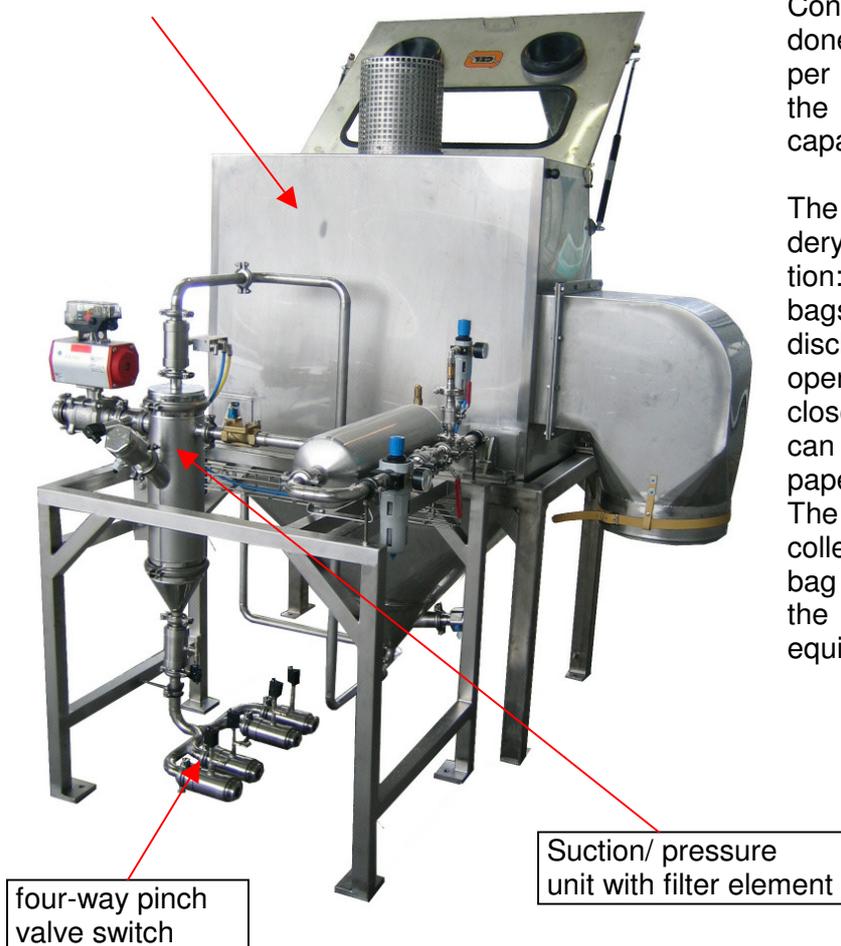


Pneumatic conveying system type MONOFLOW

Many industrial applications require a dust-free dosing of components from standard containers into one or several reactors. To meet these demands, GEL-Verfahrenstechnik developed the so-called small component conveying system MONOFLOW.

The system consists of three main components: a bag discharge station, a suction/pressure unit with filter element, and a four-way pinch valve switch. The units just need a pressurized air, vacuum, and electrical power supply. A simplified functional description is given below:

discharge station



Conveying into the reactor is done in cycles, with the volume per cycle being adjustable by the suction/ pressure vessel capacity.

The containers with the powdery material (in this application: activated carbon in paper bags) are entered into the bag discharge station by the operator. The station door is closed, and then the operator can open and discharge the paper bag via the glove port. The material falls into the collection hopper and the empty bag is removed laterally through the bag chute. The hopper is equipped with a level control.

four-way pinch valve switch

Suction/ pressure unit with filter element

The filter element supplies the required underpressure to the suction/pressure vessel, thus allowing the material to be aspirated from the collection hopper of the bag discharge station into the suction/pressure vessel.

The required conveying air is taken from the bag discharge station and conveyed through a bypass line. New air can flow into the station from outside via a filter. As soon as the nominal volume inside the suction/pressure vessel has been reached, the MAX. level control is released and closes the vacuum line as well as the conveying line to the collection hopper. Then the suction/pressure vessel is supplied with overpressure through the filter element. The overpressure cleans the filter element and also serves as conveying pressure which is required to transport the material from the suction/pressure vessel.



front view of the system

Afterwards the requested line of the four-way switch is released and the material is pressed from the suction/pressure vessel into the requested reactor. The reactor should be equipped with a venting device to ensure a relief of the generated overpressure. Now the cycle can be repeated until the requested quantity of material inside the reactor has been reached.

The MONOFLOW system is mainly used in pharmaceuticals and food industry but is also suitable for other industrial applications. To ensure optimal capacity and operation, the system is always tailored to the individual requirements of the user. Optional equipment such as vacuum generators, compressed air generators, dust collection systems, ATEX design etc. is also available.

Below please find some technical features of a system which has already been realized:

- | | |
|------------------------|----------------------|
| bulk type: | activated carbon |
| bulk weight: | 0.2 kg/h |
| grain size: | 80 μm |
| vacuum: | 500 mbar |
| overpressure: | 4 bar |
| conveying line length: | 20 m |
| horizontal | 4 m vertical |
| dosing accuracy: | $\pm 0.5 \text{ kg}$ |
| conveying capacity: | 4 l/ min. |

