



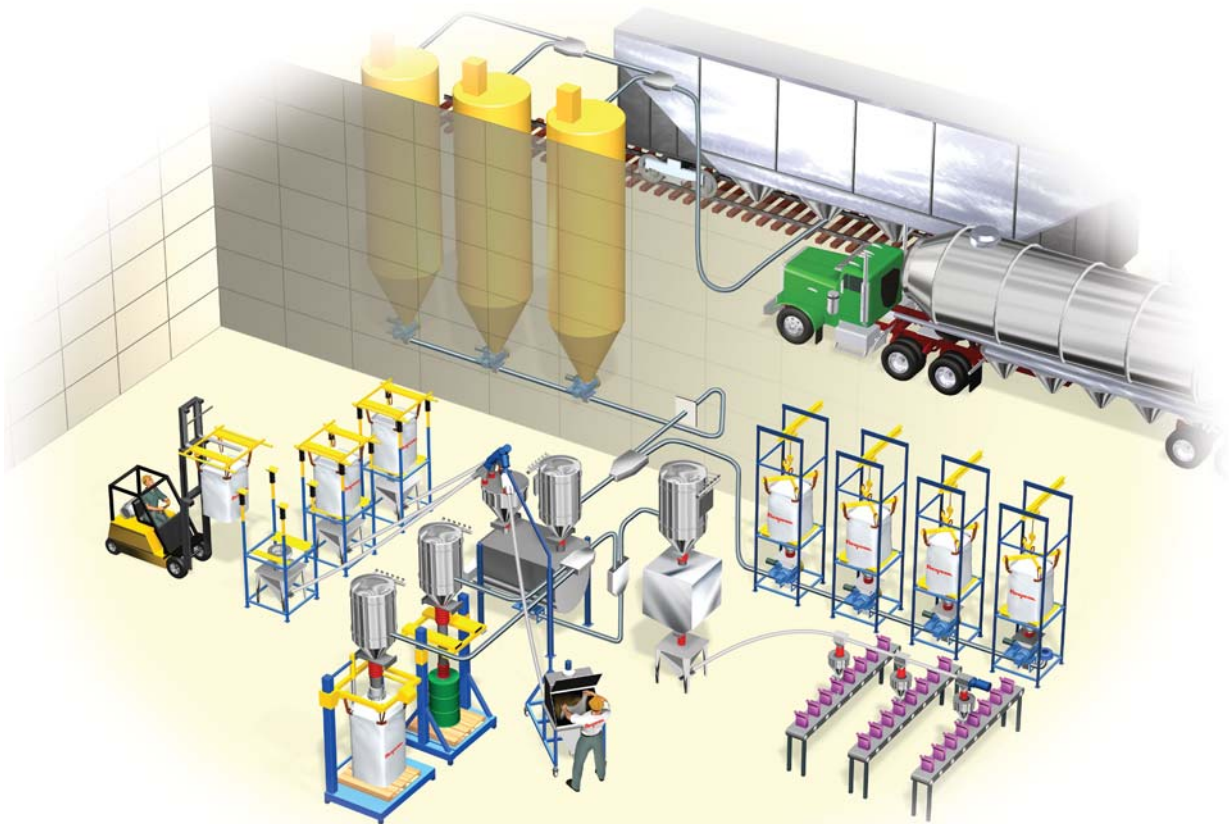
Bulk Handling Equipment and Engineered Systems



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Convey, load, unload, weigh, feed, and process virtually any bulk solid material



Flexicon is a world leader in the design and manufacture of bulk handling equipment and custom-engineered and integrated plant-wide systems that transport, discharge, fill, weigh, blend, deliver and/or feed a broad range of powder and bulk solid materials. Flexicon products range from individual equipment to automated systems that source bulk material from interior and exterior plant locations, transport it between process equipment and storage vessels, weigh it, blend it, feed it to packaging lines, extruders, moulding machines and storage vessels, and load it into railcars and trailers.

Choose from a broad range of reliable, high performance equipment in carbon steel with durable industrial finishes, or in stainless steel designed and constructed to industrial, food, dairy or pharmaceutical standards:

- Flexible Screw Conveyors
- Pneumatic Conveying Systems
- Volumetric Feeding Conveyors
- Bulk Bag Fillers
- Bulk Bag Dischargers
- Bulk Bag Conditioners
- Weigh Batching Systems
- Manual Dumping Stations
- Lift-and-Seal/Open Chute Drum Tippers
- Storage Vessels
- Gravimetric/Volumetric Feeders
- Silos and other storage vessels
- Dryers/Coolers
- Mixers/Blenders
- Screeners
- Crushers/Grinders
- Packaging Machines
- Other bulk processing equipment

Flexicon can also custom-engineer automated, plant-wide bulk handling and processing systems that integrate Flexicon equipment with bulk handling and process equipment of other manufacturers:



flexicon®

Materials

Handle free- and non-free-flowing bulk products including problematic materials and blends—with confidence

Whether your bulk material is comprised of large pellets, fine powders or both, flows freely or not at all, has a bulk density of 50 or 5000 kg/cu m, or packs, plugs, cakes, smears, fluidises, agglomerates, breaks easily or separates, Flexicon has most likely conveyed, fed, discharged, filled, weighed, dumped or otherwise handled it many times before. In fact, moving the most uncooperative bulk materials known to the chemical, paint, food, pharmaceutical and plastics industries has been a Flexicon speciality since 1974.

Examples of Flexicon advances in flow promotion include FLOW-FLEXER™ bag activators, POP-TOP™ bag stretching devices, TELE-TUBE™ telescoping tubes, POWER-CINCHER™ flow control valves, BEV-CON™ conveyors, high flow hoppers, deaeration/densification decks and a host of other components and accessories that promote flow while reducing degradation, dusting and/or the separation of blends comprised of disparate particles.

The ability to move your material efficiently, together with equipment designs and finishes that meet numerous regional and national codes worldwide for chemical, food, dairy and pharmaceutical applications, enables Flexicon to satisfy virtually every aspect of your bulk handling requirement, regardless of material, industry or location worldwide.

Following is a sampling of materials handled by Flexicon equipment and systems. For performance data on your specific material(s), please consult your Flexicon applications engineer.

ABS RESIN	CHILI POWDER	GRANOLA	PHARMACEUTICAL POWDER	SODIUM SILICATE
ACETAMINOPHEN	CINNAMON & SUGAR MIXTURE	GRAPHITE POWDER	PHENOLIC RESIN	SODIUM STEARATE
ALMONDS	CITRIC ACID	GRAVY MIXES	PIGMENTS	SODIUM SULPHATE
ALUMINA	CLAY	GRITS	PLASTIC FLAKE	SODIUM TRIPOLYPHOSPHATE
ALUMINIUM OXIDE	COCOA POWDER	CRYOGENICALLY GROUND PLASTICS & RUBBERS	PLASTIC PELLETS	SORBITOL
ALUMINIUM TRIHYDRATE	COCONUT	GUAR GUM	PLASTIC POWDER	SOUP BASES
AMORPHOUS SILICA	COFFEE BEANS	GYPHUM	PLASTIC RESIN	SOUP MIX
ANIMAL FEED	COFFEE CHAFF	HERBICIDE	POLY VINYL ALCOHOL	SOY BEANS
ANTIOXIDANT	COFFEE, GROUND	INFANT FORMULA	POLY VINYL CHLORIDE (PVC)	STARCH
ASCORBIC ACID	COOKIE CRUMBS	IRON OXIDE	POLYETHYLENE	STEARIC ACID
ASPARTAME	CORN	IRON POWDER	POTATO FLAKES	SUGAR, CONFECTIONERY
ASPIRIN	CORN FLOUR	KAOLIN CLAY	POTATO FLOUR	SUGAR, CRYSTAL
BABY POWDER	CORN GRITS	KRATON RUBBER	POTATO PEARLS	SULFUR
BACON BITS	CORN KERNELS	LACTOSE	POTATO STARCH	SUPERABSORBENT
BAKING SODA	CORN MEAL	LAXATIVE	POTATOES, INSTANT	TALC
BARIUM SULPHATE	CORN STARCH	LEAD OXIDE	PRETZEL SALT	TEA
BARLEY	CREAMER	LIME, HYDRATED	PROTEIN POWDER	TEA LEAVES
BEANS	CRUMB RUBBER	MAGNESIUM CHLORIDE	PSYLIUM HUSKS	TEFLON
BENTONITE	CRYOGENIC MEDIA	MAGNESIUM OXIDE	PVC REGRIND	TEREPHTHALIC ACID
BISCUIT MIX	DETERGENT	MAGNESIUM STEARATE	PVC RESIN	THERMOSET RESIN
BLOOD, DRIED	DEXTROSE	MAGNESIUM SULPHATE	RED IRON OXIDE	TITANIUM DIOXIDE
BORIC ACID	DIATOMACEOUS EARTH	MALT	REGRIND	TONER
BREAD CRUMBS	DOUGHNUT MIX	MALTODEXTRIN	RICE	TRI-SODIUM PHOSPHATE
BREWERY YEAST	DRINK MIXES	MARBLE DUST	RICE HULLS	UREA
CAFFEINE	EGG POWDER	METAL POWDER	RUBBER	UREA PRILL
CAKE MIXES	EPOXY RESIN	MICRO CRYSTALLINE CELLULOSE	SALT	VEGETABLES, DEHYDRATED
CALCIUM CARBONATE	FERTILISER	MILK POWDER	SAND	VERMICULITE
CALCIUM STEARATE	FIBREGLASS	MONOSODIUM GLUTAMATE (MSG)	SAWDUST	VINYL RESIN
CARBON ACTIVATED	FILTER AID	NUTS, GROUND	SEASONING	WHEAT FLOUR
CARBON BLACK	FLAME RETARDANT FLOUR	NUTS, WHOLE	SEEDS	WHEAT GLUTEN
CARPET DEODORISER	FLY ASH	OATS	SEMOLINA	WHEAT STARCH
CARRAGEENIN	FRUCTOSE	PANCAKE MIX	SESAME SEED	WHEY
CASEIN	FUMED SILICA	PAPRIKA	SILICA HYDRAGEL	WOLLASTONITE
CAT FOOD	GARLIC, WHOLE	PENTAERYTHRITOL	SILICON DIOXIDE	WOOD CHIPS
CAT LITTER	GELATINE POWDER	PERLITE	SILVER POWDER	WOOD FLOUR
CELLULOSE FLOCK	GLASS BEADS	PET REGRIND	SOAP POWDERS	XANTHUM GUM
CEMENT	GLASS MICROSPHERES		SODA ASH	ZINC OXIDE
CEREAL FINES	GRAHAM CRACKER CRUMB		SODIUM BICARBONATE	ZINC PHOSPHATE
CHEESE POWDER	GRAINS		SODIUM CHLORIDE	ZINC STEARATE
CHEESE, DICED, FROZEN			SODIUM CITRATE	
CHEESE, GRATED				



Systems

One-stop source for engineered, integrated bulk handling systems

You can alleviate the burden and risk of designing your system, coordinating multiple suppliers, integrating components, troubleshooting start-up and assuming responsibility for system performance, by relying on Flexicon for it all.

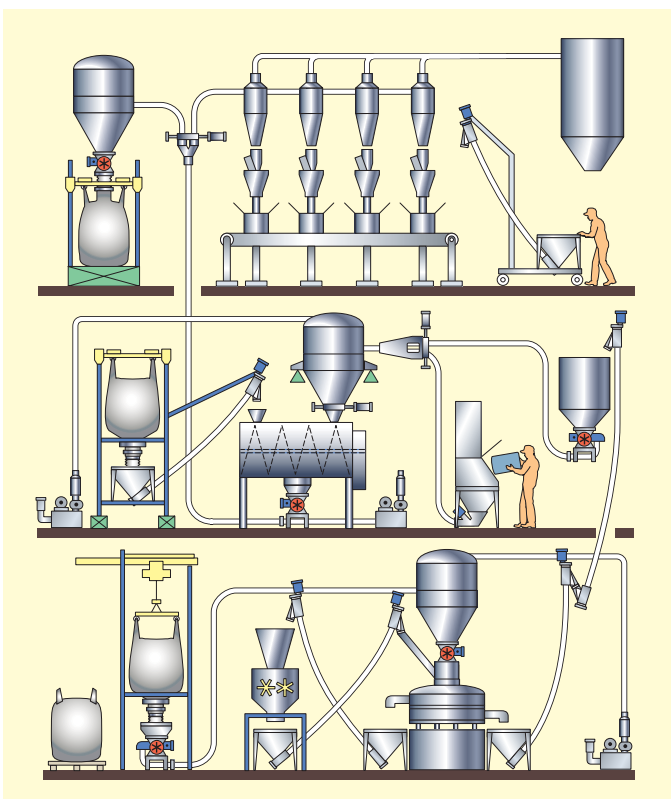
Flexicon can evaluate your bulk material(s), plant layout, throughput rates, residual product limitations, cleanliness, noise limitations, access, cost, cycle times and other parameters, and outline the solution to your bulk handling problem.

Because Flexicon offers a wide range of equipment, including mechanical and pneumatic conveyors, as well as systems that incorporate equipment of other manufacturers, you are assured of receiving a recommendation based on your requirement, not on limited equipment availability.

Flexicon can submit recommendations in the form of CAD drawings that integrate equipment manufactured by Flexicon and by others, with new or existing equipment in your plant, and provide a competitive price quotation.

Using samples of bulk material you supply, Flexicon can evaluate and/or test your material in a state-of-the-art test laboratory on full-size equipment configured and customised to simulate your system, supply the equipment on time, help you install it, train your personnel, guarantee its performance and service it on-site.

From concept to completion, Flexicon can provide everything it takes to solve your bulk handling problem efficiently, economically and rapidly.



Flexicon flexible screw and pneumatic conveying systems offer distinct differences in performance relative to specific application requirements. Since many plants convey a variety of bulk materials in a range of capacities over varying distances, a combination of pneumatic and flexible screw conveying is often recommended to maximise overall performance and return on investment.

CONVEYOR CHARACTERISTICS

	CHECK YOUR REQUIREMENTS	FLEXIBLE SCREW CONVEYORS	DILUTE PHASE POSITIVE-PRESSURE PNEUMATIC CONVEYORS	DILUTE PHASE VACUUM PNEUMATIC CONVEYORS
Short distances		■		■
Medium distances		■	■	■
Long distances			■	■
Lowest initial cost		■		
Lowest energy consumption		■		
Indirect conveyor routing required			■	■
Flexibility of conveyor routing		■		
Simplest installation		■		
Multiple material sources			■	■
Multiple material destinations		■	■	■
Mobile units		■		■
Evacuation of material from conveying system			■	■
No separation of blends		■		
Convey directly from barrel or hopper				■
Materials that pack, cake or smear		■		
Heat-sensitive material		■		■
High temperature material		■	■	
Ultra-high temperature destination			■	
Extreme material in-feed rate fluctuation			■	■
Contamination-sensitive material		■	■	■
Hazardous material		■		■

Flexible Screw Conveyors

Move virtually any free-flowing or non-free-flowing bulk material

Only one moving part

The only moving part contacting material in a Flexicon flexible screw conveyor is the rugged flexible screw which is driven by an electric motor. As it rotates, the screw propels material and centres within the conveyor tube, providing constant clearance between itself and the tube wall.

This simple design does not require cables, chains, disks, internal bearings, and numerous moving parts found in bucket elevators, rigid augers, drag chains, and/or aeromechanical conveyors—parts that can add initial cost, require maintenance, wear out, breed contamination, and/or break down.

Even more importantly, Flexicon flexible screw conveyors offer efficiency and versatility, conveying bulk materials ranging from large pellets to sub-micron powders—both free-flowing and non-free-flowing—including difficult-to-handle products that pack, cake, seize, fluidise, plug, or smear, with no separation of blends. (See “Materials,” page 4.)

Enclosed tube prevents contamination

A Flexicon flexible screw conveyor is totally enclosed, dust-free, and mess-free, preventing contamination of your bulk products and plant environment, while preserving the moisture and temperature levels of materials being conveyed.

Compare the smooth interior surfaces of a Flexicon flexible screw conveyor with potential contamination sources found in other conveyors, and you may specify the Flexicon flexible screw conveyor on the basis of product purity alone.

Convey in any direction

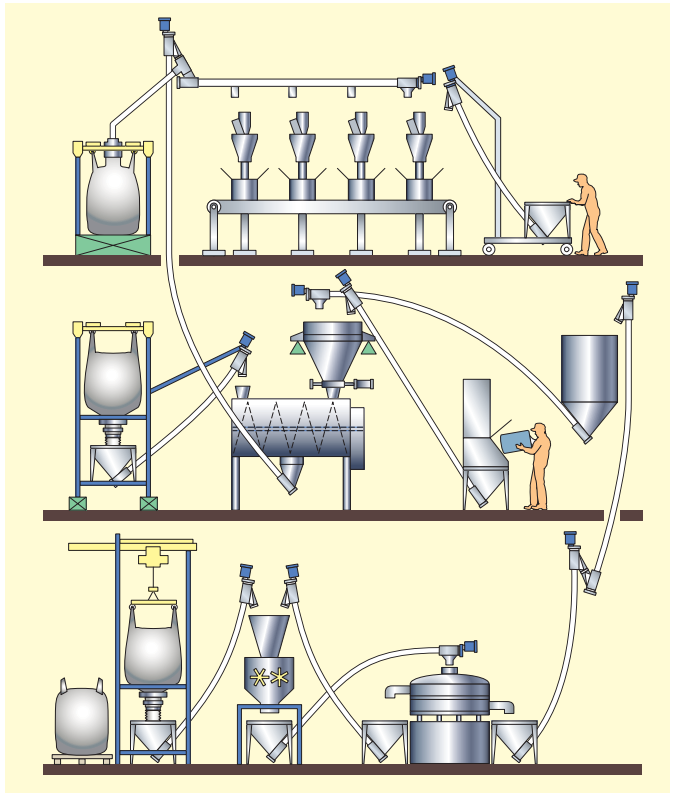
Whereas many conveyors have limited angles of incline and/or straight-only conveying paths, Flexicon flexible screw conveyors can move material vertically, horizontally, or at any angle—over, under, or around obstructions, through small holes in walls or ceilings.

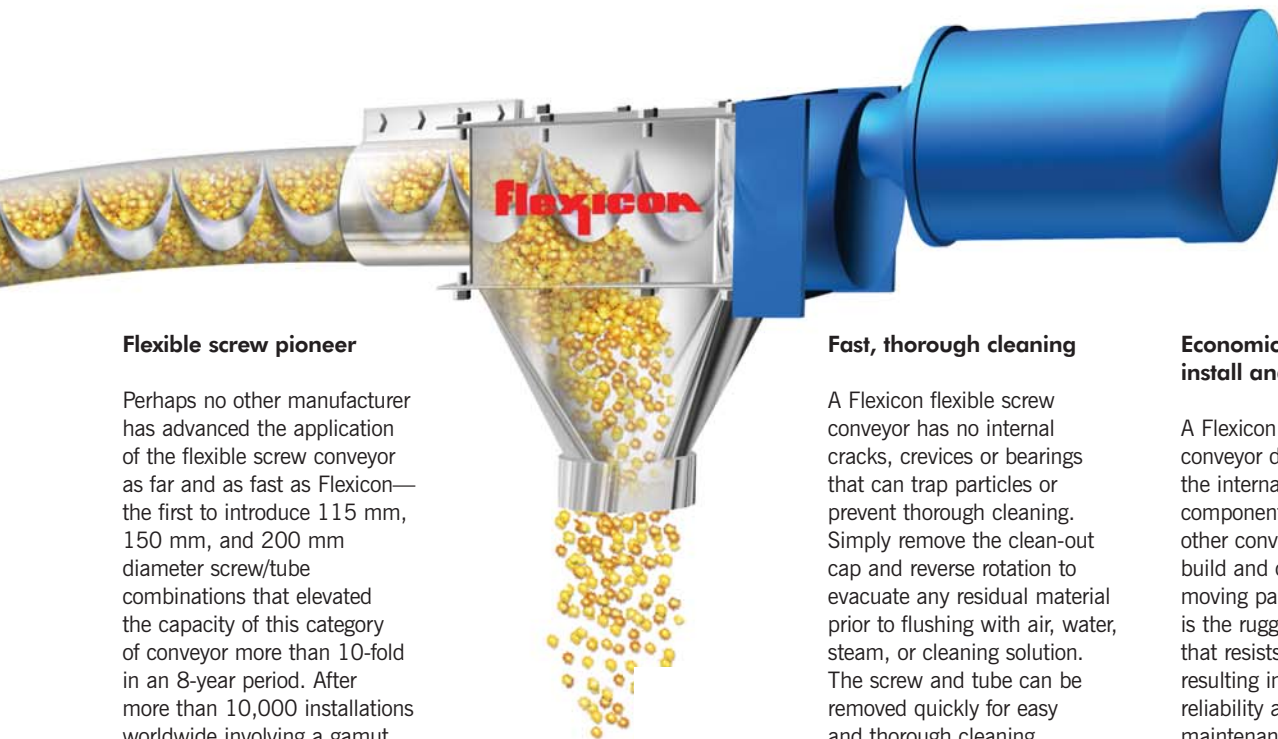


Gentle product handling and blending

Flexicon flexible screw conveyors can handle your products gently, because the flexible screw self-centres as it rotates. This can provide ample clearance between the screw and tube wall to prevent grinding, crushing, and other product damage.

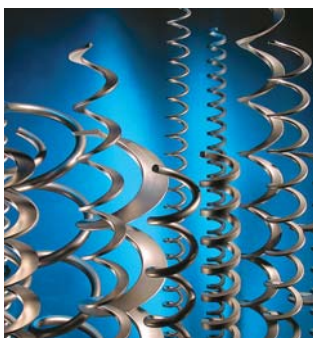
In addition, the gentle rolling action created by the screw prevents the separation of blends throughout the entire length of the conveyor.





Flexible screw pioneer

Perhaps no other manufacturer has advanced the application of the flexible screw conveyor as far and as fast as Flexicon—the first to introduce 115 mm, 150 mm, and 200 mm diameter screw/tube combinations that elevated the capacity of this category of conveyor more than 10-fold in an 8-year period. After more than 10,000 installations worldwide involving a gamut of bulk materials, Flexicon has amassed a wealth of performance data on flexible screws—many of which have been engineered, machined and formed to Flexicon specifications. To you, it means that Flexicon has most likely solved your problem in the most efficient and cost-effective manner possible—or can do so as a matter of routine.



Flexicon matches an unequalled number and type of standard and custom flexible screws to a correspondingly wide selection of hopper designs and charging adapters to meet all of your material and process parameters with the greatest efficiency and reliability.

High reliability, low maintenance

A Flexicon flexible screw conveyor has no internal bearings, cables, filters, chains, buckets, or other potentially problematic components to wear, break down, or require maintenance. The only moving part contacting material is a rugged flexible screw which resists wear and fatigue, and is driven by an electric motor.

Even under a full load of moist, dense product—depending on application parameters—a Flexicon flexible screw conveyor can start and stop repeatedly with no binding or damage to the unit. The result is a conveyor without load limitations that runs dependably, boosting productivity while cutting maintenance.

Fast, thorough cleaning

A Flexicon flexible screw conveyor has no internal cracks, crevices or bearings that can trap particles or prevent thorough cleaning. Simply remove the clean-out cap and reverse rotation to evacuate any residual material prior to flushing with air, water, steam, or cleaning solution. The screw and tube can be removed quickly for easy and thorough cleaning.

To suit your cleanliness requirements, all Flexicon flexible screw conveyors are available in carbon steel with durable industrial finishes, or in stainless steel designed, constructed and finished to industrial, food, dairy and pharmaceutical standards. (See “Sanitary” page 24).

Volumetric feeding conveyors

Flexicon flexible screw volumetric feeding conveyors provide simultaneous metering and conveying of bulk solid products. The units are equipped with AC or DC variable speed drives and hoppers with flow promotion devices for continuous feeding of both free- and non-free-flowing materials.

Economical to purchase, install and operate

A Flexicon flexible screw conveyor does not require the internal and external components that can make other conveyors expensive to build and operate. The only moving part contacting material is the rugged flexible screw that resists wear and fatigue, resulting in extraordinary reliability and minimal maintenance.



Because the screw and tube are flexible, and can be routed easily in any direction, the intake and discharge can be positioned where you need them, in situations that would be difficult, costly or impossible to satisfy with other conveyors.



High capacity flexible screw conveyor with downspout removed to demonstrate flow of material.



Mobile and custom configurations

All Flexicon flexible screw conveyors are available on castor-mounted frames with conveyor support masts for in-plant mobility, reducing the need for multiple stationary units.

Both mobile and stationary units are readily customised using interchangeable screws, conveyor tubes, motor drives, hoppers, flow-promotion devices, sensors, controllers, and other components to satisfy the most diverse and demanding end-use requirements.

Multiple discharge point systems

Horizontally-oriented Flexicon flexible screw conveyors can feed multiple packaging machines, moulding machines, and other process equipment. The system can convey bulk material over short to medium distances, feed multiple discharge points selectively, or top off all points on a timed cycle through manual or automatic slide gate valves.



Divergent angles of Flexicon's patented high flow hopper design reduce the ability of non-free-flowing materials to establish a bridge between the hopper sidewalls, instead causing material to topple and flow toward and down the steep backwall, increasing the flow of bulk materials while decreasing residual material in the hopper.



Flexicon offers a multitude of mechanical and pneumatic hopper accessories to promote the flow of poor-flowing or non-free-flowing materials. This hopper features dual agitators with interlocking paddles that de-agglomerate bulk material, promoting void-free charging of mechanical conveyor intake adapters.



Flexicon's Low Profile Flexible Screw Conveyor positions the motor drive at the inlet end of the conveyor tube, allowing the discharge end to fit within limited headroom areas often encountered above weigh hoppers or other receiving vessels.

BEV-CON™ Conveyors

Handle difficult-to-convey bulk materials

BEV-CON™ flexible screw conveyors from Flexicon handle powder and bulk solids including materials that tend to pack, cake, smear, plug, fluidise or separate.

BEV-CON conveyors are also highly effective for handling fragile or brittle products that tend to break or crumble from the friction, crushing, grinding, pressure, or impact that can occur in other conveyors.

Products ideally suited to the special capabilities of a BEV-CON conveyor range from sub-micron powders to large pellets and include:

▪ CHEMICALS:

Titanium dioxide, carbon black, calcium carbonate, powdered lime, rubber, detergent powders and sulphur

▪ FOODS:

Cake mixes, soup mixes, gravy mixes, cocoa powder, cheese, candy, milk powder, dehydrated, frozen or raw vegetables, fruits and nuts

▪ PHARMACEUTICALS AND COSMETICS:

Talc, titanium dioxide, zinc oxide, clay, calcium carbonate, powder and finished bulk of all types



Moist, sticky materials



Friable materials



Products that pack, cake, smear or plug

Versatile configurations conform to your application

BEV-CON units have a straight conveyor tube which is generally supported by attaching the drive/discharge end to an overhead joist, tank rim or any other solid structure.

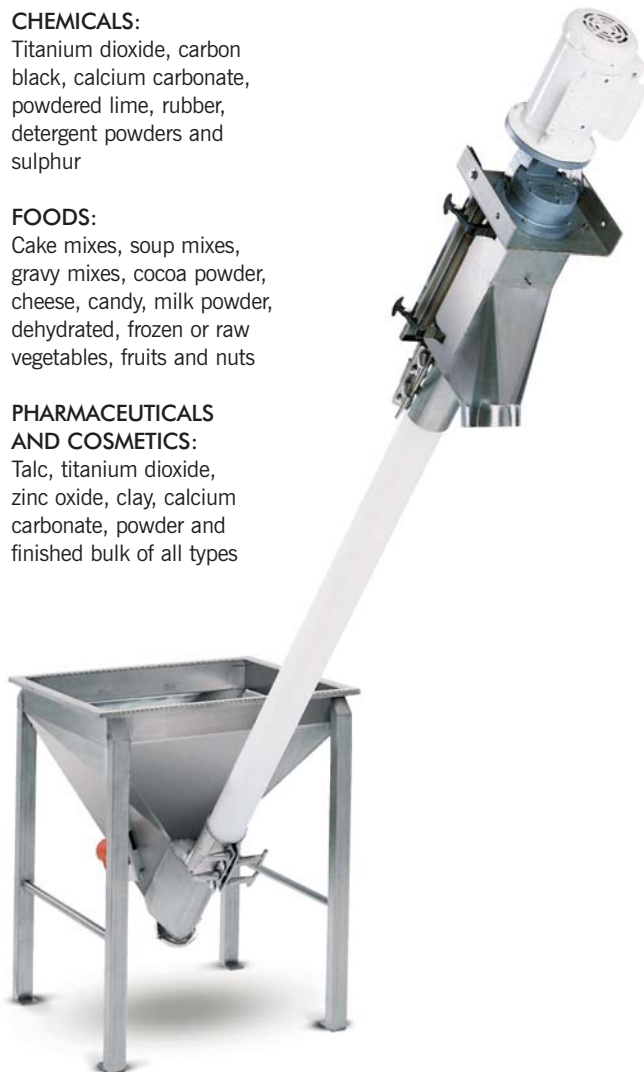
The conveyor tube may be routed through small openings in walls or ceilings. BEV-CON conveyors are also available on frames with masts and castors for in-plant mobility.

A wide variety of conveyor tubes, motor drives, hoppers, and bag dump dust collectors, in a range of sizes, shapes and materials, enables Flexicon to custom build a BEV-CON conveyor to your specific requirements.

BEV-CON conveyors are available in carbon steel with durable industrial finishes, or stainless steel designed and constructed to industrial, food, dairy and pharmaceutical standards.



This BEV-CON conveyor is equipped with a highly specialised flexible screw matched to material characteristics and other application requirements.



BEV-CON Conveyors can transport difficult-to-handle bulk materials vertically, horizontally or at any angle. This low-incline, mobile configuration is designed, constructed and finished to dairy standards, and allows dust-free connections to upstream as well as downstream equipment.

PNEUMATI-CON® Dilute Phase Pneumatic Conveying Systems

Flexicon's PNEUMATI-CON® dilute phase pneumatic conveying systems range from single-point "up-and-in" installations to cross-plant systems with multiple pick-up and discharge points and automated controls, satisfying an exceptionally wide range of bulk conveying applications. All are custom-engineered and fully integrated with other Flexicon equipment and systems, and your new or existing process.

PNEUMATI-CON dilute phase pneumatic conveying systems move bulk materials that are suspended in an air stream that is introduced by a positive pressure blower upstream of material intake points, or by a vacuum pump that removes air from the system downstream of material discharge points. Material is separated from the conveying air at the use point, then discharged on a batch basis via butterfly or slide gate valves, or continuously via airlock valves.

Positive pressure systems

Positive pressure dilute phase pneumatic conveying systems are typically employed to convey bulk materials from a single source to one or multiple destinations, over longer distances and with greater capacity than possible using vacuum systems.

These systems utilise a positive displacement blower with single or multiple downstream material entry points, each of which meters product into conveying lines by means of a rotary airlock valve that maintains the pressure differential between the ambient atmosphere and that of the conveying line. Material and air blown through the line exit at single or multiple use points where they are separated by means of a filter receiver or cyclone separator, or fed directly into process vessels that are vented to downstream dust collection devices.

Pressure systems offer higher efficiency than vacuum systems, can convey over longer distances, and can blow directly into process and storage vessels without the use of a rotary airlock valve.

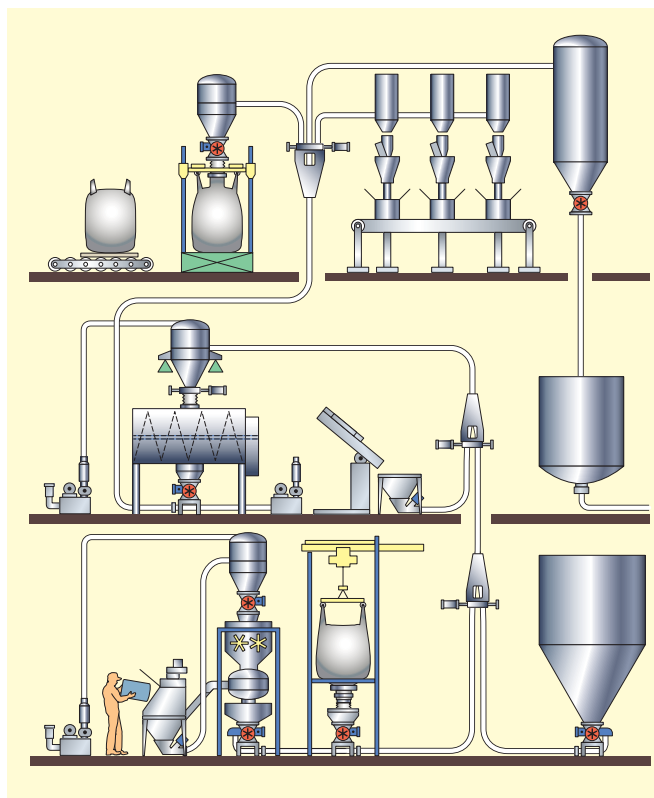
Vacuum systems

Vacuum dilute phase pneumatic conveying systems are generally employed for transporting material from multiple sources such as storage vessels, process equipment, trucks and railcars, to individual or multiple destinations. Unlike positive pressure systems, vacuum systems allow easy pick-up of materials from open containers using wands, and do not impart heat to the material. Since vacuum systems offer superior leak containment, they are often specified on the basis of cleanliness, particularly when handling hazardous materials.

Negative pressure is created by a positive displacement vacuum pump located at the downstream end of the system.

Material typically enters the system via upstream rotary airlock valves, hand-held pick-up wands, and non-flow-through/flood-feed pick-up adapters, and exits the system through filter receivers or cyclone separators that separate the material from the conveying air directly above process equipment, surge hoppers, storage vessels or other discharge points.

In addition, vacuum conveying is suited to direct feeding of blenders, reactors and other enclosed process vessels that are put under vacuum by a line terminating at a downstream bag house or other dust collection device, eliminating the need for individual filter receivers or cyclone separators above each discharge point.



Easy conveyor line routing

Since conveyor lines can be routed vertically and in any horizontal direction, over short or long distances, through small holes in walls or ceilings, Flexicon PNEUMATI-CON® systems are easy to integrate into production environments in which process equipment and other obstacles often exist, while consuming minimal floor space.

Total evacuation

PNEUMATI-CON systems fully evacuate the vessel being discharged and the conveyor line itself, minimising cross-contamination of multi-ingredient systems. Complete transfer of material also ensures that individual and consolidated batch ingredients reach their destinations accurately by weight, maximising quality while minimising waste.



PNEUMATI-CON filter receivers incorporate numerous design and construction innovations offering unsurpassed separation efficiency across all capacity ranges. Low-capacity units (above) are commonly positioned above packaging lines or smaller process equipment, while medium-capacity units (right) are utilised above storage vessels and process equipment such as blenders and bulk bag fillers.

Wide capacity range

With a PNEUMATI-CON conveyor, capacity can range from several kilograms to tens of tonnes per hour, feeding any destination from small packaging lines to silos and railcars. Moreover, excessive fluctuations in the feed rate—resulting in overloading or underloading—will not damage the system.

Diversity of products handled by one conveyor

Powders having wide ranging bulk densities, as well as flakes, pellets, capsules, tablets and other friable materials, can be handled by a single Flexicon pneumatic conveyor, providing the flexibility needed to transport multiple ingredients. (See "Materials," page 4.)

A complete range of pneumatic system components

Flexicon provides any and all components necessary to configure your PNEUMATI-CON system including:

- Pressure blowers and vacuum pumps with integral sound enclosures with separate cooling fans, and easy-access maintenance points
- Rotary airlock valves in all popular designs and sizes
- Flex-tube diverters, wye-diverters, plug diverters and other line diverter configurations
- Filter receivers for low- to high-capacity applications
- Cyclone separators for low- to high-capacity applications
- Gain-in-weight and loss-of-weight batching systems
- Dust collectors and bin vents
- Controls and electrical equipment
- Hand-held pick-up wands
- Silos, day bins and other storage vessels

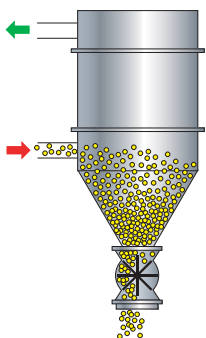


This Silo Vent is essentially the upper section of a filter receiver that can be mounted atop an existing silo or other large vessel, into which material can be conveyed.



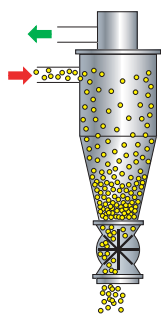
Material discharge methods

Material typically exits pressure and vacuum pneumatic conveying systems via filter receivers, cyclone separators, or fill/pass valves, or discharges directly into process or storage vessels.



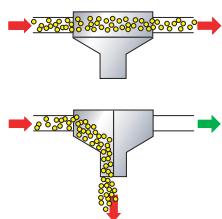
Filter Receivers

Flexicon filter receivers separate solids from the air stream using filter media and gravity, and are generally specified when materials contain smaller particles that are prone to dusting and/or when dust containment is a primary requirement. They are normally located above material use points, and employ reverse-pulse jet filter cleaning to dislodge accumulated dust from filter surfaces, allowing continuous and efficient separation of material from the air stream.



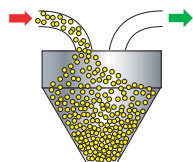
Cyclone Separators

Cyclones separate solids from the conveyor air stream using centrifugal force and gravity, and are typically specified when materials are comprised of larger particle sizes that are not prone to dusting. Although filters are uncommon, they can be incorporated as a secondary means of capturing airborne solids.



Fill/Pass Valves

Fill/pass valves are commonly used to discharge material directly into individual or multiple process vessels and/or to deliver it to several destinations along a common conveying line. Downstream of the last fill/pass valve, the conveying line is normally routed to the original material source point or into a dust collection device.

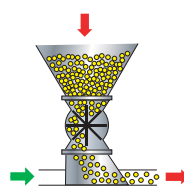


Directly Into Process Vessels

Both pressure and vacuum systems can feed material directly into blenders, reactors and other enclosed process vessels that are vented to a downstream bag house or other dust collection device, eliminating the need for individual filter receivers.

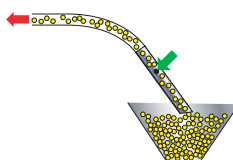
Material intake methods

Pressure and vacuum conveying systems commonly utilise rotary airlock valves to introduce material to the air stream. Hand-held wands and non-flow-through (flood-feed) pick-up adapters can be utilised with vacuum systems.



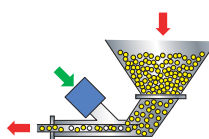
Rotary Airlock Valves with Flow-Through Pick-Up Adapters (Pressure and vacuum systems)

Rotary airlock valves with flow-through pick-up adapters can be utilised in pressure and vacuum systems for both controlled metering of material into the conveying system, and maintaining the pressure differential between the conveying system and ambient atmosphere.



Wands (Vacuum systems)

Hand-held pick-up wands plumbed to vacuum conveyor lines with flexible hose are used to vacuum material from hoppers, drums, paper bags, barrels or other containers.



Non-Flow-Through (flood-feed) Pick-Up Adapters (Vacuum systems)

Material can be introduced into vacuum conveyor lines via non-flow-through (flood-feed) pick-up adapters, which are typically used at pick-up points where lower volumes of material are fed manually.



Material pick-up points, clockwise from top left, include hand-held pick-up wand, rotary airlock with flow-through adapter, non-flow-through pick-up adapter, and rotary airlock with flow-through pick-up adapter.

Enclosed system prevents contamination

Totally enclosed and dust-free, a PNEUMATI-CON® conveying system prevents contamination of the product and plant environment, allowing safe transfer of contamination-sensitive materials including dusty and hazardous products.

High reliability and ease of maintenance

Flexicon PNEUMATI-CON systems feature easy-to-maintain filter receivers with access doors and inspection ports, as well as rotary airlock valves with optional rotor support bars for easy access, cleaning and inspection.

Mobile and custom configurations

Self-contained Flexicon PNEUMATI-CON conveying systems complete with feed hopper and/or pick-up wand, blower unit, filter receiver and control package, are available pre-engineered and configured on castor-mounted frames for in-plant mobility.

Designed, constructed and finished to industrial and sanitary standards

PNEUMATI-CON conveying systems are available in carbon steel with durable industrial finishes, or stainless steel finished to standards required for industrial, food, dairy and pharmaceutical applications. Available upgrades include quick-access and quick-disconnect fittings.



This modular vacuum receiver features a rugged clamp-together design that facilitates rapid disassembly for filter maintenance and cleaning. Whereas conventional filter receivers employ multiple smaller elements, it employs a single, large diameter filter cartridge, and offers an ideal solution for low-throughput-rate, short-distance pneumatic conveying applications.

Unlike filter receivers, cyclone separators require no filters to separate solid particles from the gas stream, instead relying on cyclonic action alone. An air stream containing material enters the separator at a tangential angle and is spun rapidly, creating a circular flow that imparts centrifugal force to the particles which strike the wall of the cyclone and fall through a bottom outlet, into a process vessel.



Bulk Bag Dischargers

Dust-free loading, untying, retying and removal of bulk bags



Broad model range satisfies general to specific requirements

Flexicon bulk bag dischargers are offered in numerous frame configurations for loading and unloading of bulk bags using a powered hoist and trolley or a forklift. Specialised models include split frames for forklift loading of bags in low headroom areas, half frames for suspending bags during discharge using a forklift, hoistable frames for lifting the entire bulk bag discharger, continuous loss-of-weight dischargers for uninterrupted feeding directly from bulk bags, and other application-specific designs.

Revolutionary advances overcome limitations of outdated designs

Just as bulk bags changed the way you stored and shipped bulk material over the last decade, so will these bulk bag dischargers revolutionise the way you load, untie, retie, remove and collapse bulk bags in the future.

No longer must your operators reach through cramped access doors and awkward glove boxes, struggle to retie partially empty bags, clean up spillage after disconnections, dislodge products from dead spots or flatten bags manually.



Patented SPOUT-LOCK™ clamp ring eliminates dust during untying, discharge, bag collapse and removal

The SPOUT-LOCK™ clamp ring creates a high-integrity, sealed connection between the clean side of the bag outlet spout and the clean side of the telescoping tube. This prevents contamination of the product, while eliminating the plant

contamination that occurs when falling material displaces air and dust from the hopper. The clamp ring is fully accessible and manually operated using quick-release handles for rapid and safe, yet secure, bag spout connections.

Model BFF Bulk Bag Discharger (Forklift loading)

Shown with the following options: FLOW-FLEXER™ bag activators, POWER-CINCHER™ flow control valve, SPOUT-LOCK™ clamp ring, TELE-TUBE™ telescoping tube, and hopper with non-flow-through pick-up adapter for multiple pneumatic conveying lines.

Performance never before possible

You can eliminate the drawbacks of outdated designs—while dramatically improving convenience, safety and cleanliness—with Flexicon’s latest generation of bulk bag dischargers. The heart of the new design is a bag spout interface that not only creates a dust-tight seal, but promotes material flow and total evacuation. It also allows easy retying of partially empty bags, and can collapse empty bags—free of spillage and dust.



Patented TELE-TUBE™ telescoping tube prevents dead spots and promotes flow

The TELE-TUBE™ telescoping tube raises the SPOUT-LOCK™ clamp ring for connection to the bag spout, then lowers, applying continual downward tension. As a result, the spout is kept taut at all times, preventing excess spout material from bulging



outward (creating dead pockets) or falling inward (creating flow restrictions). Works in conjunction with SPOUT-LOCK clamp ring and FLOW-FLEXER™ bag activators (see page 17) to promote material flow and total evacuation.



Patented Z-CLIP™ bag strap holder allows fast, easy and secure insertion and removal of bag straps.

POWER-CINCHER™ flow control valve cinches the bag spout concentrically.

SPOUT-LOCK clamp ring eliminates dust during untying and discharge.



Cantilevered I-beam with electric hoist and trolley allows positioning of bulk bag without the use of a forklift.

Frames are offered in carbon steel with durable industrial finishes or in stainless steel designed and constructed to industrial, food, dairy or pharmaceutical standards.

BAG-VAC™ dust collector creates negative pressure when piped to sealed system, collapsing empty bags prior to tie-off and removal.

Pneumatically-actuated **FLOW-FLEXER™** bag activators promote positive material flow.

Operators are protected from falling bags by four safety frame crossmembers, and four guard plates.

Hopper is available with hinged lid for manual dumping or clamped lid (shown) for rapid wash-down.

TELE-TUBE telescoping tube prevents dead spots and promotes flow.

A wide variety of hopper designs connect to processing equipment, pneumatic or mechanical conveyors.

Model BFC Bulk Bag Discharger (Electric hoist and trolley loading)

Shown with the following options: FLOW-FLEXER bag activators, POWER-CINCHER flow control valve, SPOUT-LOCK clamp ring, TELE-TUBE telescoping tube, BAG-VAC dust collector, and hopper with adapter for flexible screw conveyor.

Total dust containment with BAG-VAC™ dust collector



The high-integrity connection between bag outlet spout and discharger creates a sealed system that can be vented through a filter sock to a central

dust collection system, or to an optional BAG-VAC™ dust collector. Actuating the BAG-VAC dust collector creates negative pressure within the sealed system to collapse empty bags prior to retying, eliminating dust commonly emitted when bags are flattened manually. In addition, the BAG-VAC dust collector vacuums any particles trapped in spout creases during disconnect, eliminating the need for awkward access ports. Where absolute spillage containment is essential, an optional double wall version of the TELE-TUBE™ telescoping tube draws errant particles into the dust collector through an annular gap that encircles the bag spout seal.



Conventional iris valves also available

When a sealed connection is unnecessary, iris valves are recommended. To operate, the bag outlet spout is pulled through the iris valve which is then closed around the spout, preventing material flow. The spout can then be untied, the access door closed, and the valve released slowly, reducing uncontrolled bursts of material into the hopper and dust into the plant environment.

Leak-proof retying of spouts with POWER-CINCHER™ flow control valve



Unlike opposing bars that pinch the spout of partially empty bags from two sides, the patented POWER-CINCHER™ pneumatically-actuated flow control valve contains a series of curved, articulated stainless steel rods that cinch the spout

concentrically on a horizontal axis for easy tie-offs, and vertically in a tight zigzag pattern to prevent leakage of even the finest powders. It also resists jamming, breaking and leaking, and allows full-open discharge from bag spouts of all popular diameters.



This Half Frame Bulk Bag Discharger offers total dust containment at low cost by eliminating upper frame components to lift and/or position the bag, instead relying on the user's forklift or plant hoist to suspend the bag above the unit during operation.



Flexicon's Hoistable Bulk Bag Discharger features a bag-lifting frame that allows one operator to replace bulk bags using an overhead crane, and/or to hoist the entire unit from a single lift point—with or without bulk bag in place—to weighing, processing and storage areas.



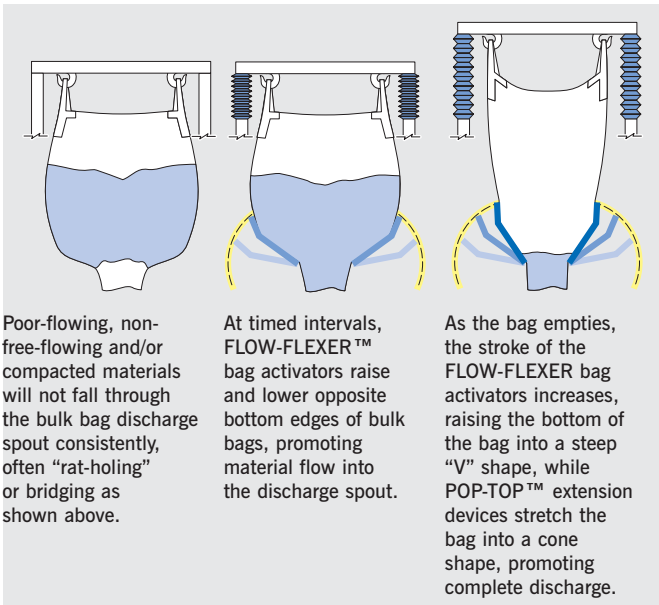
This BFC Series Bulk Bag Discharger is equipped with a small surge hopper that directs material into the throat of a variable speed rotary airlock feeder for volumetric or gravimetric metering into positive- or negative-pressure pneumatic conveyor lines.

Flexicon Bulk Bag Continuous Loss-of-Weight Dischargers feature an activated surge bin and flexible screw conveyor, allowing continuous loss-of-weight (gravimetric) feeding directly from bulk bags. System software switches to volumetric mode during bag changes.

Multi-purpose intake chute and manual dumping station



The Multi-Purpose Hood allows automatic discharging from bulk bags as well as manual emptying from sacks, drums and other containers. Available as an option on both BFC and BFF Series dischargers, it can operate with an optional dust collector to prevent contamination of the product and plant environment.



Poor-flowing, non-free-flowing and/or compacted materials will not fall through the bulk bag discharge spout consistently, often "rat-holing" or bridging as shown above.

At timed intervals, FLOW-FLEXER™ bag activators raise and lower opposite bottom edges of bulk bags, promoting material flow into the discharge spout.

As the bag empties, the stroke of the FLOW-FLEXER bag activators increases, raising the bottom of the bag into a steep "V" shape, while POP-TOP™ extension devices stretch the bag into a cone shape, promoting complete discharge.



This Split-Frame Bulk Bag Discharger accommodates bulk bags and—with upper frame removed—rigid totes. The removable top frame can also be lowered to the plant floor for connection and disconnection of bag loops, significantly reducing ceiling height requirements.

Extra-wide receiving cups and backstops maximise the operator's target area.

Fork tips slide easily and securely into full-length rectangular sleeves, unlike frames having separated forklifting points.

Z-CLIP™ bag strap holders offer the fastest, most secure way to connect bag straps to the lifting frame.

Round frame rails are easy to locate into receiving cups, and slide into position.



BFF Series Bulk Bag Discharger (Forklift loading)

Shown with the following options: FLOW-FLEXER bag activators, POP-TOP extension devices, Multi-Purpose Hood and manual dumping station, Flexicon flexible screw conveyor, and load cells for automated loss-of-weight weigh batching directly from bulk bags.

Bulk Bag Conditioners

Loosen solidified bulk solid materials

Flexicon Hydraulic Bulk Bag Conditioners loosen bulk solid materials that have solidified during storage and shipment, enabling bulk bag dischargers to discharge the material through bag spouts. These conditioners are ideal for bulk bags containing hygroscopic chemicals, certain types of spice blends, heat-sensitive products, and other materials prone to solidifying to the point at which pneumatically-actuated flow promotion accessories integral to bulk bag dischargers are inefficient or completely ineffective.

Flexicon Hydraulic Bulk Bag Conditioners utilise two hydraulic rams with specially contoured end plates that press opposing sides of bulk bags to loosen the contents of the bag, and accommodate bulk bags of all popular sizes.

Stand-Alone Hydraulic Bulk Bag Conditioner

The Flexicon Stand-Alone Hydraulic Bulk Bag Conditioner is equipped with the above-mentioned hydraulic rams, as well as an optional hydraulically-actuated, variable-height turntable that allows in-frame bag rotation, and conditioning of bulk bags at varying heights.

The number and pressure of hydraulic ram actuations, the height of the turntable, and the number of 90-degree rotations are user adjustable to achieve maximum effectiveness and efficiency.

The conditioner is enclosed on four sides for operator safety and includes full-height doors that are interlocked to disallow operation of the system when



the doors are open. The controller and hydraulic pump of the system, which can be mounted on the exterior of the

safety cage or remotely, require only an electrical power connection for operation.



Integral Bulk Bag Conditioner-Discharger System

The Flexicon Bulk Bag Conditioner-Discharger System eliminates the time, labour and equipment needed for separate loading of bulk bags into a stand-alone conditioner. The design also consumes significantly less floor space than two separate pieces of equipment and requires less material and labour to construct, reducing initial cost.

The number and pressure of hydraulic ram actuations are user adjustable, but unlike stand-alone conditioners, the Conditioner-Discharger System utilises its electric hoist to raise and lower the bag for conditioning at varying heights.

The conditioner's controller and hydraulic pump can be mounted on the exterior of the discharger or remotely. Optional safety interlocks disallow operation of the conditioner when the discharger's doors are open.

(See Bulk Bag Dischargers section pages 14-17, for features on bulk bag discharger aspect of system.)



Bulk Bag Fillers

Three designs satisfy the entire range of bulk bag filling requirements without compromise

Flexicon offers three bulk bag filler configurations, each of which is engineered to deliver optimum performance across specific capacity ranges with maximum cost effectiveness.

Flexicon's TWIN-CENTREPOST™ filler (bottom right), satisfies low- to medium-capacity filling requirements and/or sanitary applications where frequent wash-down or compliance with USDA Dairy standards is required.

Flexicon's latest bulk bag filling innovation is the patented SWING-DOWN™ filler (page 20). Designed for medium- to high-capacity applications, this revolutionary design brings the fill head to the operator at floor level for faster, safer and easier bag connections.

The REAR-POST filler (page 21, bottom left) is intended for medium- to high-capacity applications requiring pass-through conveyors and/or powered fill head height adjustment.

Each of these designs satisfies a distinct range of bulk bag filling applications, and is available with performance enhancements to meet your individual requirements with extreme cost effectiveness. From basic, low-cost fillers to automated, high-capacity systems and everything in between, Flexicon offers precisely what you need for bulk bag filling success.

(For sanitary Bulk Bag Fillers see page 24.)

STANDARD FEATURES INCLUDE:

- Rugged TWIN-CENTREPOST, REAR-POST or SWING-DOWN configuration
- Forklift fill head height adjustment to accommodate all popular bag sizes
- Inflatable collar to hold and seal the bag inlet spout
- Pneumatically retractable bag strap hooks for quick, positive strap release
- Vent port for air displacement and dust control

OPTIONAL FEATURES INCLUDE:

- Accurate weigh scale system with automated control
- Automated vibratory densification/deaeration system to stabilise the bag
- Inflator to expand empty bag and liner, and remove creases prior to filling
- Pneumatically-actuated material flow control valve
- Custom controls for integrated material feed system
- Drum/box filling conversion kit
- Powered fill head height adjustment (REAR-POST and SWING-DOWN fillers only)
- Powered or gravity roller conveyor for bulk bag staging and removal
- Forward-travelling, rear bag strap hooks (REAR-POST fillers only)
- Pallet-jack accessible base

Material delivery systems

Flexicon will custom engineer an automated delivery system according to your specific bulk material and process requirements. Whether your system must integrate with new or existing upstream equipment, elevate non-free-flowing materials, or prevent the surging of free-flowing materials from elevated storage vessels, Flexicon offers precisely what you need to keep your filler well fed:

- Flexible screw conveyors
- Pneumatic conveyors
- Controls and weighing systems
- Conveyor and feeder inlet adapters to interface with material sources
- Surge bins and other storage vessels for overhead material delivery



TWIN-CENTREPOST™ Bulk Bag Filler

Flexicon TWIN-CENTREPOST Bulk Bag Fillers feature a frame design that is exceptionally simple, strong and stable, and economical to fabricate. It is the first bulk bag filler designed, constructed and finished to industrial, food, dairy and pharmaceutical standards, and is recommended for applications requiring low- to medium-capacity filling and/or rapid, thorough wash-down.

Revolutionary SWING-DOWN™ Fillers

Brings fill head to operator for floor-level bag connections

Flexicon's latest innovation in bulk bag filling features a pivot-down fill head that enables the operator to connect empty bags at floor level and resume filling operations rapidly, eliminating the need to climb steps, strain to reach overhead connection points, or risk injury associated with operation of conventional bulk bag fillers.

The SWING-DOWN™ filler simultaneously lowers and pivots the fill head, stopping it in a vertically-oriented position that places the bag inlet spout directly in front of the operator, within one arm's length of an operator standing on the



plant floor. Bringing the fill head to the operator in a vertical position at floor level can significantly increase the safety and speed of connecting bulk bags, since the connection points of a conventional filler are beyond the reach of most operators, even when short bags are being filled. For example, the connection points for bulk bags of only 122 cm in height are approximately 213 cm above the floor, considering the height of a roller conveyor and the length of bag loops in addition to the height of the bulk bag.



An operator is connecting a bag spout to the vertically-oriented bag connection frame at floor level.

The design also eliminates the danger of repeatedly stepping onto and over roller conveyors to access rear bag hooks and spout connection collars, and of standing on the conveyor and bending over with head and arms inserted beneath operational fill head components to pull bag spouts upward over inflatable collars while reaching for bag inflator buttons.

A remote console or wall-mounted panel houses controls to raise and pivot the fill head into a locked, horizontal "fill position," automatically inflate the bag to remove creases, open a flow control valve or start a feed device, and stop the flow of material once a preset fill weight has been gained. Optional vibratory decks deaerate and densify material in the bag at preset set points to create a solid, stable bag, ready for shipment.

Once bags are filled, the controller deflates the spout connection collar, releases the loop latches, and raises the fill head to fully disengage the spout, enabling the bag to exit the filler automatically on the roller conveyor.



As the entire fill head rises, the bag connection frame is pivoting to a horizontal position.

An innovative latch mechanism automatically resets the latch after releasing the bag loops, and re-positions it as the fill head pivots into a vertical



The bag connection frame has pivoted to horizontal position, the fill head is raised to "bag fill" position, and the bag has inflated to remove creases.

position, enabling the latch to receive bag loops easily inserted by an operator and to re-latch automatically, securing the bag.



Combination SWING-DOWN Bulk Bag and Drum Filler

Flexicon's patented SWING-DOWN Bulk Bag Filler represents a total re-think of the bulk bag filling process, allowing operators to connect empty bags at floor level. The model above is equipped with an optional swing-arm-mounted drum filling chute which automatically rotates to deliver material to all four drums on a pallet.

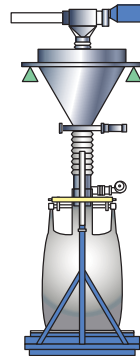
REAR-POST and TWIN-CENTREPOST™ Fillers

Low- to high-capacity configurations

Basic units to fully automated, high capacity, feeder/filler systems

For fast, accurate, and stable weigh-filling of small to large volumes of free- and non-free-flowing bulk materials, Flexicon bulk bag fillers are offered in

two configurations: with load cells which measure weight gain of the bulk bag filler (below) and with weigh hoppers suspended above the bag filler (right) allowing simultaneous recharging of the hopper and replacement of the bulk bag to achieve high filling rates.



Flexicon's Low Profile Bulk Bag Filler allows removal of loaded bags using a pallet jack, eliminating the need for a forklift.

Inflatable collar holds and seals bag inlet spout.

Air displacement outlet for connection to filter sock, cartridge filter, or dust collector. (Hidden by discharge spout assembly)

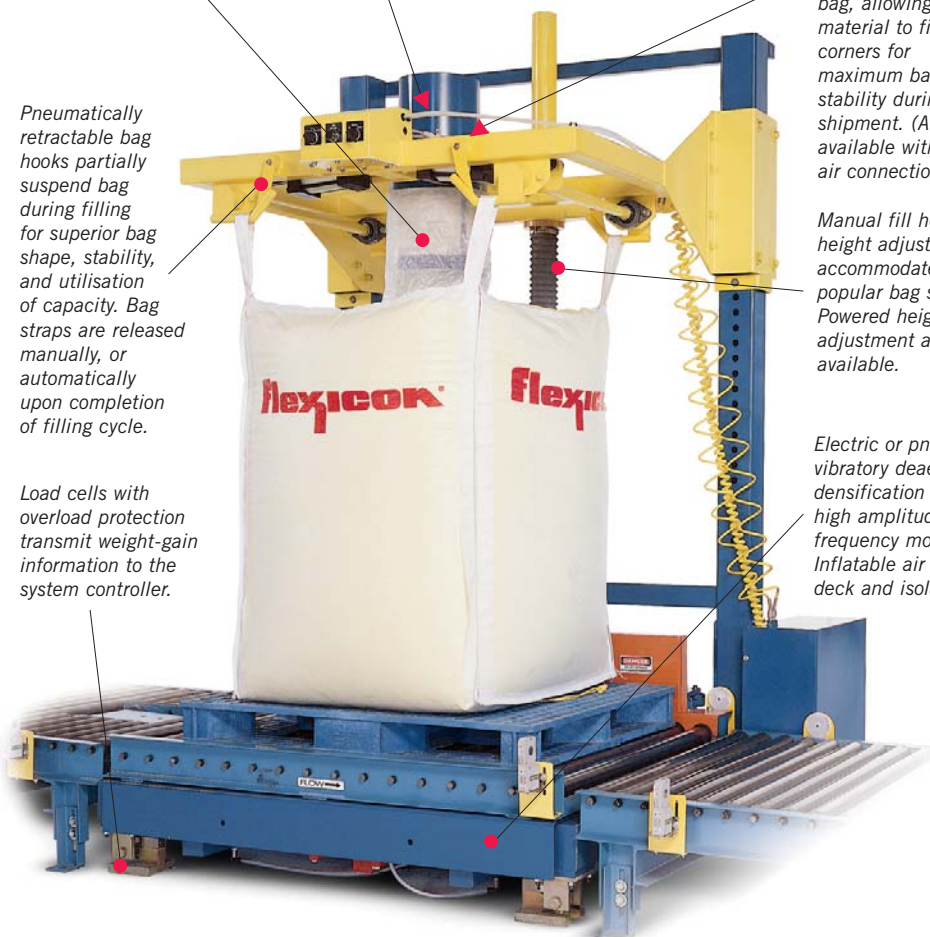
Bag inflation blower removes creases and pre-shapes bag, allowing material to fill corners for maximum bag stability during shipment. (Also available with plant air connection)

Pneumatically retractable bag hooks partially suspend bag during filling for superior bag shape, stability, and utilisation of capacity. Bag straps are released manually, or automatically upon completion of filling cycle.

Manual fill head height adjustment accommodates all popular bag sizes. Powered height adjustment also available.

Load cells with overload protection transmit weight-gain information to the system controller.

Electric or pneumatic vibratory deaeration/densification deck with high amplitude/low frequency motion. Inflatable air mounts raise deck and isolate vibration.



This TWIN-CENTREPOST™ frame can be forklifted onto an all-purpose plant scale, eliminating the cost of load cells and controls.



Patented TWIN-CENTREPOST Bulk Bag Fillers are available in industrial, food, dairy and pharmaceutical standards. (See "Sanitary" page 24.)

REAR-POST Bulk Bag Filler

Flexicon REAR-POST Bulk Bag Fillers feature a cantilevered fill head that provides three-sided access preferable for "pass-through" conveying using a roller conveyor. It also offers powered fill head height adjustment as an option, allowing rapid raising and lowering of the fill head to accommodate bags of varying heights, without the use of a forklift.

Bag Dump Stations

Reverse-pulse filter cleaning for continuous operation

Collect dust efficiently

Flexicon bag dump stations collect dust generated when dumping powder and bulk solids from bags, boxes, drums, and other containers, and return the material to the hopper.

The system reduces material waste and eliminates the need to clean a remote dust collection site, while protecting workers and preventing plant contamination.

All units feature a high-velocity vacuum fan which draws airborne dust away from the operator through two cartridge filters which are sized according to the application.

To operate, the hopper lid is opened, the vacuum fan is activated, and material is dumped through the hopper screen. Airborne dust in the vicinity of the hopper opening is drawn into the dust collector, protecting workers, preventing plant contamination, and reducing material waste.

An automatic reverse-pulse filter cleaning system employs timer-activated solenoid valves to release short blasts of compressed plant air inside

the cartridge filters, causing dust build-up on the outer filter surfaces to fall into the hopper. Because the filters are blasted alternately at timed intervals, operation of the dust collection system is both continuous and efficient.

Tailored to your process

The hoppers of Flexicon manual dumping stations are available in various configurations for simplified connection to pneumatic conveyor lines, flexible screw conveyors, and virtually any process equipment.

All units are available in carbon steel with durable industrial finishes, or in stainless steel in industrial or sanitary finishes.



The hoppers of Flexicon Bag Dump Stations are offered with outlets configured for: (left to right) direct connection to process equipment, flexible screw conveyor charging adapters, rotary airlock valves with flow-through adapters, and non-flow-through pick-up adapters for multiple conveying lines.



Two cartridge filters are accessed easily by removing the interior baffle, and replaced rapidly using quick-disconnect fittings.



Explosion-Proof Bag Dump Station

This dust-free Bag Dump System integrates a receiving hopper, dust collector, bag compactor and flexible screw conveyor on a castor-mounted frame with hinged operator platform. An explosion-proof electrical system allows the unit to handle flammable as well as hazardous and non-hazardous materials throughout the plant.

Drum Tippers

Open or sealed transfer of solids from drums to process equipment

Flexicon “lift-and-seal” drum tippers (top right and bottom left) and “open chute” drum tippers (bottom right) accommodate all popular drum sizes and are available in carbon steel with durable industrial finishes, or in stainless steel with material contact surfaces finished to industrial, food or pharmaceutical standards. All models can discharge directly into process equipment or into hoppers equipped with outlets for connection to Flexicon flexible screw or pneumatic conveyors, or to other process equipment.

Lift-and-seal drum tippers eliminate dust

Flexicon lift-and-seal drum tippers enable you to load, seal, tip and discharge drums with no dusting, bringing a new level of cleanliness and efficiency to an age-old task. A hydraulic lift automatically forms a dust-tight seal between the drum lip and the discharge cone. The assembly is tipped hydraulically causing the cone to mate with the gasketed receiving ring that is fitted to existing process equipment or the lid of an optional Flexicon hopper, eliminating the need for connecting sleeves and clamps. (Optional hopper shown with Flexicon flexible screw conveyor adapter. Also available with universal flanged outlet or Flexicon pneumatic pick-up adapter.)



Flexicon's Bulk Filling System with High-Lift Drum Tipper allows drums to be loaded at floor level, sealed against a discharge cone, elevated and tipped, mating the cone spout to a receiver on the filling machine's surge hopper lid. The spout's slide gate valve opens to fill the hopper with no dusting, while pails are indexed, filled by weight, then conveyed to a second scale for check weighing.

Open chute drum tippers offer simplicity, ease of cleaning

Flexicon open chute drum tippers offer an economical method of discharging from drums when dust generation is not a concern. The drum lift assembly is raised hydraulically until material discharges from the drum, down onto the chute, and into a receiving vessel. The smooth, wide-diameter product chute allows unobstructed discharge of free-flowing

materials as well as non-free-flowing products containing large agglomerates. It is also fully accessible and free of crevices, allowing rapid, thorough cleaning. (Optional hopper shown with Flexicon non-flow-through pneumatic pick-up adapter. Also available with universal flanged outlet or Flexicon flexible screw conveyor adapter.)



Sanitary Construction and Finishes

Virtually all Flexicon equipment is available constructed and finished to meet food, dairy and pharmaceutical requirements of industry associations and governmental agencies worldwide.

Flexicon sanitary equipment can be constructed almost entirely of 304 or 316 stainless steel and finished to Flexicon sanitary standards, or customer-specified requirements. Product contact areas include continuous welds, ground smooth and flush with adjoining walls, with available finish levels up to mirror finish.

Wash down control enclosures and motors allow fast, thorough wash down using steam, cleaning solutions and high pressure water, with no adverse effect on equipment.

Sanitary designs

Beyond requisite sanitary construction and finishes, Flexicon equipment offers innovative design features—many patented—that enable food, dairy and pharmaceutical processors to minimise wash-down time, eliminate cross-contamination between changeovers, eliminate plant contamination and verify cleanliness—and do so rapidly, efficiently and safely.



Sanitary Flexible Screw Conveyors are totally enclosed, preventing plant and product contamination. The inner screw connects to the motor drive beyond the material outlet, eliminating material contact with bearings. Allows flushing of smooth interior, or rapid, tool-free disassembly. 3-A Dairy Certified.



Sanitary Pneumatic Conveying Systems offer optional airlock valves with rotors that slide-out for tool-free wash down, filtration of conveying air, top-removal filtration elements, machined ferrules and clamps for conveying line couplings, and other easy-access features that permit rapid inspection and cleaning.



Sanitary Bulk Bag Dischargers create a dust-tight connection between the clean sides of the bag spout and the equipment, vacuum displaced air/dust and collapse empty bags dust-free. A USDA-accepted POWER-CINCHER™ flow control valve allows dust-free retying of partially empty bags.



Sanitary Weigh Batching Systems and other engineered systems integrate sanitary equipment and employ dust-tight connections, preventing product and plant contamination. The sanitary bulk bag discharger, flexible screw conveyors and weigh hopper of this batching system allow rapid, thorough wash down.



Sanitary SWING-DOWN™ Bulk Bag Fillers offer stainless construction with continuous ground and polished welds, and a fill head that pivots away from its support structure, providing unrestricted access for thorough wash down, bringing unprecedented safety, productivity and cleanliness to bulk bag filling.



Sanitary TWIN-CENTREPOST™ Bulk Bag Fillers are the first fillers to receive USDA acceptance. They provide a dust-tight, inflatable bag spout seal, a feed chute air-displacement port for dust-free filling, and four-sided access for easy operation and rapid wash down.



Sanitary Bag Dump Stations with optional dust hoods on rocker arms raise the hood for easy separation and wash down of the gasketed seam—and for removal and wash down of the interchangeable dump screens. Dust collection prevents contamination of personnel and plant environment.



Sanitary Lift-and-Seal Drum Tippers allow loading, sealing, tipping and discharging of drums with no dusting by forming a dust-tight seal between a drum discharge cone and a gasketed receiving ring fitted to existing process equipment or the lid of a hopper.



Sanitary Tote Tippers form a dust-tight seal between the tote rim and gasketed discharge chute. Constructed of stainless steel with continuous ground and polished welds, these units provide unrestricted access and IP65 panels for rapid, thorough wash down.

Weigh Batching and Blending Systems

Virtually any bulk material, from any upstream source, to any downstream destination

Whether you are sourcing material from bulk bags, silos, manual dumping stations, process equipment or all of the above, weigh batching one ingredient or 50, blending your recipe, filling containers, and/or delivering it to process vessels, packaging lines, or any other destination, Flexicon has the comprehensive selection of equipment you need for a total weigh batching solution.

From individual loss-of-weight bulk bag weigh batch dischargers to automated gain-in-weight batching/blending systems integrated with your upstream and downstream equipment, Flexicon offers you the entire range of specialised equipment—and the engineering talent—required for a smooth start-up and efficient performance.

Equally as crucial to your weigh batching success is the proven ability of Flexicon equipment to move your material—at high rates for fast batching cycles and at steady trickle-feed rates for highly accurate weighments—and to deliver recipes with no separation of blended materials and no exposure to potential contamination.

Whether your ingredients are free-flowing pellets, powders that pack, bridge or smear, products that fluidise, or blends prone to separation, Flexicon can move them positively, weigh them accurately, and deliver them in prime condition.



Flexicon's Self-Contained, Gain-in-Weight Batching and Blending System conveys bulk ingredients from multiple upstream sources, weigh-batches, blends and discharges the material into a surge hopper, and transports it to a TWIN-CENTREPOST™ Bulk Bag Filler. The system is offered with Flexicon Flexible Screw Conveyors (shown) or Flexicon Pneumatic Conveying Systems.

Flexicon's Bulk-Bag-to-Rigid-Tote Weigh Batching System seals against the clean side of the bag spout, elongates the bag for total evacuation, and allows dust-free retying of partially empty bags. A low-profile de-lumping device breaks up agglomerates as a gravimetric feeder loads accurately weighed batches into rigid totes.



This Automated Weigh Batching System conveys material from Flexicon bulk bag dischargers via Flexicon flexible screw conveyors to a weigh hopper mounted on load cells at mezzanine level. Weighed batches are automatically discharged through a rotary airlock valve into a Flexicon Pneumatic Conveying System, transporting the pre-weighed batch to a blender.

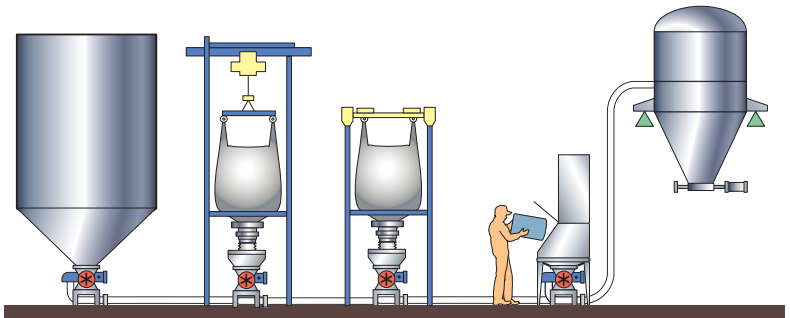
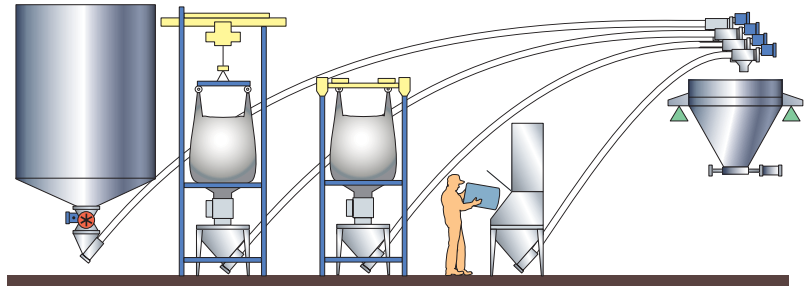
Gain-in-Weight Batching Systems

Simple or sophisticated batch control

Flexicon Gain-in-Weight Batching Systems convey bulk ingredients mechanically or pneumatically from any location to a central receiving vessel which is mounted on load cells. The receiving vessel can be a hopper positioned above a blender, reactor, or other process equipment, or it can be the equipment itself.

When the batch sequence is initiated by a manual start button or automated signal, a programmable controller activates the first flexible screw conveyor or rotary airlock valve to begin loading the first ingredient into the receiving vessel at maximum feed rate.

Load cells transmit weight gain information to the controller which steps-down the feed rate to trickle prior to reaching the target weight, for greater accuracy. The controller stops the flexible screw conveyor or rotary airlock valve immediately before the target weight is reached to compensate for material in-flight.



Flexicon mechanical (above) and pneumatic (below) Gain-in-Weight Batching Systems can transport material from silos, manual dumping stations, process equipment, bulk bags, or any other source to a weigh batching hopper, a blender, or other downstream equipment mounted on load cells.



This Gain-in-Weight Batching System allows automated weighing of a major ingredient supplied in bulk bags, and a minor ingredient dumped manually. The central weigh hopper's load cells transmit weight gain information to a controller that starts and stops the conveyors to weigh each material in sequence, and actuates a slide gate valve to discharge the weighed batch.



This turnkey, Gain-in-Weight Batching System conveys material from four Flexicon bulk bag dischargers to a weigh hopper which discharges into a blender. During the blending operation, a subsequent batch is being weighed by the hopper, thereby reducing cycle times. In this case, blended batches are discharged directly into shipping containers.

Loss-of-Weight Batching Systems

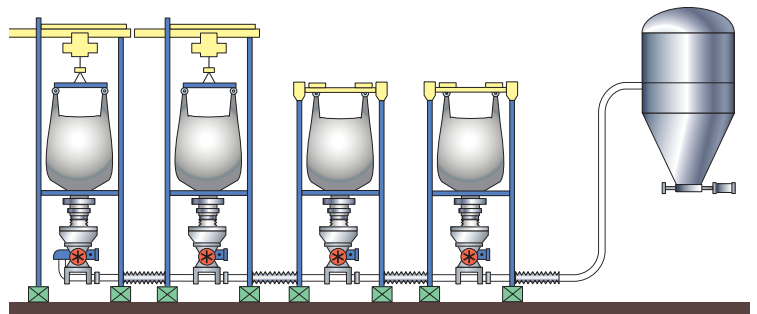
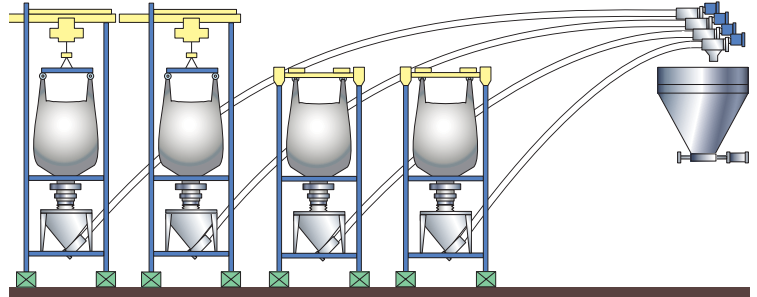
Simple or sophisticated batch control

Flexicon bulk bag Loss-of-Weight Batching Systems consist of a Flexicon bulk bag discharger mounted on load cells which measure weight loss of each discharger during the batching cycle and transmit the information to a system controller.

The batch sequence is initiated by a manual start button or automated signal.

As the conveyor unloads material at maximum feed rate, the load cells transmit loss-of-weight information to the controller which reduces the feed rate to trickle immediately prior to stopping the flexible screw conveyor or rotary airlock valve once the target batch weight has been unloaded. System software permits mid-batch bag changes.

Multiple weigh batch dischargers can each convey a different ingredient to a central discharge point such as a hopper, blender, reactor, or other process equipment.



Flexicon mechanical (above) and pneumatic (below) Loss-of-Weight Batching Systems transport material from one or more bulk bags to a common hopper, blender, conveyor, shipping container, or any process vessel.



Loss-of-Weight Batching Systems discharge one or more bulk bags while weighing the material and conveying the batch directly to a common hopper, blender, conveyor, shipping container, or any process vessel—automatically and accurately. Load cells transmit the amount of weight lost to a controller, which stops the conveyor once the target batch weight has been reached.



This Loss-of-Weight Batching System conveys material from two Flexicon bulk bag dischargers into a filter receiver which discharges into a blender. The manual bag dump station allows the addition of pre-weighed minor ingredients to the batch.

Digital Programmable Controls

Maximise Productivity of All Flexicon Equipment and Systems

All Flexicon equipment, from basic conveyors to sophisticated plant-wide process systems, are offered with digital programmable controls, including:

- Programmable Logic Relays (PLRs)
- Programmable Logic Controllers (PLCs)

PLR-based controls packages are generally employed on individual equipment to monitor and control basic to semi-sophisticated functions. The PLR eliminates the need for analog timers and mechanical relays, offering numerous benefits, and can be utilised as an economical substitute for a full PLC in less complex equipment systems.

PLCs, which generally offer a greater number of input/outputs and more processing power, are typically employed to monitor and control more sophisticated equipment systems such as multiple ingredient weigh batching/blending systems, larger pneumatic conveying systems and integrated engineered systems including multiple equipment types.

The Controls Department customises individual equipment as well as systems for maximum productivity according to each customer's bulk handling requirements by integrating full-scale fabrication capabilities with state-of-the-art control technologies:



Electrical engineers programming digital controls to customise equipment automation.

- Easy-to-operate interfaces, from push buttons to human-machine-interfaces (HMIs) with touch screens and graphic representations of equipment inputs and outputs, all customised by application
- Components that are logically configured and labelled for easy-to-follow troubleshooting by plant personnel
- IP65 and Explosion Proof control panels
- 100% Bench testing to ensure proper monitoring and control functions using actual inputs/outputs such as simulated scale systems, various types of sensors and electric motors
- Advanced exchange of process data between equipment controls and the customer's plant-wide process control programme such as downloading of weigh batch recipes and other operational parameters to plant floor equipment, and uploading of weight deviations, alarm signals and any type of feedback required for plant optimisation



Panel assembly area of Controls Department



Plant personnel can download programmes to start, stop, slow, speed-up, delay, advance or cycle equipment functions.

Programmable Logic Relays Outperform Analog/Mechanical Controls

Flexicon controls utilise programmable logic relays (PLRs) instead of hard relays, reducing the cost, size and potential failure associated with mechanical controls, while adding digital programmability to even the most basic Flexicon equipment.

Essentially PLCs in miniature, PLRs replace physical relay logic with digital programmable logic, offering a range of significant advantages over mechanical controls including:

- **Multi-function capability:** A single PLR can perform numerous functions such as counting, sequencing, timing and real-time clock operations, expanding the capabilities of Flexicon equipment without increasing the cost or complexity of its controls.



Flexicon offers IP65 (shown with optional purge kit) and Explosion Proof control panels.

- **Programmability:** Logic can be modified quickly and easily since there is no need to add or replace components such as physical relays and timers. Based on feedback from existing level sensors or upstream/downstream equipment for example, the PLR's timing programme can be fine tuned to start, stop, slow, speed-up, delay, advance or cycle equipment functions according to individual processes and material characteristics. No physical modifications to the panel may be necessary, even if additional sensors or other signals are added to the process. In many cases, reprogramming the PLR is as simple as setting a thermostat, and can be accomplished by an operator having little or no expertise.

- **Field serviceability:** PLRs simplify troubleshooting by plant personnel, and allow emailing of programmes to and from the Flexicon Controls Department for troubleshooting, reinstallation and/or customisation of programmes.

- **Lower component and assembly costs:** Since the PLR replaces numerous components, the overall number of electrical components is lower, reducing assembly costs as well as material costs in many cases.
- **Reduced number and size of panels:** One PLR can replace numerous electrical components, significantly reducing panel size requirements. Due to its number of inputs and outputs, a single PLR can also consolidate controls from multiple pieces of equipment such as flow promotion devices, dust collectors and conveyors, eliminating the need for sub panels while streamlining installation of the system.



- **Increased reliability and decreased parts inventory:** PLRs eliminate the potential failure and maintenance associated with hard relays, timers and other components, and eliminate the need to stock these individual components. Should a PLR fail, an operator can replace it, download the programme, and resume operation with minimal downtime.



One PLR (foreground) can eliminate the need for multiple components, increasing programmability and reliability, while reducing initial cost and maintenance.

Worldwide Engineering, Testing, Manufacturing and Field Support



Flexicon is an international organisation with administrative, engineering and manufacturing capabilities on four continents, and an extensive worldwide network of applications engineers, authorised representatives and field support technicians to serve you—a unique consolidation of bulk handling specialists with 1000+ years of combined experience.

At the local level, Flexicon personnel provide the knowledge and resources needed to satisfy the diverse requirements of individual process plants country-by-country, while providing the worldwide infrastructure, long-term vision, stability and single source capability required by multi-national organisations.

An extensive research and development programme continually sets new standards for bulk handling equipment performance with entirely new designs, product improvements

and equipment that complies with certifications required by governmental and industry associations for chemical, food, dairy and pharmaceutical applications—both nationally and internationally.

Flexicon's design engineering staff devises efficient solutions to the most unusual problems with highly custom equipment, basing solutions on unique customer requirements, not merely on existing product line offerings. This approach provides each customer with the most efficient solution to his or her individual problem, and endows Flexicon with a depth and breadth of bulk handling experience unequalled by any other comparable manufacturer in the world.



Testing facilities



Flexicon's worldwide testing facilities simulate full-size customer equipment and systems, verify performance prior to fabrication, demonstrate newly constructed equipment for visiting customers, and study the performance of new designs.

Test lab equipment for pneumatic bulk handling systems includes a comprehensive range of blowers, vacuum pumps, filter receivers, cyclone separators, inlet/discharge adapters and valves, and conveyor lines in a wide range of diameters and lengths, as well as bulk bag dischargers, bulk bag fillers, manual dumping stations and other equipment designed to interface with pneumatic conveyors.

Mechanical bulk handling test lab equipment includes flexible screw conveyors in a comprehensive range of diameters, lengths and screw configurations, as well as bulk bag dischargers, bulk bag fillers, manual dumping stations and other equipment designed to interface with mechanical conveyors.





Flexicon products are manufactured on four continents, and marketed through an extensive network of representatives throughout Europe, Australia, New Zealand, Southeast Asia, Africa and North/Central/South America.

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