



## Pneumatic Conveying Systems and Components for Bulk Material Handling

# Bulk Material Handling Systems

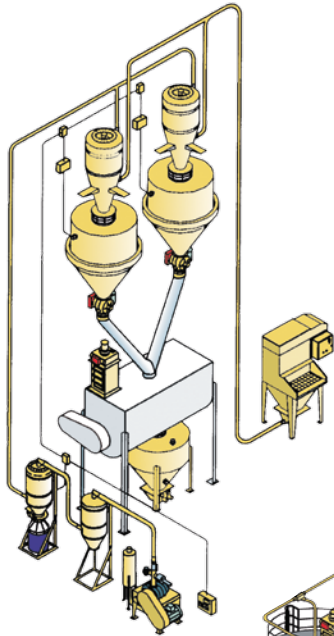
## The Coperion K-Tron Difference

Pneumatic conveying represents the core of a Coperion K-Tron bulk material handling system. Whether it's a simple system or achieving great performance with difficult materials, our application knowledge and ability to effectively handle a large variety of materials have earned us the trust of our customers.



## Bulk Unloading and Storage Systems

A bulk unloading and storage system can increase production and plant efficiency while decreasing labor, material and energy costs. Coperion K-Tron has time-proven capability to tailor an unloading and storage system to meet specific applications. Consideration to plant layout, how material is received, the material's characteristics and conveying distance and rate are taken to ensure maximum system performance to handle materials such as wood flour, PVC compound, cocoa, dextrose, titanium dioxide, soda ash, calcium carbonate, sodium benzoate and many more hard to handle materials.

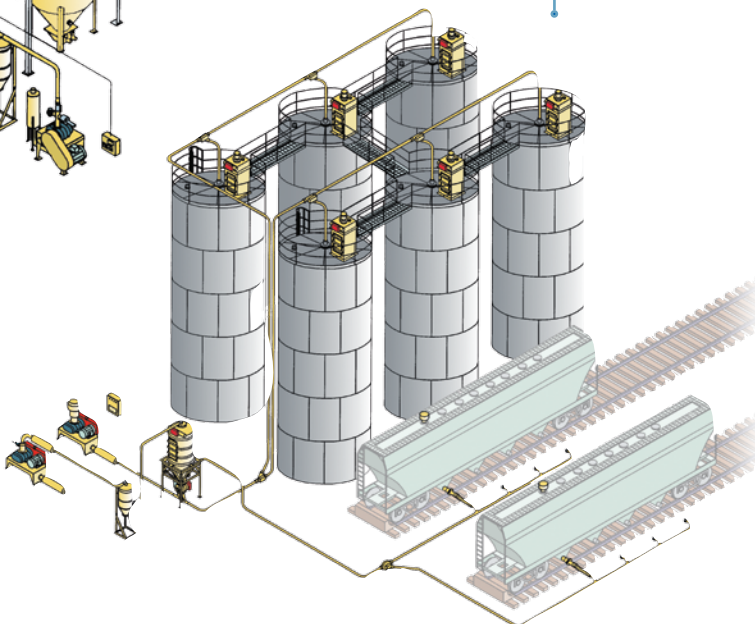
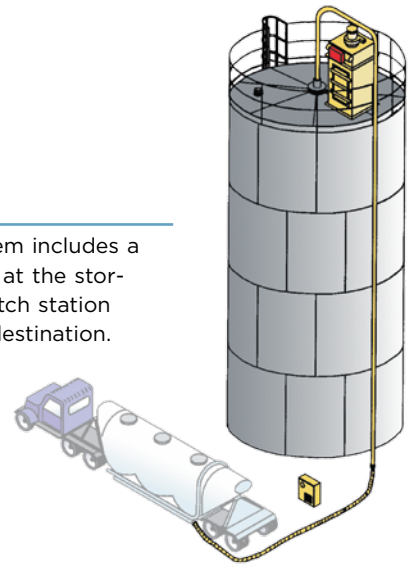


### Bag Unloading

Coperion K-Tron's sack dump station traps dust generated from the unloading of material received in bags. In addition to the vacuum system, the sack dump station can introduce material into pressure systems or directly into a screw conveyor or mixer.

### Truck Unloading

The PD truck unloading system includes a truck fill alarm panel located at the storage tank. A manual hose switch station lets the operator select the destination.



### Railcar Unloading

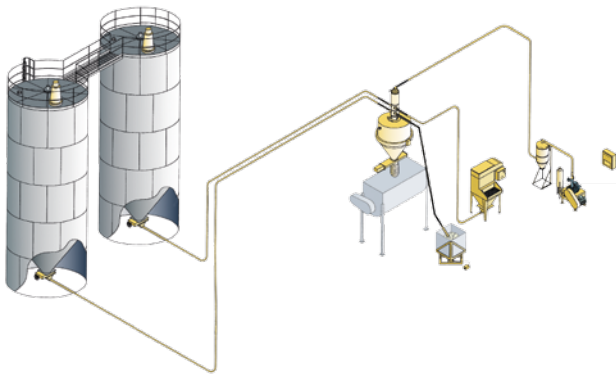
The PD railcar unloading system includes a blower package and PLC controls to monitor the system's operation.

A single-blower system conveys material from the railcar to the storage tank. One blower powers both sides of the system, minimizing cost. It is ideal for applications where the vacuum side of the system is a short distance.

Dual-blower systems unload material from the railcar at higher conveying rates and for longer conveying distances.

## Weighing and Scaling Systems

A continuous vacuum or pressure system can improve the accuracy and efficiency of your major, minor and micro ingredient handling. Maximum system performance is achieved by taking into consideration factors such as plant layout, material delivery, material characteristics, batch size and the required conveying rates. System controls can include recipe, formula and inventory capabilities. Materials of construction include stainless steel for sensitive or sanitary applications as well as epoxy-coated carbon steel or aluminum for general applications.

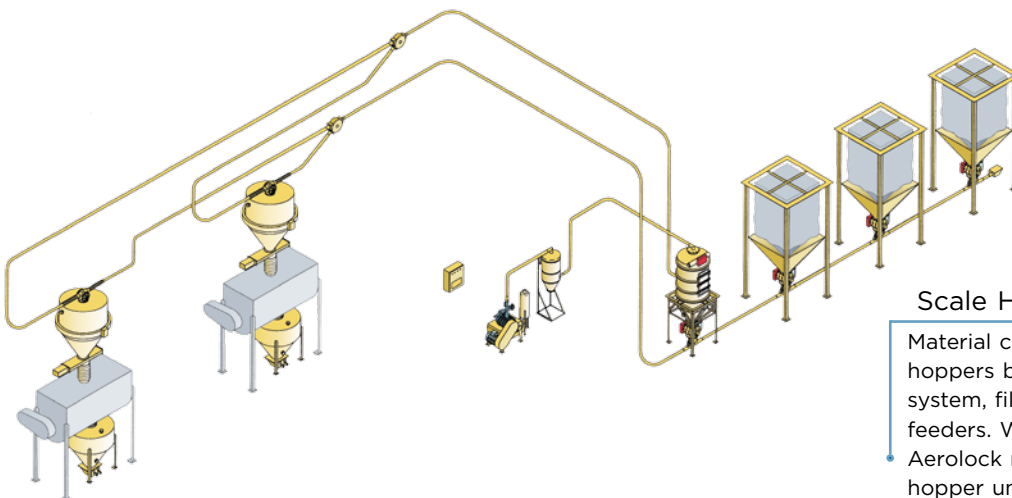
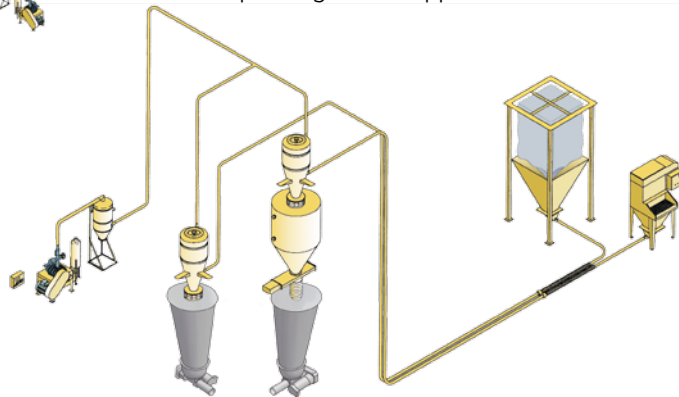


### Batch Weighing

A receiver is mounted on load cells to allow each batch to be “check-weighed” before processing, minimizing material waste and “off-spec” products. Self-cleaning filter media eliminates product carry-over and provides a cleaner process area.

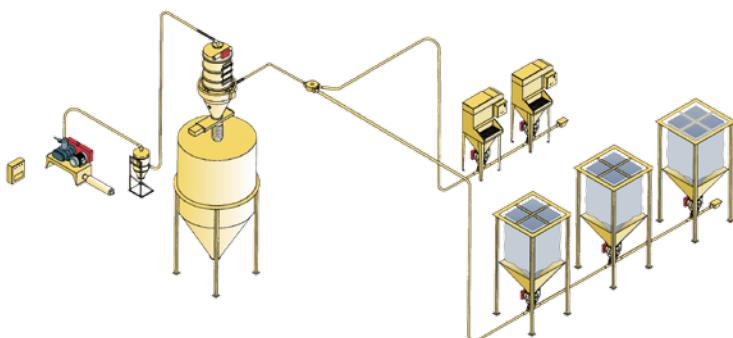
### Loss-in-Weight Feeder Refill

Series 2400 and P-Series vacuum receivers and loaders can be used to refill feeders used in continuous or batch applications. A number of outlet designs and discharge valves are available depending on the application.



### Scale Hoppers (Vacuum or Pressure)

Material can be delivered to the scale hoppers by a closed-loop Aeropass system, filter receivers, cyclones or screw feeders. When a receiver is used, an Aerolock meters material into the scale hopper until the set point is reached.



### Filter Receiver Scaling (Vacuum or Pressure)

Material is conveyed to a filter receiver mounted on load cells. The receiver's self-cleaning filter media separates the material from the conveying air, eliminating product carryover and providing a cleaner process area.

# Pneumatic Conveying Components

## Rotary Valves for metering bulk materials

Coperion and Coperion K-Tron Rotary Valves come with the assurance of decades of experience, process know-how as well as with proprietary development and manufacturing with top quality materials. Our rotary valves are backed by more than 70 years of experience-tested design and applications. We are continually upgrading our line, which currently includes more than 150 models and sizes of rotary valves.

Many of the variations we offer are a result of working closely with our customers to address their particular needs. Our customer's expectations of quality and performance are foremost in our minds.

Each rotary valve is hand-built to exacting tolerances and is performance-tested.

We supply certified solutions for requirements regarding sanitary and flameproof design and ATEX conformity. Our rotary valves also set standards at high pressures and with regard to wear protection.

Models include drop-through and blow-through configurations. A variety of options and accessories are available to ensure reliability in each application.



## Diverter Valves for directing bulk materials

Coperion and Coperion K-Tron diverter valves are designed to divert or converge pellets, granulars, fine powders, or abrasive materials from one source to one or more destinations. Decades of experience and process know-how are built into each design. A range of single channel and dual channel designs are

available, depending on the bulk material and requirements of the application.

- **Aeropass™ Valve** - for diverting material directly into a hopper and low-clearance areas
- **Diverter Valves** - for directing material from one source to multiple destinations



## Hoppers and Bins for receiving bulk materials

Whether your application calls for fine powders, granular or pelletized materials, Coperion K-Tron's range of hoppers and bins are designed to ensure a clean, dust-controlled process environment while unloading materials received in bags.

- **Bag Dump Stations** with and without integral dust control
- **Feed Bins**
- **Surge Bins & Hoppers**
- **Batch Weigh Receivers**
- **Scale Hoppers**
- **Sanitary Bag Dump Station** with or without glovebox



## Filters and Separators

For separating airborne particles from conveying air.

Our extensive line of filters and separators provide excellent air filtration at a nominal cost. Whether it's producing automatic material-from-air separation within a filter

receiver or allowing clean air to pass from a tank into the atmosphere using our "No-Tool" modular cartridge bin vent, our engineering staff will ensure the right filtration system is in place for your system.

- **Static Filters** - ensure process system safety
- **Pulse-Jet Filters** - provides automatic material-from-air separation
- **Cyclones** - no moving parts, no bags to clean and plant air and electricity are not needed for operation



# Loaders and Receivers

## Series 2400 for a wide range of pneumatic conveying needs

Series 2400 Powder and Pellet receivers provide a high capacity sequencing system designed to handle powder, pellet, regrind and granular materials. Each receiver has a stainless check valve to allow multiple receivers to draw material from a common conveying line. The polyester cartridge filter is equipped with automatic reverse jet pulsing for thorough cleaning.

Applications include railcar unloading, silo to daybin transfer, in-plant transfer or feeder refill.

Various models available in carbon steel (painted), stainless steel or aluminum.

All models feature quick con-

nect clamps for easy cleaning and filter maintenance.

Self-contained loaders feature an integrated vacuum pump.

### **Material conveying principle**

Pneumatic, vacuum, dilute phase and dense phase conveying

### **Materials handled**

Ability to handle a wide range of pellets and powders

### **Conveying rates**

Up to 6,800 kg/h  
[15,000 lb/h]

### **Certification**

Hazardous area models available for NEC North American as well as ATEX standards



## P-Series for sanitary material handling solutions

Poor flowing powder?

Fragile products?

The P-Series provides a custom solution for difficult conveying applications. The sanitary design is perfect for applications in the food and pharmaceutical industries. Special options are available for pharmaceutical applications such as spray balls.

Main design features include modular construction, steep cone angles to ensure excellent discharge and band clamps for quick disassembly. The polyester cartridge filter is equipped with automatic reverse jet pulsing for thorough cleaning.

### **Material conveying principle**

Pneumatic, vacuum, dilute phase and dense phase conveying

### **Materials handled**

Ability to handle a wide range of free and poor flowing powders as well as friable materials

### **Conveying rates**

Up to 4,000 kg/h  
[9,000 lb/h] on a batch basis

### **Certification**

- Hazardous area models available for NEC North American as well as ATEX standards
- Validation available



Receiver configurations are optimally suited to the application and product requirements, and provide a suitable choice for small and medium sized conveying systems.

# System Components

## Blower Packages



For creating vacuum and/or pressure in conveying systems.

Selecting the right blower that operates at the correct speed is critical to the success of any pneumatic conveying system. At Coperion K-Tron, we supply a wide range of quality blower packages for conveying pellets, powders, and granular materials.

With blowers for 38 mm [1.5 in] through 400 mm [16 in] conveying systems up to 700 mBar (20 in) Hg vacuum and 1 Bar [15 PSIG] pressure, our systems engineers can select a 2 to 200 kW [3 to 250 HP] blower that is specifically tailored to respond efficiently for your application.

- **Vacuum Blowers**
- **Pressure Blowers**
- **Vacuum Sequencing**



## System Controls

In addition to standard conveying controls, Coperion K-Tron offers sophisticated system controls which are designed to execute the operations of bulk material handling equipment. Using state-of-the-art PLC technology, our controls match the system's operation with the client's needs in mind.

Electronic engineers can remotely monitor a system

and resolve problems quickly, resulting in maximum productivity for the customer.

### Standard Controls

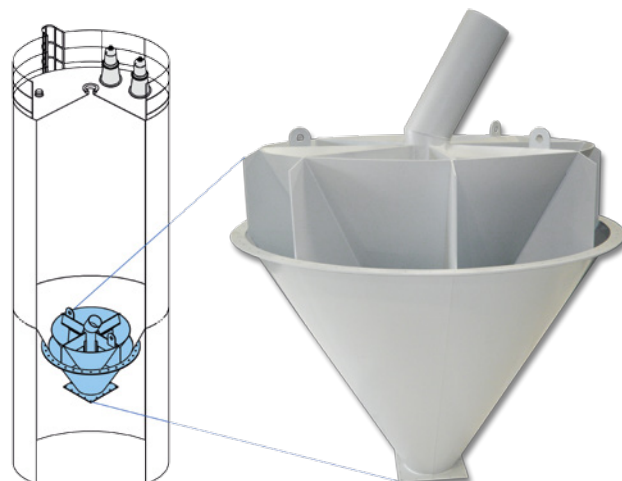
- **LSR (Loader Single Receiver) Controller**
- **2400 Series Vacuum Sequencing Controllers**
- **Rail Unload Panels**
- **Truck Unload Alarm Panels**
- **Motor Starters and Motor Control**



## Static Blenders for mixing free flowing bulk materials

The ProBlend™ Zone Blender provides blending action in a silo or hopper with no additional moving parts, by allowing different zones of material to discharge at different rates. The material is thus blended as it leaves the vessel.

With its special geometry in the silo hopper, the Zone Blender provides multiple flow zones in which the material passes through the silo at different velocities and residence times.



# Smart Solutions for Material Handling

Since its creation in 1964, Coperion K-Tron has defined the leading edge of technology for material handling applications in the process industries. Coperion K-Tron designs, produces, sells and supports feeding and conveying equipment as well as complete process solutions.

## **Coperion K-Tron Test Labs**

Fully equipped testing facilities help in making the optimal equipment selection.

## **Systems Engineering Support**

One source engineering of your entire material handling project. Our system engineer will work with you from concept to commissioning.

## **Worldwide Service Support**

Trained, certified service engineers located around the world to provide twenty-four hour technical support and solve your problem any time, any day.

## **Custom Service Programs**

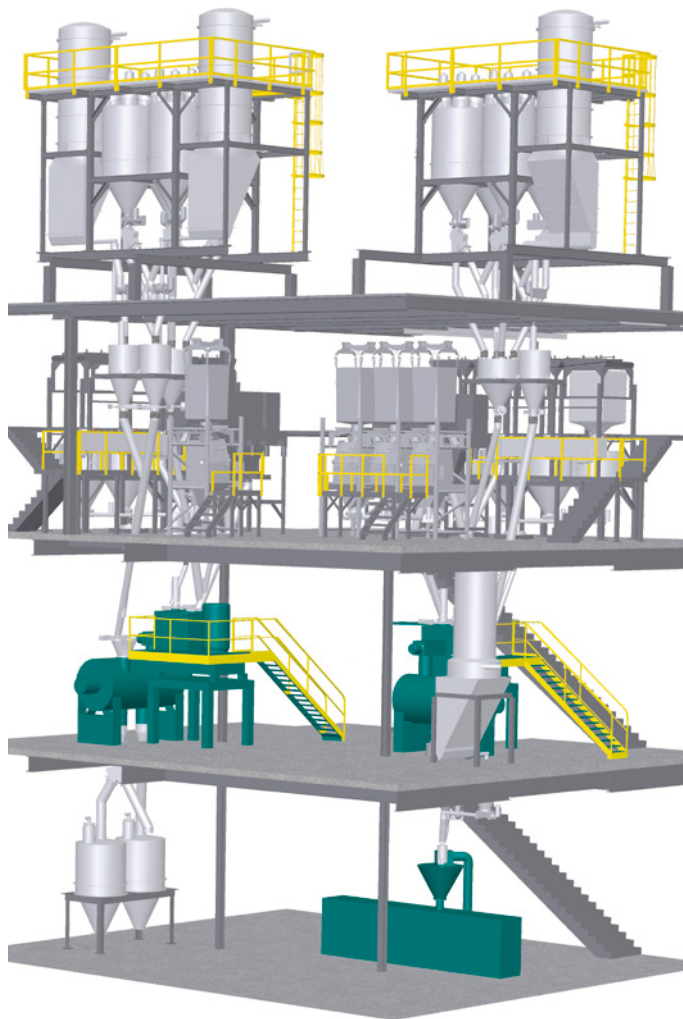
Start-up and preventive maintenance programs designed for your specific installation.

## **Spare Parts**

Quick delivery so you can safely limit your inventory to the most critical parts.

## **Professional Training**

The Coperion K-Tron Institute provides hands-on maintenance, mechanical and operator training for all of your Coperion K-Tron equipment, either on-site or at a Coperion K-Tron facility.



[www.coperion.com](http://www.coperion.com)

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