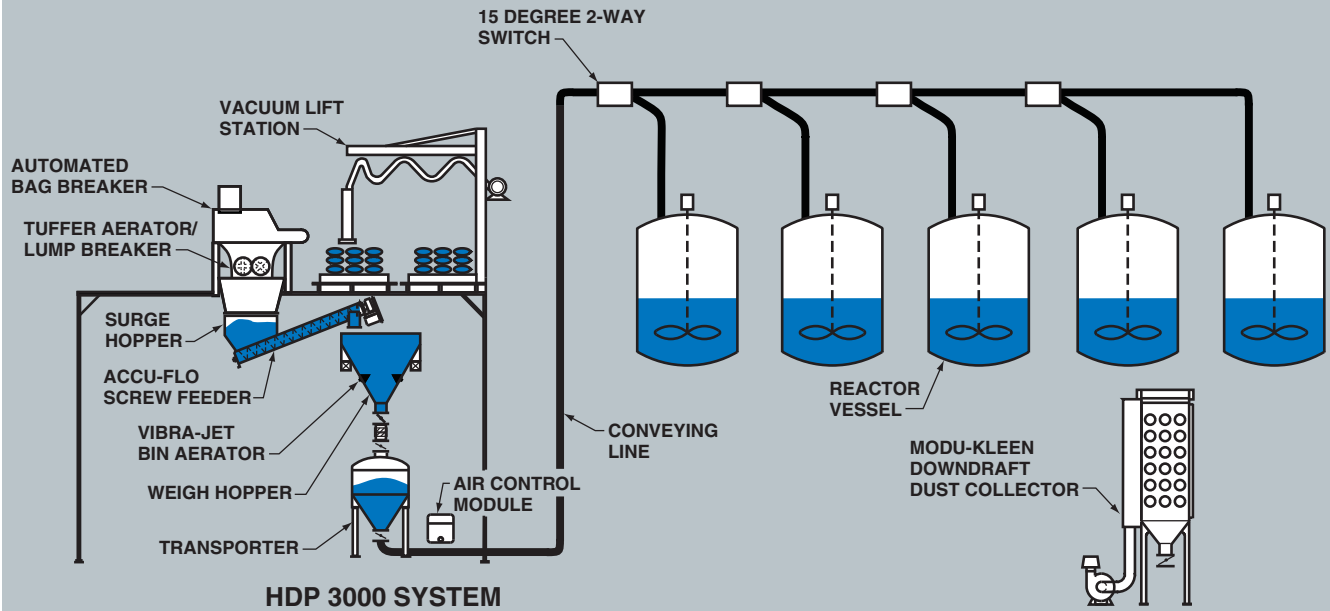
Direct sanding system for railroad industry



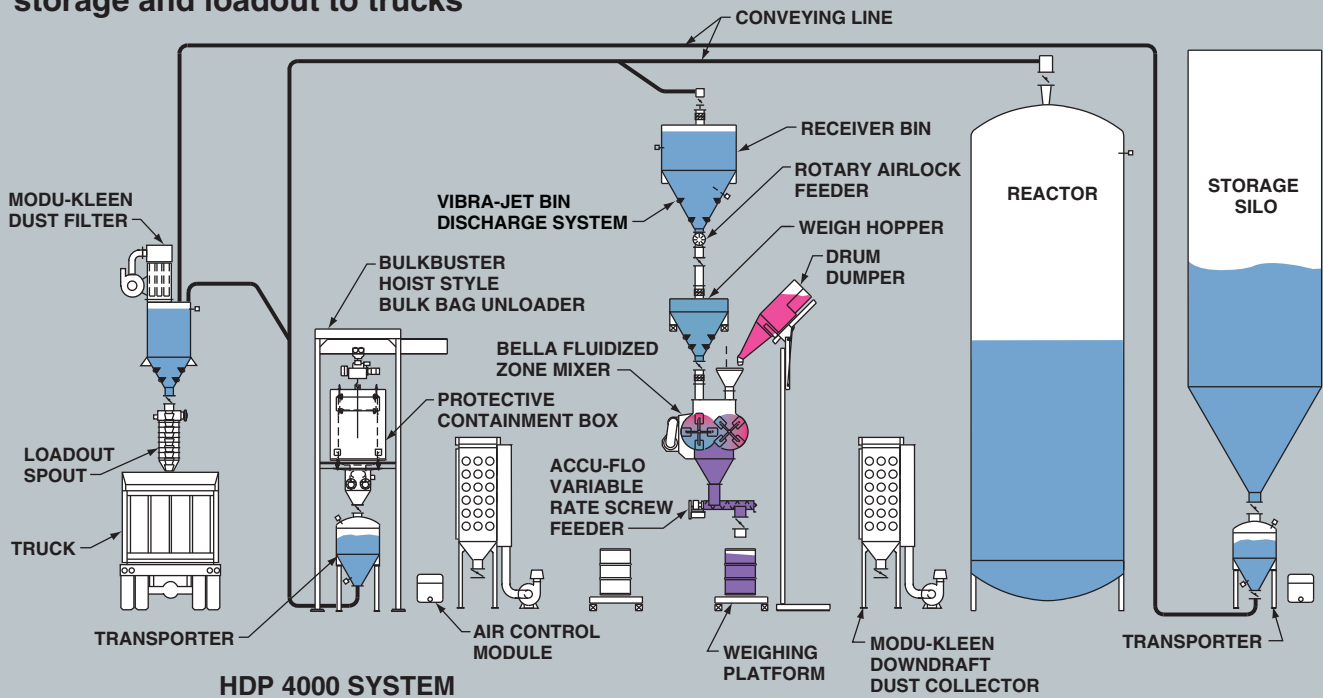
Foundry bond unloading, storage, premixing and weighing system to a muller



Automatic bag breaking, weighing and delivery system of chemical ingredients to reactor vessels

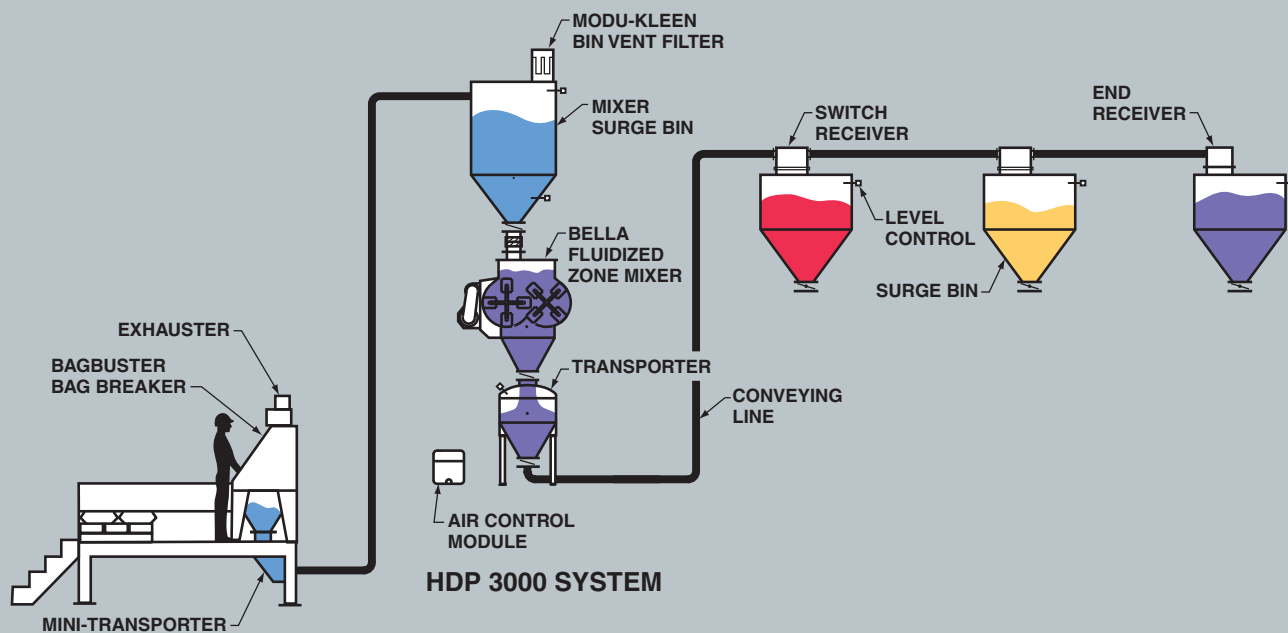


Bulk bag unloading of hazardous chemicals with precision mixing, storage and loadout to trucks

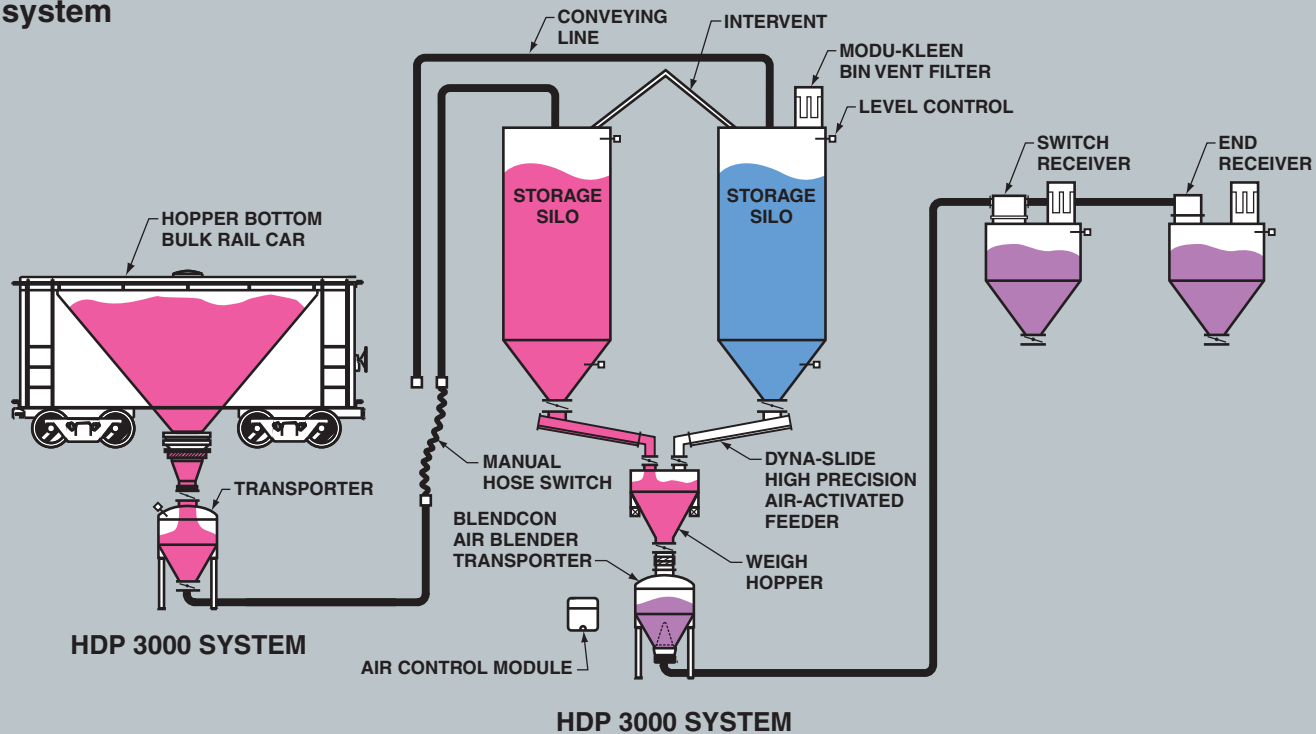


System Applications

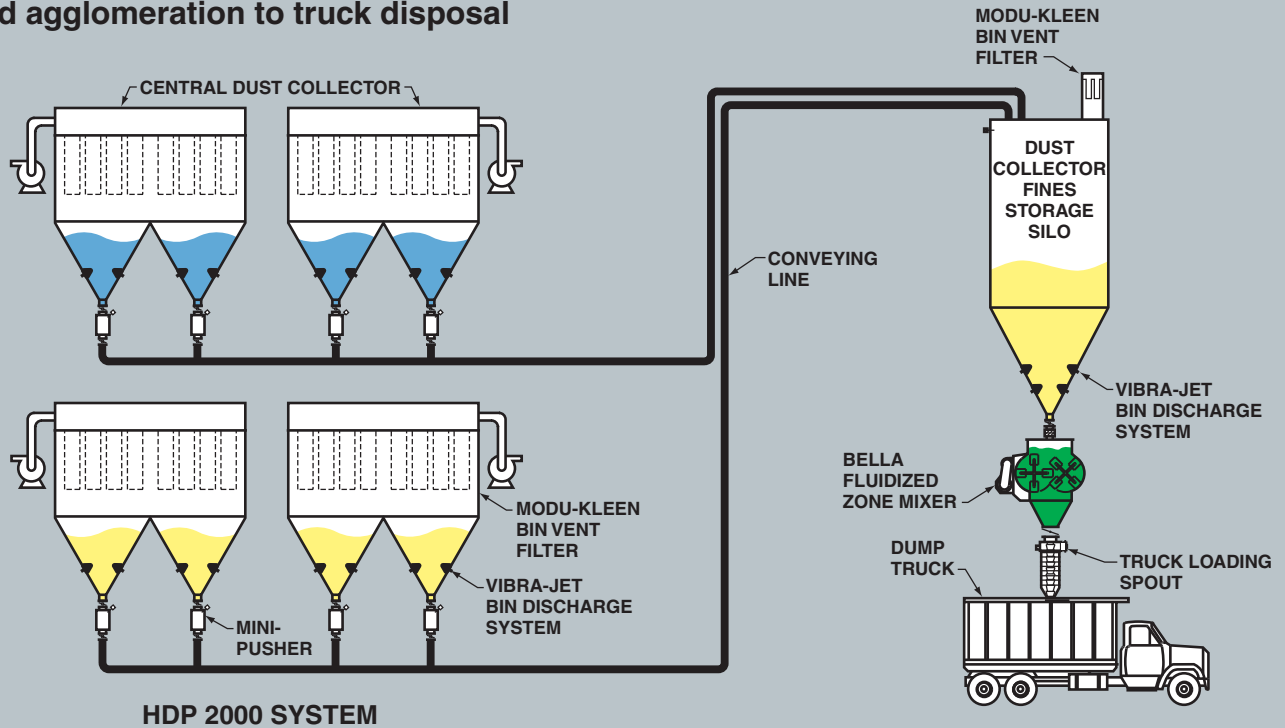
Bag breaking and mixing of dry chemicals to three surge bins



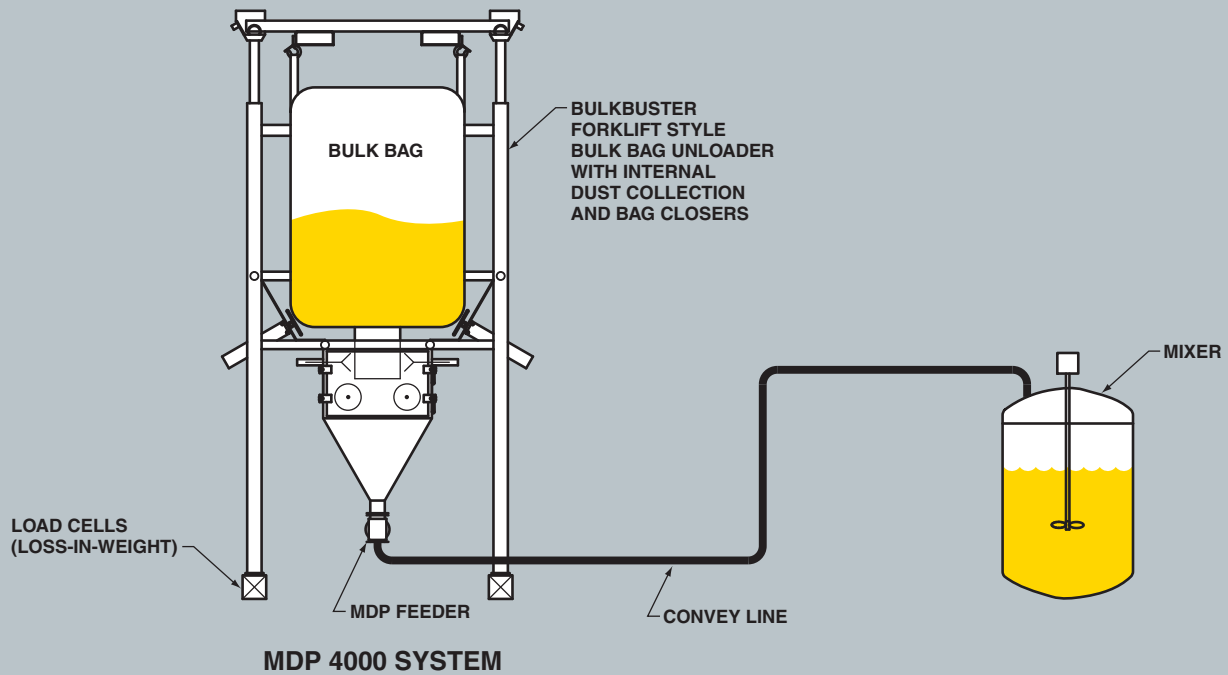
Rail unloading with gain-in-weight weighing and in-plant delivery system



**Central dust collector unloading,
dense phase pneumatic conveying
and agglomeration to truck disposal**

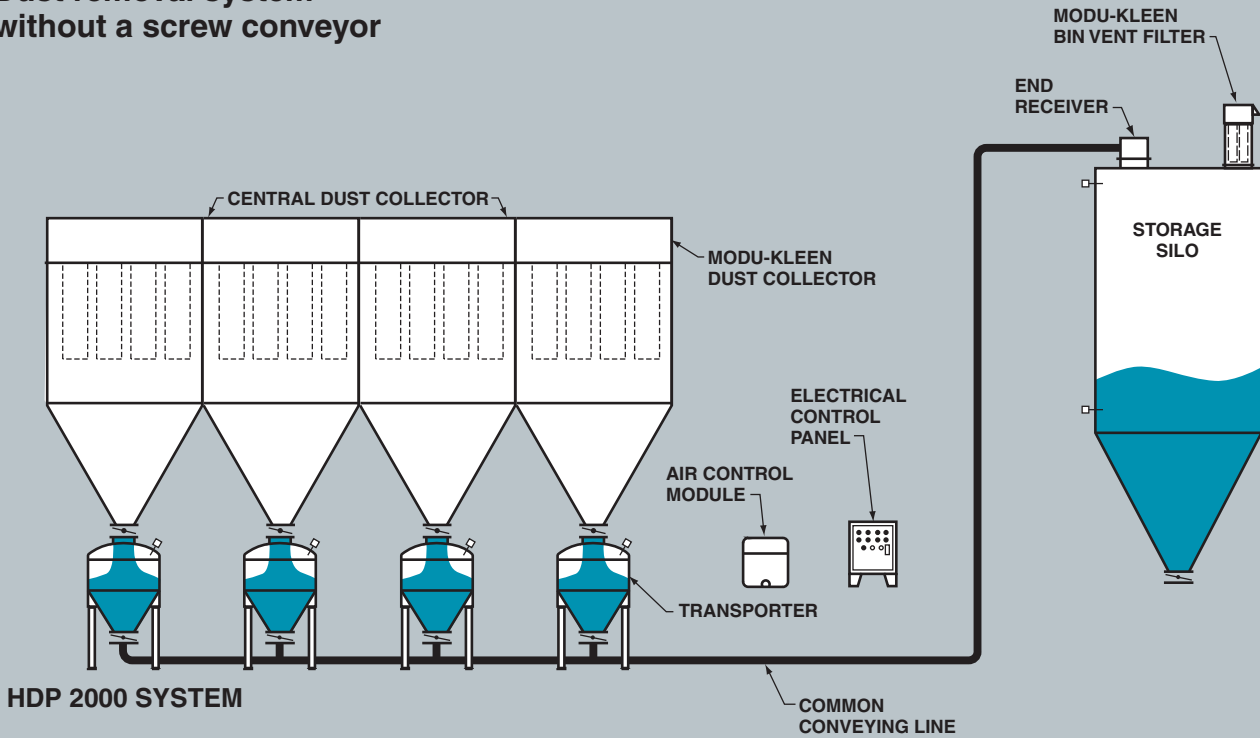


**Bulk bag unloading with loss-in-weight
weighing and batching system**

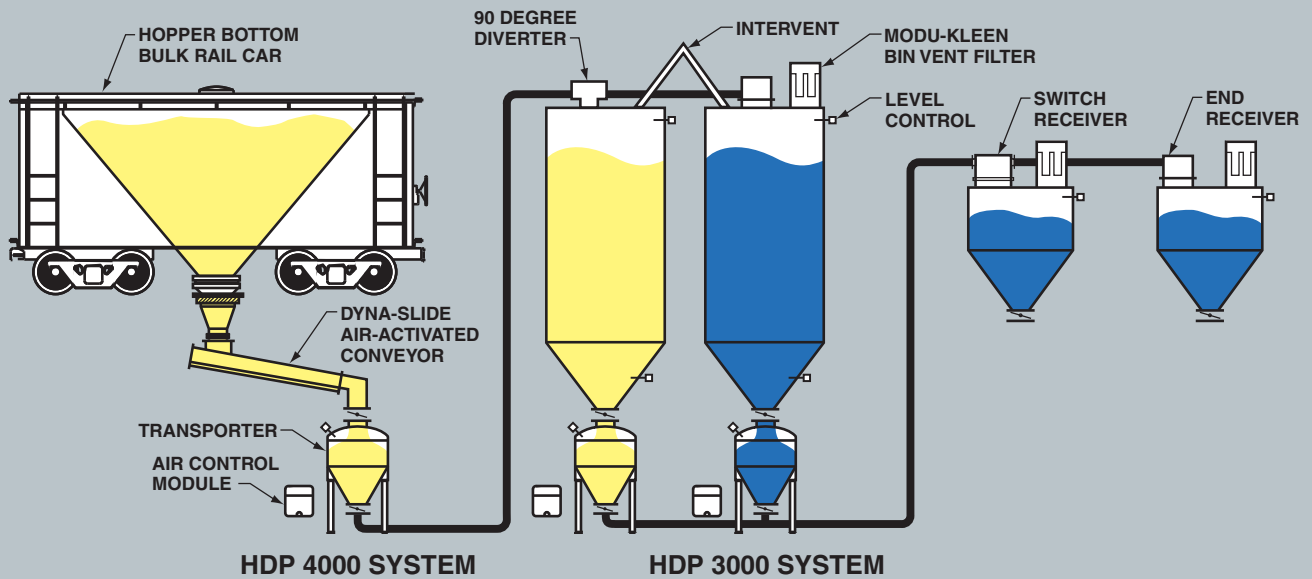


System Applications

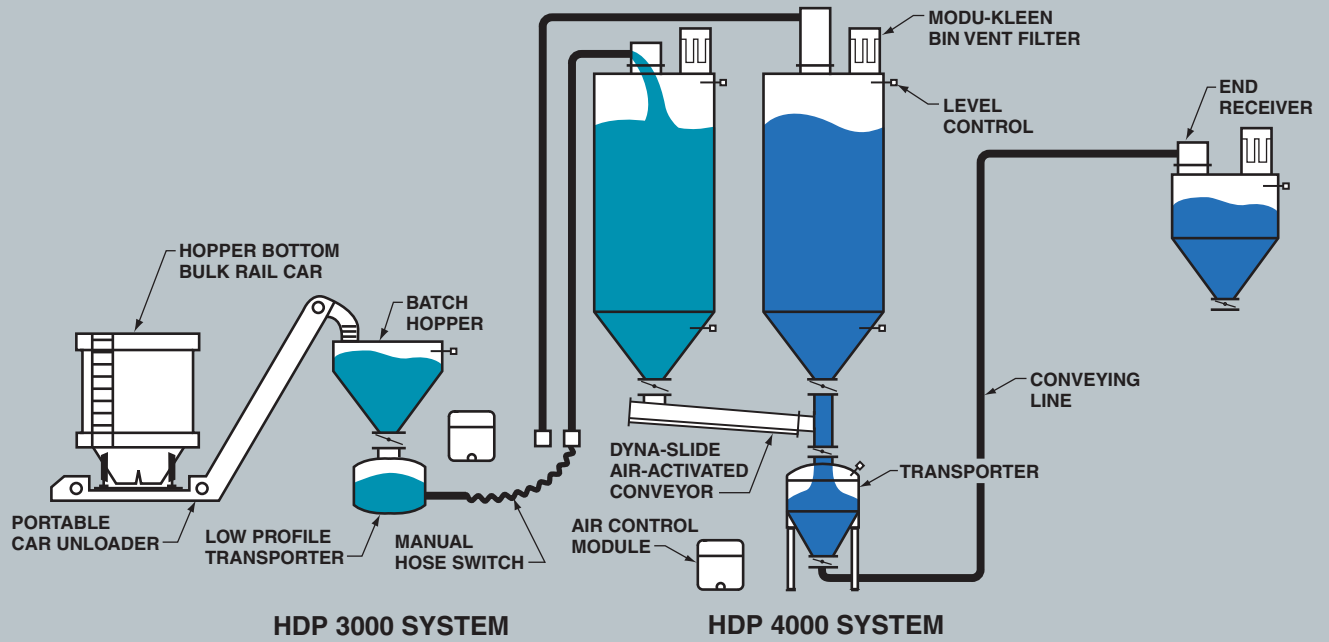
Dust removal system without a screw conveyor



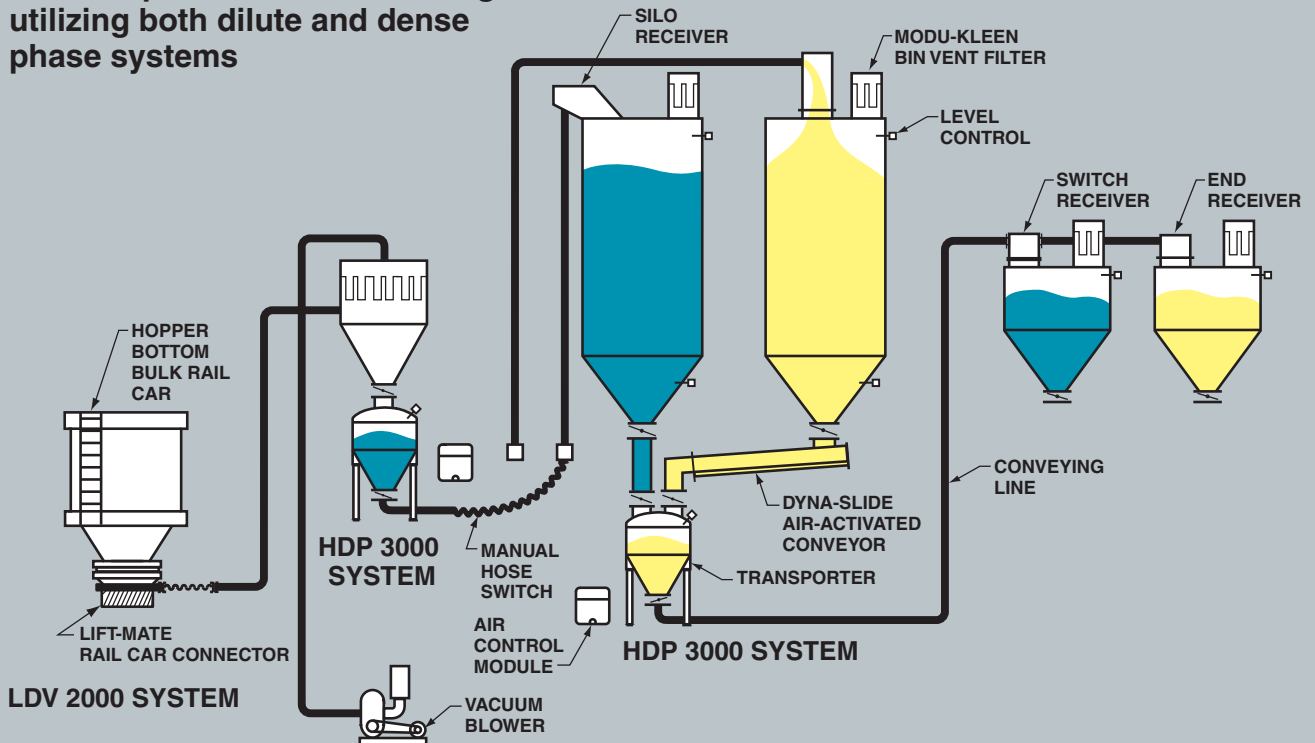
Rail unloading and in-plant delivery system



Rail unloading and in-plant delivery system

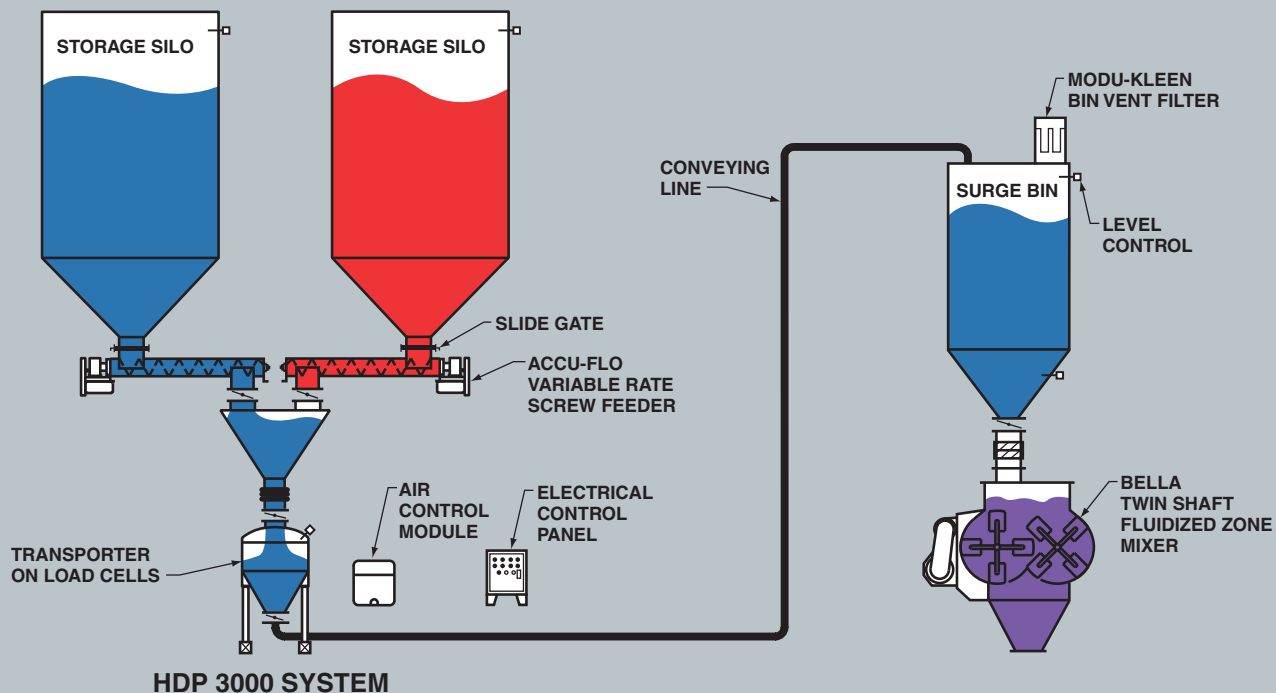


Vacuum-pressure rail unloading utilizing both dilute and dense phase systems

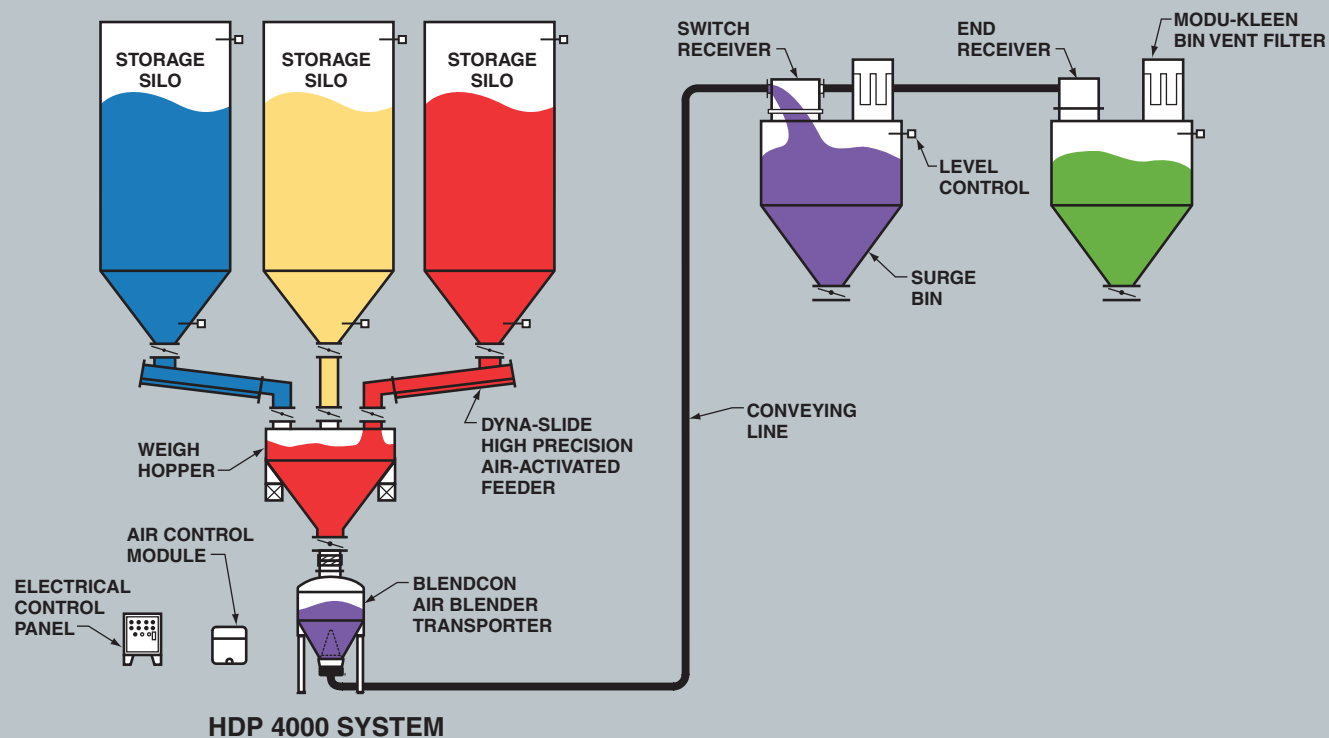


System Applications

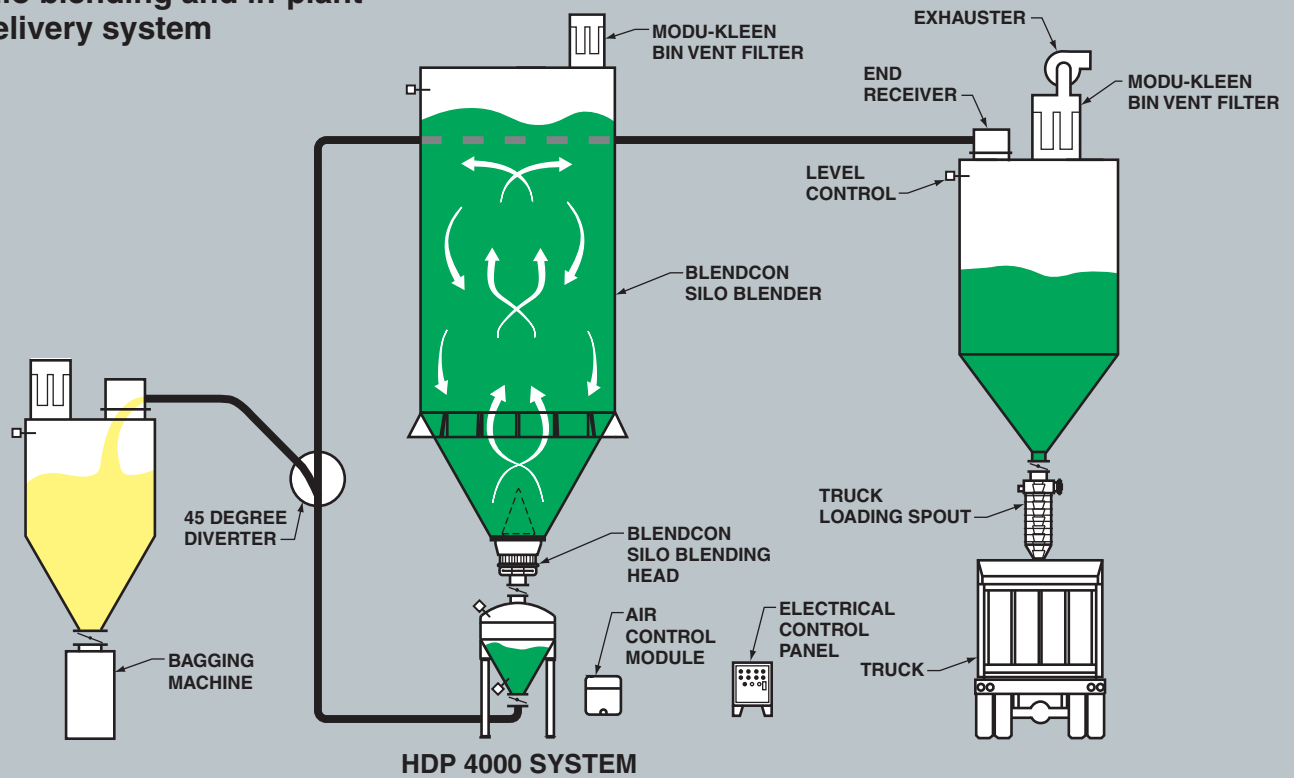
Gain-in-weight weighing and batching and conveying system



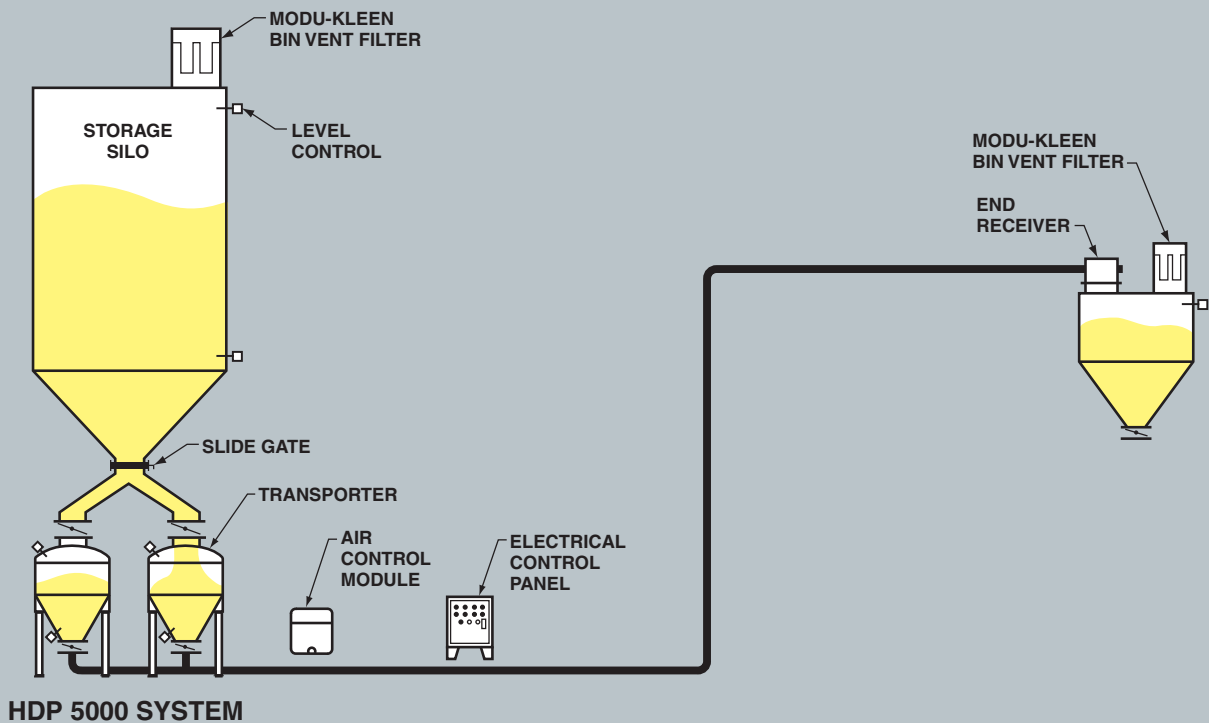
Weighing and batching



Silo blending and in-plant delivery system



Continuous in-plant delivery system



Process System Components



Bella® XN Fluidized Zone Batch Mixer



Bella XN Continuous Mixer



Bella XN Dryer/Cooler



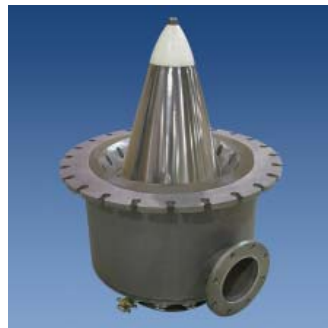
Bella XN Mixer/Dryer



Bella Portable Mixer/Dryer/Agglomerator



Blendcon® Silo Blending Head, 16-port, Series 685



Blendcon Silo Blending Head, 16-port, Series 816



Blendcon Air Blender/Transporter



Modu-Kleen® Bag Type Bin Vent Filter



Modu-Kleen Downdraft Cartridge Type Dust Collector



Modu-Kleen Cartridge Type Vacuum Filter/Receiver



Modu-Kleen Cartridge Type Bin Vent Filter



Modu-Kleen Two Stage Bin Vent Filter/Dust Collector



Modu-Kleen Modular Type Bin Vent Filter, Series 669



Modu-Kleen Modular Type Bin Vent Filter, Series 725



Quik-Vent® Vacuum Pressure Relief Valve



Transporter, Model J



Transporter, Model JT



Mini-Transporter



Transporter, Model L



Mini-Pusher



Portable Mini-Pusher



*Super-Max™ Vacuum/
Pressure Unloader*



Pipe Couplings



*Big Sandy™ Direct Sanding
Module*



*Little Sandy™ Portable
Locomotive Sanding
System*



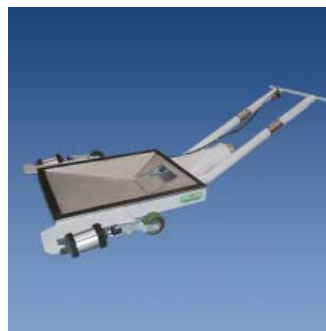
Hefty™ Load-Out Spout



*SpoutMaster™ Adjustable
Fill Spout*



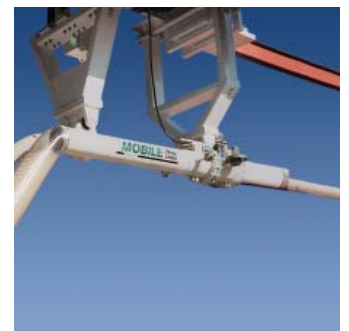
*Lift-Mate™ Truck & Rail
Car Connector*



*Rail-Kart® Vacuum
Unloading Device*



*Rail-Kart Portable Vacuum
Rail Car Unloader, with
Lump Crusher*



*Mobile Truck Lance™
Truck Filling System*

Process System Components



Tuffer® Aerator/Lump Breaker



Tuffer Aerator/Lump Breaker, Pin Mill Style



Posi-flate® Inflatable Seated Butterfly Valve



Inflatable Seated Knife Gate Valve



End Receiver



Switch Receiver



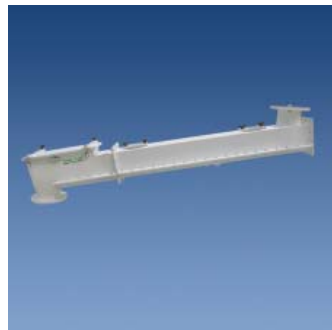
Valve Receiver



Silo Receiver



Dyna-Slide™ Air-Activated Gravity Conveyor



Dyna-Slide High Precision Air-Activated Feeder



Accu-Flo™ Variable Rate Screw Feeder



Accu-Flo Pivoting Screw Feeder



Iso-Lift™ Flexible Screw Conveyor



Oil Weigh System for Rubber Mixers



Quiet-Pac® Positive Displacement Blower



Quiet-Pac Positive Displacement Blower, Sound Attenuating



Superslik® Abrasion Resistant Tubing Bends



Plain, Hard Iron and Ceramic Tubing Bends



Long Radius Ceramic Lined Tubing Bend



Expansion Joint Tubing Bend



View-X® Sight Tubes



X-Size™ Automatic Sampler



Multi-Port Switch, Horizontal



Multi-Port Switch, Vertical



Rotary Switch



Explosion Proof Rotary Spout



90 Degree Diverter



Crossover Switch



2-Way Sliding Switch



3-Way Sliding Switch



15 Degree 2-Way Switch



15 Degree 3-Way Switch

Process System Components



BulkBuster™ Bulk Bag Unloader, Model F1900



BulkBuster Bulk Bag Unloader, Model F100



BulkBuster Bulk Bag Unloader with Scissor Lift



Bulk Bag Slitter



BagBuster® Bag Breaker with Cruncher® Bag Compactor



BagBuster Bag Breaker with Vibrating Screener



Scruncher™ Screw Type Bag Compactor



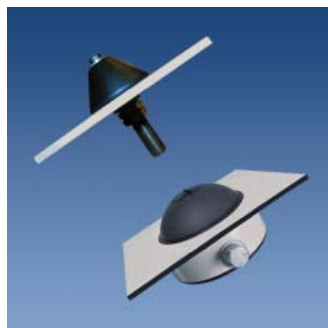
PLC Control Panel



DC-5® Air Saver Control



DC-5® Stainless Steel Air Saver Control



Vibra-Jet® Bin Aerator, Model D and Model K



Vibra-Jet® Bin Discharger



Vibratory Bin Discharger



GYRO EX™ Bin Activating Feeder and Discharger



GYRO™ Loss in Weight Feeder



Circular Vibratory Screen



K-TYPE Screen Feeder, Suspension Mounted



L-TYPE Vibratory Pan Feeder, Base Mounted



L-TYPE Vibratory Pan Feeder, Suspension Mounted



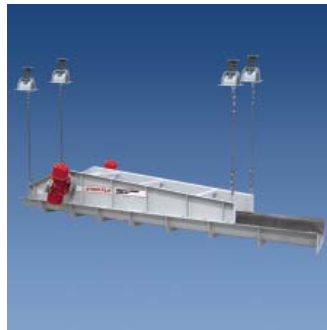
L-TYPE Two-way Vibratory Feeder, Suspension Mounted



STEDI-FLO™ Vibratory Pan Feeder, Base Mounted



STEDI-FLO Vibratory Pan Feeder, Suspension Mounted



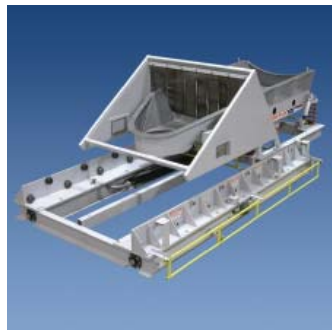
STEDI-FLO Vibratory Feeder, Suspension Mounted



STEDI-FLO Rotating Vibratory Feeder, Base Mounted



STEDI-FLO Vibratory Screen Feeder, Base Mounted



STEDI-FLO Furnace Charging Feeder



STEDI-FLEX™ Vibratory Conveyor, Base Mounted



STEDI-COIL™ Vibratory Conveyor



TRENCH-TITE™ Vibratory Conveyor



EZ-WERK™ Foundry Shakeout



EZ-WERK Foundry Shakeout



Two-Way Foundry Shakeout

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