Maximize your conveying solution

Food Industry

Smart solutions for the automated world™

Vacuum conveying and its great benefits

Vacuum conveying offers a quick, efficient, space saving, work environment friendly and convenient solution for moving powder, granules and tablets from one place to another. Compared to other conveying methods there are some clear benefits to go for vacuum conveying within the food industry.

Reduce scrap and product contamination

Vacuum conveying provides an enclosed system where no foreign material will accidentally be mixed in or have any product falling off the sides into the surrounding area. It is also a very gentle way of transporting the product, meaning that the product will stay intact resulting in minimum product scrap.

Minimum floor space

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 the need of floor space can be kept to a minimum level and the space in the factory can be used in a more cost efficient way.

Dust free working environment

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 need to be contained.

Piab in the global food industry

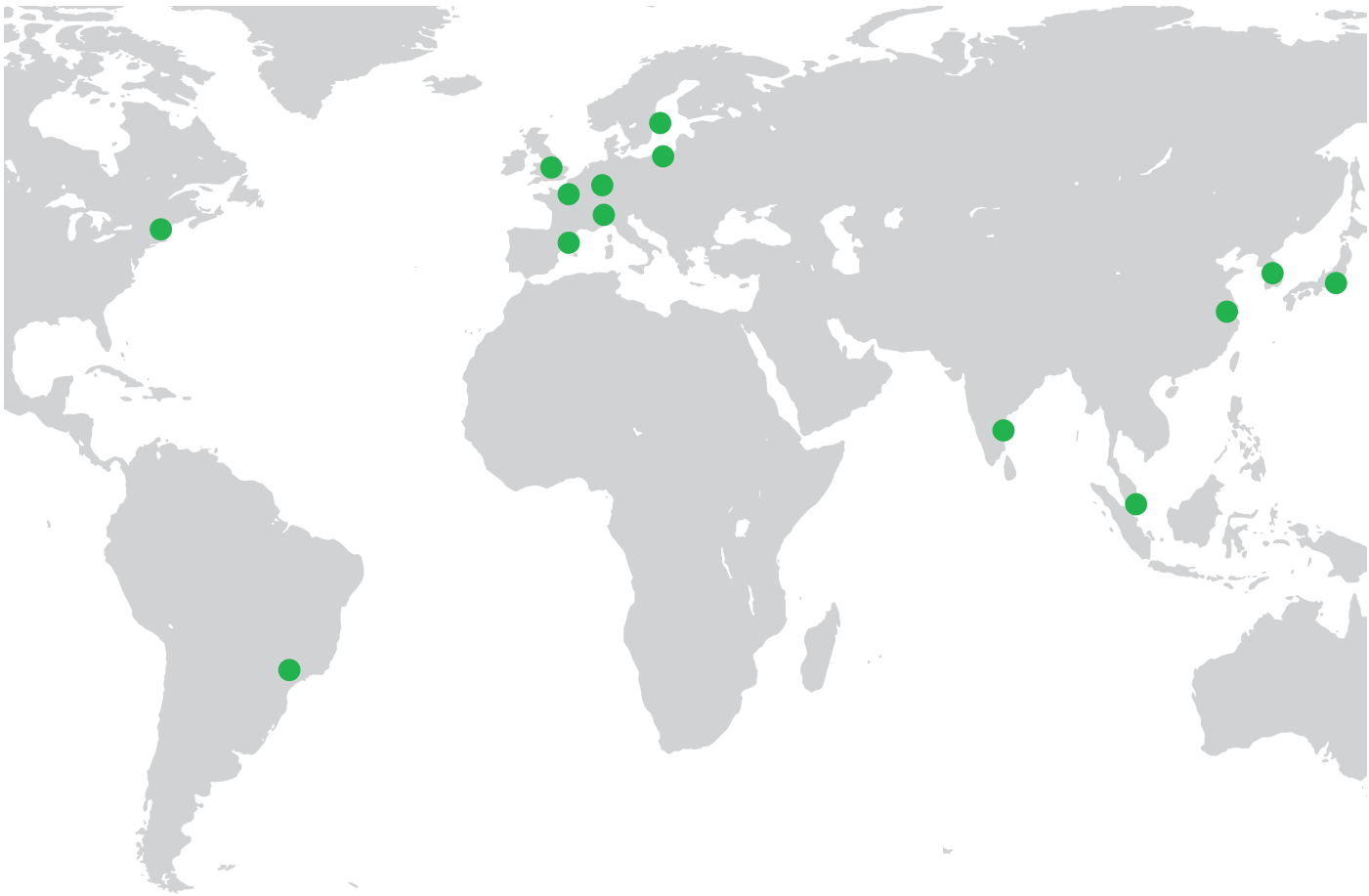
Piab's vacuum conveyors are widely used in the food industry globally. The presence is well spread across the globe and across the various applications. The conveyors are found in the baking goods, confectionery and candy, instant food, food additive, coffee, and nutraceutical industries.

How Piab conveyors meet different demands from the food industry

- Contained conveying is often required as most of the materials are dusty.
- ATEX certification is a very common requirement, especially for sugars.
- In the food industry, conveying equipment must be certified according to FDA and EU 1935/2004. We also work according to cGMP (current Good Manufacturing Practice).
- Available space in the production facility is often a constraint. Production floor layout changes due to variations in capacity and production mixes means that space saving, easily moved conveying equipment is typically requested with a small footprint.
- A quick changeover is needed as the changes of conveyed material happens quite often. Consequently, the need of being able to quickly open and clean the conveying equipment maximizes uptime.
- A contribution to the uptime as the maintenance needed for the conveyor is very limited.
- If there is an active ingredient, it is important that the composition of the mixture or powder is not changed during the transport due to segregation. That is well managed by the conveyor.
- If the final product is tablets, capsules or fragile materials such as nuts, almonds or cereals, it is of a great importance to move them gently without damaging the product, which is why gentle conveying is of great importance.

- Traceability of materials used in product contact zones is needed, hence we provide the 2.2 certificate for the stainless-steel material.
- The change of material also means that the conveying equipment needs to be easy to clean with a hygienic design.
- Low noise and contained conveying enables a good and healthy work environment.
- A 5-year warranty for the conveyor provides security in the production.

Piab offices globally



Application pictures

Here are some examples of our products and their applications in the food industry.

Bag dump station

Sieve

Packaging

Tablet press

Coater

Blender/Mixer

Products

Piab's product series is called piFLOW® and it is offered in three models for the food industry, the piFLOW®f for the basic food industry, piFLOW®p for premium applications and piFLOW®t for conveying tablets, capsules or other fragile material that needs gentle conveying.

Here is an introduction to the products suitable for this industry and their main features.

	Standards	piFLOW®f	piFLOW®p	piFLOW®t
ATEX dust		●	●	●
ATEX gas		–	●	●
FDA*		●	●	●
USDA**		–	●	●
EC 1935/2004		●	●	●
IQ/OQ		–	●	●
Steel quality		ASTM 304L	ASTM 316L	ASTM 316L
Surface finish		Ra < 3.2	Ra < 0.6	Ra < 0.6
Max. capacity		5 tons/hrs	14 tons/hrs	2-3 million parts/hrs***
Suitable for non free flowing material		●	●	–
Optimized for tablet/capsule conveying		–	–	●
Available with ejector or mechanical pumps		●	●	–

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

FDA ASTM 304

Bag dump station for piFLOW®f

It is a contained system due to the dust collector (sold by others) that prevents foreign material from entering the system. Its internal volume is 100 liters and can handle approx. four small bags at a time. No dust from the conveyed product will reach the work area.

FDA SS 316L

Feed station for piFLOW®p/t

A great solution for feeding bridging and challenging materials as it is possible to choose a fluidizing function. The feed station has a good technical height providing extra support for bridging/ challenging material. The feed station has two points where you can add extra carrying air. Its volume is 40 liters.

FDA SS 304

Feed adapters

Feed adapter for piFLOW®f is optimized to fit Piab's or other feed stations available on the market for the piFLOW®i/f. The main applications are free flowing material and granules.

The feed adapter for piFLOW®p/t is optimized to fit the feed station or a transition piece for the piFLOW®p/t. A great solution for bridging materials and relatively large granules.

FDA SS 304

Suction pipes for piFLOW®f

A great suction pipe when you need a lightweight and ergonomically correct suction pipe. Optimal for free-flowing powder and granules. It has a ball valve to be able to add extra carrier air. To avoid sucking in bags, it has a small suction guard at the feed inlet.

FDA SS 316L

Feed nozzle for piFLOW®p/t

Great nozzle for challenging materials since the air intake can be adjusted in many different positions. Optimized for powders and granules. The ergonomic handle improves the work environment for the nozzle operator. Provides for increased productivity and safety in the production area as there is a suction guard at the inlet that will prevent sacks, etc. from entering the pipe.

FDA SS 316L

Feed pipe for piFLOW®t

One of the best solutions to convey tablets and capsules in the gentlest way from drums or IBCs. Its front end design will also increase the speed to convey the tablets/capsules. For increased productivity, it is designed to be very easy to clean.

Baking goods

The baking goods market is a very fragmented market, consisting of many small and midsized companies, but also some multinational giants. Piab can address many of the application challenges and also the need to have a global supplier.

The end products are normally bread, short cakes, tortillas, cookies, crackers, breakfast cereal and muesli, etc. The most common application for vacuum conveying is to feed various kinds of sugar, salt, flour or similar material via sieves into blenders and mixers. Vacuum conveying is also used to feed dosing equipment which sprinkles flavoring, seeds or salt on top of various kinds of breads or buns, or to feed packaging machines and reclaim from packaging and other machines.




Example of conveyed material

Conveyor model	Sugar	Chocolate powder	Milk powder	Additives	Baking powder	Potato flour	Crushed hazelnuts & almonds	Wheat	Corn flour	Seeds	Soy flour	Garlic powder
piFLOW®f	•	•	•	•	•	•	–	•	•	–	•	•
piFLOW®p	•	•	•	•	•	•	•	•	•	•	•	•
piFLOW®t	–	–	–	–	–	–	•	–	–	•	–	–
Type of Pumps												
piBASIC	•	•	•	•	•	•	•	•	•	–	•	•
piPREMIUM	•	•	•	•	•	•	•	•	•	•	•	•
Mechanical pumps	•	•	•	•	•	•	•	–	–	•	•	•
Feed point equipment												
Bag dump station	•	•	•	•	•	•	•	•	•	•	•	•
Feed pipe	•	•	•	•	•	•	•	–	–	–	•	•
Feed nozzle	•	•	•	•	•	•	•	•	•	•	•	•
Feed adapter	•	•	•	•	•	•	•	•	•	•	•	•
Feed adapter with piFLOW®p interface	•	•	•	•	•	•	•	•	•	•	•	•
Feed station	•	•	•	•	•	•	•	•	•	•	•	•

Nutraceutical

Piab is active in many steps within the nutraceutical industry. The nutraceutical market is a growing “lifestyle” market with trends towards premium production equipment with quick changeovers of different materials.

Typical materials conveyed with vacuum conveyors in the nutraceutical market are protein powders in various forms and types, maltodextrin, maca powders, powder extracts from fruits and plants, lactose, sugars, amino acid powders, creatine powder, tablets and capsules with various content. The variety of materials conveyed is significant. Nutraceutical products come in many forms, such as powder additives, tablets and also capsules which has a great fit to Piab’s product line.

The most common applications are to feed packaging machines with finished product (typically protein powders), tablet presses and capsule filling machines with blended powders, and blenders/mixers with ingredients.

Example of conveyed material

Conveyor model	Sugar	Milk powder	Chocolate powder	Vitamin powder	Whey powder	Tablets & Capsules
piFLOW®f	•	•	•	•	•	–
piFLOW®p	•	•	•	•	•	•
piFLOW®t	–	–	–	–	–	•
Type of Pumps						
piBASIC	•	•	•	•	•	•
piPREMIUM	•	•	•	•	•	•
Mechanical pumps	•	•	•	•	•	•
Feed point equipment						
Bag dump station	•	•	•	•	•	•
Feed pipe	•	•	•	•	•	•
Feed nozzle	•	•	•	•	•	•
Feed adapter	•	•	•	•	•	•
Feed adapter with piFLOW®p interface	•	•	•	•	•	•
Feed station	•	•	•	•	•	•

• Recommended, • Functional, – Not recommended

Instant food

Instant food market is a very large industry with a huge variety of products to be transported. The additives are normally a dry blend but can also contain fats/oils up to 15% or more. There is an increased demand of different types of food that is fast to prepare and very accessible.

The typical end products are different types of packaged mixes which requires limited cooking by the consumer. Examples of these types of food are cake mixes, macaroni and cheese, brownie mixes and gravy mixes.

Vacuum conveying is widely used in this industry and often used to feed dosing equipment or a sieve, mixer/blender or a dosing machine. It can also feed packaging machines and reclaim from packaging and other machines.

Example of conveyed products

Conveyor model	Sugar	Chocolate & milk powder	Coffee & baking powder	Pancake mix	Potato flour	Crushed hazelnuts & almonds	Corn flour	Wheat	Salt	Seeds, Rice	Soy flour	Seasoning	Garlic powder
piFLOW®f	•	•	•	•	•	–	•	•	–	–	•	•	•
piFLOW®p	•	•	•	•	•	•	•	•	•	•	•	•	•
piFLOW®t	–	–	–	–	–	•	–	–	–	•	–	–	–
Type of Pumps													
piBASIC	•	•	•	•	•	•	•	•	–	–	•	•	•
piPREMIUM	•	•	•	•	•	•	•	•	•	•	•	•	•
Mechanical pumps	•	•	•	•	•	•	–	–	–	•	•	•	•
Feed point quipment													
Bag dump station	•	•	•	•	•	•	•	•	•	•	•	•	•
Feed pipe	•	•	•	•	•	•	–	–	–	–	•	•	•
Feed nozzle	•	•	•	•	•	•	•	•	•	•	•	•	•
Feed adapter	•	•	•	•	•	•	•	•	•	•	•	•	•
Feed adapter with piFLOW®p interface	•	•	•	•	•	•	•	•	•	•	•	•	•
Feed station	•	•	•	•	•	•	•	•	•	•	•	•	•

• Recommended, • Functional, – Not recommended

Food Additives

The global food additives market is growing as the demand of food with a high nutrition content and better visual appeal is growing The global food additives industry is expected to witness growth owing to changing consumer tastes and interests regarding quality and nutritional value of the product. Growing consumer awareness about different kinds of tastes is also expected to play a crucial role in driving growth.

An additive is incorporated in a finished product to improve protection against harmful bacteria and other kinds of microbes to prolong shelf life. It also imparts characteristics such as flavor, color, and taste in foodstuff and to increase its nutritional content. There is a growing demand for packaged products including ready-to-eat meals, appetizers and frozen meals.

Vacuum conveying is widely used in this industry and often used to feed dosing equipment or a sieve, mixer/blender or a dosing machine. It can also feed packaging machines and reclaim from packaging and other machines.



Example of conveyed products

Conveyor model	Sugar	Chocolate powder	Milk powder	Additives	Baking powder	Potato flour	Wheat	Corn flour	Seasoning	Garlic powder
piFLOW®f	•	•	•	•	•	•	•	•	•	•
piFLOW®p	•	•	•	•	•	•	•	•	•	•
piFLOW®t	–	–	–	–	–	–	–	–	–	–
Type of Pumps										
piBASIC	•	•	•	•	•	•	•	•	•	•
piPREMIUM	•	•	•	•	•	•	•	•	•	•
Mechanical pumps	•	•	•	•	•	•	–	–	•	•
Feed point equipment										
Bag dump station	•	•	•	•	•	•	•	•	•	•
Feed pipe	•	•	•	•	•	•	–	–	•	•
Feed nozzle	•	•	•	•	•	•	•	•	•	•
Feed adapter	•	•	•	•	•	•	•	•	•	•
Feed adapter with piFLOW®p interface	•	•	•	•	•	•	•	•	•	•
Feed station	•	•	•	•	•	•	•	•	•	•

• Recommended, • Functional, – Not recommended

Confectionery and Candy

The confectionery/candy market is fragmented and global. The confectionery/candy market is a growing “lifestyle” market with trends towards premium production equipment with quick changeovers of different materials.

The applications for vacuum conveying covers a large variety of both products and applications from sugar in different forms and cocoa power to finished products such as candy and chewing gum. It means that the vacuum conveying is used to feed dosing equipment or a sieve, mixer/blender or a dosing machine. It can also feed packaging machines and reclaim from packaging and other machines. For the finished fragile products, conveying is also used with both a special conveying method and a conveyor family optimized for fragile components.

Example of conveyed products

Conveyor model	Sugar	Chocolate powder	Milk powder	Finished candy	Crushed hazelnuts & almonds	Chewing gums
piFLOW®f	•	•	•	–	–	–
piFLOW®p	•	•	•	–	•	–
piFLOW®t	–	–	–	•	•	•
Type of Pumps						
piBASIC	•	•	•	–	•	–
piPREMIUM	•	•	•	•	•	•
Mechanical pumps	•	•	•	–	•	–
Feed point equipment						
Bag dump station	•	•	•	•	•	–
Feed pipe	•	•	•	•	•	•
Feed nozzle	•	•	•	•	•	•
Feed adapter	•	•	•	•	•	•
Feed adapter with piFLOW®p interface	•	•	•	•	•	•
Feed station	•	•	•	•	•	•

• Recommended, • Functional, – Not recommended

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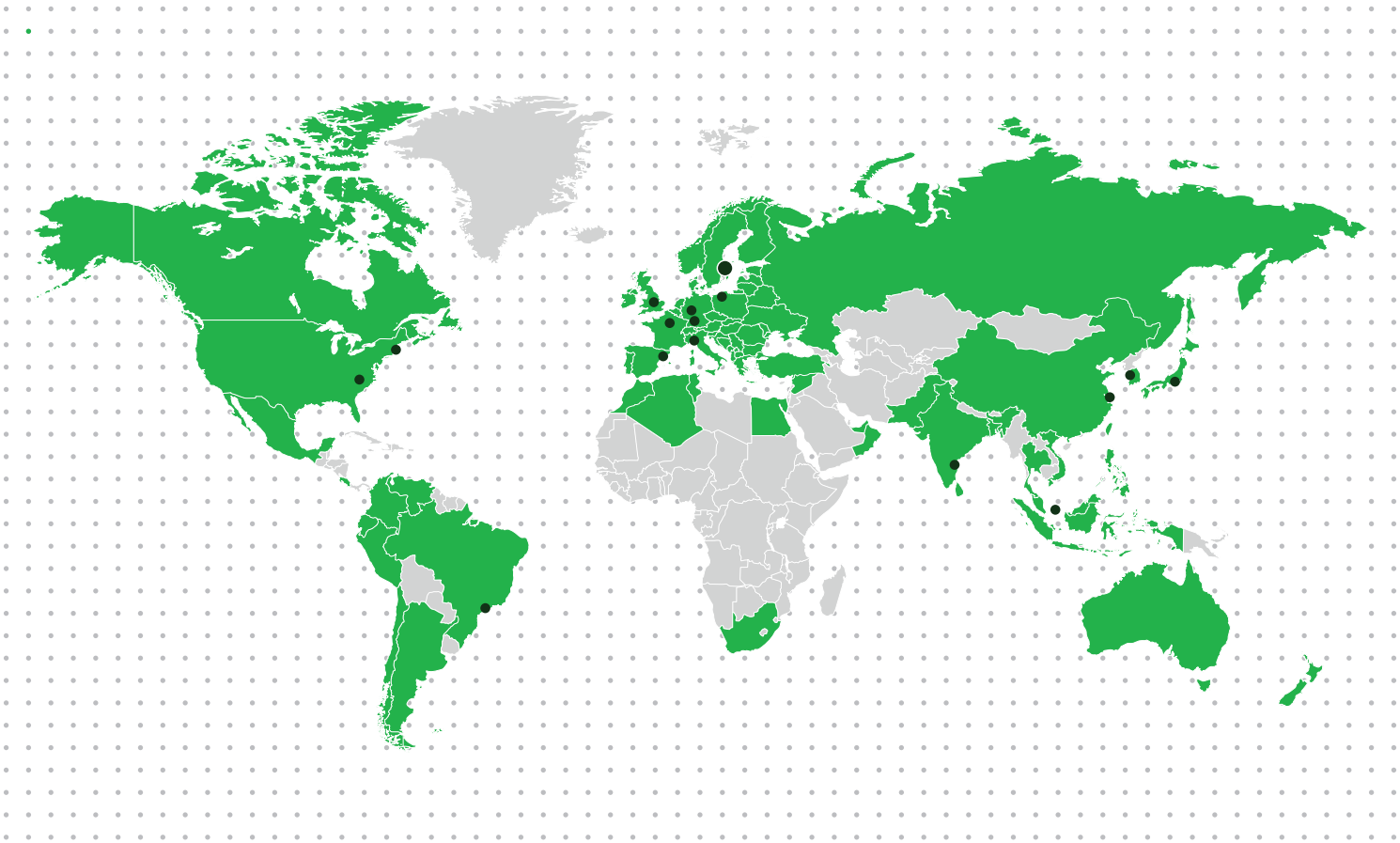

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