

piFLOW®



Customized solutions by modular design

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Overview

Integrate 60 years of global vacuum experience into your solution

With more than 60 years of global experience, we are the leader within vacuum conveying technology – that is our core business. We have built up global expertise in vacuum conveying that you can easily access.



Piab's products are made to be used in industries such as food, pharmaceutical, chemical, and more. Our vacuum conveyors help to better automate and evolve your core business.

 Less energy consumption

 Short delivery time

 Instant document access

 Easy to integrate

Piab's vacuum conveyors are all designed through a modular program based on standard components. This gives you the possibility to convey a wide range of different products, still with a limited number of standard modules. Hence, you can depend on the piFLOW® being available with a short delivery time allowing you to get started now.

To simplify the process, we give you access to our unique web interface where you can configure your product and download relevant documentation e.g. CAD files, datasheets, manuals etc. This gives you the benefit of being in control of your projects in an easy way.

With our worldwide sales offices, we offer support every step of the way in order to help you grow your business.

Reduce product scrap and contamination

When using a vacuum conveyor you are working with an enclosed system where no foreign material will be mixed in and no product will fall off the sides into the surrounding area. It is also a very gentle way of transporting the product, meaning that the product will be intact throughout the whole transportation process and will not be damaged. The velocity is adjusted depending on the fragility of the product – giving a minimum product scrap.

Minimize maintenance

Piab's vacuum conveyors have very few moving parts, so that the service and maintenance cost is kept at a very low level without needing to compromise on the reliability of the system. You can disassemble the conveyor body without using tools. The pump unit is designed with a separate vacuum module that can easily be removed for cleaning, resulting in reduced downtime.

Vacuum conveying is a modern way of transporting powders and granules with a number of benefits.

Small footprint

The vacuum conveying solution has a small plant floor footprint since the tubing can go strictly vertical from the point of suction. The tubing is normally mounted in level with the discharge point and therefore not in conflict with other machinery. This means that you can utilize the space in a more cost-efficient way. Furthermore, if the production layout is to change in the future, where for example new equipment will be added, a vacuum conveyor will fit the new layout without modifications or new costly investments.

Safe working environment

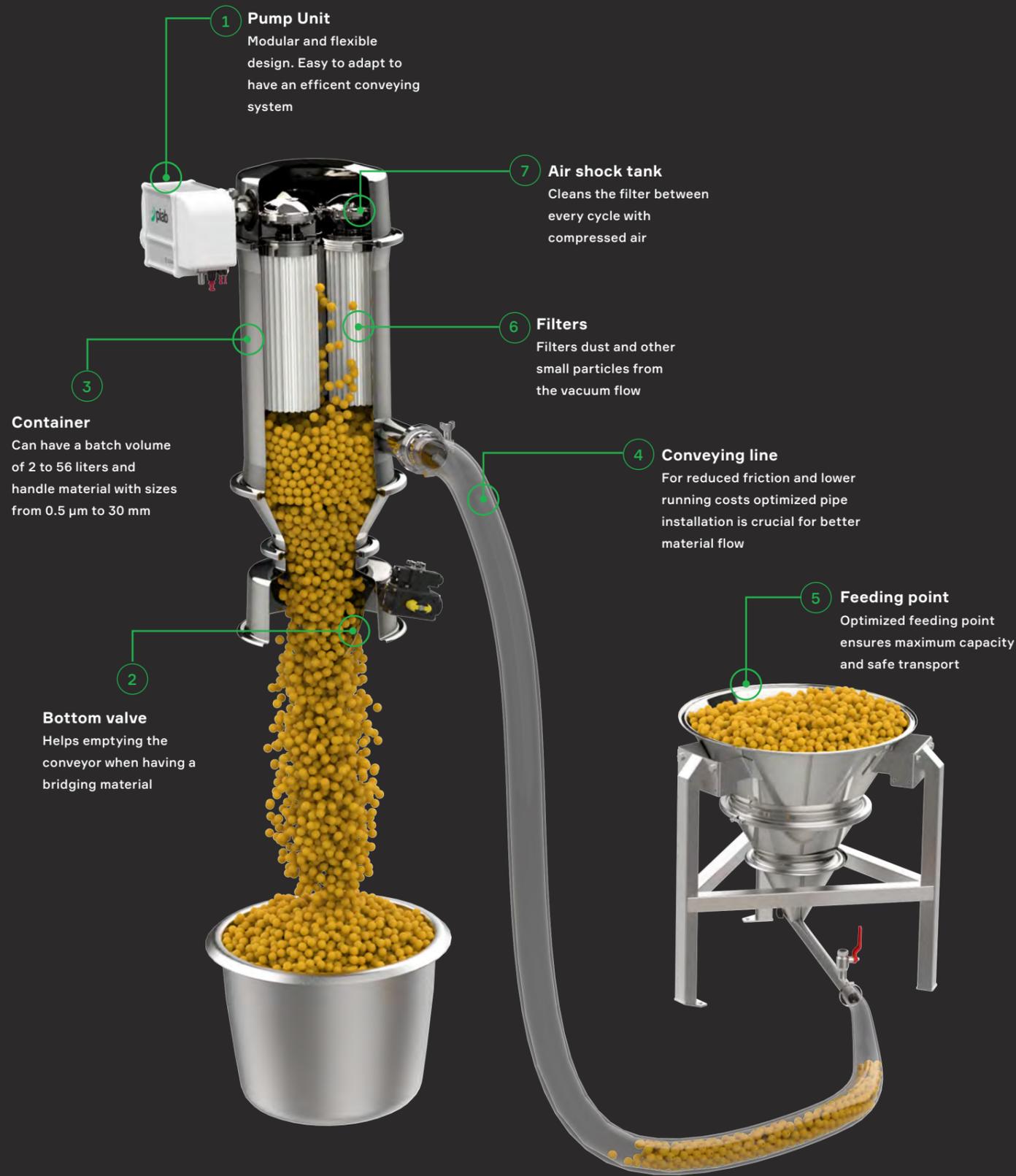
When comparing with mechanical conveying systems such as screw and belt conveyors another important advantage of the vacuum conveying is a dust-free working environment. As vacuum conveying is an enclosed system you will be able to improve the working environment, and it will also give you the possibility to convey materials that are hazardous to inhale that needs to be contained.

Features overview

Product name	Segment	Capacity	Industry 4.0 ready	Sizes	Certifications
piFLOW®p SMART	Food, Chemicals, Pharma	5 tons/hrs [11,000 lbs/h]		5 - 33 liter	 
piFLOW®p	Food, Chemical, Pharma, AM ³	14 tons/hrs [30,000 lbs/h]		2 - 56 liter	  
piFLOW®t	Food, Pharma	2-3 million parts/h ⁴		10 liter	  
piFLOW®fc	Food, Chemical, AM ³	8 tons/h [17,000 lbs/h]		3 - 33 liter	 
piFLOW®f	Food	7.5 tons/h [16,000 lbs/h]		6 - 28 liter	 
piFLOW®i	General industry	7.5 tons/h [16,000 lbs/h]		6 - 28 liter	

¹ All materials in contact with the conveyed product fulfill the requirements of FDA. ² piFLOW®p/t is designed according to USDA dairy guideline. ³ Additive Manufacturing ⁴ Parts e.g. chewing gums, candy, capsules

The Principle of Vacuum Conveying



The principle

Vacuum is created with compressed air through COAX® technology or mechanical pumps (not shown in picture) (1). The bottom valve (2) closes and the vacuum in the container (3) and the conveying line (4) increases. The product is carried away from the feed station (5) into the conveying line and then to the container.

During the whole conveying process the filter (6) protects the pump and the surrounding area from dust and small particles, and the air shock tank (7) is filled with compressed air.

At a preset or automatic time, the pump and the conveying are stopped and the bottom valve (2) is opened. The product is discharged at the same time as the air shock is activated and the compressed air cleans the filter from dust and small particles.

When the pump starts again, this process is repeated and a new cycle starts. The suction time and emptying times are normally controlled by a pneumatic control, an electric control system or completely automated with the new SMART systems.



“We have some of the most knowledgeable application engineers for Vacuum Conveying Technology in the world, running 11 test labs in 4 continents.”

Kajsa Rytberg Wallgren
President Vacuum Conveying Division

Conveyors for every need

The modular design makes it possible to convey efficiently with a small footprint. Production capacity ranges from few kg/h [lbs/h] to 15 tons/h [30,000 lbs/h] and up to +60 meters [+200 feet] in conveying distance together with high vertical lifts up to 20 meter [65.5 feet].

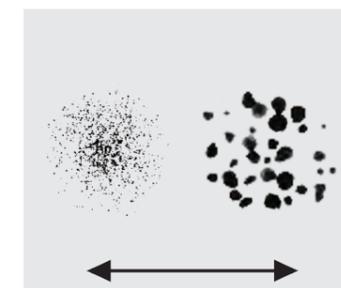
- **Modular and flexible design makes it easy to adapt and create an efficient conveying system**
- **Modular system allows you to choose the size needed for respective batch volume**
- **Our conveyors can convey material with a particle size of 0.5 µm up to 30 mm**
- **Our conveyors can convey materials with a bulk density between 0.1 gram and 9 kg [20 lbs] per liter**
- **Fluidisation helps emptying the conveyor when having a bridging material**

Production flexibility

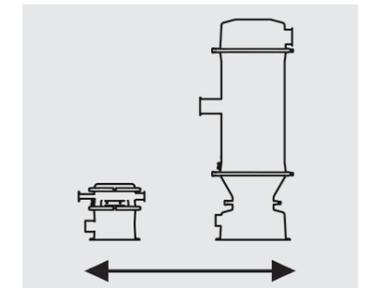
By replacing just a few parts of the modular vacuum conveying solution, one can easily change the installation in order to increase conveying distance, change the plant layout or enhance the system capacity at a very reasonable cost. This gives a future proof installation without compromising the reliability of the system.



Conveys materials with a bulk density between 0.1 gram and 9 kg [20 lbs] per liter



Size of material from 0.5 µm to 30mm



Batch volume of 2 to 56 liter

COAX® Technology

COAX® cartridges are based on advanced technology for creating vacuum with compressed air. They are smaller, more efficient and more reliable than conventional ejectors, which allows for the design of a flexible, modular and efficient vacuum system.

A vacuum system based on COAX® technology can provide you with three times more vacuum flow than conventional systems, while reducing energy consumption.



Less energy consumption

As independent comparative tests at the Fraunhofer Institute for Machine Tools and Forming Technology IWU in Dresden have shown, Piab's COAX® ejectors work twice as fast as other ejectors and deliver three times more flow than conventional ejectors with identical air consumption. This allows the pump unit to perform well even with low or fluctuating supply pressure and is particularly energy efficient.



Increased air flow



More efficient

stream of compressed air. Suction will be generated at the opening of each stage (3), resulting in vacuum.

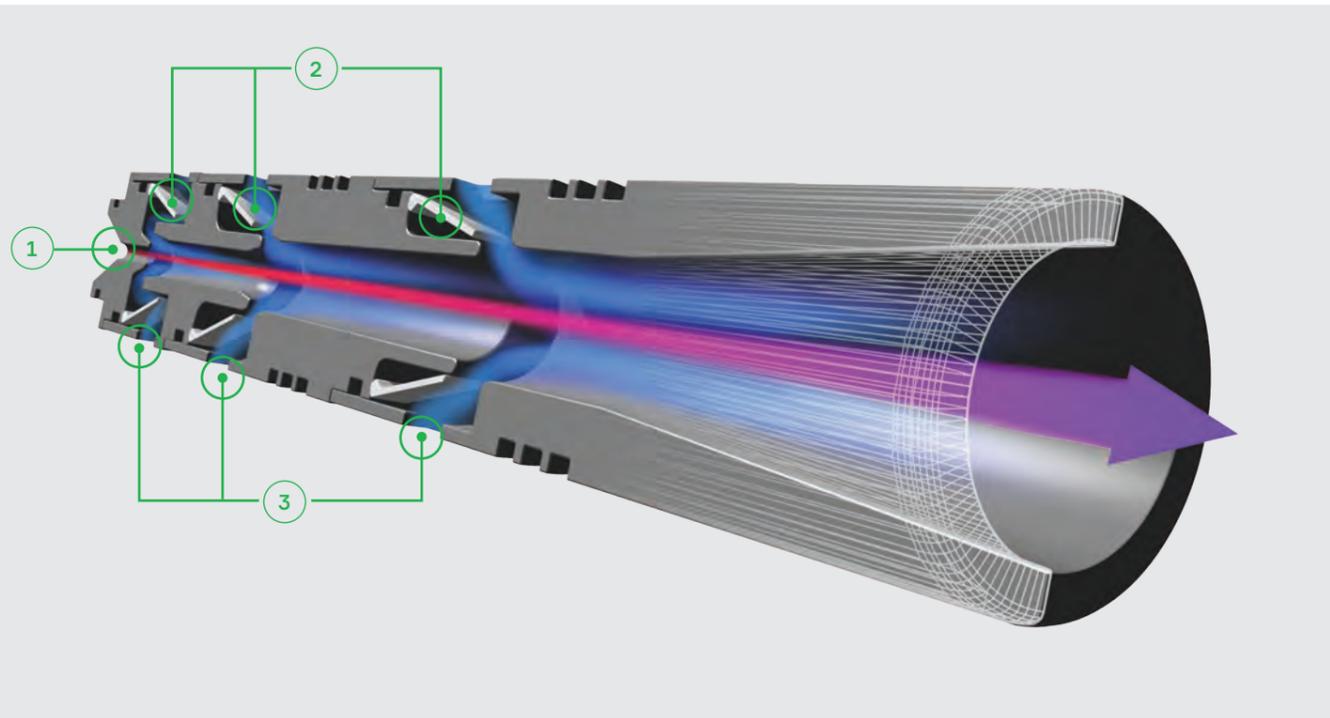
COAX® combines the internal components of a multi-stage vacuum pump into a single vacuum cartridge. The result is a smaller, more efficient and more reliable vacuum technology.

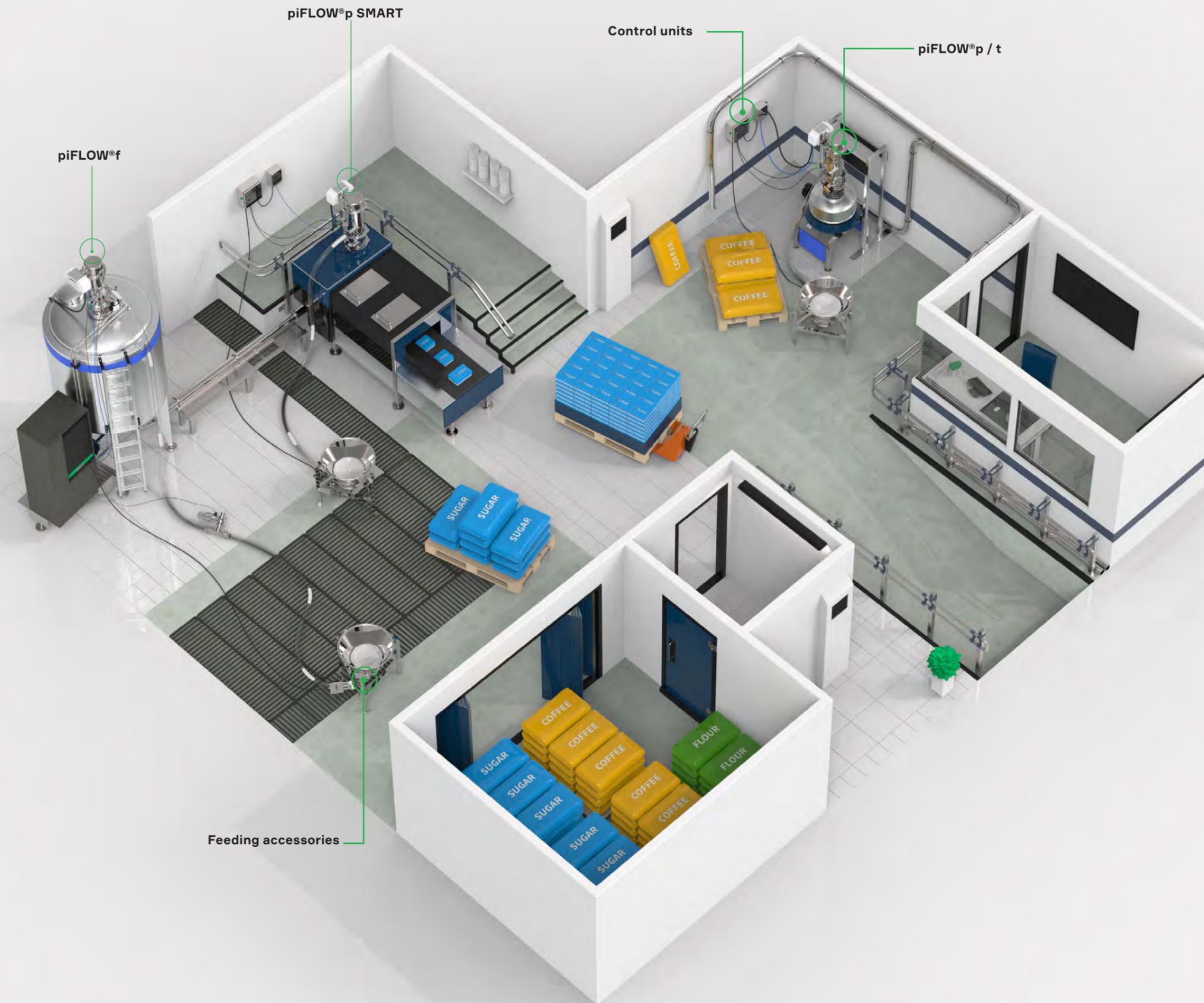
Piab uses the COAX® principle in two series of vacuum pumps. The piBASIC pump, used with the piFLOW®i and piFLOW®f conveyors, and the piPREMIUM pump, used with piFLOW®p as well as piFLOW®fc conveyors.

Both use our unique, high efficiency multi-stage, vacuum generator technology to drive the vacuum conveying process.

The principle

When compressed air (1) passes through the nozzles (2), air is pulled through with the





System solutions

piFLOW®p SMART is our smartest product offering, taking vacuum conveying to a new level, fully automated with optimised throughput.

piFLOW®p for applications with high demands or product contact areas, such as pharmaceutical industry, or when ATEX certificated systems are required. Specifically designed for quick and simple dismantling for easy cleaning of equipment.

piFLOW®t for applications with the need of conveying fragile products. piFLOW®t is designed to fulfil the needs through controlled low speed conveying of the product and guided entry of the product, together with elimination of all the sharp edges in the entire product flow. You easily adjust the product flow through the innovative piGENTLE® functionality.

piFLOW®fc is specialized for conveying powder and granules in the food industries. It is designed to meet high requirements of food industry in terms of hygiene, safety and process accuracy, but not requiring the use of full acid-resistant stainless steel.

piFLOW®f is for applications with less demands on acid resistance. Designed with a Stainless Steel body (ASTM 304) and seals in direct product contact zones that are in compliance of FDA to meet the demands of industrial food grade applications.

piFLOW®i is widely used in the chemical industry for conveying powder and granules. This conveyor is often used as an alternative to mechanical conveyors when there is a requirement for dust free conveying.

Control units control the functions of the conveyor. Piab offers a range of control units from simple pneumatic controls to advanced electric, software based control units.

Feeding accessories provide an optimized feeding point and ensure maximum capacity and safe transport.

When producing food, pharmaceuticals and chemical products there are demands on the highest possible degree of safety as to hygiene and operation. Piab's piFLOW® conveyors have been developed as an answer to the strict requirements of operational safety and hygiene in the food, pharmaceutical, chemical industries and additive manufacturing.

piFLOW® Conveyors

piFLOW[®]p SMART

Takes conveying to a new level

With each new conveying cycle, the piFLOW[®]p SMART will prove its name, using machine learning to automatically tune the process by configuring and optimising a flawless flow of materials, set at the correct rate.

piFLOW[®]p SMART is a complete system. It has a heart, a brain and senses. At its heart (1), vacuum is created with compressed air and Piab's COAX[®] technology. The system's brain, the Electrical Control Unit (2), automatically controls the pump. It does so with the help of its Valve Unit (3) where vacuum and pressure are being sensed, and electrical signals converted into pneumatic ones.

-  Less energy consumption
-  Operator skills independent
-  User friendly

deactivated, closing the bottom valve and starting the pump. And so the next conveying cycle begins!

- In compliance with FDA, EC No. 1935/2004 and EU No. 10/2011
- Steel quality ASTM 316L (stainless steel, acid resistant)
- Quick installation and start-up as a result of pre-configured conveying settings

The piFLOW[®]p SMART is a stand-alone system with machine learning software and sophisticated algorithms that run the application to reach the maximum capacity for the conveyed material.

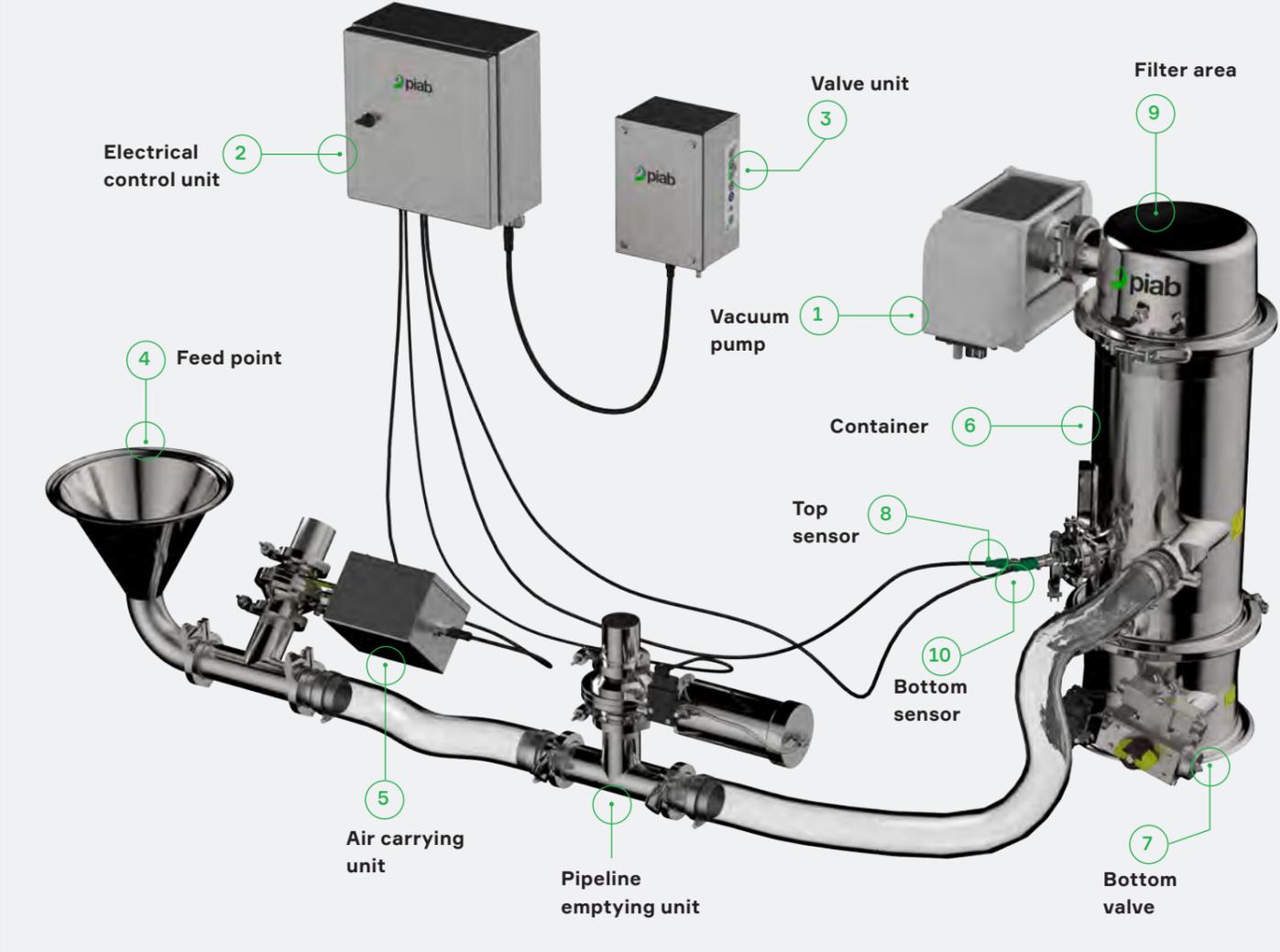
Powder, grains or granules are carried from the feed-point (4) through the Air Carrying Unit (5) and the conveying line to the container (6) when the bottom valve (7) is closed. When the conveyor is full, the top sensor (8) is activated, stopping the pump and opening the bottom valve. The material is discharged at the same time as a shock of compressed air cleans the filter (9). The bottom level sensor (10) is

Features overview

Material	Temperature	Weight	Feed pressure		
			Max.	Range ¹	Control range
ASTM 316L, NBR, ePTFE, PET, PA, AI, SS, PP	5 - 50 °C	43 - 95 kg	0.7 MPa	0.4 - 0.6 MPa	0.4 - 0.6 MPa

Air consumption	Vacuum	Noise level	Filter area	Particle size	Batch volume
5 - 84 NI/s	60 - 75 -kPa	69 - 77 dBA	0.09 - 3 m ²	min. 0.5 µm	5 - 33 l

¹ Our recommended range of feed pressure



Pipeline emptying unit

In pipelines with a vertical lift of between 8 and 25 metres, the Pipeline Emptying Unit makes sure conveying lines are properly emptied, preventing blockages. Clearing vertical pipeline sections at the end of each suction cycle, this procedure is adjusted by the electrical control unit.

Air carrying unit

The carrying air ratio is automatically set and continuously adjusted during the entire cycle using machine learning in the integrated Air Carrying Unit. Eliminating the need for feed adapter tuning, this guarantees optimal transportation of materials and ensures applications run at best capacity possible capacity.

Level sensors

Calibrated and optimised for each conveyed material, strategically placed level sensors guard against overfilling and monitor the emptying process. No need for manual timer settings for starting/stopping the pump or opening/closing the bottom lid. In each cycle, sensors are cleaned by a shock of air, ensuring long life and optimal function.

 Do you want to know more?

Take a look at the online product page: www.piab.com

piFLOW®p SMART

Changes that would normally take one hour in a conventional vacuum conveyor take only 10 minutes in piFLOW®p SMART. That's why we call it the Changeover Champion!

Six times faster

The perfect performance and productivity promoter, piFLOW®p SMART is the world's first self-optimising vacuum conveyor. Integrated with smart software and sensor technology, it is the ultimate choice for processors handling many different materials or those that need to make frequent changes.

Proving its name, piFLOW®p SMART uses machine learning to automatically tune the process, resulting in a flawless flow of materials. Smart enough to configure itself and quickly adjust settings, taking into account environmental conditions such as temperature and humidity, it beats even the most experienced operator every time!



“After just a few cycles, piFLOW®p SMART has figured out what type of material it is dealing with and will automatically adjust itself to optimise how the material is conveyed.”

Milan Bratt
Product Manager Vacuum Conveying Division

Batch optimisation

The combination of smart software, sensor technology and the Air Carrying Unit enables the entire filling volume of containers to be utilised and material throughput to be optimised. Correct tuning of the discharge time and/or readjustments due to environmental factors, such as humidity and temperature, are no longer dependent on the skills and experience of operators. This enables processors to always make the most of their batches, small or large.

Smooth processes

The continuous auto-tuning allows processes to run as smoothly as possible. In combination with the faster changeover, this saves time and money. The smart, self-optimising conveyor will always operate at the correct speed to perfectly suit specific applications.

Promoting productivity

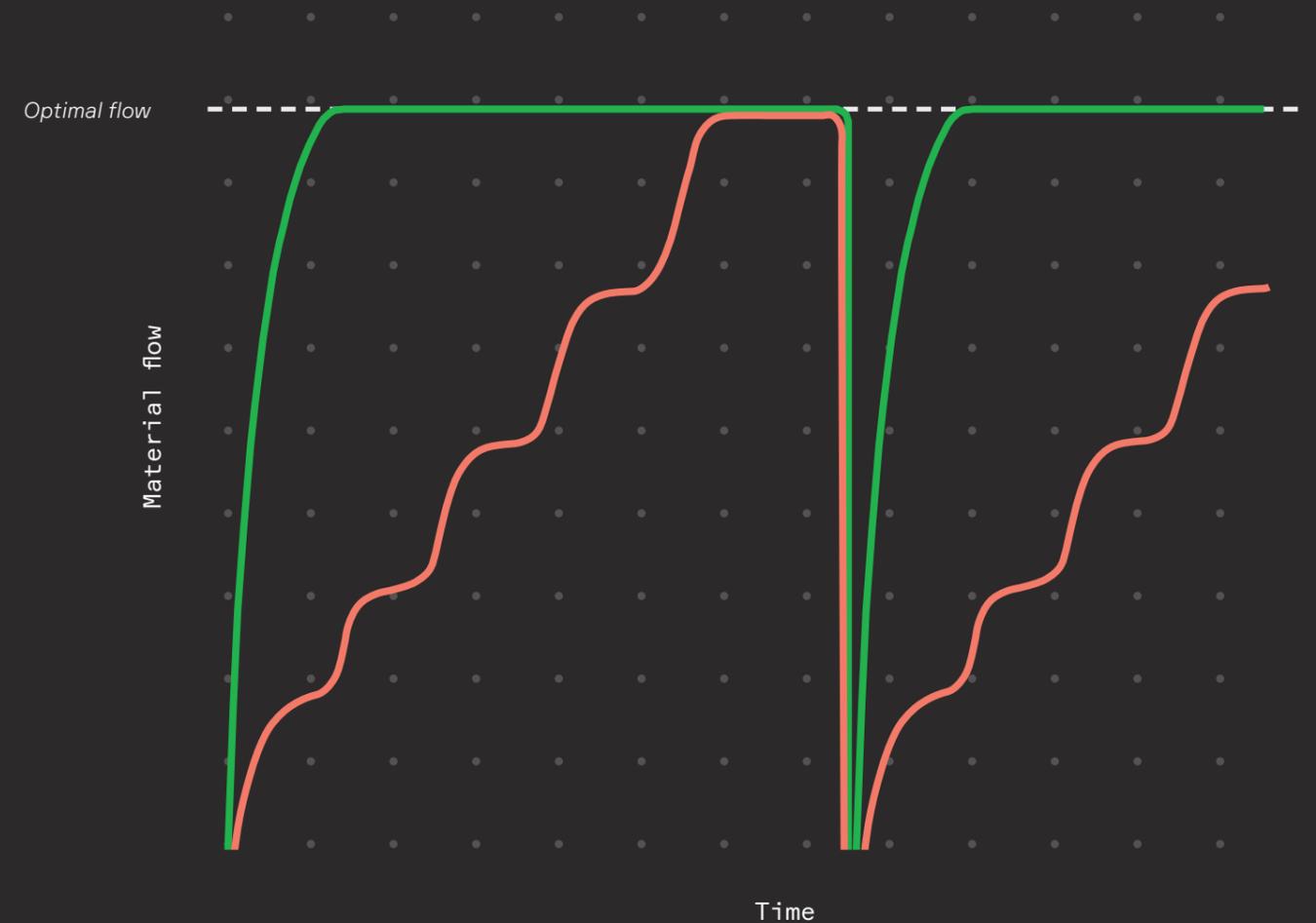
Additional features, such as the ability to store material settings, offer further performance and productivity enhancement. By guaranteeing a flawless flow in every conveying cycle, regardless of the performance of the material or changes in the surrounding environment, piFLOW®p SMART is the perfect productivity promoter.

Easy to learn and use

Operated through a user-friendly touch screen, piFLOW®p SMART is easy to learn to use and operate. Installation is straightforward, and built-in features, such as the anti-blockage function and air-assisted sensor cleaning, result in a system that requires only a minimal amount of maintenance.

Six times faster

● piFLOW®p SMART vs ● conventional vacuum conveyor



piFLOW[®]p

For your efficient filling processes

This conveyor is for when a premium technology is needed, e.g. in the food and pharmaceutical industry. It also makes sense when there is a big demand for high throughput performance with a small foot print. All conveyors are available with either an ejector driven vacuum pump or with a mechanical pump.

piFLOW[®]p conveyors are made of electropolished stainless steel and materials that comply with US FDA and EU 1935/2004 regulations. As a conveying line, a suction hose made of PU is used. An internal steel spiral helps to minimize the electrostatic charge of the product or diverts it to equipotential bonding. The filter in the upper part of the conveyor is cleaned with a filter shock after each conveying cycle. The device control is located in a separate control cabinet.



Lower noise level



Simple maintenance



Smooth installation and easy to use

- In compliance with FDA, EC No. 1935/2004 and EU No. 10/2011
- ATEX Dust and Gas certified
- Steel quality ASTM 316L (stainless steel, acid resistant), mechanically polished
- Designed according to USDA guidelines
- Hygienic design making maintenance and cleaning simple
- High throughput with a small footprint
- Wide capacity range from 2 to 56 liters per conveying cycle (up to 15 tons per hour [30,000 lbs/h])

The modular design of the piFLOW[®]p vacuum conveyors enables you to remain highly flexible concerning future changes in the fast-moving markets. Piab's systems can just as easily be retrofitted and expanded or supplemented with additional modules to be prepared for new requirements.

Features overview

Material	Temperature	Weight ²	Feed pressure		
			Max.	Range ¹	Control range
ASTM 316L, EPDM, Q, NBR, ePTFE, PTFE, PE, PET, PA, AI, SS, PP	0 - 60 °C	10 - 103 kg	0.7 MPa	0.4 - 0.6 MPa	0.4 - 0.6 MPa
Air consumption	Vacuum	Noise level	Filter area	Particle size	Batch volume
2.5 - 112 NI/s	60 - 75 -kPa	69 - 77 dBA	0.031 - 7 m ²	min. 0.5 µm	2 - 56 l

¹ Our recommended range of feed pressure.

With the quick-release system with filters and gaskets, the entire conveyor can be disassembled, cleaned and reassembled in just a few steps. Moreover, the conveyor can be cleaned not only in the shortest possible time, but also thoroughly so that no residues of the previous production contaminate the next.

Wet in place

The wet in place (WIP) function enables you to better meet even the most stringent health and safety standards. In addition to offering this function in new plants, existing plants can also be retrofitted with WIP nozzles.

The water sprayed by the WIP nozzles will wet any dust from any materials left in conveyors, stopping it from escaping into the air where it can be inhaled by processing staff during maintenance or cleaning procedures. By wetting potentially harmful leftover material before the equipment is opened for cleaning, the spray nozzles ensure that any such dust stays wet in place until it can be safely removed.

For maximum performance and coverage, and to make sure as much material as possible is captured as quickly as possible, up to three WIP modules can be fitted to each conveyor.

To achieve the optimal WIP performance for specific applications, two optional WIP module positions are offered in addition to the standard position at the top of the conveyor. One immediately below the middle section of the conveyor, and one below the bottom valve of the conveyor. Optional inlet valves can also be fitted at each side.



Do you want to know more?

Take a look at the online product page: www.piab.com

“The simple and uncomplicated cleaning of the Piab vacuum conveyors was the decisive factor in our decision”

Merlin Wintersteiger
Managing Director of Kora Füll GmbH



piFLOW[®]t

Automate the transfer of fragile material

Piab's premium conveyors are designed with a stainless steel body (ASTM 316L), meet the very high hygienic demands of FDA and are ATEX Dust certified as well as ATEX Gas certified. Typical applications are transfer of tablets, capsules, coffee, granules and other fragile products. Also hygienic applications or places where space is at a premium.

When a premium technology is needed for transporting fragile tablets, capsules, coffee, granules and other fragile products in the pharmaceutical, food and nutraceutical industries. It also suits when there is a big demand on high throughput performance with a small foot print.

-  Controlled flow
-  Less waste
-  Simple maintenance
-  Easy to integrate

piFLOW[®]t will together with piGENTLE[®] automatically convey tablets or capsules without breaking or chipping thanks to a controlled flow and constant speed, guided entry and the elimination of all sharp edges. Those are the keys to our success, ensuring that fragile products are handled with great care in our conveyor.

The conveyor is fully configurable in all its parts, which allows it to be adapted to suit any application, individual products, and any

production line. It can be used either as a stand-alone conveyor or as a pre-separator with a remote motor.

Return on investment will be affected positively both thanks to the automation of a normally manual process and also through a decreased amount of waste due to chipped products.

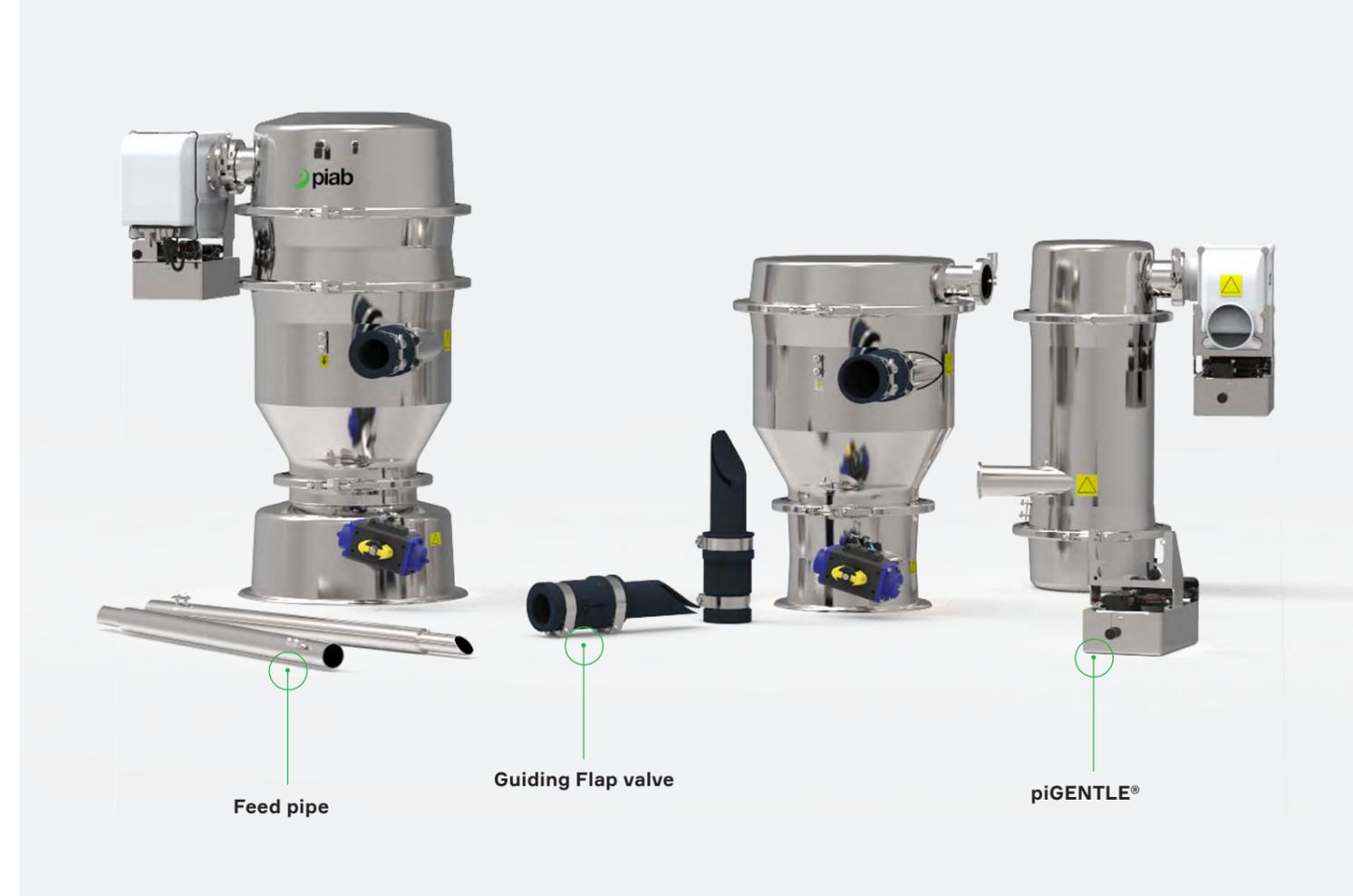
- In compliance with FDA, EC No. 1935/2004 and EU No. 10/2011
- ATEX Dust and Gas certified
- Steel quality ASTM 316L (stainless steel, acid resistant)
- Designed according to USDA guidelines
- Hygienic design making maintenance and cleaning simple

Features overview

Material	Temperature	Weight	Feed pressure		
			Max.	Range ¹	Control range
ASTM 316L, EPDM, Q, NBR, ePTFE, PTFE, PE, PET, PA, Al, SS, PP	0 - 60 °C	20 - 50 kg	0.6 MPa	0.2 - 0.6 MPa	0.4 - 0.6 MPa

Air consumption	Vacuum	Noise level	Filter area	Particle size	Batch volume
6 - 28 NI/s	0 - 75 -kPa	69 - 77 dBA	0.09 - 0.25 m ²	min. 0.5 µm	10 l

¹ Our recommended range of feed pressure.



Eliminating the use of inadequate standard equipment and alternative, often back-breaking, manual procedures, piFLOW[®]t will safely transfer ingredients and products between the various processing units, such as tablet presses, coating drums, and packaging lines, avoiding all risks of damage.

Safe entry into the conveyor

A guiding flap valve is used to facilitate a tangential entry into the inlet module. This will enable a smooth transition between the conveyor and pipeline

piFLOW[®]t conveyors can be used to transport any fragile goods within a processing plant.

piGENTLE[®]

At the core of piFLOW[®]t is the proprietary piGENTLE[®], a patented technology that maintains a gentle tablet flow by regulating the

feed pressure of the vacuum pump, ensuring that tablets, capsules or other fragile products are handled as delicately as possible.

piGENTLE[®] regulates the feed pressure of the pump by sensing the vacuum level in the system. As it has a low start pressure, it will enable tablets to be picked up at a low speed. When the tablets fill up the pipe line the vacuum level increases and consequently the feed pressure is increased. The feed pressure is regulated between 2 and 6 bar.

- Perfect fit for transport of fragile materials
- Deduster function with pre-separator solution
- Smooth installation and easy to use
- High throughput with a small footprint

Hygienic and easy to clean

A modular system made up of few parts, the piFLOW[®]t is very easy to clean and to maintain. All parts can be disassembled without tools.

piFLOW[®]fc

The mid-range vacuum conveyor handles all

This conveyor is specialized for conveying powder and granules in food industries producing for example chocolates, cookies, chips, spices and coffee.

piFLOW[®]fc is designed to meet high requirements of food industry in terms of hygiene, safety and process accuracy, but not requiring the use of full acid-resistant stainless steel.

The conveyor features the same design as Piab's premium range piFLOW[®]p and piFLOW[®]t conveyors, but in electropolished stainless steel (ASTM 304) rather than the acid-resistant grade (ASTM 316L).

It offers a fully contained unit that enables toxic and allergenic powders to be transported without the risk of operators and the surrounding work environment being exposed to hazardous or sensitive materials.

-  High throughput
-  Less waste
-  Simple maintenance
-  Smooth installation and easy to use

Available in a wide capacity range from 3 to 33 liter per conveying cycle, up to 8 metric tonne/h, it offers high throughput at a small footprint.

- In compliance with FDA, EC No. 1935/2004 and EU No. 10/2011
- Steel quality ASTM 304 (stainless steel)
- Hygienic design making maintenance and cleaning simple
- High throughput with a small footprint
- Antistatic filter and seals are available

piFLOW[®]fc comes with a selection of various accessories: from several filter types to feeding stations and feed adaptors. All filters are designed with a standardized interface, meaning different filter types can be used in the same conveyor, all depending what material that is conveyed at different times.

COAX[®] technology, used throughout the piFLOW[®] conveyor range, ensures that vacuum is created in the most energy efficient and cost-effective way possible, and is only used when the pump is running. Automatic filter cleaning and an overall hygienic design make the piFLOW[®]fc easy to clean, requiring minimal maintenance.

Chocolates, cookies, crisps and coffee but also certain chemicals – the piFLOW[®]fc vacuum conveyor handles all.



Features overview

Material	Temperature	Weight	Feed pressure		
			Max.	Range ¹	Control range
ASTM 304, ASTM 316L, NBR, ePTFE, PET, PA, AI, SS, PP	0 - 60 °C	19 - 55 kg	0.7 MPa	0.4 - 0.6 MPa	0.4 - 0.6 MPa

Air consumption	Vacuum	Noise level	Filter area	Particle size	Batch volume
5 - 56 NI/s	60 - 75 -kPa	62 - 75 dBA	0.06 - 1.5 m ²	min. 0.5 µm	3 - 33 l

¹ Our recommended range of feed pressure.



piFLOW®f

Automate your process with ease

This is a conveyor widely used in the industry where food grade quality is a demand. It has a high throughput performance as well as a small foot print. This conveyor is often used as an alternative to mechanical conveyors.

With the growing demand of greater production volumes Piab offers now the piFLOW®f for larger batch volumes. The new piFLOW®f has a 28L housing and offers possibilities to increase the pump performance. This is done by installing two piBASIC 400 or 600 pumps.

With our broad experience in conveying different products, no extra test runs are needed. This allows to deliver the system needed in the shortest possible time.

This increases the capacity of the conveyor from the current 5 tons per hour (14L content and piBASIC600 pump) for the now small conveyor to 7.5 tons per hour (28L content and 2x piBASIC600 pumps).

The Piab conveyors for the food industry are equipped with a housing made of stainless steel (ASTM 304) and the seals, which are in direct contact with the product to be conveyed, meet both the FDA and all European guidelines to meet the requirements of the food industry. Piab's piFLOW®f is also ATEX Dust certified.

An entry-level vacuum conveyor designed for industries where food grade quality, a dust free environment and easy maintenance are required.

piFLOW®f is a vacuum conveyor specialized in the conveying of food. It offers the optimal solution when deciding to change from manual to an automated process. piFLOW®f helps to relieve employees, to increase a careful use of resources and ensures that the production process runs more efficiently, generating greater reliability.

The conveyor can be integrated into an existing system or can be designed for a completely new line. For more flexibility within the plant the conveyor can be placed on a mobile frame in order to be used at different stations of your production line.

-  Energy efficient
-  Less waste
-  Simple maintenance
-  Ergonomic process

Another advantage is that the pump is based on COAX® technology, the most energy efficient way to create a vacuum and convey the products in a gentle way without any damage.

- In compliance with FDA, EC No. 1935/2004 and EU No. 10/2011
- ATEX Dust certified
- Steel quality ASTM 304 (stainless steel)
- High throughput with a small footprint

Features overview

Material	Temperature	Weight	Feed pressure		
			Max.	Range ¹	Control range
ASTM 304, EPDM, NBR, ePTFE, PTFE, PE, PET, PA, Al, SS	0 - 60 °C	27 - 42 kg	0.7 MPa	0.4 - 0.6 MPa	0.4 - 0.6 MPa
Air consumption	Vacuum	Noise level	Filter area	Particle size	Batch volume
5 - 74 NI/s	60 - 75 -kPa	69 - 77 dBA	0.09 - 0.5 m ²	min. 0.5 µm	6, 8, 14, 28 l

¹ Our recommended range of feed pressure.

piFLOW®i

Safe transfer of abrasive material

This is a conveyor widely used in the general industry and sometimes in the chemical industry. It has a high throughput performance as well as a small foot print. This conveyor is often used as an alternative to mechanical conveyors when there is a requirement for dust free conveying or low maintenance.

A cost-effective solution for any industry, who wishes to automate the manual material handling process for improved throughput.

 Simple maintenance

piFLOW®i offers a fully contained unit that enables toxic and allergenic powders to be transported without the risk of operators and the surrounding work environment being exposed to hazardous or sensitive materials.

 Smooth installation and easy to use

This conveyor is designed with a full opening option making it possible to maximize the material throughput and increase the overall capacity of the system. The full opening gives and instant discharge.

 Cost-effective solution

- ATEX Dust certified
- Steel quality ASTM 304 (stainless steel)
- High throughput with a small footprint
- For general industry applications with a need to handle abrasive powders

Available in a capacity range from 6 to 28 liter per conveying cycle, up to 7.5 tons/h, it offers high throughput at a small footprint.

Designed to meet the needs without compromising between price, technical performance and energy consumption.

Features overview

Material	Temperature	Weight	Feed pressure		
			Max.	Range ¹	Control range
ASTM 304, EPDM, NBR, ePTFE, PTFE, PE, PET, PA, AI	0 - 60 °C	27 - 42 kg	0.7 MPa	0.4 - 0.6 MPa	0.4 - 0.6 MPa
Air consumption	Vacuum	Noise level	Filter area	Particle size	Batch volume
5 - 74 NI/s	60 - 75 -kPa	69 - 77 dBA	0.09 - 0.5 m ²	min. 0.5 µm	6, 8, 14, 28 l

¹ Our recommended range of feed pressure.

piFLOW®i comes with a selection of various accessories: from several filter types to feeding stations and feed adaptors. All filters are designed with a standardized interface, meaning different filter types can be used in the same conveyor, all depending what material that is conveyed at different times.

With the growing demand of greater production volumes Piab offers now the piFLOW®i for larger batch volumes. The new piFLOW®i has a 28L housing and offers possibilities to increase the pump performance. This is done by installing two piBASIC 400 or 600 pumps.

This increases the capacity of the conveyor from the current 5 tons per hour (14L content and piBASIC600 pump) for the now small conveyor to 7.5 tons per hour (28L content and 2x piBASIC600 pumps).

COAX® technology, used throughout the piFLOW® conveyor range, ensures that vacuum is created in the most energy efficient and cost-effective way possible, and is only used when the pump is running. Automatic filter cleaning and an overall hygienic design make piFLOW®i easy to clean, requiring minimal maintenance.



Piab's vacuum conveying systems are built of high quality material. In the food, pharmaceuticals, chemical and additive manufacturing industries there are demands on highest possible degree of operational safety and hygiene. Piab's piFLOW® conveyors have been developed as an answer to those strict requirements.

Industries

Food and Beverage

The food and beverage industry focuses on hygienic and safe production meeting the strict requirements of the FDA, EU, ATEX and other requirements with no compromise on health, safety, or product quality. Piab's innovative products and solutions are modular in design and secure the highest quality of finished goods.

Baking goods

Typical materials conveyed with Piab vacuum conveyors in the baking goods market are various forms of flour, sugars, starches, seasoning, nuts, etc. Since materials change often, it is important to have conveying equipment, which is versatile, easy to clean, and can accommodate a quick changeover.

Coffee

Handling operations within the coffee industry is a delicate task. The industry covers everything from large scale industrial roasteries to small scale micro roasteries, but all with the same goal: to deliver a high-quality product to end consumers. Piab's vacuum conveyors are customizable to your operation - to run your process with nitrogen gas instead of atmosphere -, without changing the characteristic of your product.

Confectionary and candy

In the confectionery and candy segments the typical materials conveyed are sugar in various forms, cocoa powder, flour, and finished candy products. For quick changeover Piab's SMART technology can automatically change settings to better optimize your equipment and conveying production.

Instant food

In the production of instant food such as dry soups, noodles, sauces, etc. the materials are often dusty and can be fatty, so it's crucial to use equipment which is easy to clean and allows for a fast changeover between products. For certain material blends dense phase conveying will help to minimize segregation. Our vacuum conveyors are designed as an enclosed system which will help to increase productivity as well as ensure employee health and safety.

Nutraceuticals

For many of the nutraceutical products, the requirements are as high as in the pharmaceuticals industry with similar challenges such as cross contamination and dust generation. Piab's vacuum conveyors are design to resolve these challenges. Since materials change often, it is important to have conveying equipment which is versatile, easy to clean, and can accommodate a quick changeover.

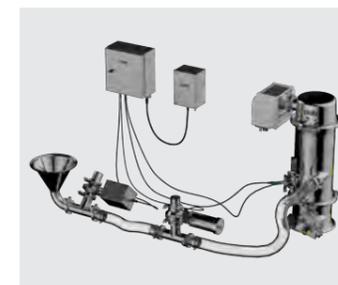
Applications

- Feeding material to and from mixer/blender/sieving unit, etc.
- Feeding packaging machines
- Reclaim of products

Your benefits

- **Made for direct contact:** hygienic and safe for direct contact with products
- **Easy of use:** easily adjusted for a quick changeover of materials
- **Human safety:** our enclosed system help to reduce exposure to dust
- **Optimized production:** vacuum conveyors tailor made for any application
- **Hygiene and health:** easy to clean and built to meet industry requirements
- **Profitability:** reduced waste due to a gentle vacuum conveying setting
- **Small footprint:** our vacuum conveyors will not compromise on limited space

Suitable conveyors for this industry



piFLOW®p SMART



piFLOW®p



piFLOW®fc



Do you want to know more?

Take a look at the online product page: www.piab.com

Pharmaceuticals

The pharmaceutical industry requires the highest safety, hygienic, and quality equipment to meet industry standards and strict regulations. Our products exceed these requirements allowing for optimized productivity at no cost to human safety.

Powder, tablets and capsules

In the production of pharmaceuticals, powder, tablets and capsules are transported through the process steps either through manual handling or an automated solution. Challenges to address are many such as health and safety of the staff, contamination, material segregation, product waste, as well as compliance and quality. Our solutions are customized to your needs, enabling a safe and enclosed system between your process steps. Piab offers intelligently designed solutions that efficiently connects the flow from start to finish.

Piab offers a variety of customized solutions for your specific needs, such as transition pieces for tablet presses from main manufacturers or special equipment for your application.

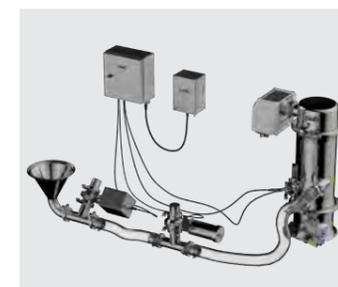
Applications

- Feeding material to and from mixer/blender/sieving unit/etc.
- Feeding packaging machines
- Reclaim of products
- Conveying through/to and from metal detection equipment

Your benefits

- Health and safety: we build vacuum conveyors that provide dust free production
- Efficiency: our vacuum conveyors are made to quickly transfer powder without any material segregation
- Ahead of the game: we set and exceed industry standards without compromising on safety
- Profitability: reduced waste due to gentle a vacuum conveying setting
- Human focus: easy maintenance, hygienic, and safe for human handling

Suitable conveyors for this industry



piFLOW®p SMART



piFLOW®p



piFLOW®t



Do you want to know more?

Take a look at the online product page:

www.piab.com

Chemical



Minimize dust exposure, save floor space, and reduce scrap with our solutions for the chemical industry. We provide high quality technology created to ensure human safety and increase productivity. Maintenance, regular cleaning, and filter changes are easily done to minimize your production's down time.

Desiccants

The desiccant manufacturing market serves global end-users in the food, pharmaceuticals, consumer goods, and electronics markets. Desiccants are used to absorb moisture/water in order to keep products dry and protect from moisture/humidity. Piab's enclosed vacuum conveying system helps to minimize dust generation and employee exposure during production.

Lab testing in one of our facilities can support you in the process of selecting a conveyor. Not only can you test equipment for your particular application but also check a variety of conveying characteristics.

Detergent

In the production of the detergents, capsulated enzymes, powders containing enzymes or other additives are transported through the process steps. Piab has developed a speed control which optimizes transfer speed without damaging the delicate enzymes. However, the enzyme dust is hazardous to human health so it's crucial to minimize exposure. Our enclosed vacuum conveying system outfitted with state-of-the-art ULPA filters ensures the safety of employees and air cleanliness.

Applications

- Feeding material to and from mixer/blender
- Feeding tablet press
- Feeding packaging machines
- Reclaim of products

Your benefits

- Profitability: minimal product waste due to a gentle vacuum conveying setting
- Human safety: our enclosed system helps to reduce exposure to hazardous dust
- Space saving: our vacuum conveyors are built to make up a minimal footprint
- Ease of use: maintenance, regular cleaning, and filter changes are easily done to minimize your production's down time

Suitable conveyors for this industry



piFLOW®p



piFLOW®fc



piFLOW®i

Do you want to know more?

Take a look at the online product page: www.piab.com

Additive Manufacturing



Our innovative vacuum conveying technology is well suited to solve challenges related to additive manufacturing such as safe handling of hazardous materials or easy transfer of materials to and from the 3D printer.

Piab's vacuum conveyors are ideal for filling a printer with metal powders, reclaiming or cleaning excess material from the printers' post-production, and filling or emptying metal powders from and to adjacent equipment such as a sieve or a powder container. Our vacuum conveyors can handle high density materials and transfer them with speed and reliability.

Furthermore, Piab has vacuum conveying solutions for non-inert and inert atmospheres, and tests prove we can convey powder with a bulk density of 8 kg/liter [500 lbs/ft³] giving a throughput of 200 kg/h [450 lbs/h]. Also, we are flexible in terms of additive manufacturing technology applied and we can convey additive manufacturing powder for Powder Bed Fusion, Binder Jetting etc.

The use of Piab's vacuum conveying technology will protect the people from contact with hazardous materials, the metal powder from contamination, unwanted chemical reactions and the environment from pollution in the additive manufacturing process.

The piFLOW® vacuum conveyors were developed as a closed system to solve these challenges. Filters in the vacuum conveyor as well as additional exhaust air filters on the vacuum pump prevent fine dust from entering the workspace and thus avoiding employees to be exposed to hazardous substances.

piFLOW® vacuum conveyors are also ATEX certified and come with a 5-year warranty.

Applications

- Feeding metal powder to printer, sieve or hopper
- Reclaim of products

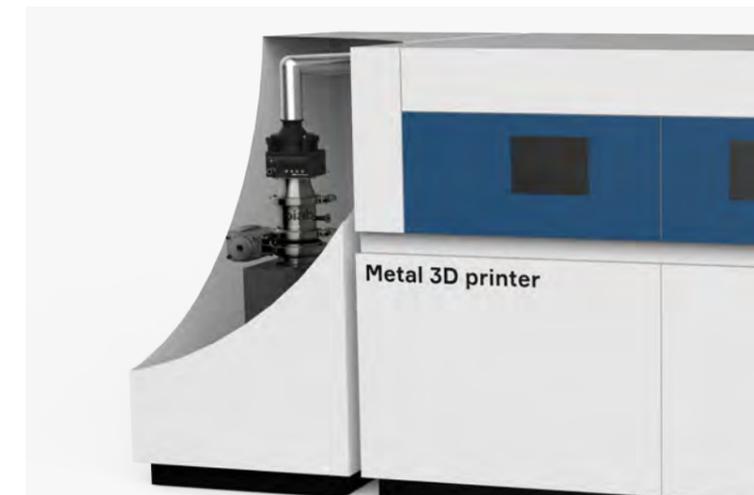
Your benefits

- **Employee health:** our conveyors move metal powders without compromising on safety
- **Innovation:** continually developing top of the line conveyors
- **Productivity and efficiency:** quickly convey without risk of external contamination

Suitable conveyors for this industry



piFLOW®p



The vacuum conveyor is reliable and requires minimum maintenance. It is, however, necessary to regularly change some of the parts to maintain maximum productivity. To optimize your conveyor, Piab offers a wide range of different accessories.

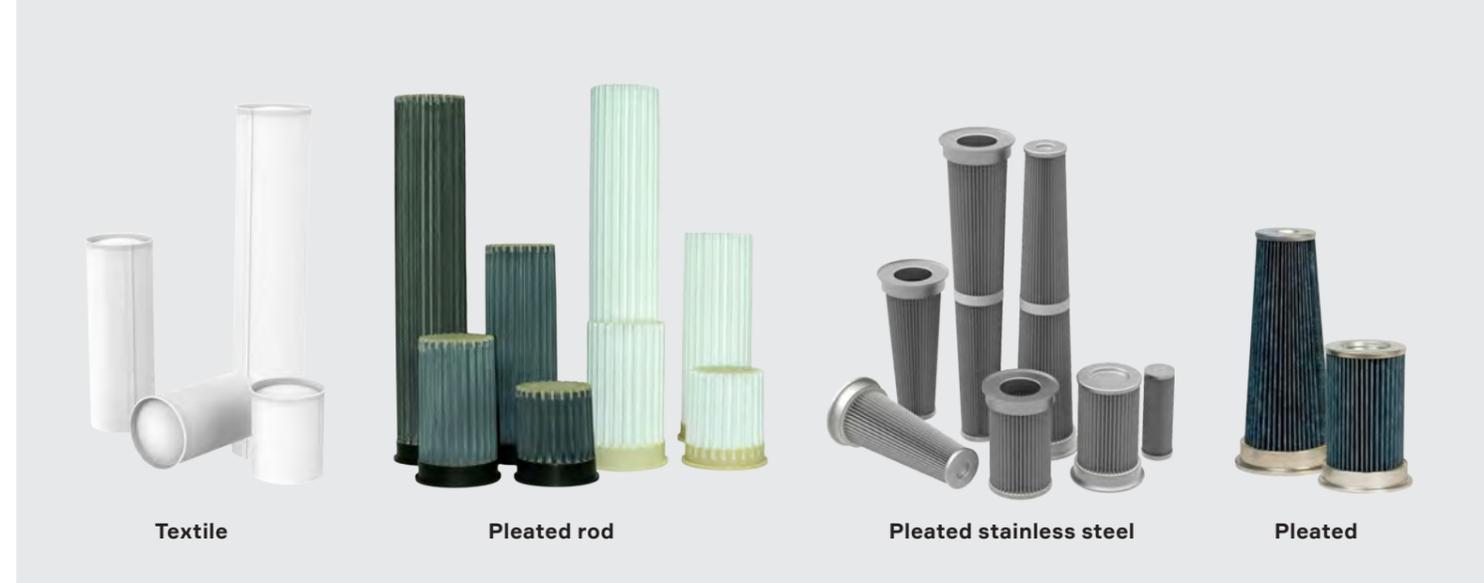
Accessories and Spare parts

Accessories and Spare parts

The vacuum conveyor represents usually just one part of a larger production plant. Therefore, it is very important that all the individual parts of the system are working together perfectly.

Piab's accessories and spare parts are designed to perfectly complement our vacuum conveyors so that your production line is fully equipped with high quality products, maximizing your overall productivity.

For every production line, for different characteristics of the product, and for various environmental conditions Piab offers the right conveyor with suitable accessories.



Filters
Filters are used to filter dust and other small particles from the vacuum flow. It reduces the risk of operation, breakdown or stoppage in the pump. There is a selection ATEX approved filters and a selection of stainless steel filters for sterilization when cleaning.



Electric controls
The electrical control unit controls the functions of the conveyor and is based on software developed by Piab, making different settings more visual through the user-friendly HMI (Human Machine Interface).



Other accessories:
There are several other accessories, such as second stage filter units, vacuum filters, mounting girdles etc. to further optimize your conveyor.



Feeding
It is important to optimize the feeding point (where the product is conveyed from) for the conveying system to assure maximum capacity and safe transport.



Conveyor body
Modular parts for the conveyor to increase batch volume or protect the filter.



Pneumatic controls
Piab's control units are fully pneumatic, operated with an extremely reliable function. The full pneumatic design also removes any source of ignition from the system and at the same time simplifies the validation process.



Piping
To complete the conveying system Piab offers stainless steel pipe bends, food grade hoses, different types of pipe fittings, pipeline emptying units, pinch valves and many other solutions.

Vacuum pumps/Generators
To optimize, upgrade or complete a conveyor, Piab also offers the vacuum pumps/generators as a standalone.



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