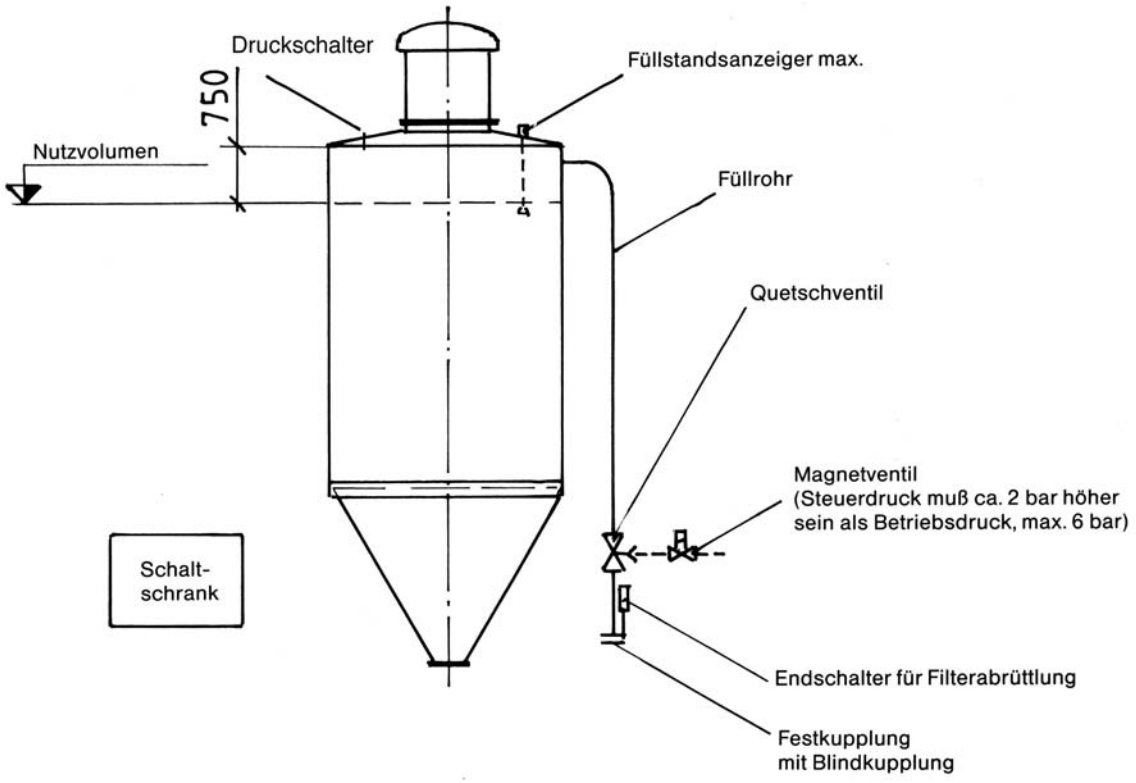
MAHR GmbH

PLANT CONSTRUCTION FOR BULK GOODS



Overfill protection

Maßblatt: 4-BA/Q/022-91

Area of application:
To be used for preventing overfilling of silos during pneumatic filling.

Layout and operation principle:
Device consists of a pneumatic pinch valve, an electric solenoid valve placed in the filling line, and a switchboard. For effective usage of the device the silo has to be equipped with a fill level limit switch, and oil- and water-free compressed air (approx. 6 bar) must be permanently available.

The switchboard must be connected to 380 V / 50 Hz.
Electrical wiring and compressed-air supply has to be provided by customer.
The system must be powered on before the filling process starts. No injection is possible without electrical voltage.
The pinch valve is closed in normal state and must be enabled by a push-button prior to the filling process.

If the maximum filling level is reached, a signal (a horn, for example, to be provided by customer) is triggered, and the filling process must be stopped immediately. The signal can be turned off at the switchboard. After a certain time (to be specified by customer), the pinch valve closes automatically, preventing the filling process from continuing. Should the pinch valve be closed during the filling process, operating staff in charge may open it by means of a key-operated switch in order to blow out the filling line and remove residual material. After that the pinch valve must be closed again.

At the filling line coupling, a magnetic switch is mounted. When the filling line coupling is connected with the tank truck coupling, automatic filter cleaning is activated by the magnetic switch for 20 to 30 seconds. Upon completion of the filling process and decoupling of the tank truck, the filter is cleaned again.

In the silo roof a pressure switch is mounted. If overpressure occurs in the silo during the filling process, a mechanic flap valve opens in order to let dusty bulk material discharge from the silo. To prevent formation of dust the pressure switch responds earlier than the flap valve. If the actual pressure has reached the setpoint, the pinch valve is closed automatically and the filter gets cleaned for 20 to 30 seconds. If pressure in the silo goes down again, the pinch valve opens and the filling process continues until the maximum filling level is reached.