Food

Vacuuming in food production

Nilfisk

Industrial vacuum solutions for food production

How to increase safety, hygiene and efficiency in food production.

Learn more about the dust and granule vacuum and transportation solutions for breadmaking laboratories and food production companies.

Nilfisk is world leader in the manufacture of industrial vacuums and pneumatic transport systems and has a direct presence worldwide.

This publication lists the vacuum applications in both the artisan and industrial world of food production, illustrating the most common solutions that have been developed for thousands of companies worldwide.

For more information about the technical solutions, visit www.nilfisk.com.

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An overview of industrial vacuum solutions for food production

Let's discover the three most common product lines used in laboratories and companies to obtain production efficiency, increase automation and maintain a high level of hygiene; all according to ATEX certification and in compliance with GMP standards.

INDUSTRIAL VACUUMS

Single-phase, three-phase and compressed air. In stainless steel or completely painted. Nilfisk industrial vacuums offer a high level of filtration due to the polyester fabric cartridge filters, ideal for very fine powders, filtering air at high temperatures and for toxic powders.

Nilfisk industrial vacuums are certified as compliant with the following international safety standards: ATEX, IECEx, CE, TüV (L-M-H).

PNEUMATIC CONVEYORS

These are used to transport grains and powders, according to precise preset times and quantities, from the raw material containers to the loading hoppers of the packing or canning machines. They are excellent for increasing the automation of coffee and tea production lines. They are necessary for maintaining quality of mixtures in the beverage and confectionery industry.

CENTRALIZED VACUUM SYSTEMS

When cleaning of surfaces over large areas is required, or when access space for mobile industrial vacuums is limited, centralized vacuuming systems are the perfect solution in the food industry. They offer the advantage of positioning the vacuuming unit, the filtering unit and the exhaust system outside of the production environment, maintaining only the vacuuming hoses inside. Excellent for continuously vacuuming in multiple points along the conveyor belts.

Oven cleaning

- No more burned flour or crumbs = no more explosion or fire hazards

Keeping an oven in a perfect condition improves product quality

The use of an industrial vacuum is excellent for cleaning inside an oven, such as an industrial vacuum with a NOMEX filter (self-extinguishing material) suitable for vacuuming white-hot substances. For all environments with a potential risk of explosion due to the presence of flour, Nilfisk offers an ATEX certified industrial vacuum.

… environments where there is potential risk of explosion"
The ATEX certification of the Nilfisk industrial vacuums, for zone 21 or 22, makes it possible to work safely even in less ventilated environments

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Emptying and cleaning the driers

- Even the most complex operations become simple and fast

Saving energy and time without limits

Cereal driers are used increasingly due to continuous weather fluctuations and sporadic rains which effect the quality of harvest or result in yields with unwanted moisture levels. An easy and quick emptying of the driers makes a fast and more intensive rotation of the drying phases possible.

"… faster and more intense rotation"
Speeding up work means saving time, but also a lot of energy used for the drying process

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Production line cleaning

- Occasional or constant vacuuming, all the solutions for a high quality end product

Eliminating waste means preserving product quality

Keeping the production lines clean according to schedule prevents the product from being contaminated by burnt crumbs and flour or other production waste. This operation also avoids a high percentage of waste. The "TPlus" range is an excellent solution, for working manually on the lines to serve this purpose.

The cleaning operation can also be performed as a continuous cycle by distributing vacuuming points along the production line that are connected to a three-phase industrial vacuum or a centralised vacuuming system.

"… avoids the product from being contaminated…"
Product quality always results from a strict control of its contamination and avoids useless waste that in turn requires additional time for disposal

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Cleaning manufacturing environments

- A clean environment is safe, healthy and efficient

Increasing the safety of your environment improves operating efficiency and well-being

The quality of the food production environment is the basis for guaranteeing hygiene and safety. Nilfisk works constantly together with manufacturing companies in the design of industrial vacuums and accessories dedicated to this purpose.
Cleaning the floors and production lines, as well as all of the systems, especially overhead ones, are operations that Nilfisk mobile industrial vacuums help perform. Exceptional quality of results are achieved, using accessories that speed up the work, only a few minutes are required and the results can be seen immediately.

"… guarantee hygiene and safety…"
Hygiene and safety make the working environment more effective because it can be fully utilized; also creating an environment to benefit operator efficiency

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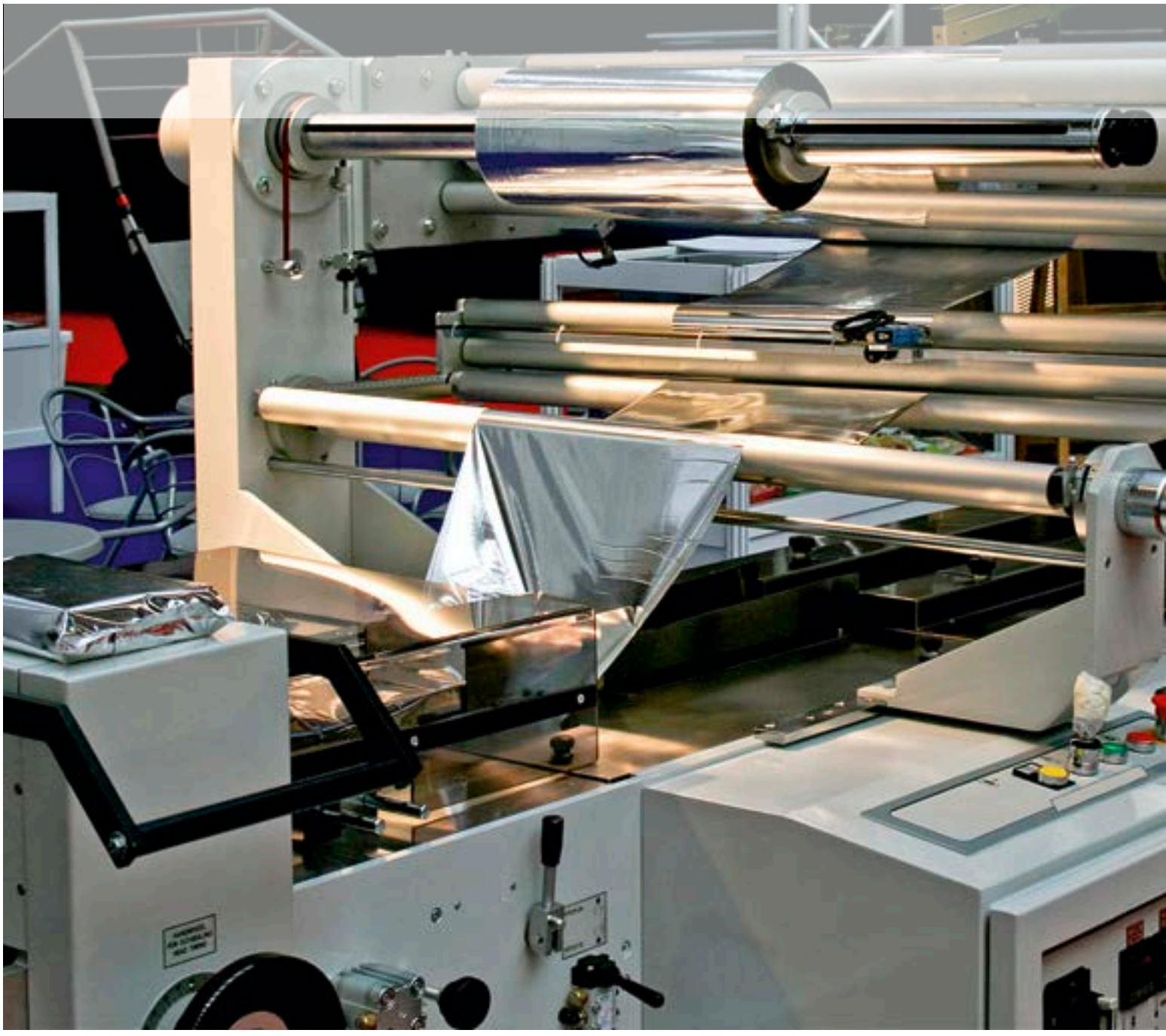
Vacuuming packaging machine scraps

- The dynamic management of packaging scraps improves production organisation



More time to dedicate to work

Nilfisk produces a range of industrial vacuums for the recovery of manufacturing scraps, plastic, paper and fabric produced daily during the packaging cycle.
The industrial vacuum eliminates the continuous interruptions for cleaning the cutting machine, avoids scattering the waste in the environment, whilst it makes it possible to check product quality in real time, vacuuming any fine powder that can contaminate it.

"… checking product quality in real time…"
The industrial vacuums can be used to eliminate all contamination risks, also during packaging operations

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Transport of coffee beans or grains

- The pneumatic handling of coffee or grains makes it possible to save time and improve product quality

Maximising automation improves the manufacturing flow

Nilfisk pneumatic conveyors are designed for transferring powders and grains that, taken directly from bags, drums, big bags and other containers are released at a certain distance, at the desired times and in the desired quantities.
Using pneumatic conveyors means being able to transport the product from a single point to multiple destinations at the same time, and vice versa. The entire transfer process is done hygienically, with respect for the environment and for the workers.

"… at the desired times and in the desired quantities…"
Pneumatic handling not only avoids harmful product contamination, but also permits a perfect control of the manufacturing flow, avoiding expensive machine downtime

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Recovery of liquids and waste in storage and ageing systems

- How to speed up the waste recover times and make the productive environment safer

Quickly recovering liquids and solids makes everything more efficient

Nilfisk produces industrial vacuums designed for cleaning in food storage and ageing areas where it is necessary to vacuum liquids and solid organics and materials.
Essentially, there are three immediate advantages: saving cleaning time, making the production and packaging environments more hygienic and lowering resource expenses for maintenance.

"… less resource expenditure…"
Cleaning and the recovery of waste can be carried out quickly and with excellent results, which is the only way possible to save time and money

ACCESSORIES KIT

Oven cleaning kit
The oven cleaning kit is a specific set of accessories designed for cleaning inside ovens; it consists of:
- 3m flexible steel hose with zinc-plated reduction and fitting
- Stainless steel 1m extension (3 pieces) with quick-fit coupling
- Wheeled nozzle for ovens
- Sliding PTFE sleeve

Machine cleaning kit
The machine cleaning kit is a group of accessories used to remove dust and residuals from manufacturing systems:
- Zinc-plated adapter
- 5m Polyurethane hose with sleeves
- Zinc-plated curved fitting
- Rubber cone
- Zinc-plated junction fitting
- Zinc-plated flat-tip crevice nozzle

Kit for machinery and floors
The ATEX accessories kit represents a solution when the conductivity requirement becomes an obligation; it consists of:
- 3m conductive flex hose
- Conductive sleeve (2 pieces)
- Stainless steel handgrip
- Stainless steel wheeled floor nozzle for dust and liquids (width 400mm)
- Stainless steel curved fitting
- Conductive cone
- Stainless steel flat-tip crevice nozzle

ACCESSORIES

Coloured nozzles and brushes
The coloured nozzles with a rubber lip are specifically designed for food and drug environments. vailable in autoclavable and conductive versions, they are FDA approved.

Coloured brushes
The coloured brushes, all with a rubber structure (with the exception of one in wood and aluminium) are used for removing and vacuuming dust from surfaces, machines, production lines and structures in a manufacturing environment.

Antistatic non-toxic hose
The antistatic non-toxic hose is made of PVC with a transparent polyurethane substrate, it is suitable for cleaning abrasive and granular materials. It is flexible and is corrugated externally and smooth on the inside. It also has a metal spiral.

Silicone hose
The silicone hose is suitable for cleaning powder from foodstuffs and pharmaceutical mixtures (FDA approved). It is white, resistant to high temperatures (up to 200 °C) and therefore can be sterilized in an autoclave (at 121 °C). It has a metal wire to earth the hose and a stainless steel spiral; it is smooth both on the inside and externally.

OPTIONAL

PTFE polyester filter
Bag filters are used in the smallest vacuum cleaners of the white line series and in pneumatic conveyor systems, they have a smaller filtering surface area than star-shaped filters and are used where a low quantity of material must be vacuumed and filtered.

Nomex filter
The star-shaped or primary filter is one of the most important components in the vacuum cleaner as it traps all the impurities that could be pumped back into the environment. These are in various sizes to adapt to all vacuum cleaner models, and in various materials.

Cartridge filter
Ideal for automatic and continuous cleaning of the filtering cartridges while vacuuming very fine or dry powders.
The system "fires" jets of compressed air inside the cartridges while vacuuming, therefore it is not necessary to turn off the vacuum cleaner to clean the filter.

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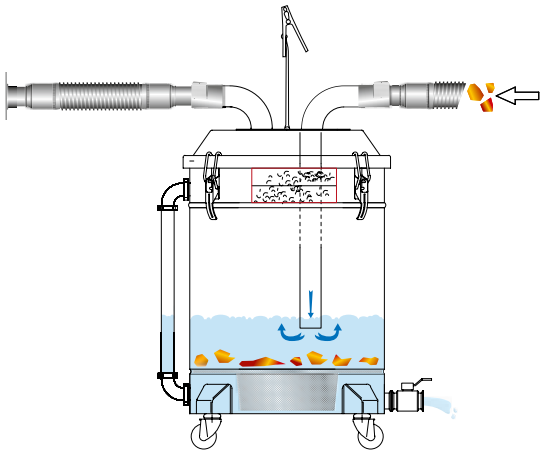
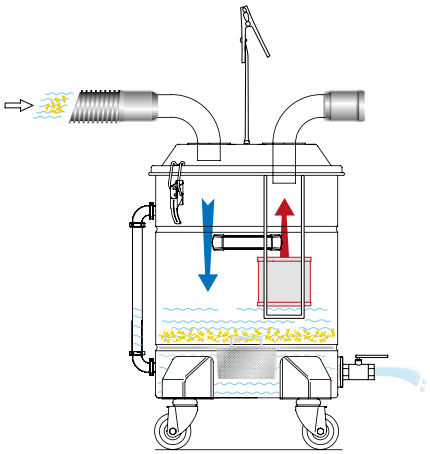
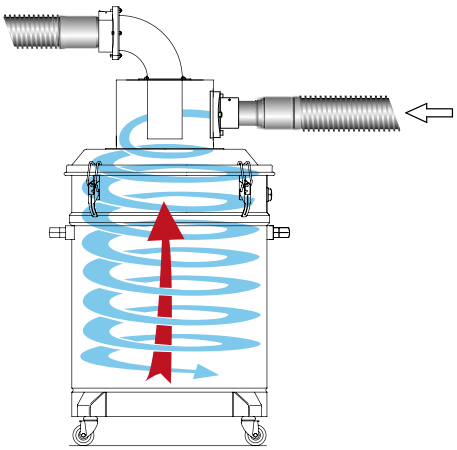


Separator for white-hot substances
Ideal for vacuuming and collecting white-hot substances. The material is cooled when it comes into contact with the water in the container. This water immersion system may be suitable for certain applications with dusty materials.

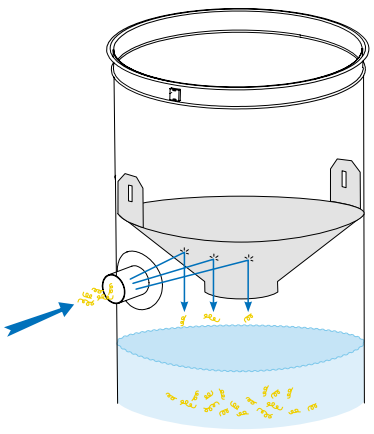
Separator for liquids
Ideal for vacuuming and collecting liquids. A mechanical stop system stops the vacuuming when the container is full, whereas the manual valves permit the liquid to be drained.

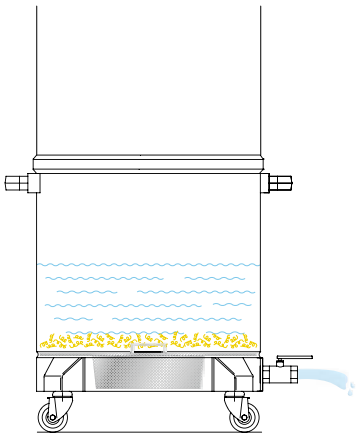




Cap with mini-separator
Ideal for vacuuming light or dusty material directly into the container. It fits on the container or hopper, creates a cyclonic effect which helps deposit the material on the bottom.

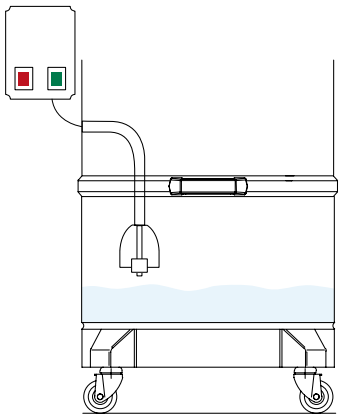
Separator
Ideal for protecting the primary filter from splashes of liquids or potentially sharp material vacuumed up. Should not be used with dusty material.

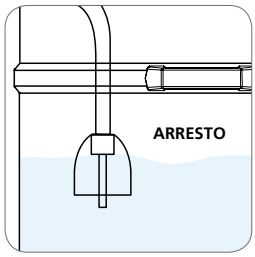


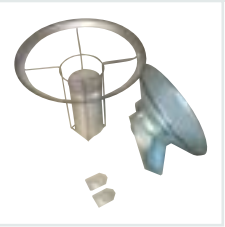


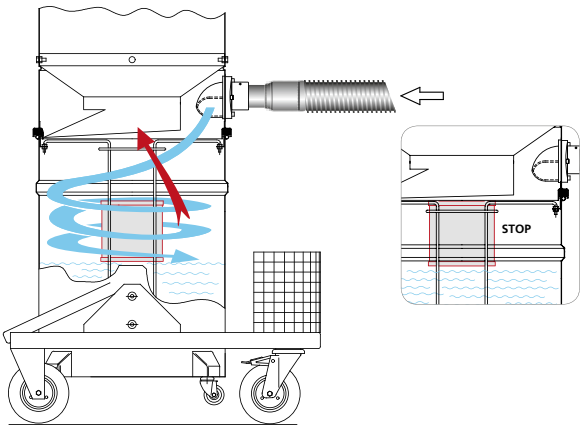
Grille and valve
Ideal for separating solid material from liquids directly inside the container. The grille in the base of the container lets solid material deposit, while liquids can be recovered or drained through the manual valve on the bottom.

Automatic liquid stop
Ideal for vacuuming liquids, and powers down the vacuum cleaner automatically. The unit powers down when the max. liquid level is reached in the container.



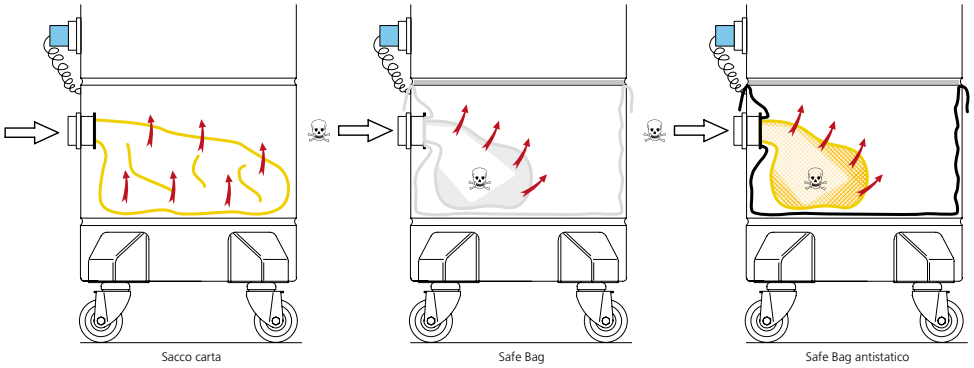






Mechanical liquid stop
This stainless steel system stops the vacuum system mechanically when the max. liquid level is reached in the container. Mainly used on compressed air models or where automatic stop is not envisaged.

Paper bag, safe bag and anti-static safe bag
The container, which can be exchanged with the original, is able to house the paper bag or safe bag. The safe bag system can be used to collect toxic powders and has a safety closing system that upon its removal prevents the user from coming into contact with the vacuumed product.



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