

Function description for pneumatic low pressure system

General information

A pneumatic low pressure system is a continuous transport system for powdery material, which is dosed into an air flow created by a side channel blower or fan.

This description concerns a standard system, which is equipped with a dosage device and arch breaking system according to the description below.

Arch breaking

The system usually includes some type of arch breaking system consisting of sensors which indicate arch formation and activates tools for breaking the arch, such as fluid pads, fluidization cone or vibrator etc. The arch breaking must be controlled with pause and pulse time and maximum time, giving off an alarm if the level indicator does not receive material. The amount of air is adjusted manually in connection with installation to obtain the necessary air supply.

Dosage

A dosage device doses the material into an ejector box. The air flow created by the side channel blower or fan, guides the material through the transport pipe.

Transport air

The transport air guides the material through the transport pipe via the injector box and the subsequent ejector.

The majority of the air volume is supplied through the ejector. The amount of air via the injector should not cause the pressure to exceed 0 or just below during normal dosage.

Material plug in the system

The pressure in the transport pipe is measured by a pressure sensor, which is connected to the thrust screw head or alternatively to the injector box. If the pressure in the system exceeds the set value, dosage must stop in order to first of all let the system attempt to decrease the pressure. If the pressure falls to the set value, dosage is resumed. This sequence is called plug solution sequence. If the plug solution sequence recurs several times during a specific period, the system must be closed down and an alarm must be generated, Plug in the system. This alarm may also be activated if the system does not manage to return to the preset low pressure within a specific time (maximum plug solution time), which should be adjustable between 20 and 120 seconds depending on the transport length.

Start sequence

1. Open ejector valve
2. Start side channel blower
3. Start dosage

Stop sequence

1. Stop dosage
2. Clearance run to empty the transport pipe
3. Stop side channel blower
4. Close ejector valve