Pneumatic conveying systems

Innovative solutions, also for fragile and abrasive materials

Throughput range: 1 to 100 000 kg/h
Conveying distance: 3 to 800 m
Customised solutions for all conveying-applications.

Gericke pneumatic conveying systems:
- low operating costs
- continuous or batch
- reliable and robust
- dust-free and hygienic
- automated operation
- very gentle conveying with minimal abrasion or breakdown of the product.
- no segregation of the material during conveying
- low air/gas consumption for economic performance, e.g. nitrogen conveying.
- minimal wear on bends or pipes
- easy to clean and maintain

We have the right conveying system for your product:

Key feature: the optimum conveying velocity

Gericke offers the complete package from one source:
Product reception, feeding, weighing, distribution and filtration.

Mean material conveying speed in metres/second (dependant on conveying distance)
Customer process: meeting the needs.

Gerikke conveying equipment is engineered using a modular system. The most economical solution is selected to suit the particular application.

Example:
With 1 kg of conveying air Gerikke lean phase systems (1.29 Nm3) can deliver 1-10 kg of product, whilst 30-50 kg can be conveyed with the Gerikke PHF thrust conveyor and 30-120 kg with the Gerikke’s dense phase plug conveyor.

Economy:

Example 1:
Silo loading of raw materials e.g. flour, sugar or salt, which do not require slow speed conveying.

Example 2:
Mixer feeding with friable granulated detergent ingredients which require extremely gentle conveying.
Simple and flexible: vacuum conveying

**Gericke venturi vacuum conveyors**

- **Applications:** for coarse and fine powders, grains and granulates
- **Throughput:** 0.1 to 4 m³/h
- **Distance:** 1 to 50 m

**Advantages:**
- high vacuum possible (up to 900 mbar) (multi-ejector)
- modular assembly, easy to clean
- no electrical components
- low dust emissions
- pharmaceutical version available

**Gericke vacuum conveyor with exhauster**

- **Applications:** for coarse and fine powders, grains and granulates
- **Throughput:** 1 to 10 m³/h
- **Distance:** 1 to 100 m

**Advantages:**
- dust escape ruled out
- low investment costs
- flexible design
- easily extended

**Gericke suction scale**

Efficient multi-component batch weigh system for up to 12 components.

- **Applications:** for coarse and fine powders, grains and granulates
- **Throughput:** 0.1 to 5 m³/h
- **Distance:** 1 to 60 m

**Advantages:**
- A number of raw materials can be delivered and weighed successively from big bags, containers or silos.
- High recipe accuracy is attained using a metered product feed.
Sound and economical: low- and medium-pressure conveying technology.

**Gericke lean phase conveyor**

**Applications:** for coarse and fine powders, grains and granulates

**Throughput:** 0.1 to 50 m³/h

**Distance:** 1 to 100 m

**Advantages:**
- low investment costs
- self contained system
- simple design
- easily extended

**Efficiency**
- conveying pressure up to 800 mbar using a blower or side channel compressor.
- product feed by rotary valve or injector.
- continuous product conveying
- product discharge via cyclone separator

**Gericke in-line sifter**

**Advantages:**
- Reduce height and improve maintenance access by installing an in-line sifter into the lean phase blowing or vacuum system.

Product feed from silo via rotary valve.

In-line sifter placed directly in lean phase pressure or suction conveyor.
Gentle product handling with no segregation: pneumatic dense phase conveying with pressure vessel

**Gericke pulse conveyor**
*Pulse-Flow™ PTA type*

**Applications:** for free-flowing to cohesive powders, coarse-grained products and granulates.

**Throughput:** 0,1 to 100 m³/h

**Distance:** 1 to 500 m

**Advantages:**
- low velocity, kind to the product
- minimum segregation
- high loading/low conveying gas consumption

**How it works:**
The design of the pressure vessel ensures that the product is forced into the conveying pipe in a mass flow form. The conveying gas (air, nitrogen) enters the vessel and conveying pipe in pulses. Depending upon the product, separate or wave plugs are formed, which are moved slowly by the conveying air in the pipe to the receiving hopper.

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**Gericke plug conveyor**
*PulseLine™ PTA PL type*

**Applications:** for pressure-sensitive granulates, sprayed granules, plastic pellets, non-compressible powders

**Throughput:** 0,1 to 100 m³/h

**Distance:** 1 to 500 m

**Advantages:**
- very gentle conveying
- restarting conveying with filled pipe line
- high reliability

**Design innovation:**
The self-regulating activator groups placed at critical points along the conveying pipeline break up long plugs by injecting additional air.
The Gericke's speciality: slow, gentle and low-wear conveying

**Gericke PHF thrust conveyor**

Applications: for coarse, fine and fluidisable powders.
Throughput: up to 150 m³/h
Distance: up to 800 m

Advantages:
- low-wear (no rotating parts)
- minimum air and energy consumption
- PHFK 20: compact installation height

How it works:
The product is conveyed in layers using medium pressure and velocity. The air is introduced separately into the discharge elbow for conveying and the vessel for fluidising.

**Gericke gentle conveyor PSF**

Applications: for products extremely fragile and abrasive products.
Throughput: 5 m³/h max.
Distance: 50 m max.

Advantages:
- gentlest product treatment and lowest conveying velocity
- minimum component wear
- start up possible with filled conveying pipe

How it works:
The GERICKE pneumatic conveyor type PSF delivers 0.1 to 1.5 m/s, and ensures the gentlest possible treatment of the product. The combination of air/gas in the conveying pipe and vibration conditions the product into an ideal state for conveying. A ideally compacted bulk is formed, which reduces friction and adhesion to the pipe walls to a minimum.

Typical products handled:
- beans (roasted)
- capsules
- cohesive powders
- briquettes
- plastic
- small parts
- nuts
- beads
- pigments
- powders
- redispersable agglomerates
- carbon prill
- abrasive powders
- salts
- sand
- sprayed granules
- tablets
Perfectly matched: components from Gericke

- **Feeding the conveyor:**
  Dependant upon the product characteristics, filling capacity and available space, the most suitable feeding equipment is selected: e.g. gravity, discharge aids, screws.

- **Feeding into the conveying pipe:**
  Rotary valves, venturi, special valves for abrasive products and for plastic granules, easy clean rotary valves.

- **Pipeline couplings:**
  Flanged pipe connections, compression, dairy fittings, tri-clover.

- **Diverter valves:**
  Pinch, butterfly, plug valves, rotating tube, hose.

- **Gercke pipe bend**
  Type GB to counter wear and product degradation.

- **Air treatment unit:**
  For vacuum, low, medium and high-pressure conveying systems.

- **Modern Gercke microprocessor control**
  - automatic sequence
  - adjustable operating parameters
  - can be used with all conveying systems
  - interface to PLC or integrated into a process control system with graphics
Gerické conveying systems for the food industry are designed to meet stringent hygiene requirements. The Gerické standard includes materials of construction, welding procedures, surface finish, seal materials and cleaning access. In many applications the filtration, drying and cooling of the conveying air must also comply with recognised standards.

Typical applications in the food industry include road tanker off-loading, gentle transport of fragile products to storage vessels, process operations and packing.

Gerické vacuum conveying

Typical: Sugar and dextrose for chocolates, sweets, yoghurt, infant foods or beverages

Advantages:
- flexibility of design layout
- low height at pick up point

Gerické dense phase conveyor

Pulse-Flow™ type

Typical: For gently conveying of milk powder, instant beverage granulate from dryer or granulator into intermediate hoppers and to filling machines.

Advantages:
- extremely slow and gentle
- constant velocity, no final expansion thanks to double sender conveying

How it works:
The product characteristics and the minimum conveying velocity are the most important factors when selecting the most appropriate conveying system. Low velocity conveyors not only minimise product degradation but also reduce noise and equipment wear.

All materials are trialed in the Gerické test laboratory where the optimum conveying condition can be determined using the latest state of art technology. Tests can be conducted over distances of 15 to 280 metres with a full range of system configurations.

Food Industry
Chemical and Pharmaceutical Industry

Gerike systems offer robust construction, minimum downtime, no emissions, ergonomic and sanitary designs, batch traceability and confidence to meet most requirements.

All process steps are considered in detail and the final solution worked out to match the demand of each application.

- **Gerike conveying and silo installations**
  for components used in vitamin production.

  **Advantages:**
  - efficient discharge of road vehicles or sea bulk containers
  - products treated gently

- **Dust-tight reactor loading**
  from containers, big bags or drums.

  Products with minimum conveying gas (e.g. nitrogen) direct to the reactor or agitated vessel.

  **Advantages:**
  - automated feed
  - nitrogen blanketing
  - product delivered above or below liquid level

- **Gerike vacuum conveying**
  for pharmaceutical products

  **Advantages:**
  - absolutely dust-free and hygienic
  - modular design
  - speedy and simple cleaning

Dust-free emptying and medium-pressure conveying from bulk vehicles into silos.

Dense phase conveying with Pulse-Flow™ plug conveying to mixer.

Road tanker

Chemical and Pharmaceutical Industry

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Road tanker

Cost effective solutions for plastics, detergents and building materials

- **Nitrogen conveying** ($N_2$)
  - adipic acid, nylon chips, agrochemicals

  Advantages:
  - reliable conveying in $N_2$ circuit
  - economical using $N_2$ recycling circuit
  - no angel's hair

- **Extremely gentle conveying**
  - detergent ingredients, intermediate and end products

  The PulseLine™ dense phase conveying system includes self-regulating additional air into the conveying pipe. This system is also ideal for conveying plastic pellets.

  Advantages:
  - extremely gentle product handling
  - high reliability as blockages in the conveying pipe are prevented

- **Dense phase conveying**
  - for cement, gypsum, lime, sand

  Plaster blends e.g. with polystyrene constituents, conveyed without segregation

  Capacity: up to 100 t/h
  Distance: 20 to 300 m

  Advantages:
  - high reliability
  - low maintenance costs
  - minimum plant wear

- **Multi-component weighing**
  - with dense phase conveying

  Direct metering into the weigh vessel and fast discharge into the mixer without residue.

  Advantages:
  - gentle handling
  - mixers emptied efficiently
  - finished blends conveyed without segregation in plugs to filling machine
The Gericke test lab:
Gercke partners can arrange product trials at a location convenient to our clients or supply equipment for site evaluation.
Our test facility includes all systems in the range. Using your own products, the correct data can be established for each application.

The Gericke service is fully comprehensive and is underwritten by over 100 years of specialist experience in bulk solids handling system engineering. This impressive background, together with the unique Gericke design and manufacturing facilities, is your guarantee of total satisfaction from the first consultation to final installation, commissioning and on-going after sales support.

- Initial concepts tailored to meet your requirements
- Comprehensive project management
- Design and engineering of complete systems
- Installation, on-site supervision, commissioning and training
- Worldwide after sales and parts service

“Made by Gericke” has become an international watchword for quality, value and satisfaction. Yet with its sights still firmly on the future, the company’s mission remains to provide innovative solutions for satisfied and successful customers.

For more information or trials, contact your local Gericke specialist.