

INNOVATION IN AUTOMATION

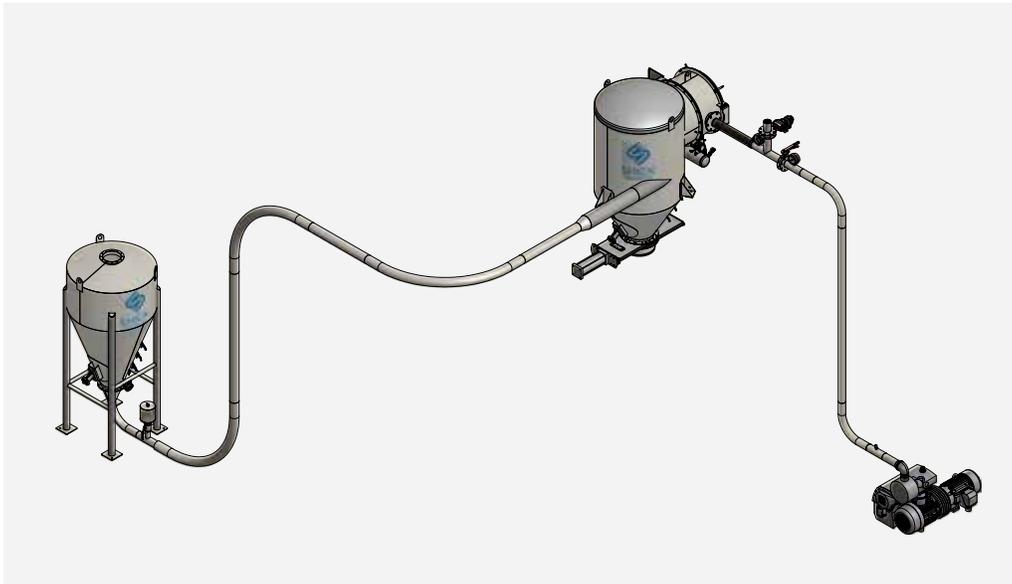
Dense Phase Conveying Systems

SYSTEM PROFILE



01

Vacuum Dense Phase System (VDP)



APPLICATIONS

BLENDS

- › Bakery premix
- › Pharma blends
- › Drink mixes
- › Spice blends
- › Dairy powders

FRIABLE

- › Coffee beans
- › Ground coffee
- › Agglomerates
- › Detergents
- › Breeding
- › RTE cereal
- › Whole corn
- › Malted barley
- › Cocoa beans
- › Granular sugar

HIGH FAT

- › Cake mix
- › Cheese powder
- › Cocoa powder

ABRASIVE

- › Salt
- › Plastic pellets
- › Minerals
- › Grains

Transferring Hard-to-Handle Lighter Granular Materials

Shick's VDP system is designed to minimize product segregation and degradation, line buildup with high fat products and component wear with abrasive products. The system is self-cleaning and adds no heat to the product stream. The heart of the system is the Shick Air Manager, which ensures consistent pressure and air flow by compensating for system conditions. The use of a low horsepower vacuum pump (~70 dBA operating) makes the operation of Shick's VDP system very quiet, the perfect combination of consistency, cost effectiveness and efficiency.

STANDARD DESIGN

- › Utilizes a vacuum pump
- › Material-to-air ratios up to 50:1
- › Product velocities less than 1,000 feet/minute
- › Energy efficient – lower horsepower requirements
- › Low operating noise
- › Versatile operating range
- › Process controls
- › Shick Air Manager

Low Pressure Continuous Dense Phase System (LPCDP)



APPLICATIONS

FRIABLE

- › Coffee beans
- › RTE cereal
- › Agglomerates
- › Detergents
- › Breeding
- › Pet food
- › Nuts

ABRASIVE

- › Plastic pellets
- › Grains

Transferring Hard-to-Handle Lighter Granular Materials

Shick's LPCDP system is designed to minimize product degradation and component wear with abrasive products. The system is self-cleaning and is capable of transferring products over long distances. The heart of the system is the Shick Air Manager, which ensures consistent pressure and air flow by compensating for system conditions.

STANDARD DESIGN

- › High pressure blower
- › High efficiency airlock
- › Shick Air Manager
- › Filter receiver with quick change filter
- › Versatile operating range
- › Process controls

03

High Pressure Continuous Dense Phase System (HPCDP)



APPLICATIONS

FRIABLE

- › Coffee beans
- › RTE cereal
- › Agglomerates
- › Whole corn
- › Malted barley
- › Rolled oats
- › Cocoa beans
- › Nuts

ABRASIVE

- › Plastic pellets
- › Grains

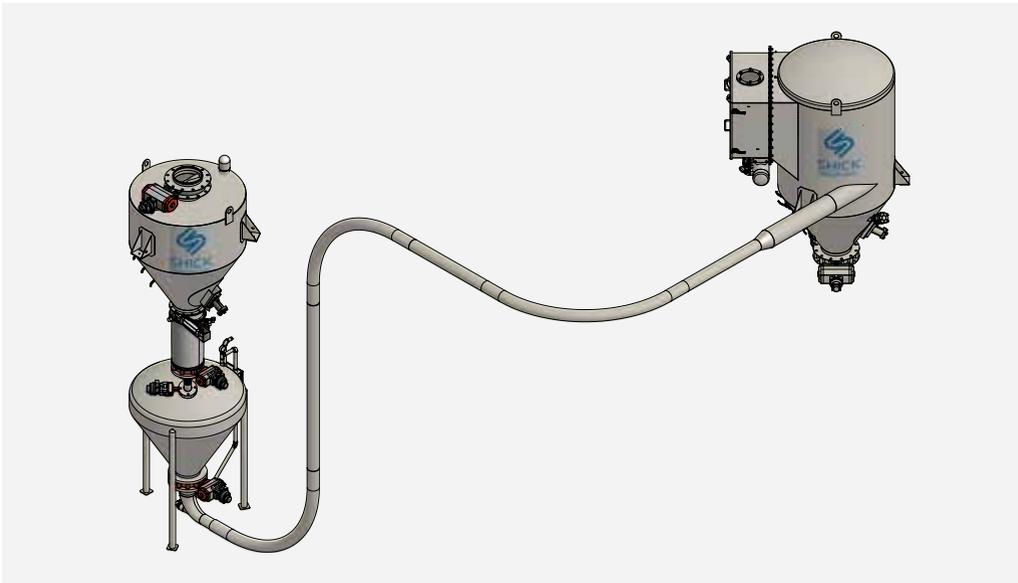
Transferring Hard-to-Handle Heavier Granular Materials

Shick's HPCDP system is designed to minimize product degradation and component wear with abrasive products. The system is self-cleaning and is capable of transferring products over extreme distances. The heart of the system is the Shick Air Manager, which ensures consistent pressure and air flow by compensating for system conditions.

STANDARD DESIGN

- › Utilizes a compressed air source
- › High pressure airlock
- › Shick Air Manager
- › Filter receiver with quick change filter
- › Versatile operating range
- › Process controls

Batch Dense Phase System (BDP)



Transferring Hard-to-Handle Materials

Shick's BDP system is designed to minimize product segregation and degradation, component wear with abrasive products and line wear with abrasive products. The system is self-cleaning and is capable of transferring products over long distances. The heart of the system is the Shick Air Manager, which ensures consistent pressure and air flow by compensating for system conditions. These systems can be designed for batch or continuous processes.

STANDARD DESIGN

- › Utilizes a compressed air source
- › Material-to-air ratios up to 50:1
- › Product velocities less than 2,000 feet/minute
- › No airlock required
- › Versatile operating range
- › Process controls
- › Shick Air Manager

APPLICATIONS

FRIABLE

- › Coffee Beans
- › Agglomerates
- › Detergents
- › Breeding
- › Whole Corn
- › Malted Barley
- › Cocoa Beans
- › Granular Sugar

ABRASIVE

- › Salt
- › Plastic pellets
- › Minerals
- › Grains

BULK

We move. We store. Bulk ingredient handling is one of our core strengths. We offer services in unloading and storage, silo inventory, conditioning (drying/cooling), sifting, scaling/batching, vacuum/pressure, dilute/dense phase and continuous dense phase.

MINORS

Consistency, cleanliness, accuracy, accountability, traceability, labor savings... all reasons to automate your minor ingredients. Although they're called minor, they're a major part of your process. With precise minor ingredient

automation, we ensure product quality by eliminating wasted product and reducing the risk of error when manually adding ingredients.

LIQUIDS

We've handled it all when it comes to liquids, from bulk oil and sweetener systems all the way to E3A dairy compliance. We design systems that are sanitary and easy to clean. With our breadth of capabilities, we're a leader in liquid handling. Leave your liquids to us.

CONTROLS

Controls are at the heart of every system. We integrate

our knowledge with the right technology to keep your process on track. In addition, our Automated Ingredient Management (AIM) production software provides traceability for all raw ingredients. With AIM, plant operators can manage automated/hand-added ingredients, mix times and temperature set points, as well as create production schedules and reports on ingredient inventory, lot codes/tracking, batches, production and yield.

SITE SERVICES

Our site services team supervises and participates in system installations and

startups. Our technical staff is knowledgeable about our customers' processes to provide an efficient and accurate installation.

COMPONENTS/SPARE PARTS SUPPORT

Our extensive stock of components and spare parts and timely delivery keep your system running seamlessly. We also offer system consultations to customers to enhance operating efficiency and update technology. We'll be there when you need a spare.

DENSE PHASE SYSTEMS COMPARISON

APPLICATIONS	VDP	LPCDP (LOW PRESSURE)	HPCDP (HIGH PRESSURE)	BDP
Blends	X			
Powders	X			X
Granular	X	X	X	X
Finished Products	X	X	X	
<25 lbs. cubic ft. density	X	X	X	X
>40 lbs. cubic ft. density	X		X	X
<250' convey distance	X	X		
250'-1,000' convey distance		X	X	X
>1,000' convey distance			X	
<30k lbs./hr	X	X	X	X
>30k lbs./hr			X	X
Low Pick-up Height	X	X	X	