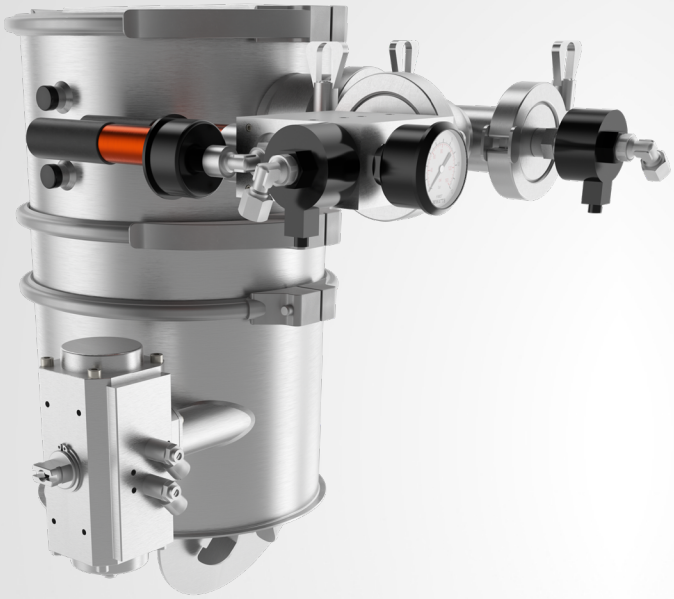
COMPRESSED-AIR AND ELECTRIC PNEUMATIC CONVEYORS

Automated conveyance systems

for material processing



Nilfisk®

What is a pneumatic conveyor?

Pneumatic conveyance is an automated machine process that transfers powder or granular material, according to schedule, quantity, distance and height desired.

Operating principle
A dedicated suction system creates vacuuming within the receiver hopper, and moves the material until it is discharged at the chosen destination point, such as a mixer, packaging machine or storage container.

Thanks to the high level of efficiency of the filtration system, Nilfisk pneumatic conveyors minimize potentially harmful dust discharge into the environment or work area.

Why choose a pneumatic conveyor?

There are many benefits to utilizing a pneumatic conveyor, particularly in comparison to mechanically transfering materials. Optimum preservation of material processed is critical to quality control, and pneumatic conveyance assures the highest possible levels of doing so. Having no mobile mechanical parts (excluding the exhaust valve) results in fewer possibilities of error in processing. Less exposure to external agents results in uncontaminated and more hygienic material processing. You'll also see better integration into manufacturing processes and greater levels of safety, and efficiency through automation.

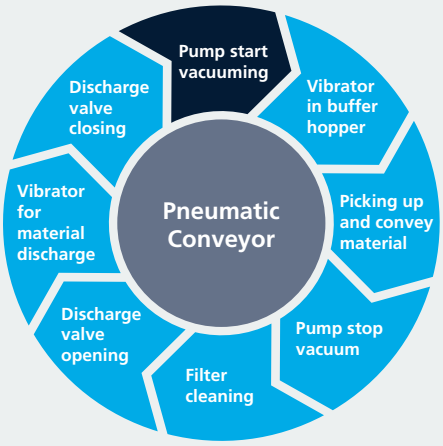
Key advantages

- Easy and quick to install on related machines
- No dust discharge into the workplace
- No mixture segregation
- No granule chipping
- No fire triggering sources (ATEX)
- Highly flexible
- Very low maintenance
- Very limited wear
- Increase of up to 50% in production capacity
- Lower production costs
- Reduction of compressed-air consumption up to 30% (3-series)
- Limited space required (3 series pneumatic)
- Low TCO (3 series electric and 9-series)

How pneumatic conveyors work

Conveying cycle:

1. The receiver hopper is loaded with powder or granules via vacuum power
2. The automatic filter cleaning system ensures that the filter returns to maximum efficiency after every cycle
3. The discharge outlet opens and material is released
4. Loading time, cleaning and material discharge can be adjusted from the conveyor control panel
5. Vibrators increase efficiency and reduce bridging of the material



Range of pneumatic conveyors

Nilfisk pneumatic conveyors can be compressed air or electrically driven, and are compliant with EU Regulation 1935/2004 — available in ATEX versions and suitable for collecting combustible powder. The range of conveyors offered includes stand-alone and customized, ready-to-use machines, that require minimal installation effort and offer a wide range of performance options tailored to industry or desired material processing needs. Nilfisk pneumatic conveyor lines include the 3-Series, 9-Series, AX-Series and PCT421FG-Series respectively.

Customized pneumatic conveyors

PCS (pneumatic conveyors systems) are custom-made based on customer need — for specific applications in food, chemical, pharmaceutical and other material processing. These systems can transfer up to 3000 kg/h* of powder or grain. They are comprised of 2-12 kW suction units with side-channel blowers, (for transport during the fluid or semi-dense phase), and different types of hoppers, based on the type of material and quantity of material transferred.

**Based on bulk density, conveying, length and height.*

Pneumatic conveyors for powder material processing

Nilfisk 3-Series pneumatic conveyors

The 3-series is a range of pneumatic conveyors that automatically feeds process machines, such as capsule fillers and tablet presses, with fine powder. They are available in compressed air, with two ejectors and three stages, or electrically driven.

Important features:

- Conveyance rate up to 1100 kg/h *
- Dense phase conveyance ensures the non-segregation of the mixture to keep the concentration of different components constant.
- Excellent level of filtration for fine powders up to 0.2 µm - for the safety of the operators and hygiene in the working environment
- GMP design: built with top level materials, such as AISI316L stainless steel, silicone, polyurethane, EPDM, PTFE, Sustarin® for the best level of hygiene and cleanability
- Mirror-polished stainless steel for parts in direct contact with material; brushed stainless steel for all the other components
- Compact size and light-weight, allowing for installation even where space is limited
- Fast and easy disassembly without any tools
- Wider range of accessories makes for simple, flexible machine set-up
- Food contact certified, and is also suitable for combustible dust processing
- Compliant with machine directive CE and also ATEX Z1/21

** based on the bulk density, conveying, length and height.*

3VT

3VP

Blowing-based pneumatic conveyors for empty capsule processing

Nilfisk 9-Series blowing-based pneumatic conveyors

9GT is a three-phase pneumatic conveyor that automatically feeds processing machines such as capsule filling machines with empty capsules. Thanks to the high modularity of the range, the 9GT can be custom configured - from a simple conveyor (manually started when production initiates), to a fully automated and process-integrated machine.

Important features:

- Conveyance up to 65.000 capsules per minute *
- Capsules are gently blown throughout processing, resulting in no opening or damage to processed materials (size: 5 to 000)
- Available also with a VFD motor - to vastly improve the adjustment of capsules speed - for optimized energy savings and consistent processing performance, eliminating any capsule damage
- GMP design built with top level materials—such as AISI316L stainless steel, silicone, polyurethane, EPDM, PTFE and Sustarin®—for the best level of hygiene and cleanability
- Wider range of accessories for simpler, flexible machine set-up
- Very low TCO (total cost of ownership)
- Food contact certified, with filter certification and compliance with machine directive CE , UL-CSA components for the US market

**perfomance based on tests made with capsule size 0*

9GT

9GT 330 WITH FLEX HOSE

Single-phase brush motor conveyors for large grain and powder processing

AX-Series with single-phase brush motor

- Conveyor for materials up to 300 kg/h and grains larger than 1 mm
- Single-phase conveying for dry and granular materials
- Compact all-in-one process feeder
- System to move material as dry powder or granular direct from the customer container to packaging or production process
- A complete unit, available in three different sizes and volumes (D280, D360 mm) for a total of 15 versions
- 1,000 Watt power
- Industrial self-cooling bypass motor
- Equipped with cartridge filter that can be cleaned by compressed air purge system

Pneumatic conveyors for tablet or full capsule processing

PCT421FG-Series

- Conveyors for tablet or full capsule processing - that transfer fragile materials from capsule fillers or tablet presses to the packaging machine - and are ideal for processing of foods, where breakage free transferral is possible
- Filled capsules and tablets are conveyed/discharged on the top of the blistering machine via a cyclone hopper and vacuum generated by 3 ph electric driven mobile machine or fixed suction unit for gentle conveyance and dust removalfrom the granular and dusty materials

How to choose the right pneumatic conveyor

In order to choose the best conveyor for your needs, several aspects of material processing must be considered - including the type of materials processed and hygiene or safety levels desired.

A wide variety of operational and functional differences present the best opportunity for you to choose the right conveyor:

SECTOR OF APPLICATION	MATERIALS	*KG/H	TECHNOLOGY	PUMP (SIZE) OR MOTOR (KW)	CERTIFICATIONS	ADVISED CONVEYOR
FOOD AND PHARMA	Fine powders / Grains	550-1100	Venturi ejectors vacuum	2 ejectors		3CP0422-220
	Fine powders / Grains	250-800	Venturi ejectors vacuum	2 ejectors		3CP0422-150
	Fine powders / Grains	150-550	Venturi ejectors vacuum	2 ejectors		3VP0322-100
	Fine powders	550-1100	Electric vacuum	0.55 KW		3CT0322-150 F25
	Fine powders	150-650	Electric vacuum	0.55 KW		3CT0422-150
	Fine powders	150-400	Electric vacuum	0.55 KW		3VT0322-100
	Empty capsules	40.000**	Electric blowing	0.40 KW		9GT1645-282A X
	Empty capsules	65.000**	Electric blowing	1.00 KW		9GT1645-282A FC X
	Fragile grains / Tablets	100-600	Electric vacuum	2.20 KW		PCT421FG
FOOD AND OTHER INDUSTRIES	Fine powders / Grains	550-1110	Venturi ejectors vacuum	2 ejectors		3CP0422-220
	Fine powders	550-1110	Electric vacuum	0.55 KW		3CT0422-220 F25
	Grains	100-300	Electric vacuum	1 KW		A128XRF
	Grains	100-300	Electric vacuum	1 KW		A128XR
FOOD AND PHARMA	Powders or grains	2100-3000	Electric	12.5 KW		Systems
	Powders or grains	1600-2100	Electric	7.5 KW		
	Powders or grains	900-1600	Electric	4 KW		
	Powders or grains	500-900	Electric	2 KW		
	Powders or grains	100-300	Electric	1 KW		
OTHER INDUSTRIES	Powders or grains	2100-3000	Electrical	12.5 KW		Systems
	Powders or grains	1600-2100	Electrical	7.5 KW		
	Powders or grains	900-1600	Electrical	4 KW		
	Powders or grains	500-900	Electrical	2 KW		
	Powders or grains	100-300	Electrical	1 KW		

***capsules per minute*

**performance may vary depending on the material's bulk, density and the conveying length.*

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