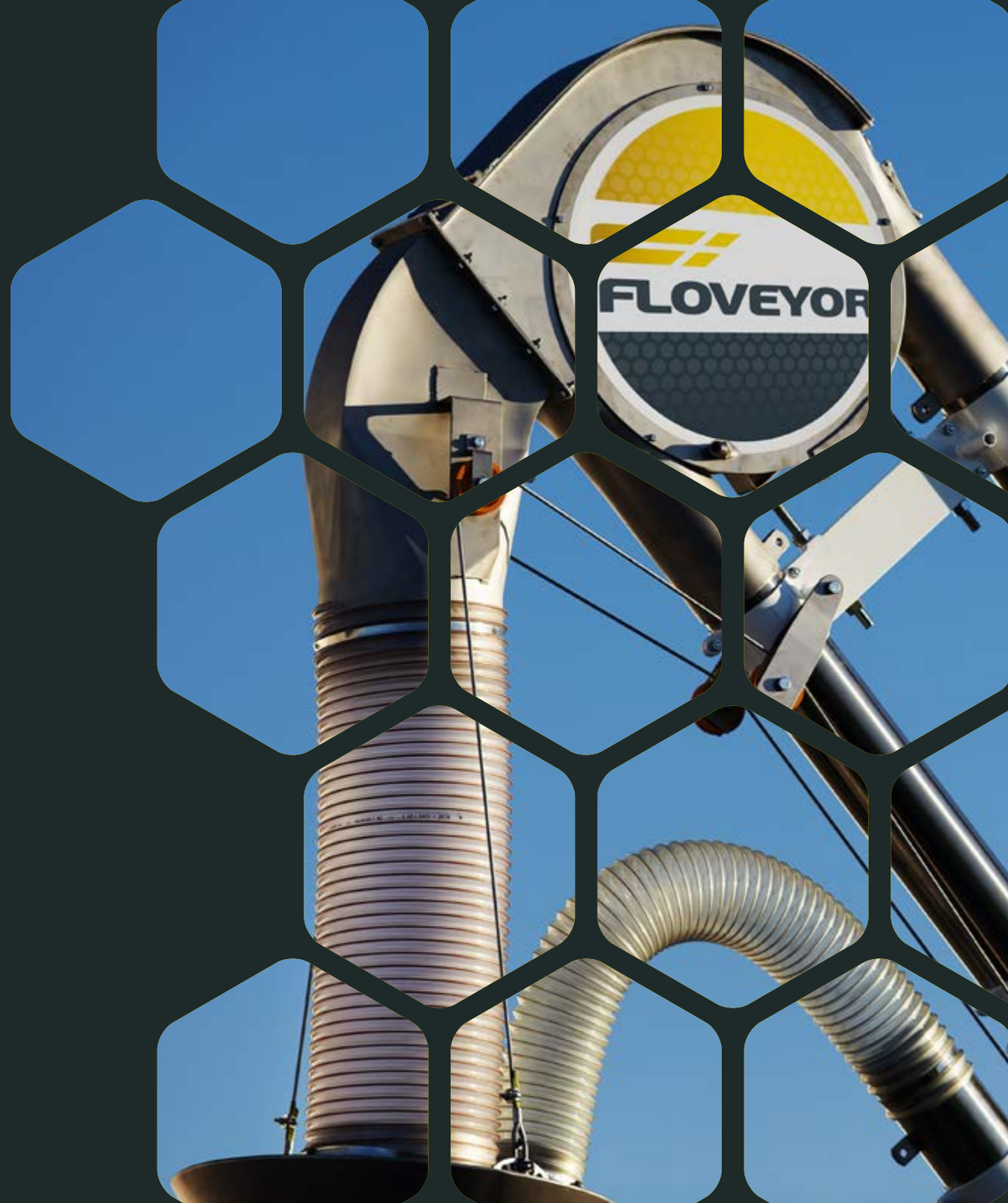




Meet the world's most versatile and efficient conveying solution

The Industrial Floveyor meets the modern bulk handling facility's need for consistent performance with minimal power consumption.



About Floveyor

Who we are

Floveyor is an award winning third-generation family business. We design, manufacture and support materials handling solutions for powders and granules. In 1958 we invented and patented the Aero-Mechanical Conveyor (AMC), commonly known as the Floveyor. Today our matchless AMCs are integral to high-end applications everywhere.

What we do

We simplify conveying by:

- › finding ideal material handling solutions for powders and granules
- › excelling in getting your raw materials into the process
- › focusing on transferring your materials between processes

Above all, we provide safe, globally compliant equipment that protects your product, your brand and reputation.

Why choose us

You value peace of mind, so rely on us to:

- › apply our 60 years of relentless R&D to protect your competitive edge
- › provide impeccable service and support in any situation at any time
- › deliver what we promise - top quality equipment that surpasses industry best practice

AFFORDABLE
INNOVATION

SERVICE
EXCELLENCE

SPECIALIST
KNOWLEDGE

Meet our matchless aero-mechanical conveyor

The Aero-Mechanical Conveyor (AMC) is a fully enclosed conveying system. It is designed to pneumatically suspend and transfer bulk materials from a fixed inlet to a fixed discharge through a fully enclosed tubular conveying element.

The material is suspended in air pockets generated behind the conveying element, or rope assembly discs. With the product suspended within this air pocket there is no need for fans, compressors or high-flow filters, all of which require significant maintenance and create hygiene hazards.

Due to its fully enclosed design, it effortlessly conveys dusty powdered material such as flour or carbon black without contaminating the environment. In fact, the same AMC system can convey material from the finest of powders up to large granules without any adjustments or issues.



The AMC's key capabilities



Gentle

Conveys all kinds of materials from 20nm to 12mm particle size including granules, flakes, chips and other fragile materials with little or no degradation



Modular

Integrates seamlessly with existing plant and equipment, reducing installation requirements and minimising maintenance



Essential

Maintains crucial batch and blend integrity regardless of material properties, bulk density, particle size distribution, flow characteristics or moisture content



Versatile

Operates at any angle without diminishing maximum throughputs



Complete

Conveys materials in total batch transfers, with negligible residue left in the system



Green

Operates as one of the most cost effective and energy efficient methods of dry bulk elevation and conveying



Rapid

Achieves high throughputs while being small, mobile and devoid of large filtration requirements



Safe

Handles potentially explosive materials, with optional IECEx/ATEX upgrades to suit hazardous environments

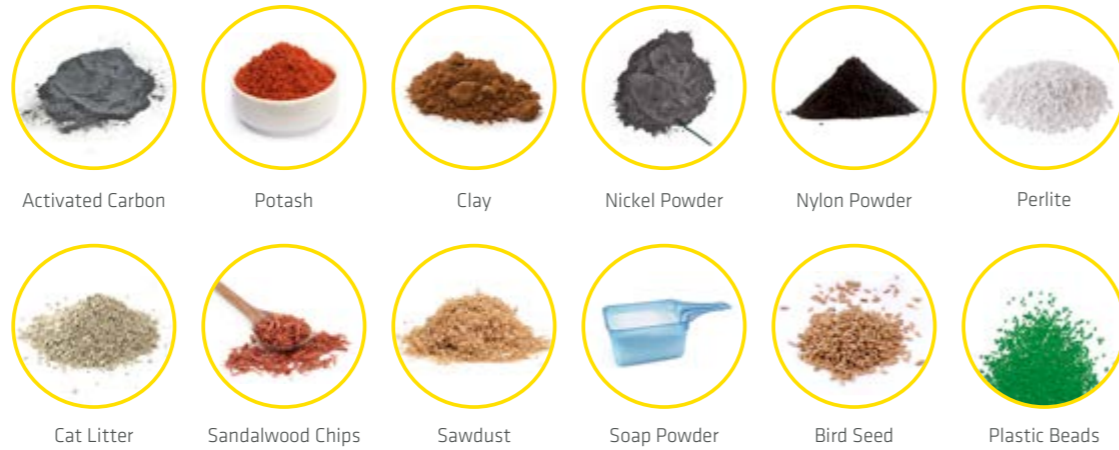


A single solution for elevating thousands of powders and granules

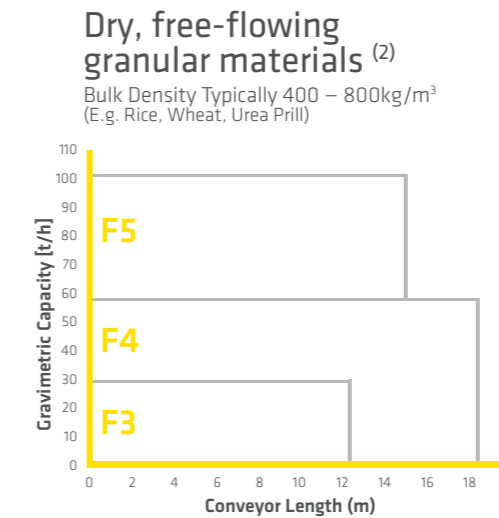
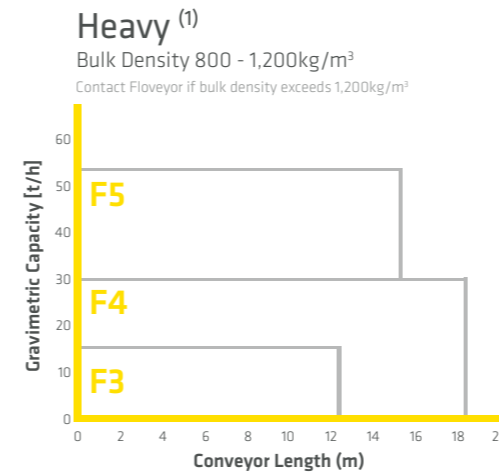
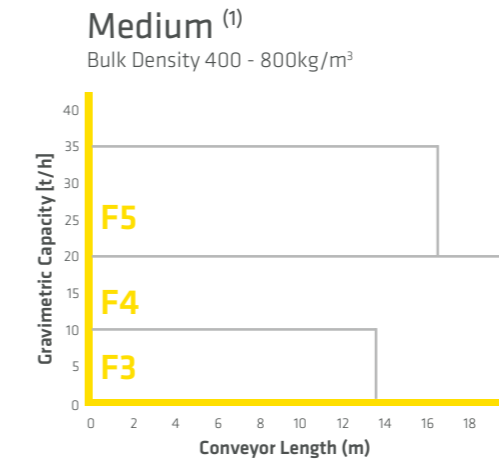
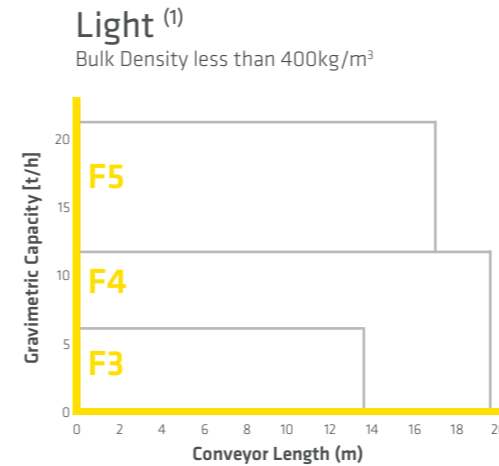
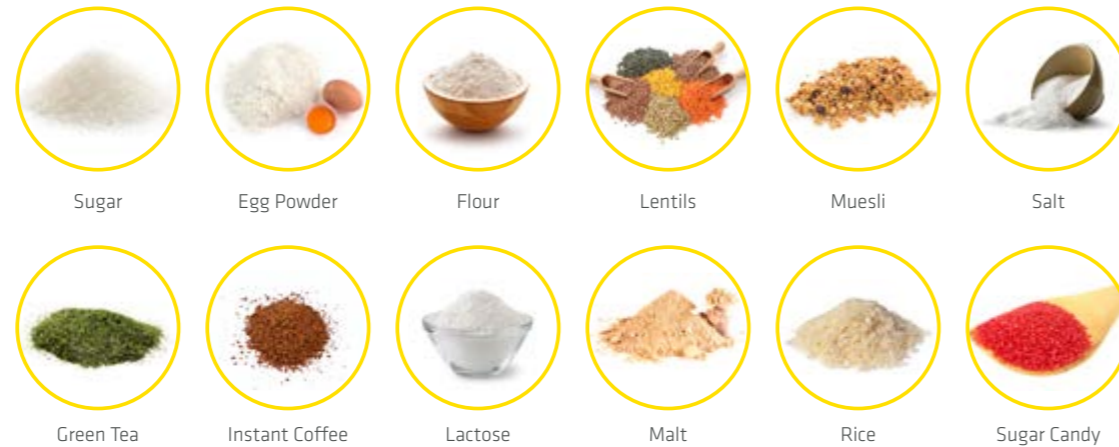
The Floveyor AMC handles thousands of bulk materials: powders, granules, flakes or pellets, so it is highly likely that your product is already on our list.

Whether your material flows freely or tends to stick, clump, or wants to separate, a AMC will convey it cleanly and gently with maximum efficiency and minimum fuss.

Industrial Materials



Food Materials



Bulk Material Particle Size Limits

	F3	F4	F5
Minimum	≥ 20nm	≥ 20nm	≥ 20nm
Maximum ⁽³⁾	≤ 6mm	≤ 9mm	≤ 12mm
Oversize ⁽⁴⁾	≤ 16mm	≤ 20mm	≤ 25mm

As with any system, the AMC's throughput is highly dependent on how the machine is fed.

- 1) Capacities and lengths above are to be used as a maximum throughput guide only. Due to varying product characteristics actual throughputs may vary.
- 2) Moisture Content < 5% w/w and Effective Angle of Internal Friction $\pi \leq 0.10$.
- 3) Measurement on all particle axes.
- 4) Measurement on any single particle axis, with the measurement on all other axes below the maximum particle size. Oversize particles max. 5% w/w.

Key: ≥ Equal to or Greater-Than, ≤ Less-Than or Equal to

The Aero-Mechanical Conveyor Tailored to Suit Your Application



Industrial Product Range

Recognised across many industries as a steadfast solution, our Industrial range is typically installed in food ingredient, chemical process or construction materials handling applications. Designed with your maintenance teams in mind, the range is easy to adjust and clean, with optional quick-access to critical maintenance areas. Choose from a broad range of standardised options to fit any application.

Standard Components	Industrial	Industrial - Optional [M2] Food Grade Pack
Design Principle	Industrial: Carbon Steel or AISI 304 or AISI 316	M2 available in AISI 304 or AISI 316 contact parts only
External Welding	Continuous (Carbon), Stitch-weld (AISI)	Continuous
Internal Welding	Continuous	
Internal Bend Radii	No Minimum	
Fabrication	Manufactured to General Fabrication Standards	
Internal Finishing	Glass Bead Blasting, Max. Ra 1.6µm (n7)	
External Finishing	Glass Bead Blasting	
Drain Plugs	Optional - Hex-Head 3/8" BSP Drain Plug	
Bearings	Carbon Steel, General Grease	Stainless Steel, General Grease
Shaft Seals	Standard Non-Food Contact Lip Seal	FDA/EC Food Grade Lip Seal
Sprocket Bolt Connection	Metal Face Seal	
Bearing Protection	Optional	Air Purge Bearings & Seals. Optional - Filtration, Regulation, Controls & Routing
Internal Shaft/Seal Cover	None	
Bearing Housing	Bolted, Compressible Non-Food Grade Foam Profile Seal	Bolted, Compressible Food Grade Foam Profile Seal
Motor	IP55, Aluminium / Painted Cast Iron Housing	IP66, Aluminium / Cast Iron Housing
Name-Plate Seal	Compressible Polyethylene Foam Tape Seal	FDA/EC Food Grade EPDM Closed Cell Compressible Foam Tape Seal
Name-Plate Clamp	Bolted - Hex Head Tool (Optional - Quick Access with Coded Safety Sensors)	
Tension Arrangement	Male Seamless Tube, Female Cast Housing with FDA/EC PU Sleeve Seal. (Some water leakage possible while under pressure)	
Headchute Seal	Compressible Foam Profile Seal	FDA/EC Food Grade Compressible Foam Profile Seal
Flexible Discharge Chute	Vulcano Non-Food Contact Flexible Tubing & 2x Zinc Plated Hose Clamps. Slides over 200mm Ø Outlet	Vulcano FDA/EC Food Grade Flexible Tubing & 2x Stainless Steel Hose Clamps. Slides over 200mm Ø Outlet
Tube Joints	Tri-Clover	Tri-Clover with FDA/EC Food Grade Seals
Tube Clamps	Pressed Plates, Bolted with Yellow Non-Food Grade NR Sleeves	
Tube Welds	Argon Purged Manual TIG Welding	
Fasteners	AISI 316 A4-70 Standard Fasteners	
Base	Powder Coated Mild Steel or AISI 304. Flat Surfaces, Standard Bolted Connections (not spaced), Welling Points, Direct Fixing to Grade, No Clearance for Grade Cleaning	
Access	Tooled Access Throughout (Optional - Quick Access with Coded Safety Sensors)	
Rope Assembly	Galvanised, Stainless Steel 304, or Polymer Coated Wire	FDA/EC Compliant Stainless Steel 304, or Polymer Coated Wire
Rope Assembly, Joining Disc	Industrial, Bolted Connection	



Hygienic Product Range

Floveyor's premium Hygienic range is typically installed in food processing applications. Designed in accordance with European Hygienic Engineering & Design Group (EHEDG) guidelines and Good Manufacturing Practices (GMP), the equipment is easy to clean with no tools required for access. The range includes enhanced features which facilitate ease of maintenance and cleaning. The Hygienic Aero-Mechanical Conveyor is designed to be Cleaned-In-Place (CIP) with metal and x-ray detectable seals, gaskets, and rope assemblies. While the complementary Hygienic Bag Tip Stations and Screw Feeders are designed to be Cleaned-Out-of-Place (COP).

Why EHEDG?

EHEDG, the (European Hygienic Engineering and Design Group) is a European-based non-governmental organisation devoted to the advancement of hygienic design and food engineering. Founded in 1989, EHEDG is a consortium of equipment manufacturers, food industries, research institutes and public health authorities with the aim to promote hygiene during the processing and packing of food products.



Which AMC range suits your needs?

Standard Components	Hygienic Type ED - Equipment Dry Cleaned Only	Hygienic Type EL - Equipment Cleaned with Liquids
Design Principle	EHEDG Type ED Class I, GMP, AMI, 3-A Sanitary Equipment Design, AISI 304/316L Only. Suitable for dry products (Aw <0.60), CIP - Dry clean only	EHEDG EL Class I, & EL Class I AUX, GMP, AMI, 3-A Sanitary Equipment Design, Complete AISI 316L CIP - Wet Clean Internal AMC Surfaces COP - External Components (Hoppers, Discharge Chute, etc)
External Welding	Continuous	
Internal Welding	Continuous, minimum R3.2	
Internal Bend Radii	Minimum R3.2, R6 preferred	
Fabrication	Manufactured to EHEDG & GMP Guidelines	
Internal Finishing	Polished. Max Ra 0.8µm (n6)	
External Finishing	Stainless Steel Shot Blasted.	
Drain Plugs	Optional	2.5" Ø TriClover Fitting with Profiled Plug
Bearings	FDA/EC Food Grade Grease & Blue Face Seal, Stainless Steel Balls & Housing.	
Shaft Seals	Custom FDA/EC Food Grade Rotary Seal, designed to EHEDG guidelines	
Sprocket Bolt Connection	Metal Face Seal	Dual FDA/EC Blue O'Ring Seal to EHEDG guidelines
Bearing Protection	Air Purge Bearings & Seals. (Optional - Filtration, Regulation, Controls & Routing)	Two-Stage Air Purge. (Optional - Filtration, Regulation, Controls & Routing)
Internal Shaft/Seal cover	Sanitary Design with Metal Face Seal	Sanitary Design with O'Ring Seal
Bearing Housing	Sanitary Design with Metal Face Seal	Hygienic Clamp, with FDA/EC Blue O'Ring Seal & Air Purge
Motor	IP66, Aluminium / Painted Cast Iron Housing	IP66, Aseptic Drive
Name-Plate Seal	FDA/EC Food Grade Compressible EPDM Foam Tape Seal	FDA/EC Seal designed to EHEDG Guidelines for CIP Wet Clean
Name-Plate Clamp	Quick Access with Coded Safety Sensors	Quick Access Stainless Knobs, and Stainless Steel Coded Magnetic Safety Sensors
Tension Arrangement	Precision Manufactured to EHEDG guidelines for CIP Dry Cleaning	Precision Manufactured to EHEDG guidelines for CIP Wet Cleaning
Headchute Seal	Integrated, Stepless Connection to FilcoFlex Fitting	Integrated, Stepless Connection to FilcoFlex Fitting. Hygienic FDA/EC Filcoflex Tri-Clover Flanged Connection. Blue NBR/Silicon O-Ring Seal
Flexible Discharge Chute	FilcoFlex Fitting with FDA/EC Ducting	
Tube Joints	Self-Centering Union in Compliance with EHEDG guidelines for Dry Materials (DIN 11851)	EHEDG Hygienic Union (DIN 11864-1)
Tube Clamps	Pressed Plates, Bolted with Blue Food Grade NR Sleeves	
Tube Welds	Automated Orbital Welding	
Fasteners	Hygienic Fasteners to EHEDG Guidelines	
Base	Clean Design, Spaced Off-Frame Components, Designed for easy Dry Cleaning. GMP Height from Ground to allow Grade Cleaning.	Constructed without Welling Points or Flat Surfaces. Spaced Off-Frame Components, Effortless External Clean-Ability and Spray Down, Hygienic Grade Mounting Feet, GMP Height from Ground to allow Grade Cleaning.
Access	Quick Access Stainless Knobs on all Primary Cleaning Points with Stainless Steel Coded Safety Sensors	
Rope Assembly	FDA/EC Compliant Stainless Steel 329 or Sleeved Polymer Wire, Standard Cream or Hygienic Blue Metal and X-Ray Detectable Polymer Discs.	
Rope Assembly, Joining Disc	Hygienic Fully Sealed Design (No exposed Fasteners)	

The Aero-Mechanical Conveyor at its Core

Galvanised Rope, Moulded Discs
Strong and durable with polyurethane discs injection-moulded onto the rope. Suited to general industrial applications.

AISI 304 Rope, Moulded Discs
Strong and durable, suited to general industrial, chemical and base-level food handling applications. Food grade construction materials.

Sleeved Polymer Rope and Discs
Fully-sealed design provides optimal corrosion resistance and longevity. Hygienically designed with food-grade construction materials.

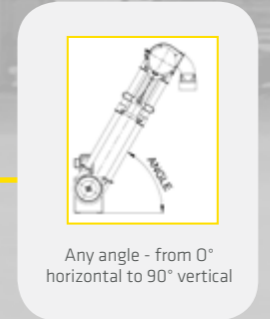
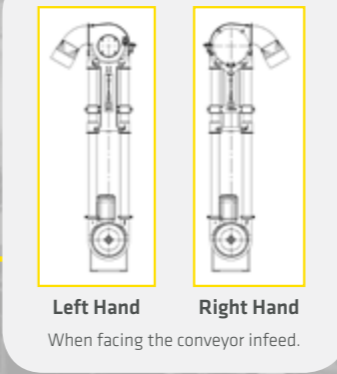
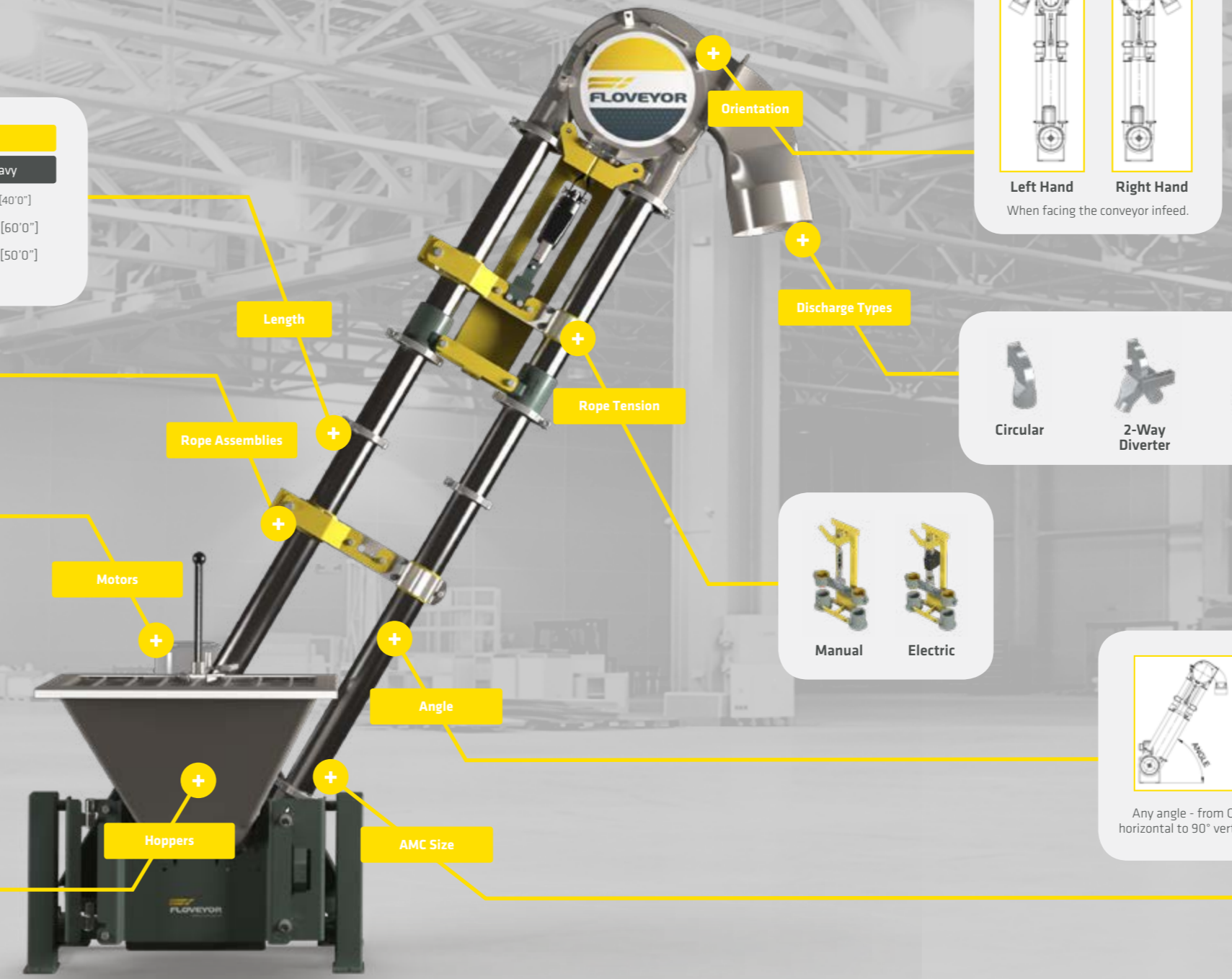
AISI 329 Rope, PolyMag Discs
Polyurethane discs are injection-moulded onto the AISI 329 rope. X-ray & metal detectable with electro-static discharging (ESD) properties. Improved resistance to chemical attack vs. AISI 304. Food grade construction materials.

Sleeved PolyMag Rope and Discs
Fully-sealed design provides optimal corrosion resistance and longevity. X-ray & metal detectable with ESD properties. Hygienically designed with food-grade construction materials. Use where mitigation of contamination risk is essential.

Determination of Duty			Maximum Allowable Length ⁽¹⁾		
Bulk Density	Hours of Operation		Size	Standard	Heavy
	≤ 12 h/day	> 12 h/day			
≤ 0.8 t/m ³ [50 lb/ft ³]	Standard	Heavy	F3	13.7 m [45'0"]	12.1 m [40'0"]
> 0.8 t/m ³ [50 lb/ft ³]	Heavy	Heavy	F4	19.8 m [65'0"]	18.3 m [60'0"]
			F5	16.7 m [55'0"]	15.2 m [50'0"]

Note: (1) At maximum length AMC throughput may decrease by ~ 10%

Load/Size	Code	F3	F4	F5
Light	[L]	1.5 kW [2.0 HP]	3.0 kW [5.0 HP]	4.0 kW [5.0 HP]
Medium	[M]	2.2 kW [3.0 HP]	4.0 kW [5.0 HP]	5.5 kW [7.5 HP]
Heavy	[H]	-	5.5 kW [7.5 HP]	7.5 kW [10 HP]



Consider the following when selecting the required AMC size for your application:
Capacity / Throughput: Transfer rate required
Max Material Size: Average & maximum particle (or lump) size conveyed
Length / Distance: Conveyed distance

AMC Size	
Size	Tubes
F3	3 in [76.2 mm]
F4	4 in [101.6 mm]
F5	5 in [127.0 mm]

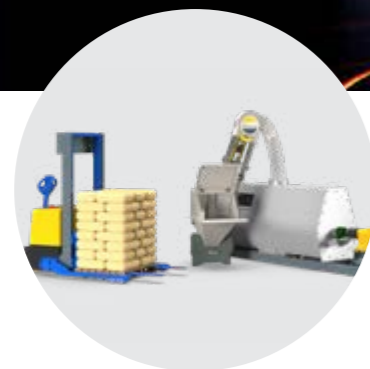
Allowable Particle (Lump) Size			
Size	F3	F4	F5
Minimum	≥ 20 nm [0.79 µin]	≥ 20 nm [0.79 µin]	≥ 20 nm [0.79 µin]
Maximum ⁽¹⁾	≤ 6 mm [1/4 in]	≤ 9 mm [3/8 in]	≤ 12 mm [1/2 in]
Oversize ⁽²⁾	≤ 16 mm [5/8 in]	≤ 20 mm [3/4 in]	≤ 25 mm [1 in]

Average Maximum AMC Throughput ^(3, 4)			
Bulk Density	F3	F4	F5
≤ 400kg/m ³ [25lb/ft ³]	4 t/h [4.4 ton/h]	8 t/h [8.8 ton/h]	14 t/h [15.5 ton/h]
≤ 800kg/m ³ [50lb/ft ³]	10 t/h [11 ton/h]	20 t/h [21.8 ton/h]	35 t/h [38.4 ton/h]
> 800kg/m ³ [50lb/ft ³]	15 t/h [16.7 ton/h]	30 t/h [32.9 ton/h]	54 t/h [58 ton/h]

Notes
 (1) Measured on any single axis.
 (2) Measured on any single axis. Maximum 5% w/w.
 (3) Maximum capacity; no lower-limit applies for the AMC.
 (4) Dependant on bulk material characteristics.
 Floveyor supplied Lump Breakers are available to crush lumped products to within acceptable size limits.

Choose your method of Bulk Material Delivery

Floveyor has delivered on our promise of 'simplicity in conveying' for over 60 years. To date, we've installed more than 5,250 Aero-Mechanical Conveying Systems in diverse applications worldwide. We've handpicked this Signature Range to provide you with matchless performance for many of your conveying needs.



Manual Bag Unloading

Our range of manual bag tip stations are ideal for manual emptying of small volume bags and sacks. They reduce dusting and minimise material loss, reducing environmental contamination.



Process Connection

The Floveyor Aero-Mechanical Conveyor's low-profile, matchless versatility and high reliability allows it to be installed as an integral part of almost any process line.



Mobile System

Floveyor Aero-Mechanical Conveyors are famous for their small footprints and versatility. Our effortless mobile conveyors take these qualities to the next level.



Reusable FIBC Unloading

Our range of reusable FIBC unloaders have been developed over 60 years to provide optimal ergonomic and operator friendly solutions while upholding proven materials handling best practice.



Disposable FIBC Unloading

Our proven solution for decanting materials from flat bottom bags. Opening the FIBC completely on the first attempt, minimising contamination, and ensuring workplace and environmental safety by containing any dust and spillage.



Formulation Systems

Combined with a Floveyor Loss-in-Weight FIBC Unloader, the Floveyor Formulation System provides an accurate multi-material batching system suitable for use in food, chemical and construction applications.



Road Vehicle & Container Unloading

Our range of road vehicle unloading solutions are designed with performance, simplicity and reliability in mind.

Manual Bag Unloading

Our range of manual bag tip stations are ideal for manual emptying of small volume bags and sacks. They reduce dusting, minimise material loss, and environmental contamination.

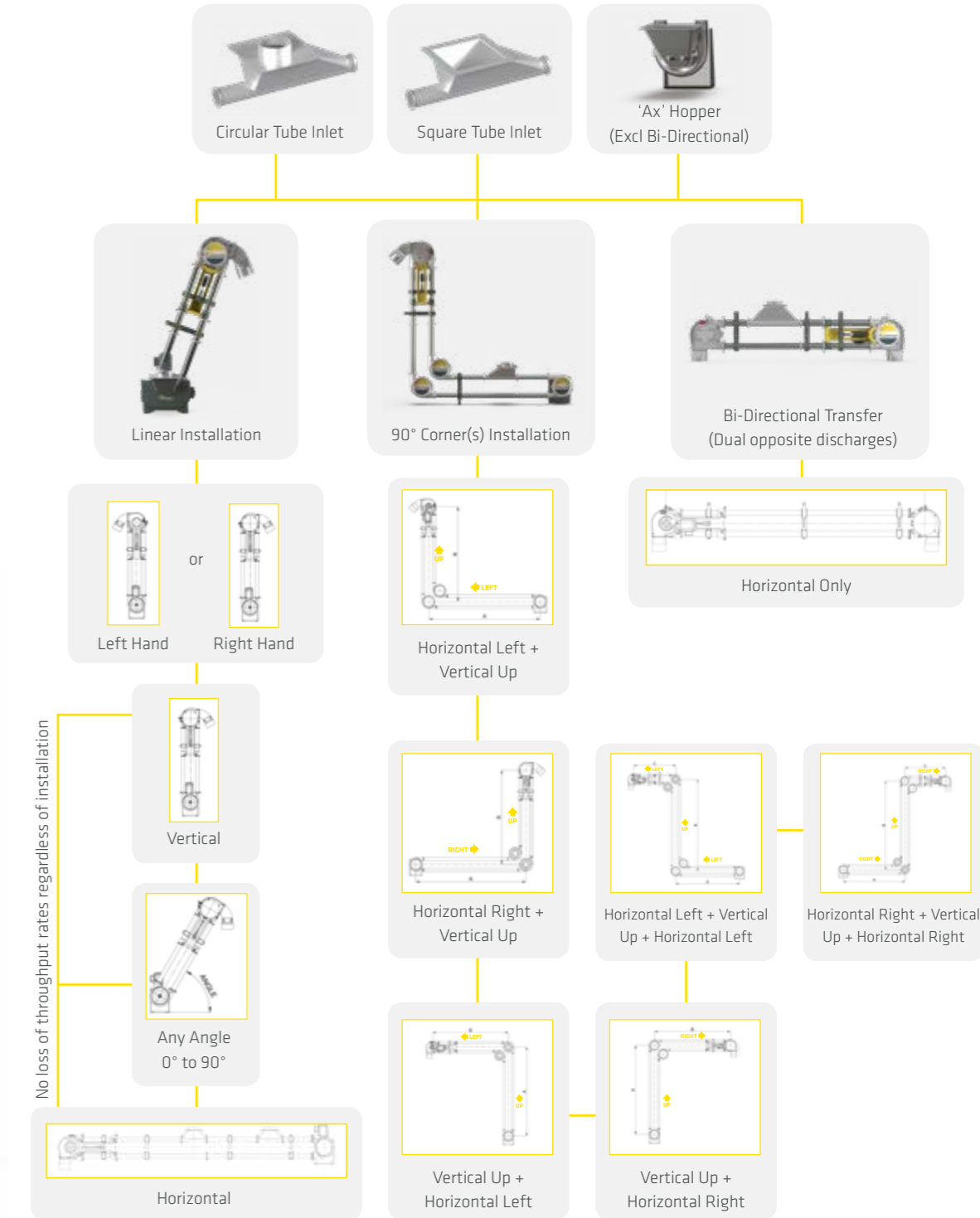
The stations are designed to provide an ergonomic working height, minimising risk of operator discomfort and maximising throughput potential.



Process Connection

The Floveyor Aero-Mechanical Conveyor's low profile, matchless versatility and high reliability allows it to be installed as an integral part of almost any process line. Its wide variety of configurations and ability to operate from 0° to 90° inclination without losing capacity, makes the AMC the ideal solution for:

- › Single Inlet, Single Outlet Applications
 - E.g. Installed at a 45° angle between a mixer and a liquid vessel
- › Multiple Inlet, Single Outlet Applications
 - E.g. Installed horizontally, conveying multiple ingredients from a series of silos to a single discharge
- › Single Inlet, Dual Outlet Applications
 - E.g. Installed horizontally between a storage silo and two separate mixers.

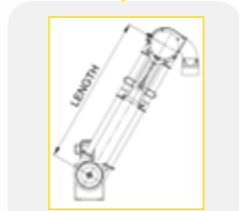
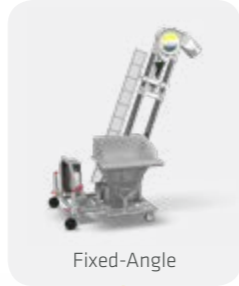


Mobile System

Floveyor Aero-Mechanical Conveyors are famous for their small footprints and versatility. Our effortless mobile conveyors take these qualities to the next level to deliver portability for a diverse range of materials handling applications.



Mobile Frame [M1]

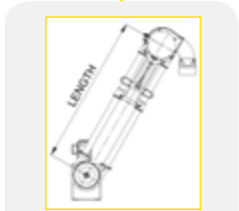


Length
6 ft ≤ Length ≤ 10 ft
[1.8 m ≤ Length ≤ 3.0 m]

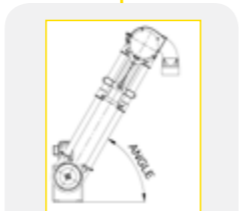


Allowable Angles
Fixed at 70° - 90°

Mobile Frame [M2]

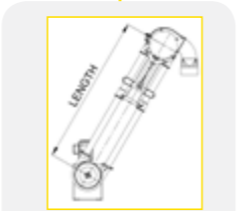


Length
10 ft ≤ Length ≤ 25 ft
[3.0 m ≤ Length ≤ 7.6 m]

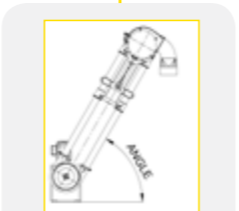


Allowable Angles
Fixed at 30° - 60°


Mobile Frame [M3]



Length
12 ft ≤ Length ≤ 25 ft
[3.66 m ≤ Length ≤ 7.6 m]



Allowable Angles
Adjustable 30° - 60°

 Suits AMC, Trough and FIBC Screw Feeders.
Allowable selections from Core AMC and Manual Bag Unloading options.

Reusable FIBC Unloading

Decanting solutions for reusable or string tied bottom spout Flexible Intermediate Bulk Containers (FIBCs or Bulk Bags) are an integral part of many bulk material delivery systems globally. A Floveyor Aero-Mechanical Conveyor (AMC) paired with one of our integrated FIBC Unloaders is one of the most effective and reliable solutions for getting your bulk materials into the plant.

Our range of reusable FIBC unloaders have been developed over 60 years to provide optimal ergonomic and operator friendly solutions while upholding proven materials handling best practice.



Loading



Bag Support



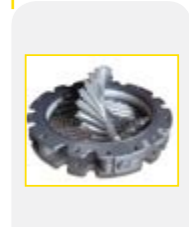
Number of Stations



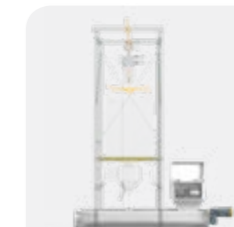
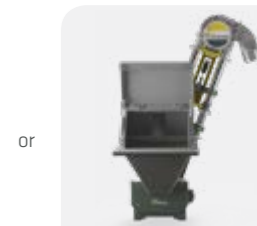
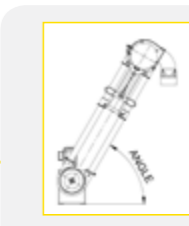
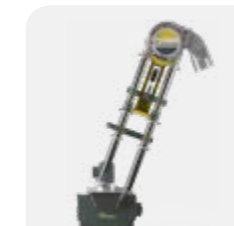
Spout Chamber



Accessories



Infeed Options to AMC



Disposable FIBC Unloading

Decanting solutions for disposable Flexible Intermediate Bulk Containers (FIBCs or bulk bags) are an integral part of many highly efficient bulk material delivery systems globally. A Floveyor Aero-Mechanical Conveyor paired with one of our FIBC Unloaders is one of the most effective and reliable solutions for getting your bulk materials into your plant, storage vessel, or road vehicle.

This is a proven solution for decanting materials from flat bottom bags. The spike arrangement will open the bag completely on the first attempt, minimising contamination (strings and torn plastic) and ensuring workplace and environmental safety by containing dust and spillage.



Hopper Design



DFU
FIBC Held-in-Place



FSF
1,395L Storage Volume

FIBC (Bulk Bag) Type

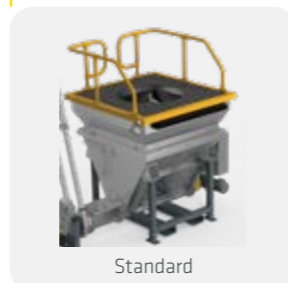


Disposable FIBC



Reusable FIBC (Cutter)

Dust Containment



Standard



Dust Extraction Manifold

Number of Stations



Single Station



Dual Station

Formulation Systems

The Floveyor Aero-Mechanical Conveyor delivers total batch transfer due to its combined mechanical / pneumatic conveying action. Combined with a Floveyor Loss-in-Weight FIBC Unloader, the Floveyor Formulation System provides an accurate multi-material batching system suitable for use in food chemical and construction applications.

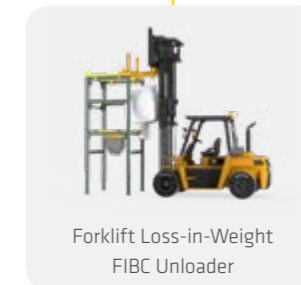
The Formulation System is available with up to six Loss-in-Weight FIBC Unloading stations installed in series for accurate dosing of multiple ingredients. Manual Bag Unloading stations are also available for addition of minor ingredients, provided without weighing functionality since small bags are typically of a known weight. For more complex systems, downstream gain-in-weight sensors can be used to weigh minor additives as well.



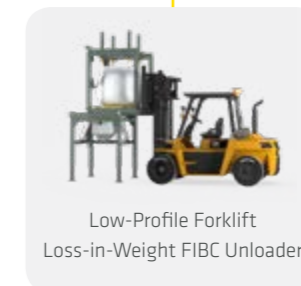
FIBC Infeed



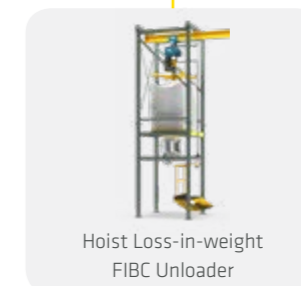
Minor Ingredients



Forklift Loss-in-Weight
FIBC Unloader



Low-Profile Forklift
Loss-in-Weight FIBC Unloader



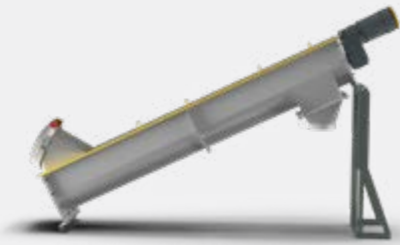
Hoist Loss-in-weight
FIBC Unloader

Road Vehicle & Container Unloading

Bulk materials supplied in intermodal containers or dump trucks can be one of the most economic and hassle free methods of material supply. Our range of road vehicle unloading solutions are designed with performance, simplicity and reliability in mind. To unload, the bulk container is tipped up, connected to our unloader and the slide gate is opened. Discharging the bulk material under gravity, the integrated Screw Feeder will then transfer the bulk material into a paired Aero-Mechanical Conveyor for one of the most efficient forms of storage vessel filling. With material-dependent unloading rates of up to 105 tonnes per hour [115 short tons per hour], a Floveyor F5 AMC unloading solution can decant a 20 ft intermodal container of prilled urea in under 17 minutes.



FIBC + Road / Container Infeed



Road / Container



Road / Container + Lump Breaker



Aero-Mechanical Conveyor Maintenance

An overview of maintenance requirements for Floveyor's Aero-Mechanical Conveyor is provided below. Maintenance requirements for the rest of the industrial range are addressed in the relevant Installation, Operation & Maintenance Manuals (IOMMs).

Preventative Maintenance

The AMC requires regular preventative maintenance to avoid costly unplanned downtime during production. Following commissioning, Floveyor recommends adherence to the following inspection and replacement intervals for wear parts and consumables.

The AMC assembly includes a number of third-party supplied sub-components, including the high-speed gearmotor and (if selected) the electric linear actuator. Manufacturer's instructions for these sub-components are supplied with the AMC; this equipment should be maintained in accordance with the relevant manufacturer's recommendations.

Critical components listed above must be replaced at the first sign of wear. Failure to do so may lead to a breakdown situation with possible process contamination.

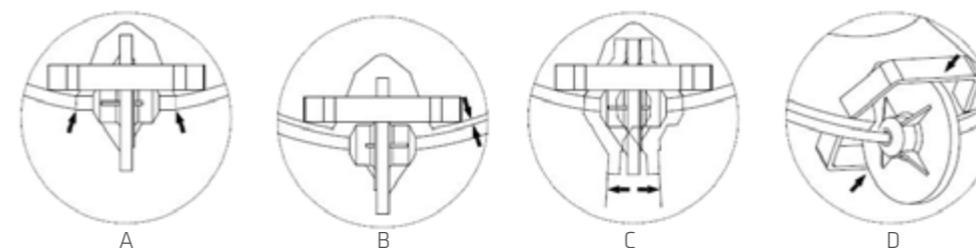
Recommended Minimum Inspection & Adjustment Intervals				
Item	General Purpose		Critical Applications	
	Operating Hours	Calendar Months	Operating Hours	Calendar Months
Rope Assembly	700 hours	3 months	240 hours	1 month
Sprocket Assemblies	700 hours	3 months	240 hours	1 month
High-Speed Bearings	700 hours	3 months	240 hours	1 month
High-Speed Seals	700 hours	3 months	240 hours	1 month
Internal Housing Surfaces	700 hours	3 months	240 hours	1 month
Fastener Tightness	3,000 hours	12 months	700 hours	3 months
All Other Seals	3,000 hours	12 months	700 hours	3 months

Recommended Maximum Replacement Intervals				
Item	General Purpose		Critical Applications	
	Operating Hours	Calendar Months	Operating Hours	Calendar Months
Rope Assembly (Exposed Wire Variants)	As Required	As Required	3,000 hours	12 months
Rope Assembly (Polymer Sleeve Variants)	5,000 hours	18 months	5,000 hours	18 months
Sprocket Assemblies	As Required	As Required	As Required	As Required
High-Speed Bearings	5,000 hours	18 months	3,000 hours	12 months
High-Speed Lip Seals	1,500 hours	6 months	1,500 hours	6 months

Rope Assembly Commissioning

The AMC functionality revolves around the use of a specially designed rope assembly to suspend and convey bulk materials at high speed. Due to the high speed, cyclical nature of operation, the rope assembly requires replacement on a semi-regular basis and is the AMC's primary consumable.

To ensure correct operation, the AMC rope assembly must be correctly tensioned such that the rope rests gently atop both the discharge and infeed sprockets, capable of sliding across the surface of the sprocket. This ensures correct alignment while allowing the rope discs to seat themselves in the sprocket grooves while the sprocket is rotating.



- A.** The rope must not be over-tensioned; this will lead to rapid weathering
- B.** The rope must not hang from the rim of the lower sprocket, they should be just lightly touching
- C.** Ensure discs can slide freely backwards and forwards in the sprocket notches
- D.** Ensure there is adequate clearance between the brackets and the discs.

A newly installed rope assembly takes approximately 40 hours of operation to "bed in", during which time the rope assembly tension must be inspected and adjusted per the following intervals.

Recommended Rope Tension Schedule	
Item	Period Between Checks
1st Commissioning Check	1 Hour
2nd Commissioning Check	2 Hours
3rd Commissioning Check	4 Hours
4th Commissioning Check	8 Hours
5th Commissioning Check	24 Hours
6th Commissioning Check	100 Hours

After the 5th check the tension should stabilise, requiring minimal adjustment. At the 6th check, if no adjustment is required proceed to the general schedule. If the rope still requires adjustment, maintain 100 hour inspections until stable.

Access for Maintenance

The AMC is provided with quick-access to areas of the equipment which require frequent access for cleaning, inspection or maintenance. These areas can be provided bolted for safety or, alternatively, provided with interlocked quick-access.



Feed Housing Access



Discharge Housing Access

Aero-Mechanical Conveyor Maintenance

Clean Three Ways

AMCs accumulate minimal residue. Cleaning regimes for the AMC will vary significantly based on the product(s) handled and the process requirements for the installed application. From a functional perspective, regular inspection and cleaning is required for materials with a tendency to adhere to and build-up on the internal surfaces of the conveyor, particularly those with hygroscopic or deliquescent properties.

Dry Cleaning

Where the bulk product handled is not typically adhesive, hygroscopic, bacterially sensitive or allergenic, a dry-cleaning system may be appropriate. In this case, we recommend installing air nozzles within the housing to return any settled residue to the main product stream. This ensures total batch transfer and avoids introducing moisture into the system.

Inert Purging

This simple form of cleaning is an excellent alternative to wet cleaning. Inert materials such as granular salt or broken rice are passed through the conveyor to flush out residue. Alternatively, for production runs with multiple materials handled, the neutral (high volume) material can be conveyed last to purge any residue film from smaller additives. For example, in a bakery application, conveying the bulk flour after handling all of the additives will purge the additive residue from the AMC.

Wet Cleaning

Bulk products which are adhesive, corrosive, hygroscopic, bacterially sensitive or allergenic may require regular wet wash down. The AMC is able to convey liquids at high speeds enabling a recirculating wash cycle to clean the conveyor internals. Here is the simple 5-step process:

1. Blank off the discharge with a washing plate cover
2. Rinse the system with warm water and drain via the optional drain plugs
3. Add a cleaning solution and recirculate within the AMC to flush the internals
4. Drain the cleaning solution via the optional drain plugs
5. Rinse and allow to dry. Drying can be accelerated by running the AMC empty or through use of the dry-cleaning air nozzles.

The AMC is manufactured predominantly from Stainless Steel which can prematurely corrode in the presence of chlorides. Chloride-based cleaning solutions should be avoided where possible. When used, exposure should be minimised by thorough rinsing after use.

Special Tools

The AMC is designed such that no special tools are required for inspection, cleaning or maintenance. Depending on the options selected, commonly available tools such as spanners/wrenches or screwdrivers may be required to remove guarding and/or access hatches. Alternatively, quick-access is available complete with safety switches for electrical interlocking.



Aero-Mechanical Conveyor Design Considerations

Design considerations when installing an Aero-Mechanical Conveyor (AMC) into a plant are provided below. Design requirements for the remainder of the Floveyor industrial product range are addressed in the relevant Installation, Operation & Maintenance Manuals (IOMMs).

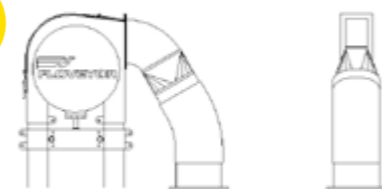
Flow Considerations

Infeed Flow Control:

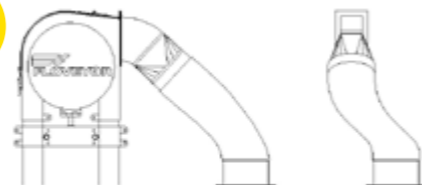
Each AMC is typically provided with an adjustable flow-control baffle to regulate the rate of material flowing into the conveyor. This helps to eliminate flooding and reduce stress on the rope assembly. The manual, electric and pneumatic baffles may be adjusted from outside of the hopper, while the fixed baffle (default selection) requires access to the hopper internals. AMCs must be started and stopped empty of bulk material. Where power loss is a common occurrence, a pneumatic baffle should be used with a spring-return control valve to automatically close in the event of power loss. Electric baffles may be used with a control system to automatically close between batches.

Discharge Chutework:

Should never be less than the minimum angle of repose for the least-flowable material handled. Floveyor recommends a minimum 60° valley angle for the conveyor discharge, minimising material slowdown and potential backup / blockage. It is essential to maintain a minimum chute opening of Ø200mm for the F3/F4 AMC and Ø250mm for the F5 AMC discharge chutes (or equivalent cross-sectional area). Reducing the cross-sectional area will restrict flow, causing backup and recirculation within the conveyor.



This is the recommended angle and diameter for discharging most materials.



This configuration, due to the shallow angle and twisted chute, will likely result in a build-up of material and ultimately, product recirculation or a blockage.



This configuration, due to the funneling of material into a narrower tube than the discharge, will likely result in product recirculation or a blockage.

Materials

Bulk Material:

It is important to manage the condition and quality of the bulk material handled. Large lumps and foreign bodies (pieces of sacks, knives, tools, fasteners, etc.) have the potential to damage the conveyor. It is important to note that bulk material left to consolidate over time, especially when exposed to moisture, is likely to form lumps which could damage an AMC.

Moisture:

Powders with high moisture content can cause residue build up inside the conveyor, impeding the critical high velocity sweep of the discs through the conveyor's tubes. A high level of moisture in the product can also increase the resistance and stress on the rope assembly during conveying, leading to premature failure.

Pneumatics

Venting:

The AMC displaces air at an equivalent volume to the volume of product being conveyed. It is good practice to ensure the equipment is adequately vented for optimal performance. Installing 3rd party equipment up and downstream of the Floveyor can cause problems due to inadequate venting. If the infeed point becomes blocked, return air struggles to pass through the system. This interferes with the pneumatic function of the AMC, reducing the material aeration and leading to inefficient operation and reduced output.

Extraction:

Following on from the point above, some installations may prefer to extract dust-laden air rather than filter it in-situ. This is acceptable so long as the AMC internals are not placed under a vacuum. A Floveyor-supplied extraction adapter allows for connection to site dust extraction without compromising the function of the AMC.

Vacuum:

The AMC must never be placed under a vacuum, or have extraction flowing through the conveyor. This needs to be considered when making an air-tight connection between an AMC and third party equipment. Extraction on downstream dumping stations or upstream packaging machines (for example) can carry through into the AMC, placing the system under a vacuum. This disrupts the AMC's pneumatic function, reducing the material aeration, resulting in significantly increased rope assembly disc wear and fatigue of the wire rope.

Structural & Ancillaries


Supports:

The AMC discharge and feed (head and tail) ends must be supported, as well as supports at approximately 3m (10 ft.) centres along the conveyed length. These requirements do not apply to mobile AMC solutions which are designed to be completely stand-alone. Note that the conveying tubes should never be rested directly against platforms or brackets and should always be supported from the Floveyor-supplied tube clamps.

Barriers:

The AMC should be protected from impact or other damage, particularly where forklifts or other vehicles are operating. Damage to the tubes, including small and seemingly innocuous dents, can cause increased noise of operation, rope wear, dust generation and in some cases process contamination. Floveyor recommends installing barriers to protect the AMC.





Aero-Mechanical Conveyor Design Considerations

Structural & Ancillaries Continued

Access:

Maintenance access to both the feed and discharge housings is required at some point during an AMC's life. A manual rope tensioning system requires semi-regular access to the discharge housing, particularly when commissioning a new rope assembly. Where access to the discharge housing is restricted, selecting an electric rope tensioner will allow standard tension adjustment and inspection to be carried out from ground level.

Insulation:

Larger granular materials such as coffee beans, rock salt or plastic pellets can result in increased noise during transfer. Sound dampening is recommended for such applications.

When handling materials in extremes of heat or cold, thermal insulation is recommended to protect both operators and downstream process.

Electrical & Controls

Safety Circuit:

Required if quick-access options are selected. A health and safety risk assessment has been conducted in accordance with Australian and ISO Standards and is available upon request. Quantities and datasheets for the safety sensors specific to the selected AMC will be provided with the order or are available upon request.

Motor Starters:

The AMC conveyor drive is typically started with a direct on line, non-reversing starter. However, soft-starts may be used, and are required over 5.5kw [7HP]. The use of a starter can extend the life of the rope assembly. Reversing starters should be avoided as the AMC is unidirectional and will not function correctly in reverse.

Soft Starter:

A soft-starter (alternatively a small VFD is economical and commonly used) typically increases the life of the rope assembly by limiting starting loads. This is beneficial for applications which start and stop frequently, as the repeated inertial loads experienced during starting can cause premature fatigue failure.

Drive Speed:

The AMC motor speed must not be changed from factory specification; deviations to the standard AMC rope speed will impact the pneumatic function of the aero-mechanical conveying action. VFDs, where installed, should be used for soft-start functionality only.

Process

Receiving Vessel:

Consider the volume and high level management of the receiving vessel. Overfilling the receiving vessel will cause material to backfill into the AMC and cause it to stall. This results in high stresses to the rope assembly which will decrease its life (due to premature fatigue failure) or even cause catastrophic failure (snapping). For batching operations, receiving vessels should be oversized to allow the aerated material discharged by the AMC to settle.

Run Time:

An AMC should always be sequenced to start approximately 10s prior to receiving material and stop at least 15s after the end of the batch. This ensures that the conveyor is never stopped (and thus started) under load, avoiding overloading the rope assembly which will decrease its life expectancy. Running an AMC empty still causes the rope to circulate over the sprockets, causing wear and contributing to fatigue. As such, it is best practice to stop the AMC when not in use.








Power Failures:

As per the point above, an AMC should never be started under load. If there is risk of regular power failures within a plant we recommend the addition of a pneumatic sliding baffle on the infeed, fitted with a spring-return control valve. The baffle will self-close in the event of power loss, ensuring that material doesn't flood the stopped conveyor.











































A Global Footprint

A selection of companies who have used our equipment

Manufacturing | Chemical | Agriculture | Life Science

Food Manufacturing | Bakery | Brewery | Nutrition



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