



Pneumatic Conveying Systems and Components for Bulk Material Handling

Bulk Material Handling Systems

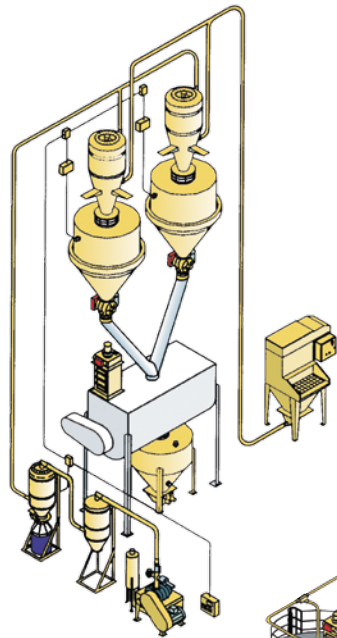
The Coperion K-Tron Difference

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.

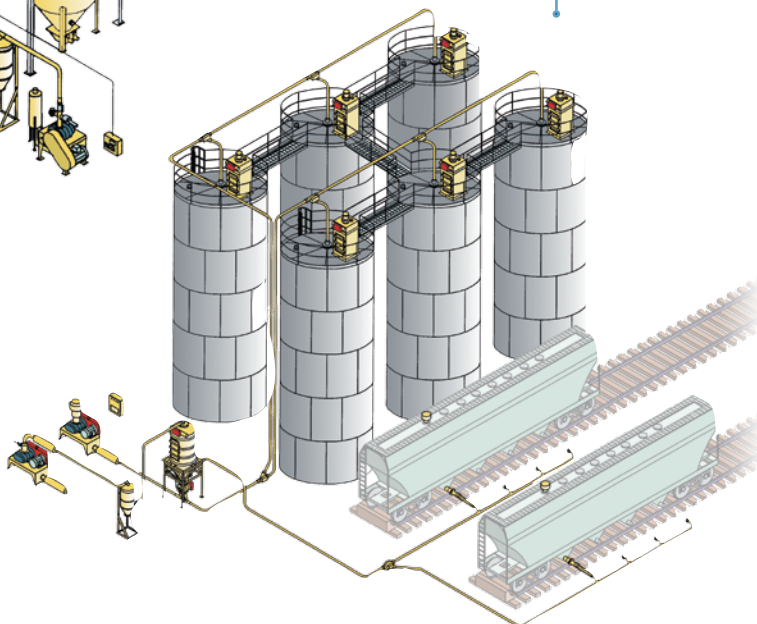
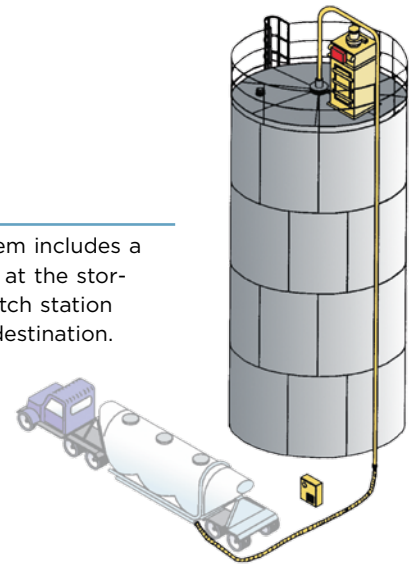


Bag Unloading

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

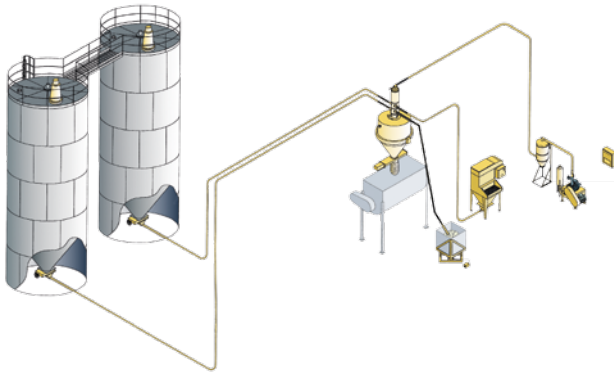
The PD railcar unloading system includes a blower package and PLC controls to monitor the system's operation.

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.

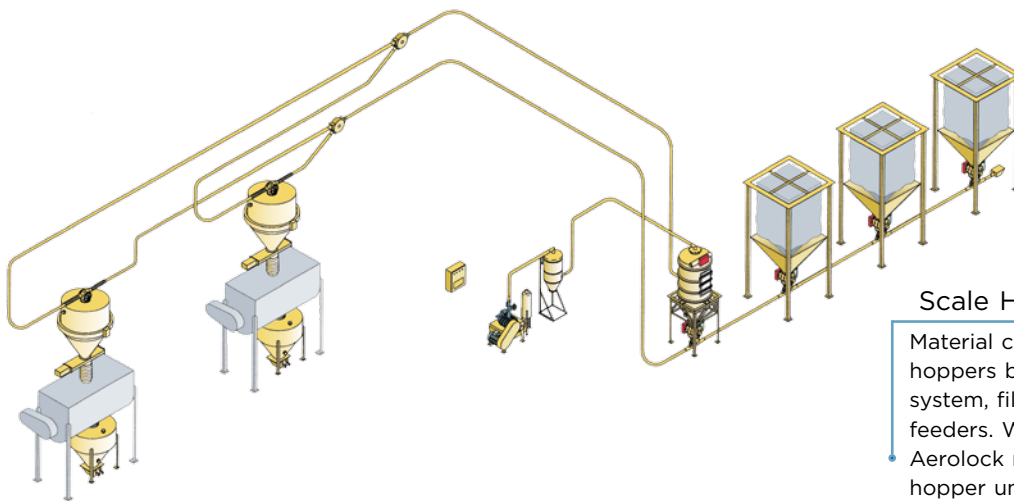
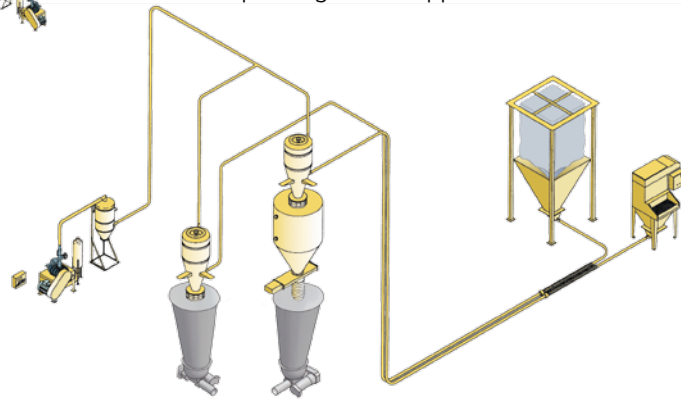


Batch Weighing

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.

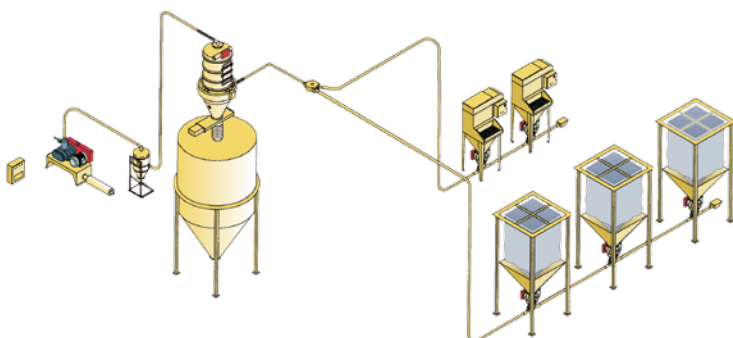
Loss-in-Weight Feeder Refill

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 Aero-lock 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

Aerolock™ Rotary Valves

Coperion K-Tron Aerolock™ rotary valves are backed by more than 50 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.

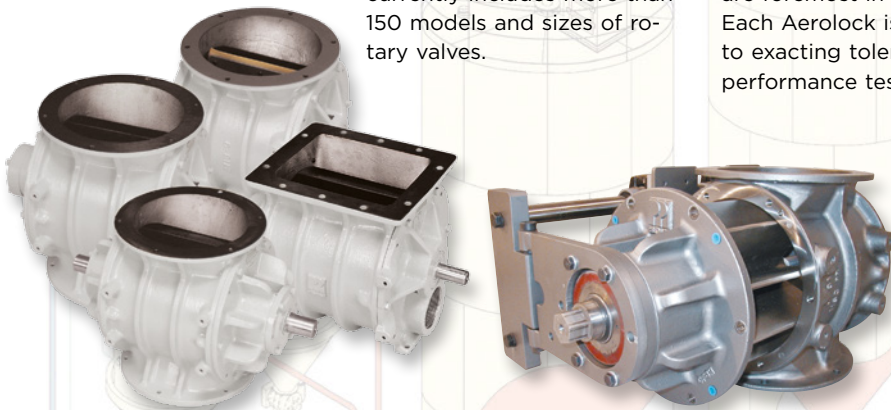
Many of the variations we offer are a result of working closely with our customers to address their particular needs. Our customer's expectations of quality and performance are foremost in our minds. Each Aerolock is hand built to exacting tolerances and is performance tested.

Heavy-Duty (HD) - for heavy-duty industrial service and high-volumetric efficiency
Maximum-Duty (MD) - for heavy to severe industrial service

Quick-Clean (QC) - for frequent disassembly and cleaning requirements

Blow-Through (BT) - enhances rotor cleanouts and for tight installations

Light-Duty (LD) - for low pressure or low vacuum service



Filter Receivers, Bin Vents and Cyclones

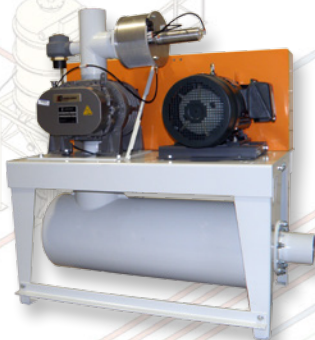
For separating airborne particles from conveying air. Coperion K-Tron's Filtair Series receivers and vents provide excellent air filtration at a nominal cost. Whether it's producing automatic material-from-air separation within

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.

- **Filter Receiver** - airborne material is trapped by pulse-cleaned filter bags
- **Modular Cartridge Bin Vent** - perform "No-Tool" maintenance from tank deck
- **Automatic Bin Vent** - with large cloth area for greater filtration
- **Mini Filter** - for use in loss-in-weight feeder and surge hoppers
- **Railcar Bin Vent** - fits standard 508 mm [20 in] railcar hatches
- **Static Bag Bin Vent** - for applications where self-cleaning bin vents are not required
- **Cyclone** - no moving parts, no bags to clean and plant air and electricity are not needed for operation



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 Blower**
- › **Pressure Blower**
- › **Vacuum Sequencing**



Bag Dump Stations

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

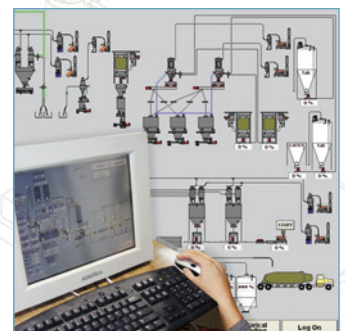
- › **Bag Dump Stations** with integral dust control
- › **Bag Dump Hoppers** no filtration included



Custom Controls

Coperion K-Tron's sophisticated system controls are designed to execute the operations of bulk material handling equipment. Using state-of-the-art PLC technology, Coperion K-Tron

controls match the system's operation with the client's specific needs in mind. Electronic engineers can remotely monitor a system and resolve problems quickly, resulting in maximum productivity for the customer.



Diverter Valves

Coperion K-Tron diverter valves are designed to divert or converge pellets, granulars, fine powders, or abrasive materials from one source to another destination.

- › **'A' Valve** - for diverting material stream into one of two destinations
- › **Aeropass Valve** - for diverting material directly into a hopper and low-clearance areas
- › **Diverter Valve** - for directing material from one source to multiple destinations



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 15,000 lb/hr or 6,800 kg/hr.

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 9,000 lb/hr or 4,000 kg/hr 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.

Feeders and Blenders

Feeders for metering free flowing plastics & additives

Coperion K-Tron's versatile ProRate™ screw feeders are designed for on-machine feeding and precise metering of materials. The Pro-Blend™ Mixer is designed for use as an on-machine blender or for central station blending. Both units can easily be added to or removed for adapting to changing requirements.



- > **ProRate Feeders** ideally suited for injection molding or extrusion feeding applications
- > **ProRate II Feeders** equipped with larger screws and hopper capacities
- > **ProBlend Mixer** ideal for blending material at various blend ratios

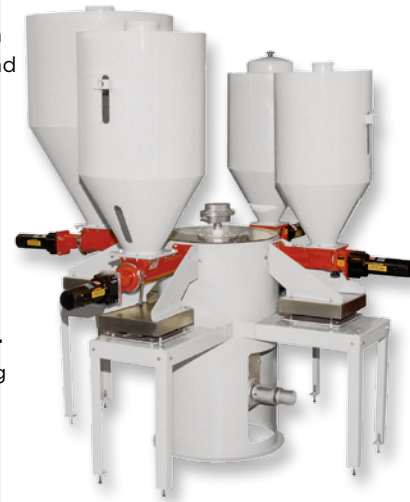
Gravimetric Blenders for mixing free flowing plastics & additives

Coperion K-Tron's gravimetric blenders are designed to meter raw materials in desired proportions into a central station hopper for the most consistent and homogenous blend.

The ProRate continuous blender consists of one to eight ingredient feeders. Each of the feeders operates in an independent, continuous loss-in-weight scaling mode to ensure accuracy for each ingredient.

The batch blender includes a highly advanced metering and weighing system that accurately controls every ingredient of every batch.

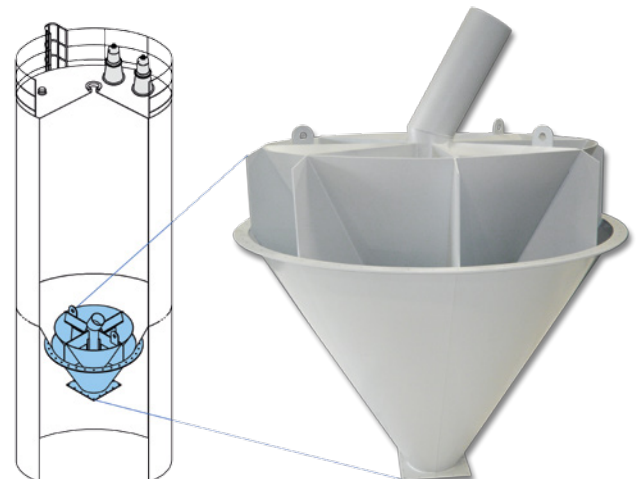
- > **ProRate Gravimetric Continuous Blender** blends one to eight ingredients for plastics applications
- > **Gravimetric Batch Blender** available in 2.5, 5 and 12 kg sizes



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

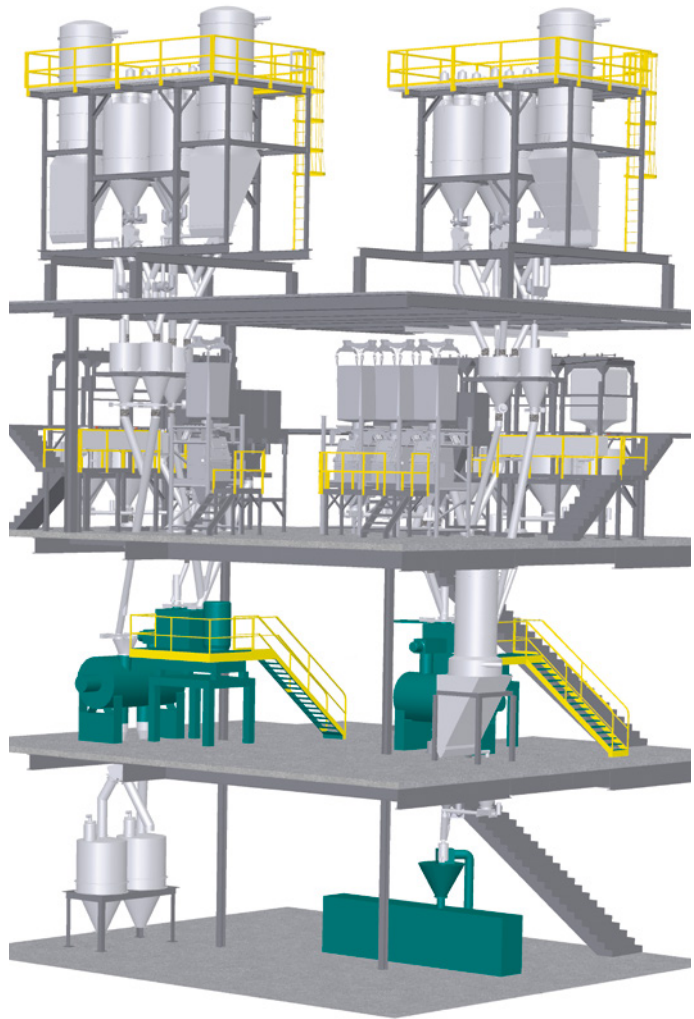
Start-up and preventive maintenance programs designed for your specific installation.

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.



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