

# K-Tron PCS

## Pneumatic Conveying Systems

for connecting material handling processes



# K-Tron PCS Pneumatic Conveying Systems

## What is K-Tron PCS

K-Tron PCS is a family of pneumatic conveying equipment integrated into the K-Tron Process Group product line to complement the K-Tron range of feeding equipment.

With the addition of Hurricane, Colormax and PCS to the K-Tron family, K-Tron PCS now features an extended product range as well as extensive expertise and application know-how.

The K-Tron PCS family of conveying equipment comprises three main segments:

### M-Series Equipment

The M-Series offers filterless and filtered vacuum receivers for conveying free-flowing materials mainly in the plastics industries.

### P-Series Equipment

The P-Series filtered receivers are specially designed for use with powders and friable materials in sanitary applications.

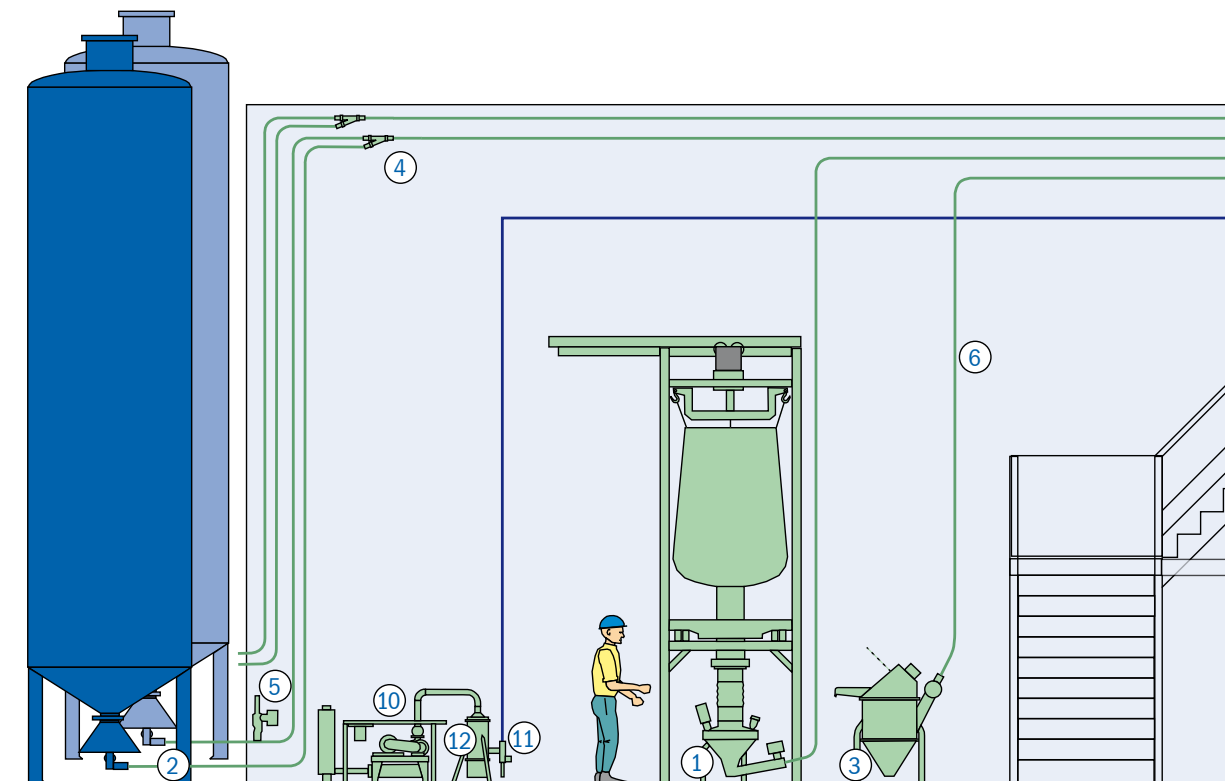
### Auxiliary Equipment

To complement the M- and P-Series vacuum conveyors K-Tron PCS also offers a range of auxiliary equipment, such as controls, vacuum pumps, collection boxes, bag dump stations, valves, piping and much more.

## Our Goals

- to supply a single source system by giving full system performance guarantee for both granules and powder applications
- to extend K-Tron's scope of supply through cooperation with partners

## Complete Systems



## Our Services

- World wide spare part and start-up capabilities via the K-Tron network
- Fully equipped conveying and feeding test labs at our facilities in America, Great Britain and Switzerland
- Local sales force to discuss your application

## Application Expertise

- Dilute phase continuous and batch conveying applications
- Conveyors specialized for direct loss-in-weight feeder refill
- Integrated volumetric feeding and conveying units
- Vacuum dense phase conveying for fragile and pre-mixed materials
- Optimal solutions for most industries based on P- and M-Series equipment

The list continues to grow as we consider the challenges presented by your material handling requirements.

## Elements of a Conveying System

From pick-up spike to piping to receivers and vacuum pumps, K-Tron PCS offers a wide range of equipment for pneumatic conveying needs, whether for automated refill of feeding systems or as stand-alone conveying applications.

The list below features the varied elements available from K-Tron for building a complete conveying system for loss-in-weight feeder refill as pictured in the diagram below left.

### Material Pick-up

From simple suction wands for free flowing materials to fully fluidized feed bins (1), silo pick-up pots (2) or bag dump stations (3) with pre-feeders for powders, K-Tron PCS offers a wide variety of equipment to ensure reliable material pick-up into the conveying air.

### Conveying Line

Connecting one or multiple material pick up stations to a vacuum receiver. To ensure blockage-free conveying, diverter valves (4) and line clearance valves (5) are available in addition to the piping (6).

### Vacuum Receivers

Various models of central (7) and self-contained receivers are available to separate the material from the conveying air stream, alternating between suction and discharge modes of operation.

### Sequence & Vent Valves

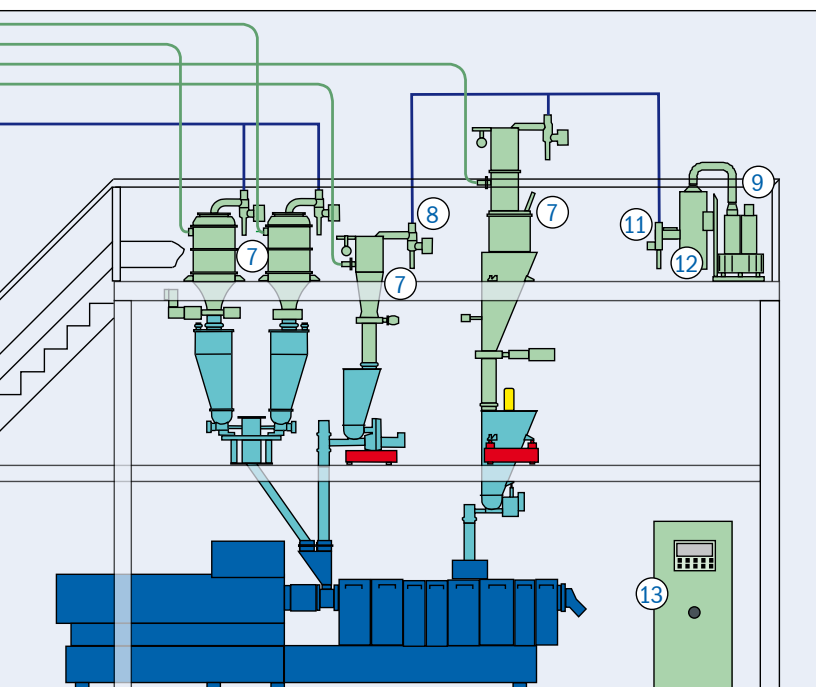
Sequence & vent valves (8) allow the air stream to bypass and vent the vacuum receiver during the discharge cycle.

### Pump Packages

Vacuum pump packages include the pump -- regenerative blower (9), sliding vane or roots (10) -- to produce the air stream as well as a bypass valve (11) to allow the pump to run while no receiver is conveying and a secondary filter (12) to protect the vacuum pump from entrance of foreign bodies.

### Controls

HCU/HSU control and operator interface are available to control a single central or self-contained unit. To control the sequence of a multi-component system PLC controls (13) are available which are programmed to suit the client's process. Siemens, Mitsubishi and Allen Bradley PLC controls are available.



# K-Tron PCS M-Series

## Modular components for more flexibility

The M-Series' modular construction gives you the flexibility to serve a variety of application needs, making the range ideal for pellets, regrind and free-flowing powders.

Sectional components can be integrated in a variety of forms and interchanged in the field, maximizing process flexibility.

Units can be easily converted from self-contained to central should requirements change.

### Material conveying principle

Pneumatic, vacuum, dilute phase conveying

### Conveying rates

Up to 10,000 lbs/hr or 5,000 kg/hr on a batch basis

### Materials handled

Ability to handle a wide range of pellets, granules and free flowing powders

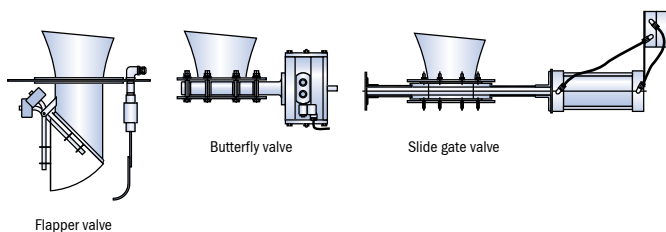
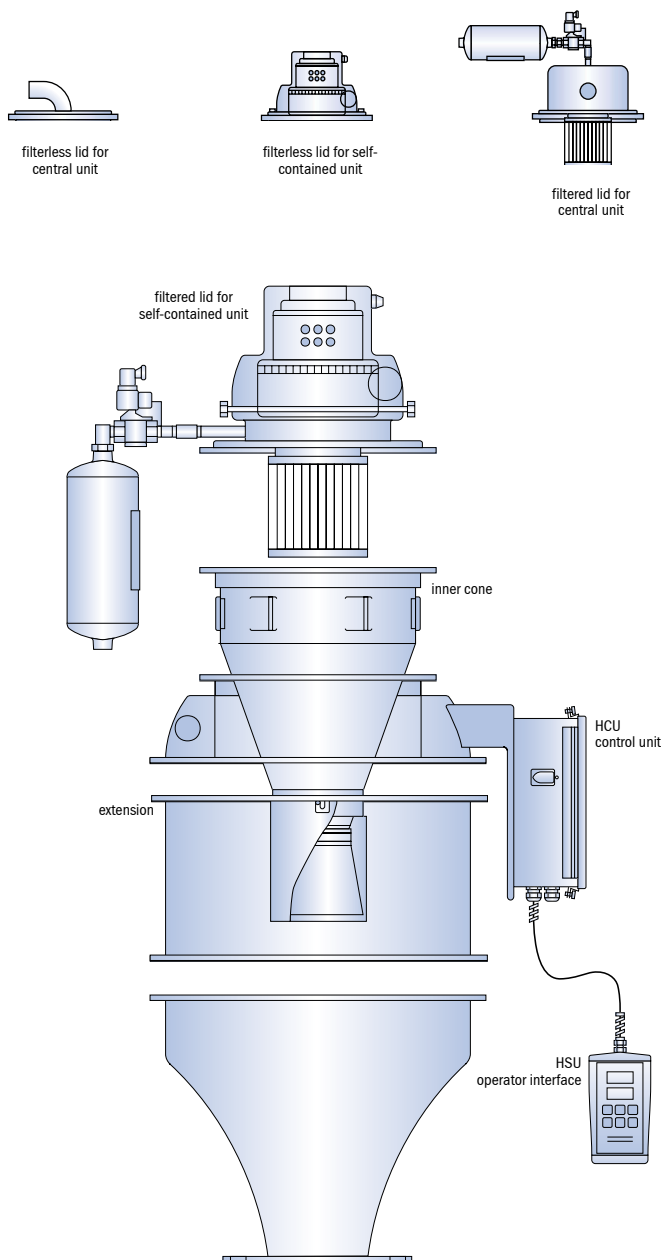
### Hazardous Area Applications

NEC compliant models available for North American standards

## Applications



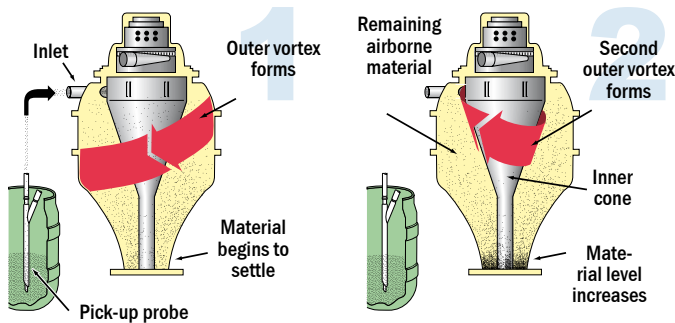
Serving a variety of industries, predominantly plastics and chemical.



# Only the M-Series has patented DualCyclone technology

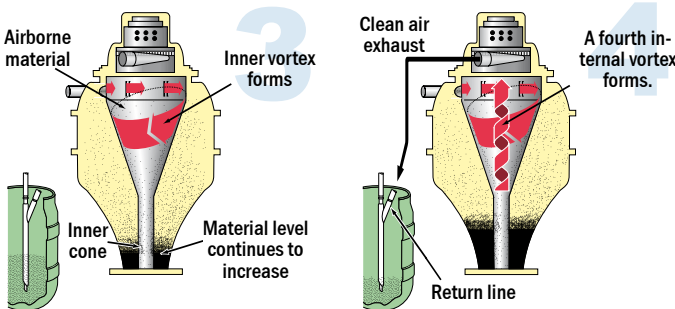
## Filterless for particle sizes >0.25 mm

Patented DualCyclone design creates the super-clean QuadVortex airstream and eliminates need for filter in many applications.



1. Material and air enter the receiver through a tangential inlet, forming a vortex. Heavier particles separate from the air stream and collect in the lower cone.

2. A second vortex forms inside the first. The remaining finer particles are constantly centrifuged outward from the inner vortex to the outer vortex, collecting in the lower cone.



3. At the top, shear plates redirect the air stream into the patented inner cone. Material and air form a third vortex, separating residual material from the air stream. Material continues to collect in the inner cone.

4. A fourth vortex forms inside the inner cone. Final separation is achieved and clean air is directed outward through the exhaust port. An air return line is optional.



## M-Series Overview

Type	Receiving Volume	Conveying Rate*
<b>Self-Contained Receivers</b>		
MK1-S	15dm <sup>3</sup> (0.5 ft <sup>3</sup> )	450 kg/hr (990 lb/hr)
MK1F-S	15 dm <sup>3</sup> (0.5 ft <sup>3</sup> )	450 kg/hr (990 lb/hr)
MK2-S	60 dm <sup>3</sup> (2 ft <sup>3</sup> )	900 kg/hr (1980 lb/hr)
MK2F-S	60 dm <sup>3</sup> (2 ft <sup>3</sup> )	900 kg/hr (1980 lb/hr)
<b>Central Receivers</b>		
MK1-C	15 dm <sup>3</sup> (0.5 ft <sup>3</sup> )	800 kg/hr (1760 lb/hr)
MK1F-C	15 dm <sup>3</sup> (0.5 ft <sup>3</sup> )	800 kg/hr (1760 lb/hr)
MK2-C	60 dm <sup>3</sup> (2 ft <sup>3</sup> )	3600 kg/hr (7920 lb/hr)
MK2F-C	60 dm <sup>3</sup> (2 ft <sup>3</sup> )	3000 kg/hr (6600 lb/hr)
MK4-C	260 dm <sup>3</sup> (9 ft <sup>3</sup> )	5000 kg/hr (11000 lb/hr)
MK4F-C	260 dm <sup>3</sup> (9 ft <sup>3</sup> )	5000 kg/hr (11000 lb/hr)

\* Convey rates may vary pending on product characteristics and conveying distance.

### Extension Volume

MK1 units	10 dm <sup>3</sup> (0.4 ft <sup>3</sup> )
MK2 units	40 dm <sup>3</sup> (1.4 ft <sup>3</sup> )
MK4 units	110 dm <sup>3</sup> (4 ft <sup>3</sup> )





# K-Tron PCS P-Series

## For successful 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. Other design features include 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.

With the P-Series we will always work out a receiver configuration optimally suited to the application and product requirements, for simple “up and in” systems or for continuous conveying.

### Material conveying principle

Pneumatic, vacuum, dilute phase and dense phase conveying

### Conveying rates

Up to 9,000 lbs/hr or 4,000 kg/hr on a batch basis.

### Materials handled

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

### Certification

- US 3A Dairy certified
- Hazardous area models available for NEC North American standards
- ATEX versions available  
Cat. 3GD (Zone 22/2)  
Cat. 2GD (Zone 21/1)
- Validation available



## Applications



### Chemicals

- Vessel loading
- LWF Refill
- Reactor loading



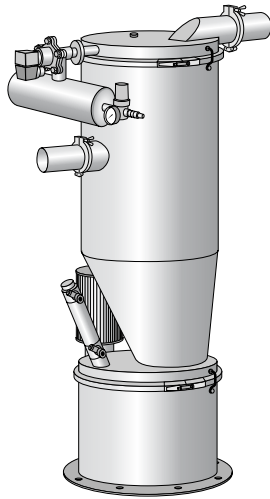
### Food

- Fragile product handling
- Mixer loading
- LWF Refill

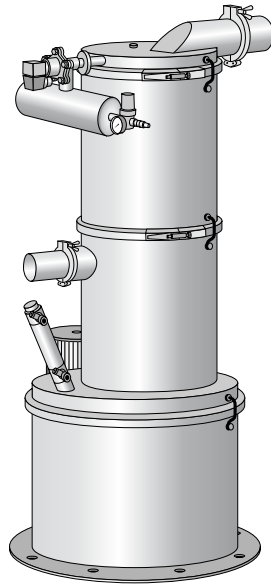


### Pharma

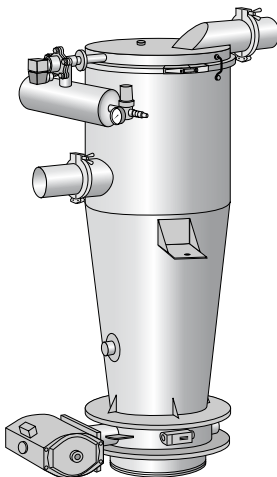
- Tablet conveying
- LWF Refill
- Tablet press and blender loading



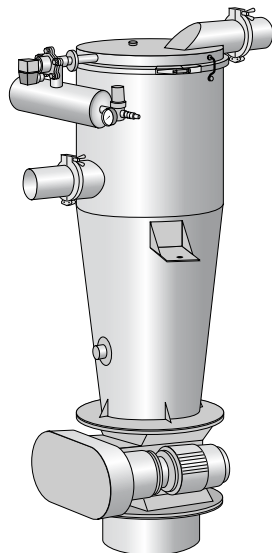
With flap valve for simple conveying applications



With full bore discharge for sticky powder applications



With butterfly valve for loss-in-weight refill applications



With rotary valve for continuous conveying applications



## P-Series Overview

Model	Receiving Volume / Discharge Valve	Conveying Rate*
<b>P10</b>	<b>10 dm<sup>3</sup> (0.35 ft<sup>3</sup>)</b> Flap valve, pneumatic, Ø 150 mm (6 in) Butterfly valve, Ø 100, 150, 200 mm (4, 6, 8 in) Volumetric feeder	<b>600 kg/hr (1320 lb/hr)</b>
<b>P30 Offset</b>	<b>30 dm<sup>3</sup> (1 ft<sup>3</sup>)</b> Flap valve, pneumatic, Ø 150 mm (6 in) Butterfly valve, Ø 150 mm (6 in) Rotary valve, Ø 150 mm (6 in) Volumetric Feeder	<b>1000 kg/hr (2200 lb/hr)</b>
<b>P30 Tube</b>	<b>30 dm<sup>3</sup> (1 ft<sup>3</sup>)</b> Flap valve, pneumatic, Ø 300 mm (12 in)	<b>1800 kg/hr (3960 lb/hr)</b>
<b>P100</b>	<b>100 dm<sup>3</sup> (3.5 ft<sup>3</sup>)</b> Flap valve, pneumatic, Ø 300 mm (12in) Butterfly valve, Ø 200, 300 mm (8, 12 in) Rotary valve, Ø 200 mm (8 in) Volumetric feeder	<b>4000 kg/hr (8800 lb/hr)</b>

\* Convey rates may vary pending on product characteristics and conveying distance

# Smart Solutions for Material Handling

Since its creation in 1964, K-Tron has defined the leading edge of technology for material handling applications in the process industries. K-Tron designs, produces, sells and supports its equipment under the product names K-Tron Feeders, K-Tron PCS and K-Tron Colormax.

## K-Tron Feeders

Volumetric and gravimetric feeding systems for plastics, foods, chemicals, detergents and pharmaceuticals

## K-Tron PCS

Filterless and compact filtered loaders and receivers for conveying of bulk materials in industrial processes.

## K-Tron Colormax

Auxiliary and blending equipment for the plastics industry

## K-Tron test labs

Free, fully equipped testing facilities help in making the optimal equipment selection

## Systems engineering support

Single station or multi-station systems designed to meet all your material handling needs

## World-wide service personnel

Trained service engineers located around the world to provide on-site solutions at your facility

## Service support

Twenty-four hour technical support to 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 K-Tron Institute provides hands-on maintenance, mechanical and operator training for all of your K-Tron equipment, either on-site or at a K-Tron facility



K-Tron PCS central receivers refilling K-Tron feeders on a twin screw extruder.

**Headquarters:** K-Tron Feeder Group, Pitman, NJ 08071-0888 USA

## Manufacturing Plants:

### K-Tron America, Inc.

Routes 55 & 553  
P.O. Box 888  
Pitman, NJ 08071-0888 USA  
Tel: +1 (856) 589-0500  
Fax: +1 (856) 589-8113  
E-mail: ka@ktron.com

### K-Tron (Switzerland) Ltd

Industrie Lenzhard  
CH-5702 Niederlenz  
Tel: +41 (0)62 885 71 71  
Fax: +41 (0)62 885 71 80  
E-mail: ks@ktron.com

## Sales and Engineering:

### Asia Pacific

K-Tron Asia Pte Ltd  
10 Bukit Batok Crescent  
#04-05 The Spire  
Singapore 658079  
Tel +65 6899 7255  
Fax +65 6569 7600  
E-mail: kap@ktron.com

### Belgium

K-Tron Benelux b.v. \*  
Kontichsesteenweg 17  
BE-2630 Aartselaar  
Tel: +32 (0)3 870 96 40  
Fax: +32 (0)3 870 96 41  
E-mail: info@ktron.be

### British Isles

K-Tron PCS Great Britain  
46 Europa Business Park  
Bird Hall Lane, Cheadle Heath  
Stockport, SK3 0XA  
United Kingdom  
Tel +44 161 491 6225  
Fax +44 161 491 6229  
E-mail: kb@ktron.com

### China

K-Tron China Ltd.  
Shanghai Representative Office  
Rm 907 Sinotrans Mansion  
No.188 Fujian Road  
CN-200001 Shanghai  
Tel +86 21 6375-7925  
Fax +86 21 6375-7930  
E-mail: kcn@ktron.com

### France

K-Tron France S.à.r.l.  
56, boulevard de Courcerin  
FR-77183 Croissy-Beaubourg  
Tel +33 1 64 80 16 00  
Fax +33 1 64 80 15 99  
E-mail: kf@ktron.com

### Germany

K-Tron Deutschland GmbH  
Im Steinigen Graben 10  
DE-63571 Gelnhausen  
Tel +49 6051 9626 0  
Fax +49 6051 9626 44  
E-mail: kd@ktron.com

### Japan

K-Tron Japan \*  
Verder Co., Ltd  
5-8-8 Shinjuku, Shinjuku-ku  
JP-Tokyo 160-0022  
Tel +81 3 3351 9811  
Fax +81 3 3351 9815  
E-mail: info@ktron.co.jp

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

### Netherlands

K-Tron Benelux b.v. \*  
Postbus 1  
NL-3450 AA Vleuten  
Utrechtseweg 4 A  
NL-3451 GG Vleuten  
Tel: +31 (0)30 677 9260  
Fax: +31 (0)30 677 9269  
E-mail: info@ktron.nl

