Pneumatic Conveying System - PCS







We set the standard

Flexible, dust-free and safe

Glatt PCS pneumatic conveying systems guarantee a gentle product transfer of powders, granules and other free-flowing solids by means of a vacuum of a few hundred millibar.

Pneumatic conveying systems are used wherever receptacles (e.g. IBCs) or process units (e.g. fluid beds) have to be charged or discharged.

Especially suitable for direct transfer between two process steps; usually on the same level.

The pneumatic conveying systems can operate in connection with other equipment in both, batch or quasicontinuous modes.

A high degree of usability combined with a robust design, high safety standards, giving emission-free and reliable production.

Characteristics of products

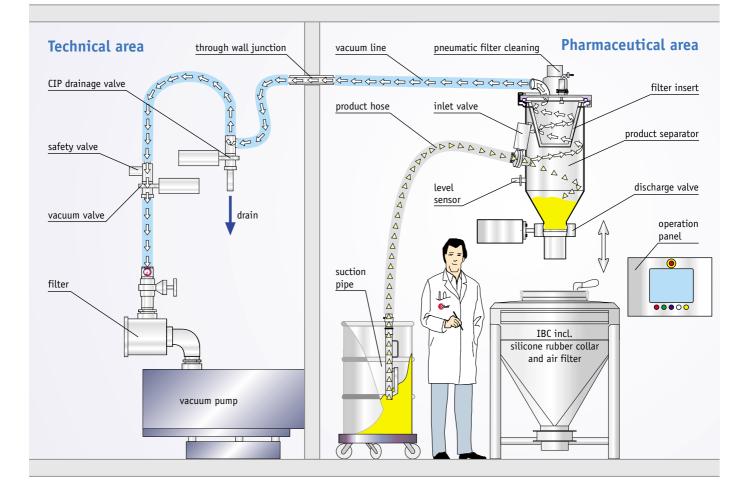
The influencing parameters affecting product flow are weight, particle size, bulk density as well as distribution, shape and hardness of every particle.

Operation principle

The air is evacuated from the product hose/pipe by means of a vacuum pump and the pressure of the atmosphere pushes the material into the transportation line. The stream of air that is formed upon pressure equalisation pulls the solid particles into the product line. The material is conveyed from a suction pipe/ suction shoe through a product line to a

separator vessel, where the air and the material are separated on the filters by reducing the flow speed in connection with gravity effects. Depending on the type, batch or continuous conveying, the discharge of the separator vessel is equipped with butterfly valves (DN 200/ DN 250) or a star feeder etc. The conveyed materials can be discharged in batches via butterfly valves or continuously via star feeders into the receptacles or a down stream processing unit. Integrated filters clean the exhaust air before the return cycle to the vacuum pump. A control system fitted to the unit which can be integrated into higher ranking control systems on request. The control system saves and monitors the correct operation of all transport and feed processes.

Operation principle of pneumatic conveying systems PCS



Model versions and sizes

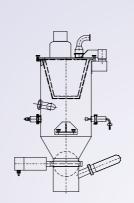
Glatt PCS pneumatic conveying systems are available in 9 different sizes: from the PCS 10 up to the PCS 900 - these sizes refer to the nominal volume of the product separator in dm³. Flush mounted wall indicators ensure smooth interior surfaces inside the separator vessel. In addition to the standard PCS line the pneumatic conveying systems are also available as version PRO (12 bar pressure shock resistant).

The PRO design permits the installation of the PCS in conjunction with PRO fluid bed units or PRO vertical granulators in order to guarantee total containment, as well as providing integrity in an explosive environment. Standardised dimensions ensure connection integration with other systems.

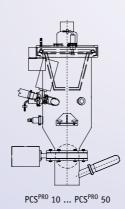
Glatt is offering a modular principle which can be customized if required, commencing with charging to the transportation line, the distribution fittings, the separators up to the air preparation in order to guarantee optimum product processing.

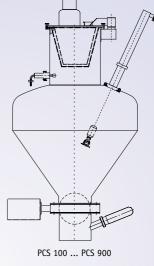
PCS are equipped with metal or textile filters which are exchangeable and can easily be retrofitted because of their identical exterior dimensions. The choice of filters is dependant upon process and cleaning requirements. For WIP and CIP versions metal filter options are recommended.

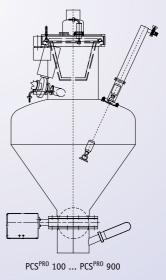
product separators (incl. arrangement of the WIP nozzles)



PCS 10 ... PCS 50









 PCS 400 incl. docked sieve GS 180 integrated in a granulation suite



PCS^{PR0} 50 for IBC charging in a total containment process line

Modular design and cleaning management

Pneumatic conveying systems comprising of a product feeding unit, product line, product separator, filter, vacuum pump and a control system.

Basic design requirements

The following basic guide lines for the sizing of a pneumatic conveying system are strongly recommended:

- Short conveying distances and a minimum of elbows reduces investment and operating costs
- Avoid crossing product lines
- Avoid narrow elbows in the product line

The product

can be taken in by means of suction pipes, suction shoes or direct suction from a process unit (e.g. fluid bed).

The Product lines

should be dimensioned in a way to minimize friction losses in pipes and hoses. For new installations hard piping is recommended giving an improved and gentle product flow as well as reduced operation costs.

The filter

separates product and conveying air flow. The particles taken into the filter by the air are separated so that only productfree air reaches the vacuum pump. The filter cleaning occurs automatically after each discharge process or in adjustable cycles.

Filter options



Metal filter insert for PCS (WIP)

The vacuum pump

produces the vacuum, necessary for the product transfer. It is usually installed in the technical room giving the possibility for maintenance and repair to the pump at any time.

All controls

for pneumatic conveying systems are designed in various executions, depending on industry requirements and/or field of application. Control systems are available in pneumatic version (e.g. ex-protected units) or as PLC controls. PCS can work as a stand-alone unit with autark controls or it can be a part of a larger system where sub-ordinate units obtain the signals from the main control system.



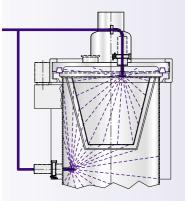
Cleaning

The textile filter can be exchanged and of course can be washed separately.

Product separator PCS^{PRO} 50 incl. lifting device EL 300

Wash In Place (WIP)

The product separator in connection with a metal filter is cleaned automatically inside through retractable cleaning nozzles with rotary spray jets and rapidly dried by a vacuum air flow. The polished product contact surfaces free from crevices maximise cleaning potential.

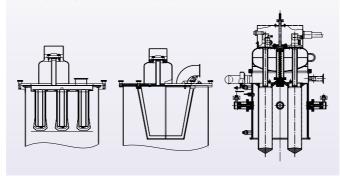


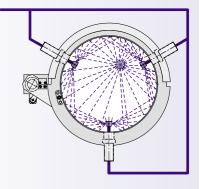
Metal filter insert (WIP)

Textile filter

(no WIP)

Clean In Place option with metal filter cartridges



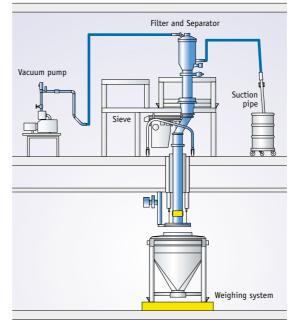


WIP cleaning of the metal filter and product separator (PCS^{PRO})

Decisive advantages

- Ease of operation
- Robust design
- High safety standards: ATEX 100a compliant
- Emission-free, documented production
- GMP compliant / achievable validated
 processes

Market expectations are demanding and diverse. Glatt can provide the optimised solutions for product dispensing, reactor charging or for the handling of finished product.







Dispensing of raw materials via pneumatic conveying system



Packing and final wrapping by means of pneumatic conveying system



Suction shoe incl. secondary air filter built in an IBC discharge station

Comprehensive customer services

An integral part of the Glatt philosophy is to deliver a comprehensive customer service throughout the World. Glatt customers benefit from a complete turn key service including initial consultancy and project planning, on time delivery, installation and start up.

Furthermore, we offer full onsite training courses at the customer site or in one of our technology centres and we also guarantee a fast maintenance and spare part service.



Product separator with buffer vessel and attached rotor sieve GS 180



Movable product separator, CIP able

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