FULLER®

PNEUMATIC CONVEYING TECHNOLOGY

CLEAN, SAFE & EFFICIENT TRANSPORT
OF BULK MATERIALS

fuller-technologies.com

Fuller® was formerly known as FLSmidth Cement

LET'S GET MOVING

Your conveying line is there to get material moving safely, not slow you down. Blocked pipes, dust contamination and unplanned maintenance outages have no place in your plant. It's time to try something better.

KEY BENEFITS

- **Fully enclosed material transport: no dust, no mess**
- **Flexible and versatile, adapting to your application**
- **Lowest possible operational costs**
- **Very low maintenance, high availability**
- **Long-distance conveying virtually anywhere**
- **Space-saving solution, works around existing equipment**

A RELIABLE PARTNER WITH EXTENSIVE EXPERIENCE

Thousands of installations worldwide	Renowned brands	State-of-the-art test facilities	More than 1,000 materials tested

What's the hold up?

Achieving optimum flowability and fluidisation is imperative. But handling dry bulk materials can be challenging. They can be abrasive. Prone to attrition. If your system isn't fully enclosed, dust can escape. Unsuitable conveying system design can cause blockages, under-performance and build-up. Even worse, you risk unplanned changes in bulk characteristics. All of which cost you time and money to put right.

Traditional mechanical conveying solutions have a lot of moving parts, which require a lot of maintenance, which necessitates downtime. Once again you're spending time and money. Not to mention risking personnel safety.

Free movement

Pneumatic conveying offers a safe and reliable solution with the added benefit of flexibility and low operational costs. These space-saving systems will take the material where you need it, regardless of the terrain or what other equipment you need to work around.

Pneumatic conveying solutions for multiple applications

Fuller is a leading supplier of pneumatic conveying equipment and serves industries such as cement, mining, power generation, lime, and pulp and paper. Our products and systems are proven to provide clean, safe, economical methods to meet virtually every pneumatic conveying and storage application.

As a customer-driven organization, we continually seek broader uses for our products, processes and technology to meet the ever-increasing demands of emerging and diverse applications. From low energy, dense phase conveying systems, to high-efficiency blending systems, the development of new products evolves to meet the specialized needs of global customers.

Our research team actively seeks out problems so that we can solve them before they occur. Varying process conditions are simulated in the laboratory so that the effect on the conveying system can be confirmed prior to actual installation.

UNLOADING AND LOADING APPLICATIONS

Clean, low-maintenance loading and unloading solutions for road, rail or sea transport.

Take a load off

What are your biggest concerns when it comes to loading/unloading dry bulk from railcars, trucks and ships? Dust? Contamination? Transport capacity? Speed? Reliability? Flexibility?

Pneumatic unloading systems provide fully enclosed transport, eliminating the risk of dust affecting the local environment and machinery. Likewise, material running through pipes can't be affected by the weather or other contaminants.

We offer high-performing, versatile loading and unloading systems. With no rotating parts, these systems are dependable, giving you maximal reliability and availability. And we can cater to your need, accommodating the right capacity for your application.

Railcar unloading

When it comes to railcar unloading, we understand that different operations have vastly different needs. Some operations rely on continuous rail delivery, while others use it less frequently. Whatever the capacity/demand, your unloading solution needs to be reliable, clean and cost-effective.

Dust-free ship unloading

Pneumatic vacuum unloading promises you clean, automated and reliable ship unloading. But not all vacuum systems are created equal. Our DOCKSIDER™ and KOVAKO® ship unloaders are:

- Fully automated, with easy-to-navigate touch screens;
- Environmentally friendly, thanks to the dust-free design;
- Backed by laboratory research into 160+ materials and a performance guarantee.

Finite Element Analysis (FEA) and kinematic studies are used to identify potential trouble spots.

HIGH CAPACITY/DEMAND:

Fuller-Kinyon® pump system

- Continuous railcar unloading with compact design
- Single or multiple cars can be unloaded simultaneously
- Dust-controlled, clean operations
- Automated operations, requiring minimal labour

MODERATE CAPACITY/DEMAND:

PRESSURE TANK OR V-SERIES FEEDER SYSTEM

- Single or dual tank; batch or continuous operation
- Dilute or dense phase
- Cost effective

MODERATE CAPACITY/DEMAND:

KOMPACT™ II PUMP SYSTEM

- Intermittent railcar unloading
- Up to two railcars per day
- Low maintenance
- User friendly, reliable
- Minimum height requirements

MODERATE CAPACITY/DEMAND:

VACUUM/PRESSURE SYSTEM

- Multiple pickup/multiple destination
- High reliability
- Clean operation
- Continuous duty

KOVAKO® Ship Unloaders

The KOVAKO name is recognized around the world as a symbol of quality and performance for vacuum / pressure transfer of cement, fly ash and ground blast furnace slag from ships and barges to land-side storage. KOVAKO ship unloaders are offered in three standard models that match optimal unloading capacity with typical vessel sizes – eliminating the added costs associated with custom design. You can choose from either diesel or electric powered unloaders and in multiple configurations – making it easy to match a KOVAKO ship unloader model to any terminal application.

DOCKSIDER™ Ship Unloaders

The DOCKSIDER ship unloader is built for flexibility. Every one is custom-designed for your specific terminal application, so we can offer:

- A range of capacities, from 400 t/h up to 1200 t/h, to suit vessels from 5000 DWT to 45 000 DWT, in stationary, dock mobile or gantry mobile configurations.
- Complete systems to move a wide range of dry bulk materials
  – even abrasive products such as alumina and coarse limestone – with multiple discharge options (pressure tanks, feeders and rotary valves).

The system can even discharge through a Fuller-Kinyon® pump – allowing for simple, low-pressure pneumatic conveying, or to a durable vacuum seal for material transfer to a dock belt conveyor.

COMPETENCE IN PNEUMATIC CONVEYING

Fuller provides complete systems
for all fine-grained bulk materials.

Where do you want to go?

Conveying systems should move materials where you want them to go, at the speed and density you require. Our systems are designed on that basis. You tell us what you need and we'll find the right solution for you, not just the closest fit from a handful of 'not quite right' solutions. Our range of pneumatic transport systems includes options for dense, medium and dilute phase conveying; pressure vessel, screw pump or Airslide® air gravity conveyor systems; high pressure or low pressure, but always low maintenance, clean and efficient.

Pressure Vessel Systems

If you want to transport bulk material safely and with low maintenance, Fuller's Pressure Vessel Systems are the right choice for you. This economic pneumatic conveying system is also suitable for high capacities and strongly abrasive bulk materials. For throughputs up to 1 t/h to 300 t/h and conveying distances up to 1600 m (1 mile) without intermediate stations.

Pneumatic conveying systems – versatile solutions from a single source

- Conventional conveying systems
- Dense phase conveying systems
- Pressure vessel systems
- Fuller-Kinyon® pumps
- Ful-Vane™ compressors
- Airlift™ systems
- Airslide® air gravity conveyors
- Silo systems of all sizes and models
- Unloading stations for ships, trucks and rail
- Loading stations for trucks, rail and ship

The original Fuller® Airslide® gravity conveying system for efficiency

Fuller's Airslide® air gravity conveying system utilizes gravity to do most of the work. Material is fluidized through a porous media with low-pressure air and the Airslide is sloped to match the fluidized angle of repose of the powdered material. At the correct slope, fluidized materials flow like a liquid.

- High capacities, +1500 m3/hr (53 000 cf/hr)
- Multiple inlet and discharge options
- Fabric available for high temperature applications up to 454°C (850°F)

Airslide gravity conveyors have no moving parts, so there is low noise and low maintenance costs - just clean, gentle conveying.

Dense phase system for maximum efficiency and cost effectiveness

There are three alternatives for dense phase conveying, designed to provide options for every application.

- MODU-DENSE™ conveying system
- Maxi-Dense™ dense phase system
- Pressure tank system

Mixed phase Fuller-Kinyon® pump transfer systems

Heavy-duty, screw-type Fuller-Kinyon pneumatic pumps are commonly used to convey dry, free-flowing materials from grinding mills, transfer materials from silo to silo, transfer dust from collectors, and load and unload railcars, ships and barges. Continuous operating systems, reliable for 24/7 duty.

- Lower velocities and higher pressure than dilute phase
- Most economical and reliable long-distance, high-capacity technology
- Operational simplicity - only one moving part
- Maintenance-friendly access
- Pneu-Flap™ torque arm controller reduces maintenance costs, lowers power consumption and increases capacity
- FK Auto-Lube lubrication system delivers precise amount of lubrication for each FK pump while monitoring bearing temperatures
- The materials are conveyed literally anywhere a pipeline can be run and to any number of delivery points. Distances of 1585 meters (5200 feet) are not uncommon.

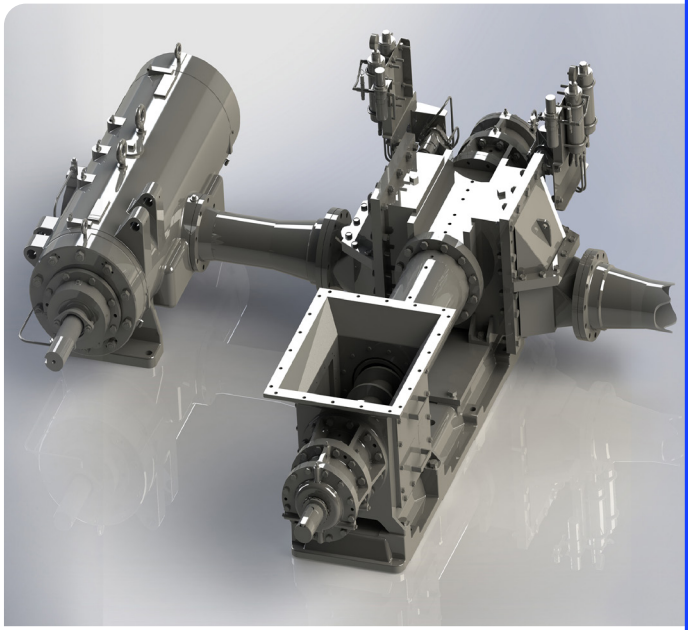
Ful-Vane™ compressors

Fuller offers a full range of single-stage and two-stage compressors; from critical parts to complete self-contained packages. Packages may be custom built to project specifications or Fuller standards. Auxiliary components are available upon request. The Ful-Vane compressor is the perfect marriage with Fuller-Kinyon® pump packages for ultimate reliability.

- Large inlet area provides efficient capture of large air flows
- Only three moving parts for minimal mechanical losses
- Constant blade-to-cylinder contact results in sustained compression efficiency
- Shaft and bearing design minimizes drive losses; suited for operation with VFD
- Ful-Lube™ automatic compressor lubrication system available separately
- Closed loop cooling available

Our Ful-Vane compressor is designed to allow the cylinder to be rebored and rotor to be reslotted several times, giving you the highest return on investment within the industry.

Ful-Pak™ packaged air compressors are the ideal solution for the demanding conditions of pneumatic conveying applications. Compact and totally self-contained in a low-noise enclosure, it is the complete air power source for reliable, efficient operations.



The perfect partners for your pneumatic conveying application

The most efficient pneumatic conveying solution on the market - Efficiency. Cleanliness. Reliability. That's what you need in a materials-handling solution. And that's what you get when you pair the FK N Pump with the FV Compressor – a robust, reliable solution proven by a century of experience in the field and continually improved to give you optimum value.

Our Fuller-Kinyon screw pump works efficiently to push material from its gravity-fed hopper through the barrel into the discharge body, where the Ful-Vane™ Compressor provides the required compressed air to convey the material through the transport line. Both machines are durable and easy to maintain, with the capability to be installed in any plant environment.

BETTER TOGETHER

The ultimate pneumatic conveying solution: Pairing the FK N Pump with the FV Compressor

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Fuller-Kinyon® Pump

Originally designed in 1918 as a way to safely transport pulverized fuels, the Fuller-Kinyon® screw pump has proven itself to be a must-have component in materials handling systems worldwide. The latest generation, the FK N Pump, is based on the same design principles as the M Pump, but includes upgrades that enable higher convey line pressure with greater energy efficiency, as well as the ability to serve ship and barge unloading applications.

How does it work?

The screw pump hopper is gravity-fed. Materials are pushed through the barrel by the screw, which compacts the material as it advances. The material density is further increased in the space between the terminal flight of the screw and the face of the non-return valve, forming a seal against the transport line pressure, which prevents blowback. When the material enters the discharge body it is fluidized by compressed air and conveyed into the transport line.

Standard features

- Cast iron and steel construction, with a cast iron base.
- Ball bearings support a pump screw at both ends for smooth, balanced operation.
- Critical parts that come into contact with material to be conveyed are made of hardened, wear-resistant material and special hard surfacing.
- Screw is coupled to the driving motor but can be v-belt driven.
- Easy, low-cost maintenance thanks to the 3-piece screw.
- Diameters from 150 mm – 350 mm with capacities up to 600 mtph depending on bulk density.
- Conveying air pressure range up to 35 psig (~2.4 Bar)
- Built to withstand material temperatures up to 400 °F (~200 °C) as standard.

FK N Pump upgrades

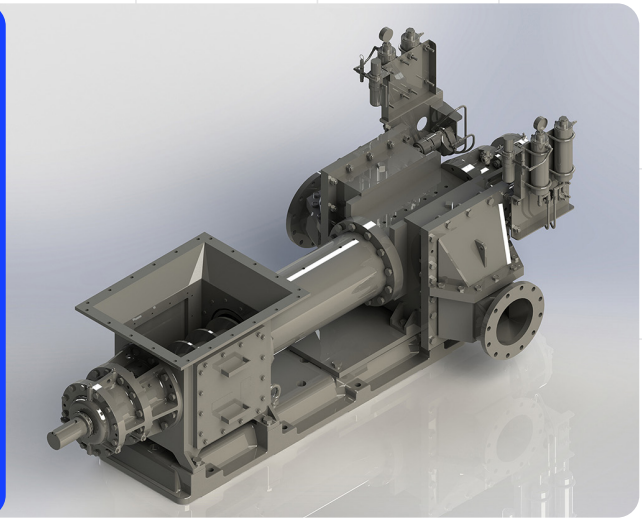
To further improve efficiency, the FK N pump comprises four main improvements from the previous model:

- Improved throughput
- Higher volumetric efficiency and higher convey line pressures
- Power savings
- Dual discharge housing as standard

Where is it used?

Common applications include conveying dry, free-flowing pulverized materials from grinding mills, between silos, transport from dust collectors, and for loading and unloading railcars, ships and barges.

For other applications, materials can be conveyed literally anywhere a pipe can be run. Long conveying distances are not uncommon, including in excess of 5000 ft (~1525 m).



Cutting the cost of compressed air with the upgraded FV Compressor

Compressed air is one of the biggest energy consumers in any heavy industry process. But pneumatic conveying is an excellent way to move materials. For decades, we've dedicated our expertise to creating a solution that lowers the cost of compressed air. And with the latest upgrade we bring you the world's most cost-effective compressor.

Benefits

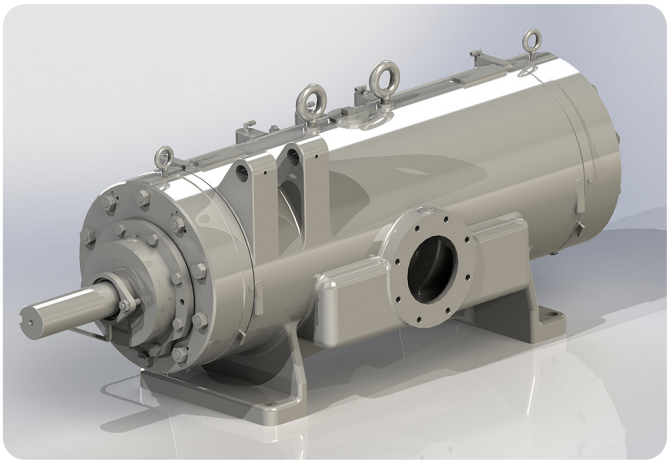
- Long life
- Low maintenance
- Suitable for harsh, dirty plant environments
- Energy efficient
- Low total cost of ownership

Straightforward design maximises efficiency

The design of the FV compressor has long focused on straightforward, logical engineering. A large inlet area enables the efficient capture of large air flows. By keeping moving parts to an absolute minimum – just three – we've minimised mechanical losses. And the constant blade-to-cylinder contact results in constant compression efficiency. The compressor is also suited for operation with a variable frequency drive, for increased energy efficiency. The upshot? More compressed air with less energy.

Advantages

- Cast or ductile iron cylinder allows for up to five re-bores
- Solid one-piece rotor and shaft can be re-slotted several times for different blade thicknesses
- Shaft and bearing design minimises drive losses
- Integral cooling water jacket



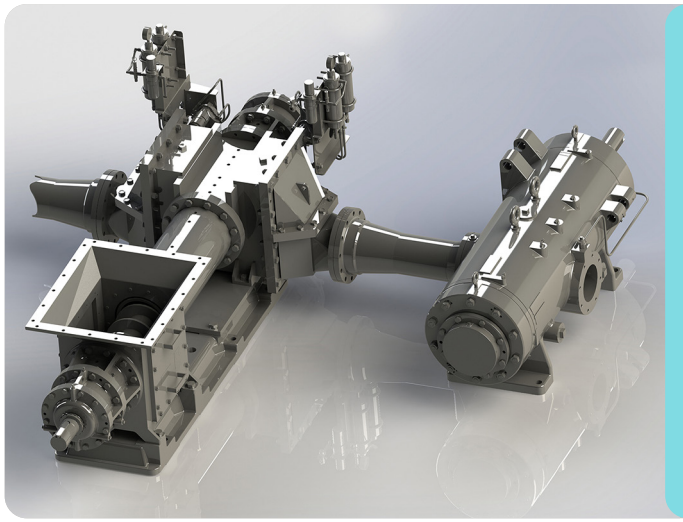
- Inlet/outlet configuration eliminates internal compression losses
- Mechanical seal for gas applications

Upgrades that reduce capital costs and offer increased volumes

Recent upgrades make the FV compressor even more cost-effective.

- The compressor cylinder and heads have been redesigned to simplify the castings, which, for most designs, reduces build costs – a saving that ensures you get the lowest possible total cost of ownership. We've also standardized the compressor design across all sizes so that all have round profiles, but kept the mounting position the same so that you can more easily upgrade from an older model.
- The cooling water jackets have also been redesigned, reducing weight and minimizing costs.
- On the larger models, we have standardized to a single discharge flange.

These changes enable the compressor to run at a higher RPM, giving you the option of more volume in a smaller size compressor.



The perfect partner for the FK N Pump

The FV Compressor is the perfect marriage with the FK N Pump for ultimate reliability. Choose from a full range of single-stage and two-stage compressors, from critical parts to complete self-contained packages. Packages may be custom built to project specifications or Fuller standards. Auxiliary components are available upon request.

SK™ V2 2-WAY DIVERTER / CONVERGER VALVE

The versatile SK™ V2 diverter valves are designed for low wear and maximum efficiency

When you need your materials to change direction, the SK V2 diverter/converger valve offers precise and versatile operation, with minimal maintenance. Suitable for dilute, two-phase or dense-phase pneumatic conveying applications up to 50 psig and 200˚C.

Benefits

- Precise operation
- Improved disk alignment
- Longer operating life
- Easy maintenance access
- Easily repurposed from right-hand to left-hand use
- Suitable for abrasive materials
- Durable construction

Rugged design, made for easy maintenance

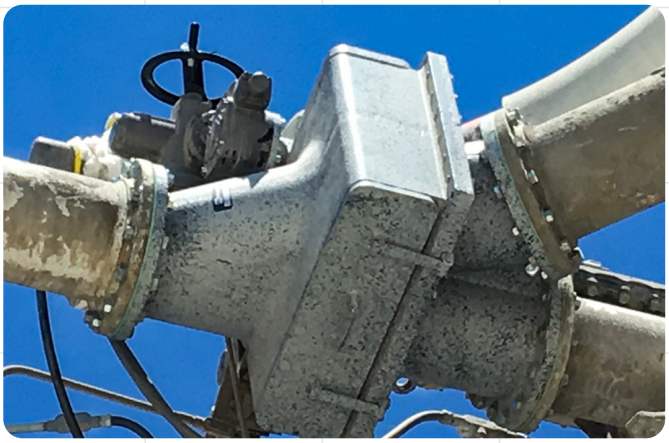
Engineered for 50 psig and 200°C maximum temperature, this rugged valve is well-suited for various abrasive materials such as cement, limestone, bentonite, fly ash, copper concentrate, barite and other pulverized or granular materials.

The housing is precision-machined durable cast iron construction, while the internal mechanism works on the sliding disc and port principle. The replaceable and hardened one-piece seat cartridge with hardened disc are ground and lapped to maintain a positive seal at the closed port. Designed with maintenance in mind, the large access port presents easy access to internal components with a hinged panel for improved safety.

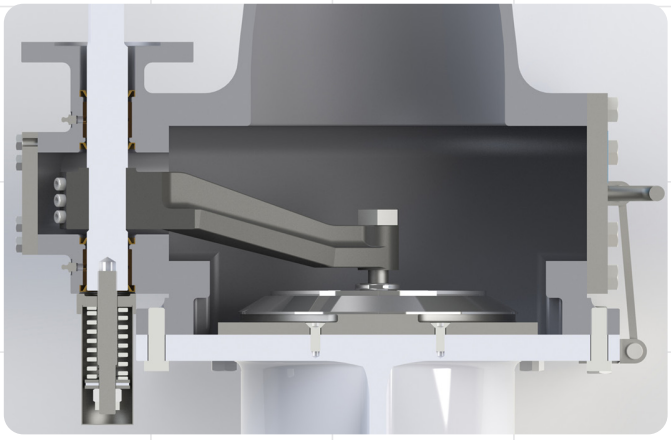
Versatile valve

The SK V2 valve can be easily re-purposed from right-hand to left-hand on site, with minimal adjustments, reducing installation hours and saving you money. No linkages or guards are needed for this valve, resulting in safer operation and less risk for maintenance staff.

Traditional actuators are used for easy connections to controls and wiring and are easily changed to the opposite hand without the need for customized parts. Three different actuators are available: precision electric motor, air cylinder or hand lever actuators with integral limit switches for dependable positioning of the disc with seats.



SK V2 2-way diverter valve



SK V2 2-way diverter valve cutaway showing disc

V-SERIES FEEDER / AIRLOCK LINE CHARGER

Engineered to solve most feed problems, our V-Series feeder handles dry, fine powder or granular product efficiently in both vacuum or pressure conveying systems and dilute phase and dense phase systems.

Long life and economical operation

Our V-Series rotary airlock is designed to feed pneumatic conveying systems efficiently and at high-pressure differentials,up to 29 psig (2 Bar). The V-Series feeder handles dry, fine powder or granular product in vacuum or pressure conveying systems. It is suitable for both dilute phase and dense phase systems.

The 10-vane open or closed end rotor design minimizes slip leakage while efficiently feeding through large inlet and outlet openings. The inlet flange has an inverted integrally cast plow for deflecting granular material. Pressurized air from the pockets is vented through a vent connection, keeping the air out of the inlet flange and maintaining even material flow. The rotor shaft seals minimize air leakage with mechanical lip-type bronze labyrinth seals. The bearings are sealed deep ball bearings that provide very tight peripheral and end clearances. Connections for air purge seal protection are provided with single solenoid and pressure regulator.

The drive system includes a direct mounted right angle bevel gearmotor, TEFC, severe duty with integral variable speed drive (VFD) for modulating speeds of 30 rpm to 5 rpm. The V-Series feeder is both NFPA and ATEX rated and is available in six sizes: V200 to V600.

Features

- Heavy-duty design with circular flanged ports
- Ductile iron housing and end plates
- Integral vent design
- Abrasion-resistant plate steel rotor, 10 vane, open or closed
- Efficient shaft sealing method
- Air purge equipment included
- Standard speeds, 30 to 5rpm
- Various voltages
- Temperatures to 400ºF (205ºC)
- Rotor volumes of .18 ft^3/rev to 6.8 ft^3/rev
- Flanges for either ANSI or DIN standards
- Steep throat angles and inverted plow
- Integral cast mounting bracket for direct drives
- External clearance adjuster and end plate plugs

Customer Satisfaction

Our first V-Series customer became our first repeat customer after the successful operation of their V-500 Airlock at a cement terminal in Tennessee. The second V-500 was ordered almost immediately and is now operating successfully at a location near Jackson, Mississippi.

VERTICAL CONVEYING SYSTEMS

Vertical pneumatic conveying where you need it,
for clean, safe and economical transport of a range of bulk materials.

Why vertical pneumatic conveying?

Vertical transport applications have typically been served by mechanical conveying systems. These operations can be dusty and high maintenance, leaving you with costly clean-up and expensive downtime. Not to mention the safety issues that come with both.

Vertical pneumatic conveying provides a clean, safe and reliable way of transporting fine or granular materials to heights of more than 100 m at rates of up to 1000 t/h. Flexible to your plant layout and your needs, Fuller's vertical pneumatic transport options are compact and suited to a wide range of materials and applications.

Fuller's Airlift™ Conveyor

The Airlift™ Conveyor is a simple, maintenance-free solution for vertical pneumatic transport of powdery and fine-grained bulk materials. With no mechanical or drive elements, the Airlift is not subject to wear like mechanical conveying solutions, giving you a reliable system with high availability at low specific energy consumption.

- Abrasive materials? No problem. We use wear-resistant material for the pickup pipe on these applications and we avoid dead space to increase reliability.
- High temperatures? Not an issue. Fluidization fabric can withstand bulk material temperatures of up to 300 °C.
- Contaminants causing you problems? We can fit a grating to remove contaminants from the conveying process.

Applications

- Finish mill to storage silos
- Raw mill feed to blenders
- Feed to preheater
- Ship unloading feed to storage silos
- Feed to roaster
- Feed to storage bin
- Feed to silo
- Feed to mixing bin

Materials

- Cement
- Alumina
- Copper concentrate
- Fly ash
- Aluminium hydrate
- Copper flue dust
- Fluid coke
- Catalyst
- Lime

Pressure, vacuum or combination dilute phase conveying systems

Airveyor™ dilute phase conveying systems offer a completely flexible solution, transporting materials horizontally or vertically using pressure, vacuum or combined systems. From unloading bulk transport vehicles, throughout weighing, batching and blending, to unloading from process and into shipment, Airveyor systems keep your material moving cleanly, safely and economically.

- Pressure systems offer high-capacity material transport over longer conveying distances. Operating at pressures up to 35 psig, pressure systems can satisfy conveying capacities up to 100 tph.
- Vacuum systems offer a low-cost alternative for low-capacity transport over short conveying distances.
- Combination vacuum/pressure systems offer higher conveying capacities over longer distances, with reduced headroom requirements at the collection hoppers.

Airlift™ conveyor for vertical pneumatic conveying

STORAGE AND BLENDING SOLUTIONS

Powdery and fine-grained bulk materials bring specific storage challenges. When fines settle, solidification can occur, making it difficult to discharge the materials when the time comes. Not only that, but blockages and buildup can also put a lot of strain on your equipment.

Understanding material behavior

Fuller provides complete storage and blending systems for all fine-grained bulk materials. These solutions are designed to account for the behavior of dry bulk materials at rest and ensure your materials are ready to go when you are.

Long-term storage

Long-term storage can create problems as material solidifies. For example, quality ash produced in the power plant industry is usually sold to the cement industry. Although produced in the winter months, it cannot be marketed until the following spring. The ash is therefore put into storage in large silos where it is prone to solidification over time.

The simple principle of fluidization

Low-pressure air is introduced into the material through the porous Airslide® fabric membrane, causing the material to act in a semi-liquid state. With only an 8 to 10 degree floor slope, the material flows like water to the discharge point – and with virtually no abrasion since it is floating on a cushion of air.

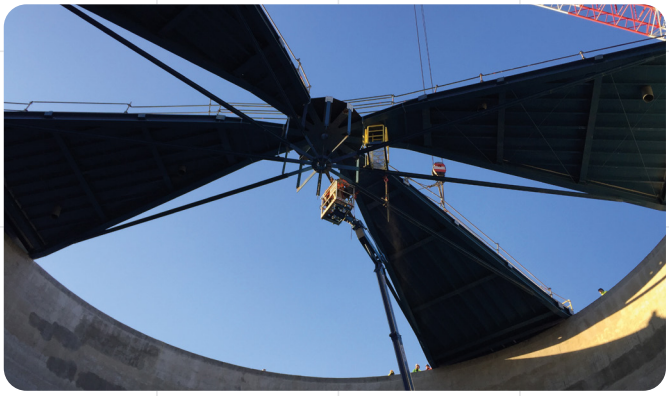
With no moving parts inside the storage area, a Ful-Floor™ reclaim system is your best solution for domes, flat storage warehouses and flat-bottom silos.

Dome storage – Ful-Floor™ reclaim systems

Ful-Floor™ reclaim systems for dome silos use industry-proven Airslide® fabric anchored to nearly 100% of the floor area. Embedded aeration troughs and piping eliminate restrictions that can inhibit material flow. The results: complete reclaim of your stored material with minimal floor slope, low average power and low maintenance

Airmerge™ blender

Air blending is achieved by use of a porous membrane over the entire bin bottom, four or eight air plenums and a simple flow control system. Together they change the density of material in the fluidized bed of material to generate a gentle folding action and a near perfect blend.



13,500 tons Alumina Storage Silo

Dome storage

- Gentle blending action with diffused fluidizing air through porous membrane fabric for silos up to 2832 cubic meters (100 000 cubic feet) in volume
- 3-in-1: blender, storage, efficient discharge
- No moving parts, low maintenance, low noise
- Effectively overcomes bridging or funnel flow when discharging material
- Rapid and total discharge capability

Column blender

A fully fluidized cone, an upper and lower air plenum and an open-ended central column allow the principle of air blending to be applied to even the most difficult materials. The fluidizing air enters the cone beneath the column, creating a “fountain-flow” that gives a radial circulation capable of blending an array of product types.

- No moving parts, low maintenance
- Gravity discharge 60° cone design
- Simple operation
- Robust design
- Greater flexibility in range of particle size
- Design for different batch sizes available

Gravity blending

The advanced engineering of the RANDOM-FLOW™ gravity blending and storage system delivers increased capacity, productivity and savings.

It is a cost-effective gravity blending and storage system that requires low power consumption but provides high blending efficiency. The silo floor consists of six aeration zones, each with six collection points. Blending is achieved by systematically withdrawing layered material through a gathering slide from a total of 36 collection points. The material is withdrawn by low-pressure air in closed-type Airslide® gravity conveyors from the collection points to the central silo discharge point.

RESEARCH AND DEVELOPMENT

Giving you incomparable know-how in the field of pneumatic conveying engineering.

Ongoing research, high-tech developments

We use the latest technology to design and build tailormade pneumatic conveying and silo systems for the most diverse requirements. Our engineers and technicians are continuously working to improve existing offerings and to develop new, innovative products.

All key components that come into contact with bulk material are configured, developed, and designed in our in-house design department. Conveyor trials are continuously executed on the test plant. We’ve tested over 1000 different materials to date and we’ll keep testing to make sure our equipment suits your needs. We want to find the optimum configuration parameters for each material and for every application, so if you want to commission tests or to run trials at your plant, we’ll be happy to help.

We work with universities and technical colleges to ensure that calculation models and trials are of the utmost quality.

World-class test facility

Fuller’s state-of-the-art test facility is dedicated to providing industry-leading support for pneumatic conveying and blending applications. The complex is home to a wide variety of equipment used for the research of process designs, testing to support customer projects, and development of new technologies.

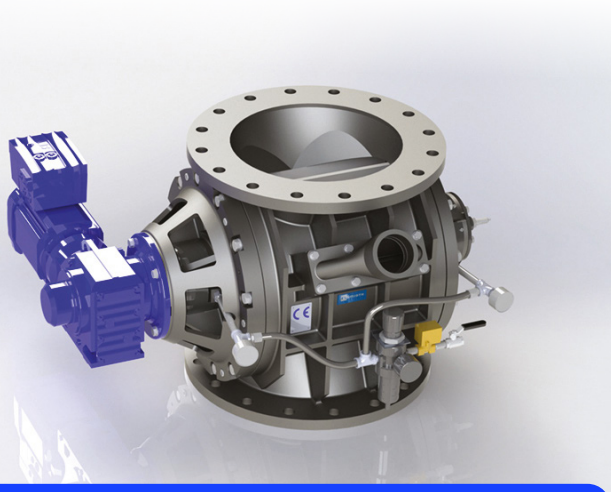
The comprehensive in-house capabilities, unmatched variety of equipment, and the breadth of experience differentiate Fuller in the industry and directly contribute to the success of our customers’ installations worldwide.

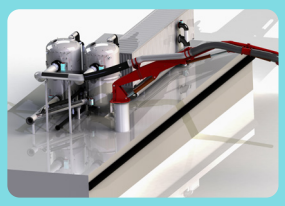
Decades of extensive cataloging of physical and chemical evaluations and critical design data supplies an unparalleled knowledge base for future system designs.

Robust, versatile and efficient

Engineered to solve most feed problems, our V-Series feeder handles dry, fine powder or granular product efficiently in both vacuum or pressure conveying systems and dilute phase and dense phase systems.

Find Out More

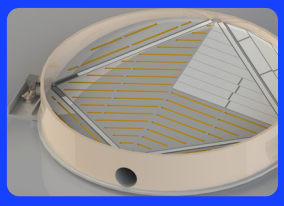




Pneumatic ship unloaders that are up to the task

All ship unloader arms come under stress. It's why we invest time in the design phase to find out where the stress points will be in your process – and to strengthen the arm so that it doesn't fail. Our high-capacity pneumatic ship unloading systems are built to fit your materials, your ship size, and your dock.

Find Out More



More product, less power – efficient aerated storage reclaim solutions

Material that's stuck in storage is frustrating. It's not making you money – in fact, it's costing you money to get in there and retrieve it. Our Pneumatic Conveying group engineers our storage reclaim systems to ensure you get maximum reclaim efficiency, with minimum power consumption. No more wasted materials. No more wasted time.

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