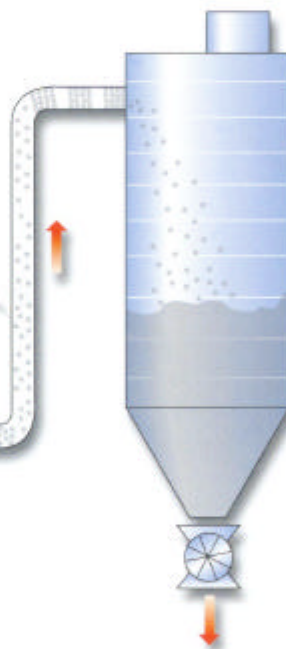


Gericke

Powder Processing Equipment & Systems



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

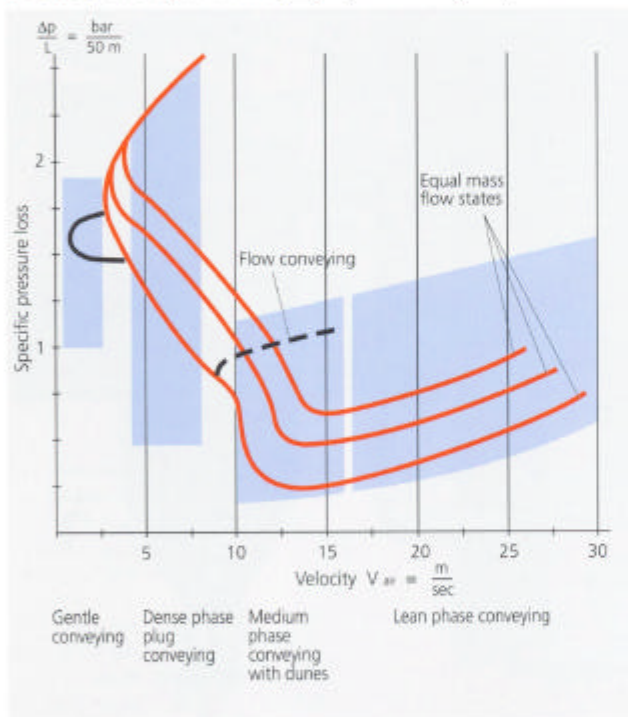
Customised solutions for all conveying-applications.

Gericke pneumatic conveying systems:

- low operating costs
- continuous or batch
- reliable and robust
- dust-free and hygienic

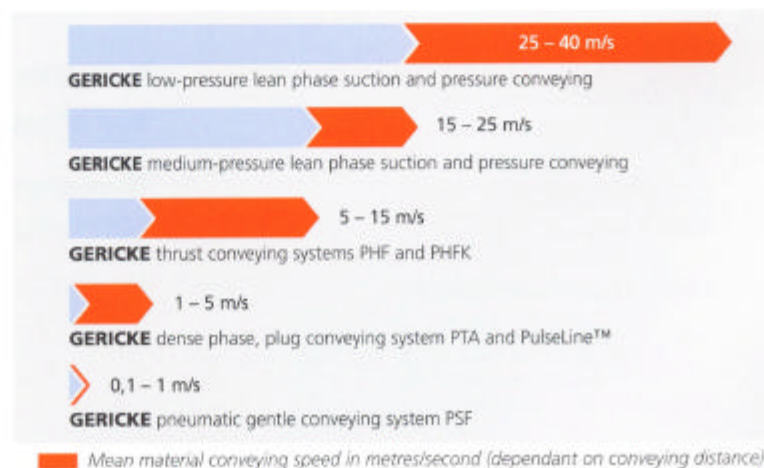
- automated operation
- very gentle conveying with minimal abrasion or breakdown of the product.
- no segregation of the material during conveying
- low air/gas consumption for economic performance, e.g. nitrogen conveying.
- minimal wear on bends or pipes
- easy to clean and maintain

We have the right conveying system for your product:



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

Key feature: the optimum conveying velocity



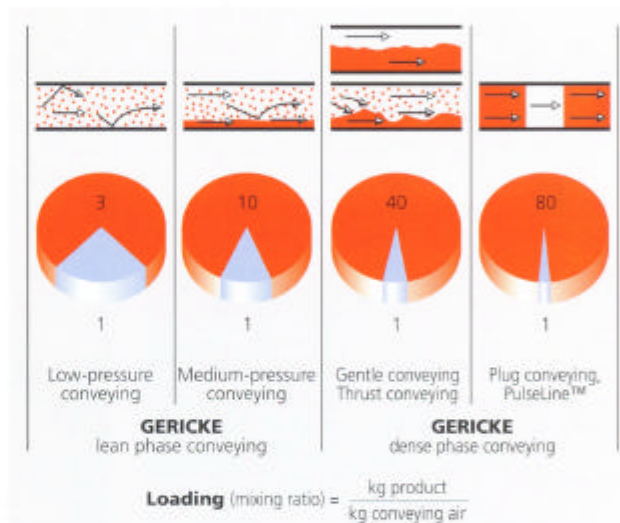
Customer process: meeting the needs.

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

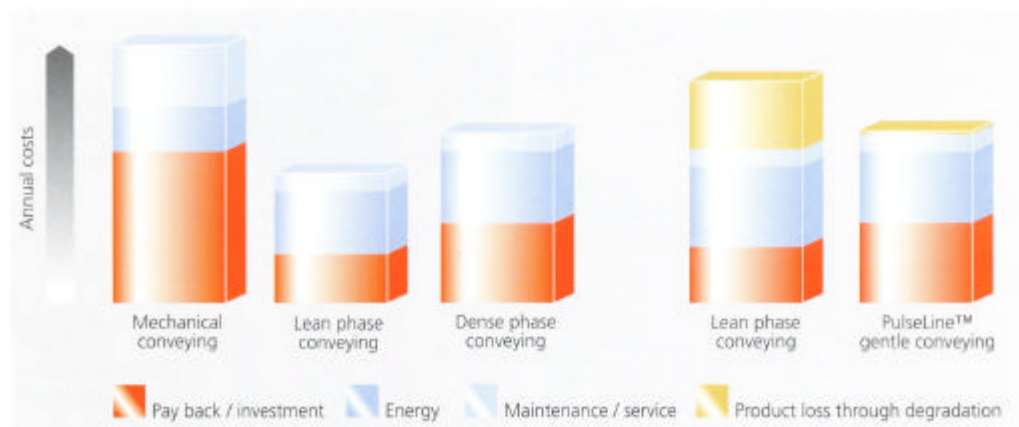
Where environment considerations, economy, filtration efficiency and maintenance are crucial, the consumption of conveying gas is one of the decisive factors.

Example:

With 1 kg of conveying air Gericke lean phase systems (1.29 Nm³) can deliver 1-10 kg of product, whilst 30-50 kg can be conveyed with the Gericke PHF thrust conveyor and 30-120 kg with the Gericke'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.

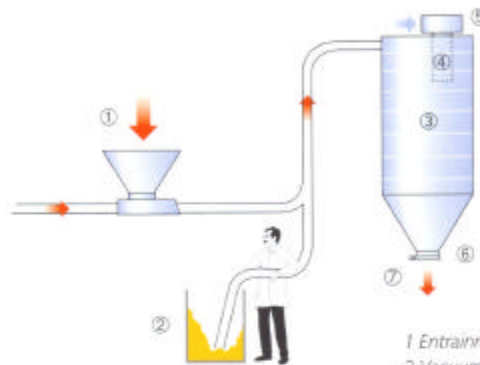
Simple and flexible: vacuum conveying

■ 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



- 1 Entrainment hopper
- 2 Vacuum pipe
- 3 Cyclone separator
- 4 Filter
- 5 Ejector pump
- 6 Discharge flap
- 7 Product discharge

■ 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



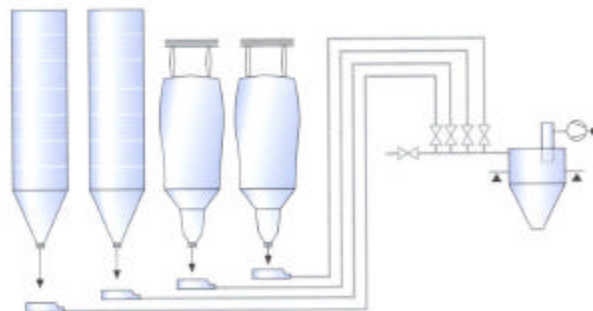
■ Gericke suction scale

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

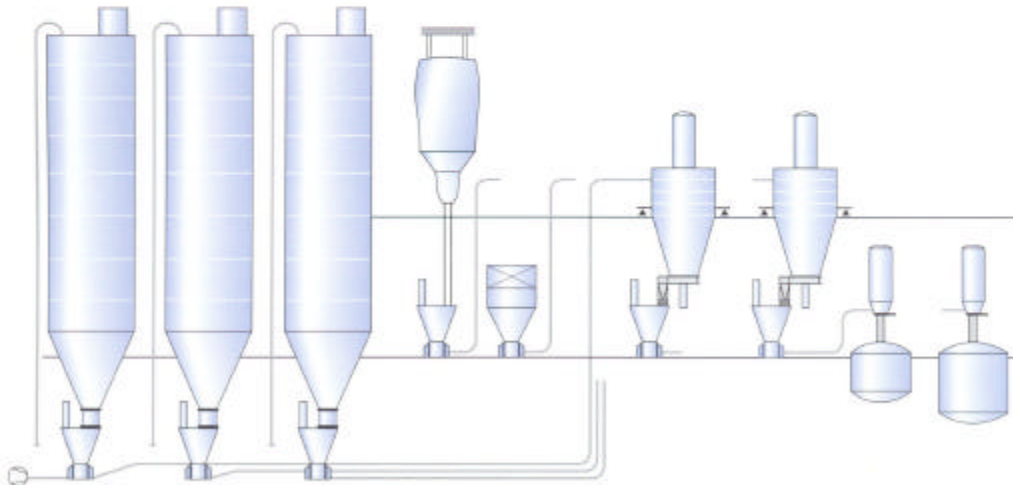
Applications: for coarse and fine powders, grains and granulates
Throughput: 0,1 to 5 m³/h
Distance: 1 to 60 m

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.

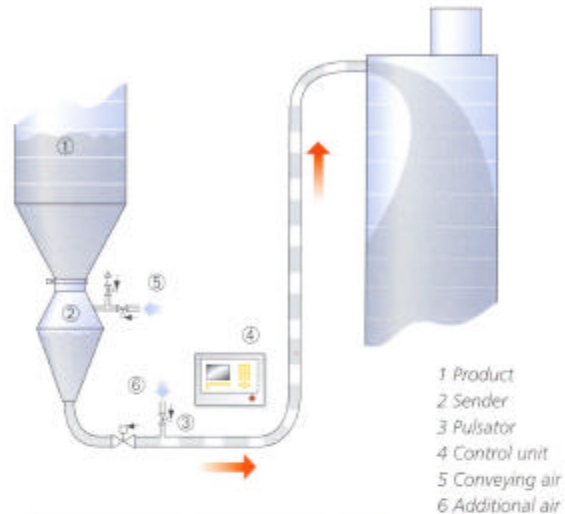
Gentle product handling with no segregation: pneumatic dense phase conveying with pressure vessel

■ *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.



1 Product
 2 Sender
 3 Pulsator
 4 Control unit
 5 Conveying air
 6 Additional air



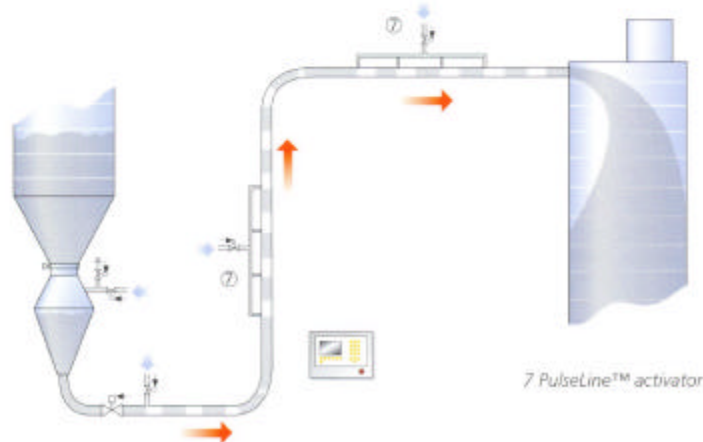
Chemical products:
 Pneumatic dense phase conveying with weighing and throughput recording.

■ *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.



7 PulseLine™ activator

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.



Continuous conveying of fly ash at 130 m³/h with double sender.

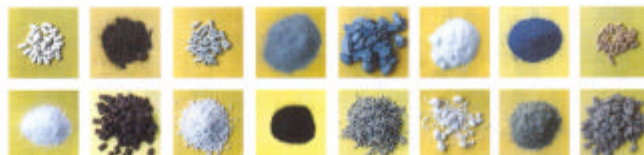
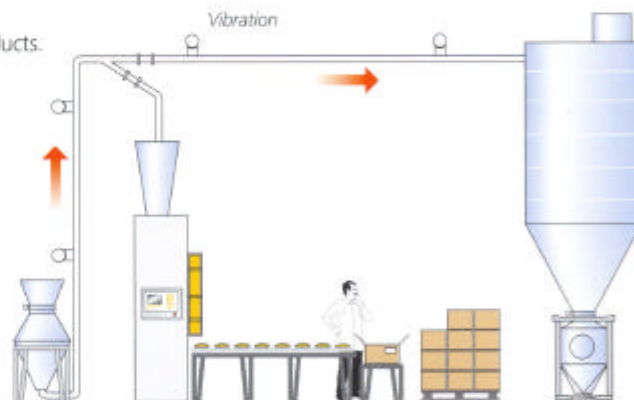
■ Gericke gentle conveyor PSF

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) | - cohesive powders | - beads | - abrasive powders |
| - chips | - briquettes | - pigments | - salts |
| - granulates | - plastic | - powders | - sand |
| - instant products | - small parts | - redispersable agglomerates | - sprayed granules |
| - capsules | - nuts | - carbon prill | - 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.



■ Diverter valves:

Pinch, butterfly, plug valves, rotating tube, hose.



■ Air treatment unit:

For vacuum, low, medium and high-pressure conveying systems.



■ 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.



■ Gericke pipe bend

Type GB to counter wear and product degradation.



■ Modern Gericke microprocessor control

- automatic sequence
- adjustable operating parameters
- can be used with all conveying systems
- interface to PLC or intergrated into a process control system with graphics



Food Industry



Gericke conveying systems for the food industry are designed to meet stringent hygiene requirements. The Gericke 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.

■ *Gericke 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

■ *Gericke 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:

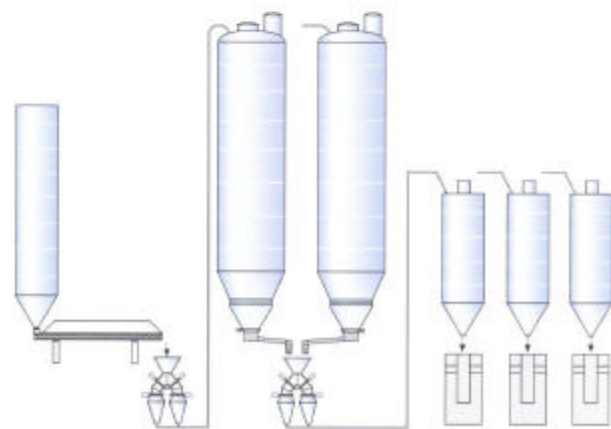
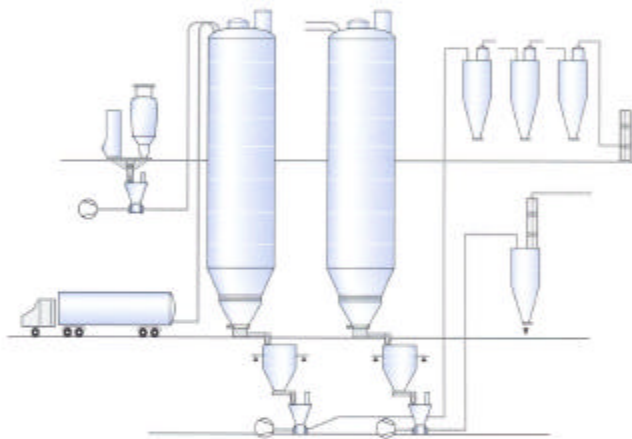
- extremely slow and gentle
- constant velocity, no final expansion thanks to double sender conveying

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 Gericke 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.



Chemical and Pharmaceutical Industry



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

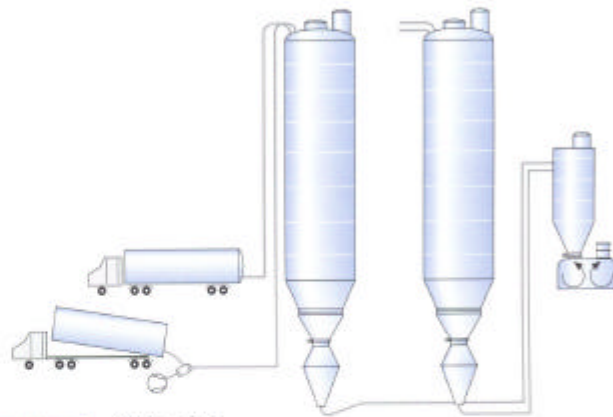
All process steps are considered in detail and the final solution worked out to match the demand of each application.

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

■ *Gericke conveying and silo installations for components used in vitamin production.*

Advantages:

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



Road tanker

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

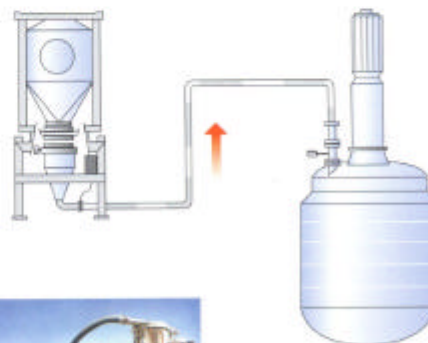


■ *Dust-tight reactor loading from containers, big bags or drums.*

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



■ *Gericke vacuum conveying for pharmaceutical products*

Advantages:

- absolutely dust-free and hygienic
- modular design
- speedy and simple cleaning



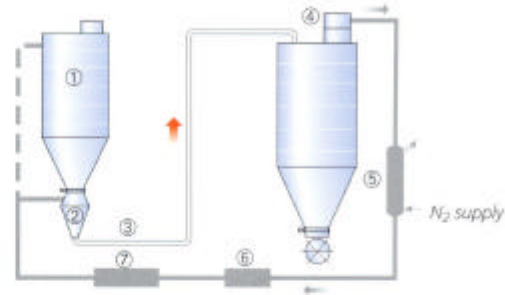
Cost effective solutions for plastics, detergents and building materials



Nitrogen conveying (N₂) *adipic acid, nylon chips, agrochemicals*

Advantages:

- reliable conveying in N₂ circuit
- economical using N₂ 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



- 1 Silo
- 2 Sender
- 3 Conveying pipe
- 4 Filter
- 5 Pressure equalisation vessel
- 6 Compressor
- 7 Cooler, filter

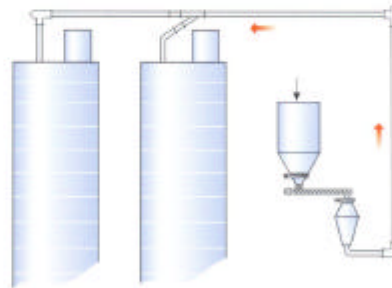
Dense phase conveying *for cement, gypsum, lime, sand*

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

