

RELCO® Powder Handling & Packaging Equipment

Innovative Solutions for a Variety of Powder Products



K KOCHTM
SEPARATION SOLUTIONS

*Separation Technologies for a Better Future*TM

Leading Separation Technology

Koch Separation Solutions (KSS) is transforming the landscape of separations by leveraging a synergistic approach using technologies such as membrane filtration, ion exchange, evaporation, and drying. Our solutions are tailored to improving product quality, increasing process efficiency, and driving down costs in dairy, food, beverage, life science, and industrial markets around the world.

Our RELCO® line of powder handling & packaging equipment enhances our leading product offering in the dairy and food industries by providing efficient and sanitary handling of valuable edible powders. Our equipment transports, discharges, fills, weighs, blends, and packages powders with reliability and consistency.

Equipment

- Pneumatic conveying systems
- Packaging systems
- Bulk bag fillers
- Powder gassing & blending

Benefits

- High-rate transfer of fragile powders by pressure or vacuum
- Hygienic semi-automatic or automatic powder packaging lines
- Stable and accurate bag filling, simplified bag transport, and robust bag unloading
- Complete mixing, blending, and gassing of powders

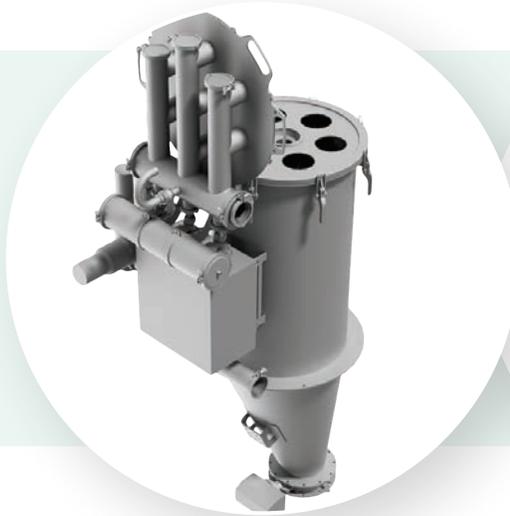


Powder Handling & Packaging Equipment

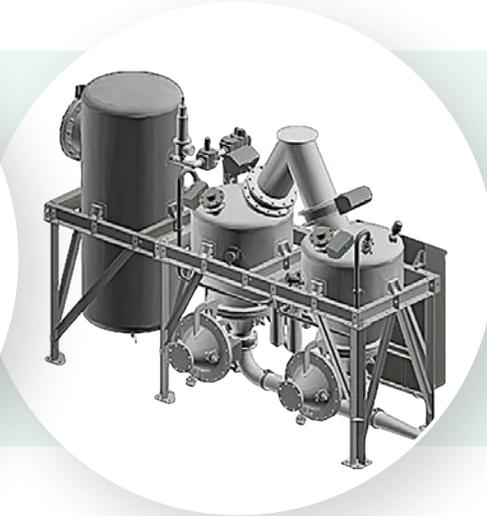
Pneumatic Conveying Systems

Our RELCO® Dense Phase Vacuum Conveying System and RELCO Dense Phase Pressure Vacuum Conveying System provide gentle conveying of fragile powders by vacuum and pressure, respectively. These systems are ideal for high transfer rates and enable complete control over powder velocity and pressure. This allows operators to prevent stalling and regulate the speed of transfer. Every system is custom engineered based on specific parameters such as bulk density, desired conveying rate and route, and characteristics of the powder.

- **Dense Phase Vacuum Conveying System:** Suitable for multiple sources of heat-sensitive or abrasive powders that are to be conveyed into one single destination (i.e. conveying from silos). This system is ideal for low-height sources. It operates at typical conveying distances of 197 ft (60 m) horizontally and 59 ft (18 m) vertically. The system features special convey line valves for extended seat life, automatic pressure controls, a short-to-medium conveying distance, and is easily upgraded to reverse pulse sock cleaning. Continuous conveying is usually discouraged with the vacuum system due to the rotary valve and potential for product contamination.
- **Dense Phase Pressure Conveying System:** Suitable for a single source being conveyed to multiple destinations (i.e. conveying to silos). The system operates at typical conveying distances of 656 ft (200 m) horizontally and 98 ft (30 m) vertically. It is ideal for conveying carbohydrate powders such as lactose and permeate and reduces convey line build-up. The system features electronic control of pressure and flow, special valve seats resistant to abrasive powders, a reduced bin vent size, and a long conveying distance.



**Dense Phase Vacuum
Conveying System**



**Dense Phase Pressure
Conveying System**

Features & Benefits

- Low product breakdown
- Gently handles fragile agglomerated powders
- Instantaneous rates of up to 160,700 lbs/hour (60,000 kg/hour)
- Solenoid valves and regulators housed in stainless steel cabinet

Powder Handling & Packaging Equipment

25 kg Manual Packaging System

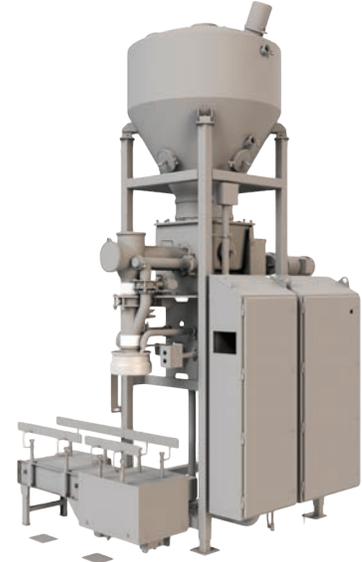
The 25 kg Manual Packaging System is designed for sanitary applications, able to fill a wide variety of powders with semi-automatic convenience. With rates of up to one bag per minute, this filler is designed for tool-free disassembly for ease of cleaning.

Features & Benefits

- Robust, sanitary construction
- Control of product flow for repeatable fill cycles and finer accuracy
- Easy exchangeability of filler heads for use with different sized bags
- Optional dust hood and downstream bag check equipment

25 kg Automatic Packaging System

KSS offers high-volume, hygienic dry powder packaging lines for dairy and food plants. These automatic packaging systems feature an industry-leading modular design for 15 – 25 kg bags and provide opportunities for cost-effective component upgrades.



Manual Packaging System

Component	Function
Bag loader	<ul style="list-style-type: none"> • Reliable bag placement to the filling head from a magazine holds approximately 90 bags • Integrated bag loader into the main frame of the bag filler • Adjustable for varying bag widths and lengths
Neck preparer/ stretcher	<ul style="list-style-type: none"> • Prepares the neck of the bag for heat sealing • Designed to minimize the headspace of the bag
Bag fillers	<ul style="list-style-type: none"> • Bag filling rates up to 15 tons per hour (10 bags per minute) for a 25 kg bagging system • Gas and non-gas packaging options available (option for nitrogen gas filling to extend shelf life of high-fat powders) • Multi-walled paper and plastic bags may be used on the same system • Pre-weigh bulk fill chamber provides bag weight accuracy • De-aeration probes for air removal after bag filling
Heat sealers & vacuum sampler system	<ul style="list-style-type: none"> • Designed for strippable bag-in-bag with hygienically sealed inner liner • Air probes clean the seal area of the inner liner • Scoring station causes outer bag to be easily separated from the inner bag • Automatic bag leveling to ensure consistent parallel fold over • Sealer designed to completely release bags under emergency stop conditions • Tamper-evident devices
Pre- and post- gassing system	<ul style="list-style-type: none"> • Air removal station before and during bag filling

Powder Handling & Packaging Equipment

Bulk Bag Filler

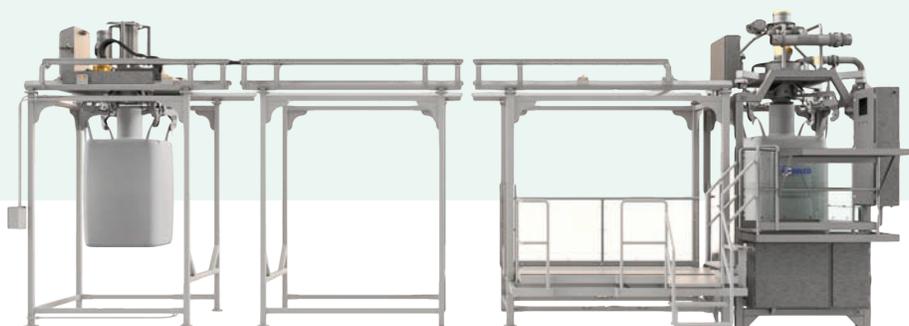
The RELCO® Bulk Bag Filler is designed for sanitary operation, engineered for stability and accuracy for every bag filled. The system loads bulk bags using a rotating loop hanger system that limits operator interface to one point for increased sanitary operation. A stainless-steel access platform provides easy and safe access around the equipment. An interchangeable filler head accommodates a range of bag neck sizes, and a scissor lift automatically adjusts to accept bag sidewall lengths between 45 – 72 inches (1.1 – 1.8 meters) for greater versatility. Air is displaced in the bag during filling and measures are taken to ensure an even distribution of powder to form a stable, flat bag bottom. Optional features include heat sealing of the liner neck, as well as nitrogen gas filling of the bulk bag to extend shelf life of powders with high fat content.

Bulk Bag Filler with Integrated Palletizing System

Customers can choose to integrate the RELCO Bulk Bag Filler with our RELCO Bulk Bag Palletizing System to automatically transport filled bags from the packaging room to the warehouse via a motorized trolley. This system is designed with sanitation as the primary consideration, first transporting the filled bags to an air lock room between the hygienic packaging room and warehouse. Pallet and forklift traffic from the packaging room is eliminated as stainless-steel chain conveyers and an overhead trolley transports the filled bags with ease. The trolley hangers are designed to offer reliable travel and are easily adjusted for different sized bulk bags. Bag loop hangers automatically release bags in the warehouse area for automated palletizing.



RELCO Bulk Bag Filler



Automatic Packaging System

Powder Handling & Packaging Equipment

Bag Break Station

The RELCO® Bag Break Station is ideal for feeding powder into pneumatic conveying systems. Constructed from stainless steel and internal polished welds, the bag break station meets sanitary USDA dairy standards and is designed with oversized rear plenum to contain dust within the hopper. Bags are prepared by the operator within the grate area, where a deep, recessed bag grate ensures the product falls into the hopper during the tipping process. An ergonomic design achieves high tipping rates up to 26,455 lb/h (12,000 kg/h). The system can be integrated with an optional sifter, dust collector, or be operated as a standalone process. The Bag Break Station is customizable to meet unique customer space and process requirements.

Bulk Bag Unloader

The RELCO Bulk Bag Unloader is easily customized to meet bulk unloading needs and handle difficult flowing materials. It is constructed with a sanitary receptor tube and vibration pan for capacities up to 2,500 lbs (1134 kg) and accepts a wide variety of bag sizes. The vibrating bag pan and optional bag massagers ensure positive powder discharge difficult, less free-flowing products. Specially designed latches seal to the bag to minimize dust, while a dust port within the receptor tube limits dusting during bag changeovers. An optional upper module can be added to incorporate a hoist and monorail system for easier bag presentation. The upper and lower modules are oriented independently to accommodate specific equipment layouts.



RELCO Bag Break Station



RELCO Bulk Bag Unloader

Powder Handling & Packaging Equipment

Powder Gassing

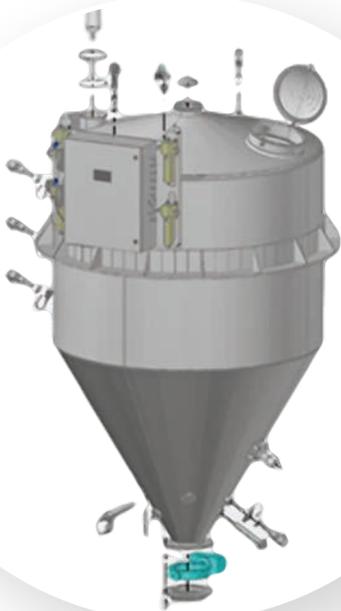
Our RELCO® Powder Gassing equipment ensures total gassing of the entire hopper, where the hopper is flushed with either nitrogen or compressed air for safe entry. Powder is gassed to a preset level while the hopper pressure is consistently monitored. Oxygen is reduced to below 0.05%. Powder gassing allows for extended product shelf life and enhanced taste.

Powder Blending

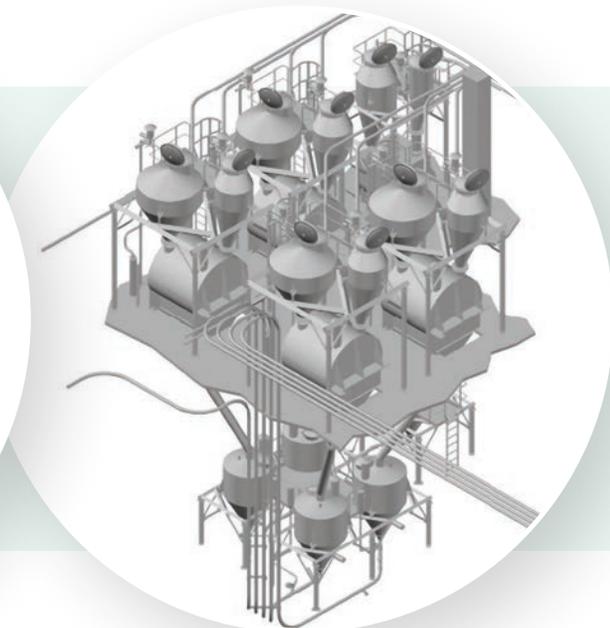
Many end user products require mixing of various powders as well as spray-in liquid aroma. We offer manufacturers of such products a complete, start-to-finish mixing solution through our RELCO Powder Blending technology. This system provides powder transportation to the mixer and out of the mixer for packaging. A variety of mixers are available, including Lindor, Ruberg, paddle, continuous, ribbon, or vertical-style mixers, and our team of engineers work with customers to determine the best selection based on desired mixing rate, energy requirements, powder blend (homogeneity), liquid additions, cleanability, and space constraints. Our mixers are custom designed with consideration of powder type, bulk density, recipe, rate, and liquid additions.

Applications

- Whey protein concentrate and isolate
- Lactose
- Permeate
- Whole milk
- Skim milk
- Sugar



Powder Gassing



Powder Blending



Koch Separation Solutions

Koch Separation Solutions (KSS) is a global leader in separation technologies. With best-in-class domain expertise, technologies and systems, KSS is uniquely positioned to help customers purify and recover valuable process streams and achieve sustainability goals across food and beverage, life science, and general industrial markets.

Services & Support

KSS ASSIST™ Service & Maintenance Program • RELCO After-Market Services • SepTrac™ Smart System



www.kochseparation.com • getinfo@kochsep.com
www.relco.net • relco_sales@kochsep.com



Separation Technologies for a Better Future™

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