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Dense Phase Conveying Equipment



Dense phase conveying system

- [View full screen](#)

Solutions for your hard to convey materials

Dense phase systems convey materials at slower velocity than traditional dilute phase pneumatic systems. Unlike dilute phase conveying, in which all the material is suspended in a high speed gas stream, dense phase conveying moves material in a slower but more concentrated manner, especially along the bottom of the pipeline. The dense phase system will be designed to move material in a strand, slug or fluidized mode depending on the nature of the material and the plant configuration. The dense phase conveying method is typically capable of higher conveying rates and longer conveying distances.

READ LESS

BENEFITS & FEATURES

- Low energy consumption
- Minimizes wear and abrasion
- Reduces degradation
- Capable of high conveying rates and long distances
- Controls - Our experienced electrical engineers and programmers have the knowledge to match any customer's control needs. A variety of control PLC and communication options are available.
- Customization – Each Coperion K-Tron system is proposed to exactly match the intended application.
- Cleanability – In both the pressure vessel and continuous high pressure rotary valve dense phase configurations, the vessel and the convey line can easily be purged of material. Provisions are available for inspection/cleanout of the system components. Sanitary

versions of both types of dense phase systems are also available utilizing tri-clover type clamps wherever feasible.

- Quiet – Dense phase systems operate at noise levels well below 83 dBa.
- Durable & Reliable – Coperion K-Tron dense phase systems purposely have additional safety factors built in to ensure high performance and reduce maintenance, while providing a long life cycle.

AREAS OF APPLICATION

Dense phase conveying is ideal for materials that are abrasive, friable, tend to segregate, temperature sensitive, premixed materials or materials with high bulk densities. Dense phase conveying is optimal for fine bulk solids such as powders or for larger particles like coarse granulate, pellets, coffee beans or pet food.

DENSE PHASE PRODUCT OFFERINGS



Dense Phase Pressure Vessel

Dense phase pressure vessels employ high air pressure — above 1 bar(g) [15 psi(g)] — and low air volume as the motive force to convey powder or granular bulk solid materials through a pipeline at low velocity. They are designed for high capacity conveying rates and long distances in purged (clear line) and non-purged (full-line) systems. There are no moving parts besides the inlet and vent valves, so less wear occurs. Pressure vessel units are pre-assembled to reduce installation cost, requiring only compressed air source and electrical power.

Omniveyor™ Basic System



The Coperion K-Tron Omniveyor™ basic pressure vessel system provides **manual** single point control of convey air pressure and air flow along the entire length of the convey line utilizing Coperion K-Tron's air injectors. The basic system provides an **economical option** for dense phase pressure vessel conveying.

Omniveyor™ AIM System



This is a radical departure from dense phase systems that employ manual pressure adjustments and flow regulation with no feedback along the convey line. The Coperion K-Tron Omniveyor™ Air Injection Modules (AIM) pressure vessel system utilizes Coperion K-Tron's **automated air injectors**. The Coperion K-Tron Omniveyor AIM system has the capability of providing pressure and flow information at the source, along several points on the convey line and at the destination(s). The system is **ideal for processes that change dissimilar material often**.

Dense Phase Controls & Air Injection Module (AIM)



The simple to operate dense phase control system is designed with complete control, both in manual and automatic modes, of all components in the dense phase system scope of supply.

The dense phase controls allow the Air Injection Module (AIM) the ability to inject compressed air at strategically placed points along a convey line to control velocity and material-to-air ratio, and thus reduce the potential for convey line plugging, abrasion, degradation and segregation, especially with difficult materials.

High Pressure Rotary Valve



The specially designed high pressure Coperion ZVH rotary valve is used for continuous gentle conveying of coarse granular or pellet size, friable or temperature sensitive materials such as plastic pellets, coffee beans, grains, etc.

A dense phase rotary valve system is ideal for achieving high conveying capacities, even at long distances. These parameters are possible due to the rotary valve's ability to withstand 3.5 bar(g) [51 psi(g)] while minimizing leakage and through use of the Coperion LMR-X air control unit.

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