DEPAC® System

Dense Phase Pressure System

UNITED CONVEYOR CORPORATION

DEPAC Pressure System

The DEPAC® system is a dense phase positive pressure pneumatic conveyor that can transport a large quantity of material over very long distances. The DEPAC system from United Conveyor Corporation (UCC) is a fully automatic system designed for continuous evacuation of ash from collection hoppers or transfer tanks. The automated control system maintains a constant mass flow of conveying air in the pipeline, which prevents plugging while minimizing abrasion, power consumption and maintenance costs.

With over 400 systems installed worldwide, the DEPAC system has proven successful in a number of applications, including coal and oil-fired power boilers, biomass and other industrial applications.

- HIGH CONVEYING CAPACITY
- LONG-DISTANCE CONVEYING
- REDUCED POWER CONSUMPTION
- LOWER MAINTENANCE COSTS

The DEPAC System Advantage

The DEPAC dense phase ash conveying system has proven itself in abrasive applications for decades. UCC technical expertise and innovative pneumatic technology offers customers optimal solutions for their specific application.

- **Long-Distance Conveying**
  The system can exceed 7,200 ft (2,200 m) of uninterrupted distance with vertical lifts of 164 ft (50 m), thus minimizing the need for intermediate transfer stations.

- **Lower Operating and Maintenance Costs**
  Controlled low velocity conveying minimizes abrasive wear and reduces power consumption.

- **Material Conveying Flexibility**
  The DEPAC system offers a top discharge arrangement for material that is easier to fluidize and a bottom discharge arrangement for coarse material that is difficult to fluidize.

NUMBER OF DEPAC INSTALLATIONS

400+

Dependable Operation

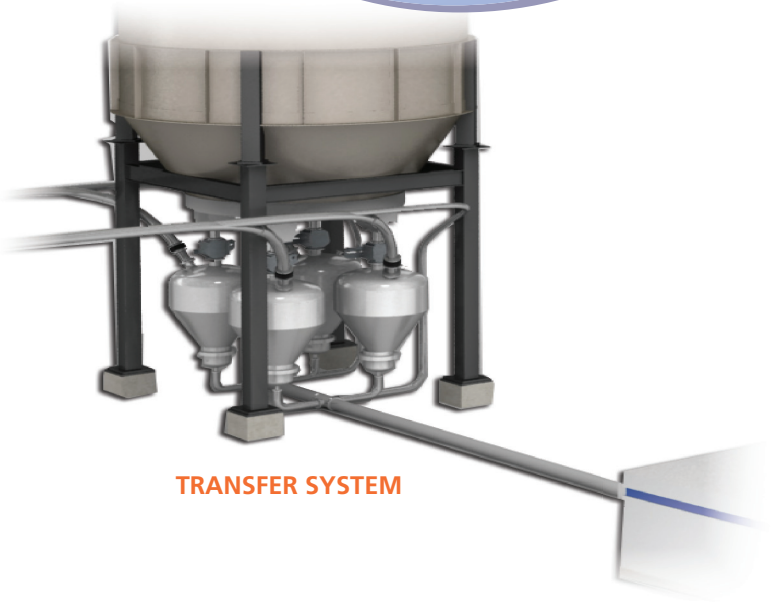
The DEPAC pressure system offers distinct performance advantages in plants that require reliable, cost-effective operation.

- A proprietary DEPAC Inlet Valve (DIV) specifically designed for reliable vessel isolation in an abrasive environment.
- The DEPAC top discharge vessel has a fluidizing element through which conveying air is introduced when a level probe signals that enough material has accumulated inside the vessel.
- To avoid excessive "holding" time of ash during periods with low production, a timer may be used as a backup to the level probe to initiate conveying.

Typical System Capabilities

Maximum Distance*:	7,200 ft (2,200 m)
Maximum Capacity*:	250 TPH (227 MTPH)
Mass Ratio ash:air	25-100:1
Air Velocity:	600-1,000 ft/min (3-5 m/sec)
Maximum Conveyor Full Load Line Pressure:	60 psi (414 kPa)

*material flow characteristics affect distance and capacity

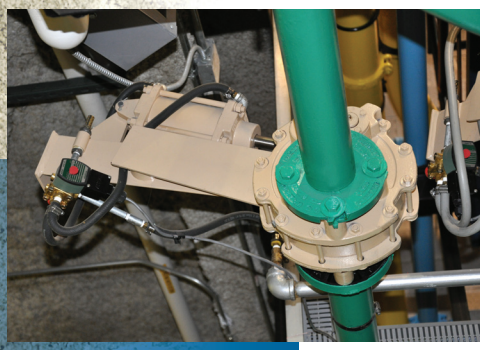


TRANSFER SYSTEM

DEPAC Top Discharge System Arrangemen

Conveying Line

Conveying lines are carbon steel. High abrasion resistance is not required due to the low velocity of the system.

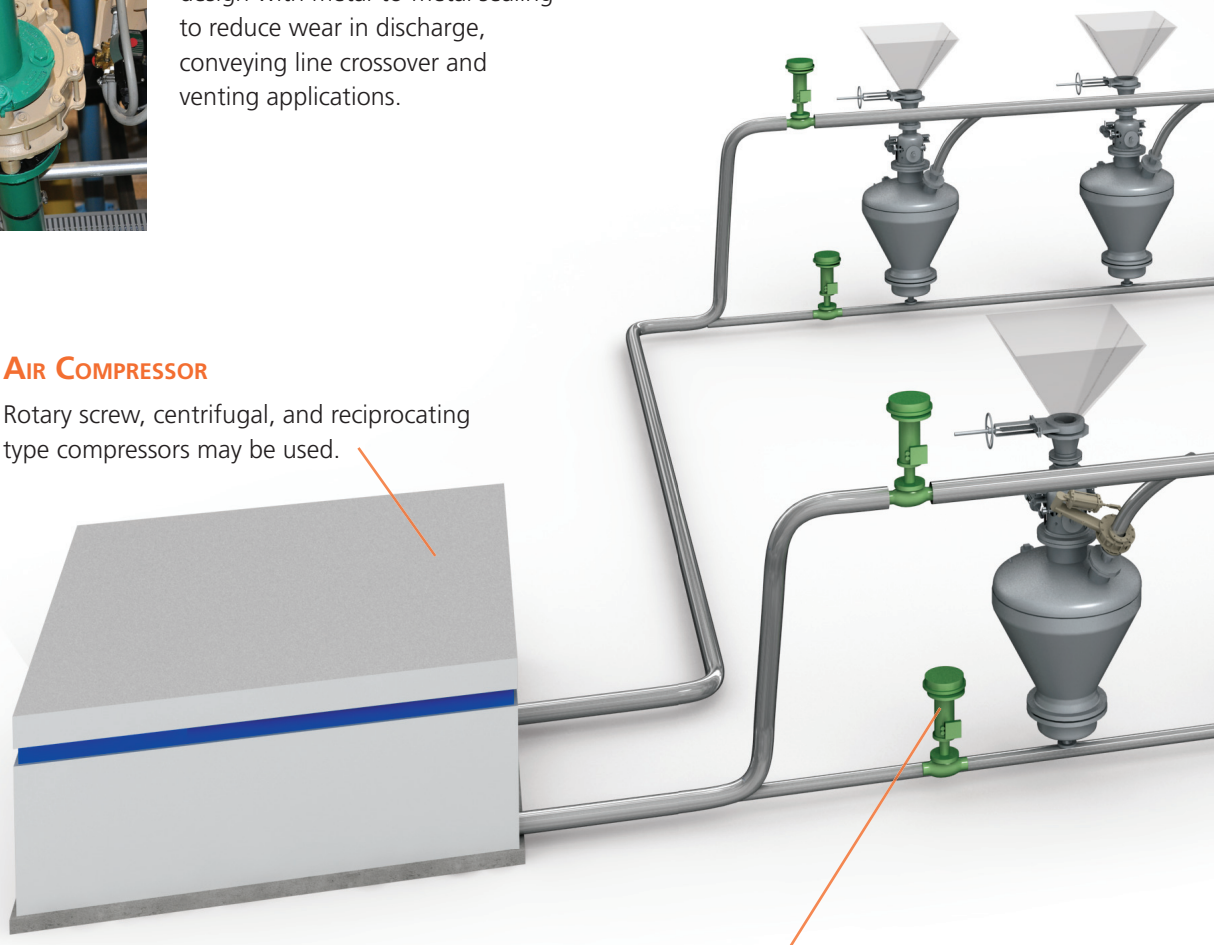


Sheardisk Valve

The sheardisk valve is a rugged design with metal-to-metal sealing to reduce wear in discharge, conveying line crossover and venting applications.

Parallel Mode

Several vessels are emptied simultaneously through a common discharge valve.



Air Compressor

Rotary screw, centrifugal, and reciprocating type compressors may be used.

Air Flow Control Valve (optional)

The compressed air header is maintained at 50 to 100 psi (345 to 690 kPa), with the capacity to operate multiple lines simultaneously. Air flow control valves on each line regulate the lines independently. The valves are operated from the main control panel with differential pressure sensors to maintain a constant mass air flow in each line.

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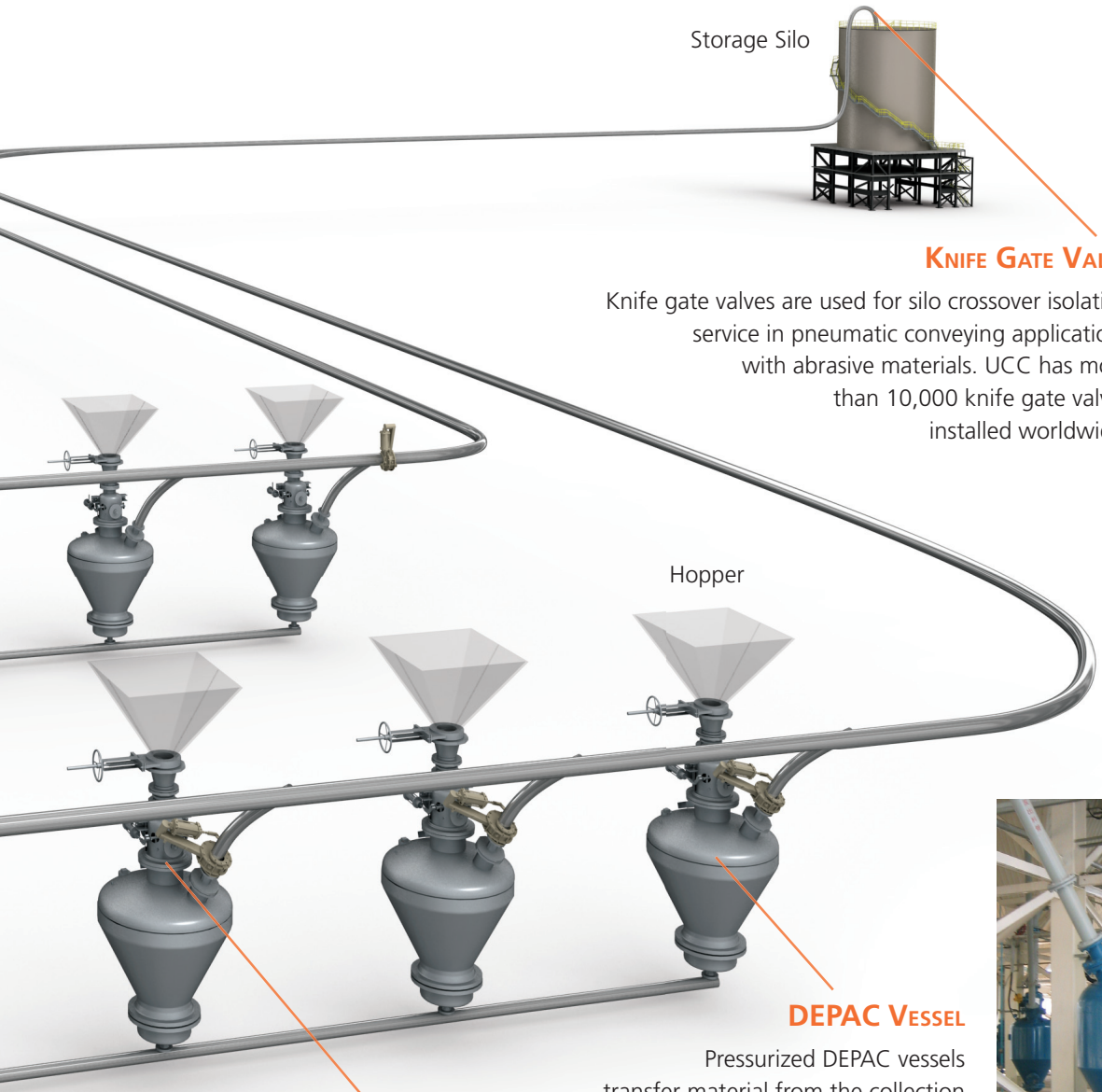


Knife Gate Valve

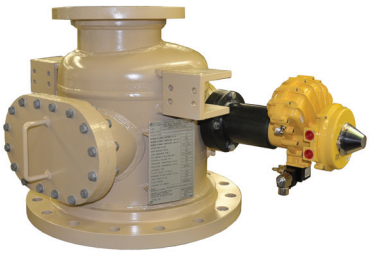
Knife gate valves are used for silo crossover isolation service in pneumatic conveying applications with abrasive materials. UCC has more than 10,000 knife gate valves installed worldwide.

Single Mode

Each vessel is emptied through its own discharge valve.

DEPAC Vessel

Pressurized DEPAC vessels transfer material from the collection hoppers to the conveying line. The geometry of the vessel is designed to minimize material hang-up and provide optimal flow into the conveying line.

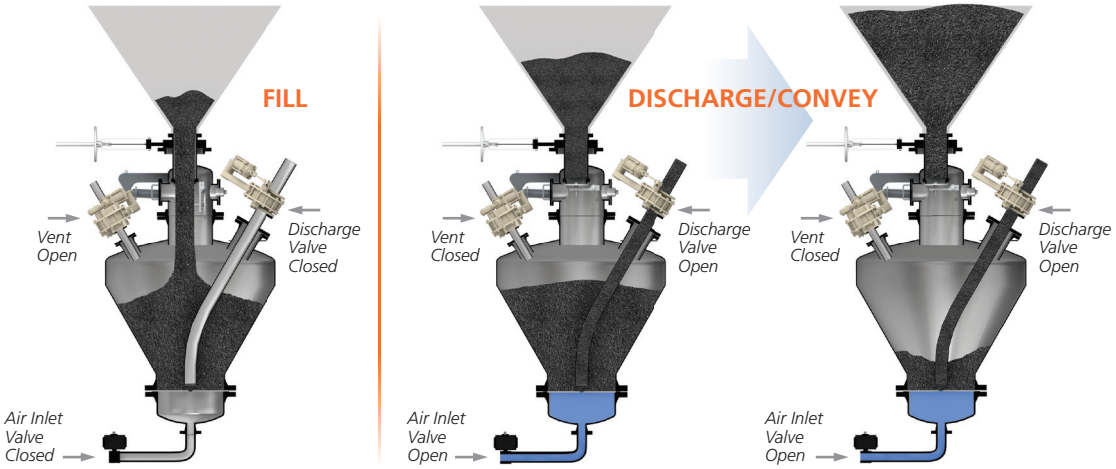


DEPAC Inlet Valve

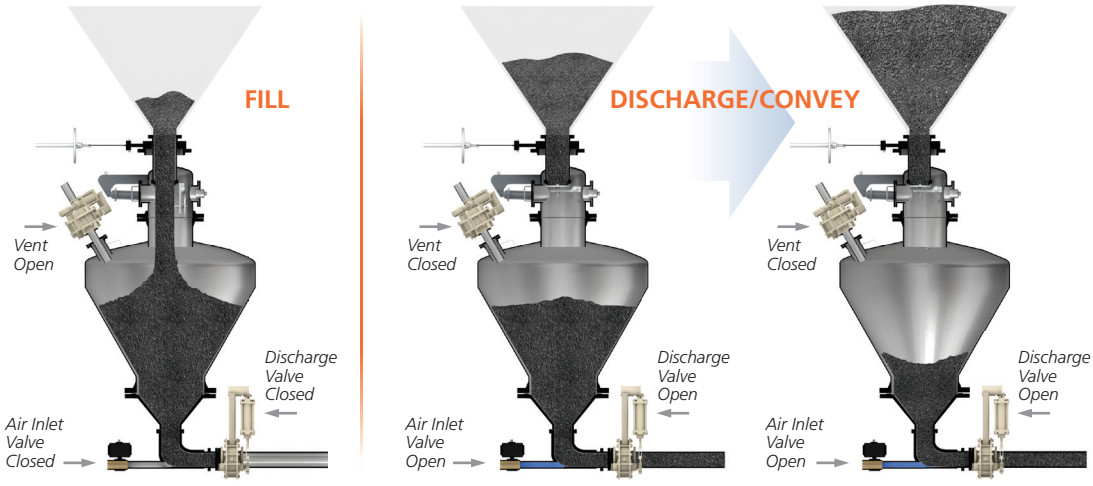
The UCC DEPAC inlet valve (DIV) is specifically designed for vessel isolation in high pressure DEPAC systems. The spring-loaded design maintains uniform pressure on the packing during operation and the self-adjusting, spring-mounted ball pivot provides reliable sealing performance. Access covers allow adjustments and maintenance to be performed in place.

Conveying Cycles

Top Discharge



Bottom Discharge



FILL

The discharge valve is closed and the DEPAC inlet valve (DIV) and vent valve are opened. Material accumulates in the vessel until a level sensor or pre-programmed timer signals "full" and the DIV and vent valve are closed.

DISCHARGE/CONVEY

The air inlet valve and discharge valve are opened and air enters the vessel to initiate material discharge. The fluidized material is discharged into the conveying line by the conveying air, in the form of a dense column of material. When the vessel is empty and the conveying line is reasonably clear of material, the air inlet and discharge valves are closed, the vent valve is opened and the fill cycle is re-initiated.

DEPAC System for Oil Ash

Oil burning boilers produce lightweight, high carbon ash which is free-flowing when hot and dry, but sticky when cool and moist. Technology and experience are critical to ensure proper material flow and minimize buildup.

With over 150 systems worldwide, the DEPAC oil ash conveying system is the most reliable and industry leading technology for conveying heavy fuel oil ash or crude oil ash.

KEEP IT **HOT.**
KEEP IT **DRY.**
KEEP IT **MOVING.**

Reduces Build-Up and Plugging

DEPAC components and system configuration are engineered specific to individual application and plant needs. Oil ash requires some additional components which UCC provides in order to convey it successfully.

Heated conveying air prevents build-up and plugging of ash inside the pipes. Heat tracing and thermal insulation of the pressure vessels, conveying lines and silo cones help retain heat which keeps the oil ash hot and in a fluid state for easier conveying.

NUMBER OF DEPAC OIL ASH INSTALLATIONS

150+

The UCC Commitment

As an industry innovator, we have long been at the forefront of ash handling technology. We recognize the importance of providing customers with the best equipment and latest technology that meet their demanding requirements and plant needs.

With our own advanced testing and technology lab, we are able to maintain control over the quality and delivery of our systems and equipment. The result is superior and predictable performance for our customers.

Our dedicated team of engineers, sales, service and in-house designers spans the globe covering six continents, assuring you that we can provide exceptional service whenever needed. This is our commitment to you.

UCC Material Handling Solutions

Fly Ash (Dilute, Medium and Dense Phase)
- Vacuum Systems
- Pressure Systems

Bottom Ash (Wet and Dry)
- Hydraulic Systems
- Pneumatic Systems
- Mechanical Systems
- Vibratory Systems

Mill Rejects
- Hydraulic System
- Pneumatic Systems

Economizer Ash
- Hydraulic Systems
- Mechanical Systems
- Pneumatic Systems

Dry Sorbent Injection
- Predictive (CFD) Modeling
- On-Site Testing and Demonstration
- Pneumatic Systems
- Installation

Lime Handling
- Truck and Rail Unloading
- Pneumatic Systems

System Components
- Crushers
- Mixer/Unloaders
- Gates/Valves
- Pipe/Fittings
- Filter/Separators
- Tanks/Vessels

Global Operations in:
United States • Europe • China • India
Systems in over 60 Countries

UNITED CONVEYOR CORPORATION

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