DS011
21.05.09

Model A Powder Feeder - Equipment Data

What It Does

Injects powders into gas flows that are at atmospheric pressure or less. Allows remote location for convenient sack and pallet handling. Can handle lime, $Ca(OH)_2$, as well as other gas treatment chemicals.

How It Works

Gas treatment powder is purchased in 25kg sacks. Sacks are emptied into the **feed hopper** (see attached schematic), which can hold about 2 sacks of powder.

An air powered **impact vibrator** is mounted on the side of the hopper. This runs intermittently, the air supply being controlled by an adjustable integrated timer / solenoid valve. It breaks up the lumps of agglomerated powder so that it feeds through the finger guard into the **lump breaker**.

The lump breaker has a double claw rotor, driven at constant speed. The walls of the chamber are polyurethane, so they flex with the movement of the rotor. The width of the chamber reduces towards the bottom, forming a trough.

The **screw feeder** is an auger running in this trough and through the vessel wall. Outside the vessel wall the auger runs in a feeder tube that is attached to the vessel. This tube runs full and discharges the powder to the **venturi**. The auger is driven via a manually controlled variable speed unit and different designs of auger are available, giving several ranges of powder delivery rate.

The venturi is driven by a two-stage **side-channel blower**. This discharges air through a nozzle under the powder feed point and this airflow entrains the powder. The venturi discharges into a flexible tube for connection to the process.

Capacity

Powder hopper	approximately 50 kg powder
Powder feeding (max.)	depending on choice of gearbox, 20 / 15 / 12 / 8 / 5 kg/h
Powder feeding (min)	20% of maximum
Conveying air	70 Nm3/h
Entrained air	depends on conveying distance, typically 30 Nm3/h
Conveying distance	15m horizontally, 5m vertically, up to 3 swept bends

Motors

Impact vibrator	requires 6 bar air and 240v supply for air solenoid valve
Lump breaker	0.37 kW, 3-phase
Screw feeder	0.25 kW, 3-phase
Side-channel blower	4 kW, 3-phase, includes integrated frequency inverter

Control

Two interlocked start signals are required: on the ‘Start Blowing’ command, the blower and impact vibrator are switched on; on the ‘Start Feeding’ command the lump breaker and screw feeder are started. The ‘Stop’ signals reverse the effect of the corresponding ‘Start’ signals.

The unit can be supplied either complete with a control panel or with no controls. Caldo’s control panel incorporates the stop / start controls, overloads, emergency stop and main isolation switch. Alternatively, the purchaser can integrate the controls into a larger panel serving several modules. An optional level sensor, to give remote indication of low powder level in the hopper, is also available.

Maintenance

Lubrication	top up oil in impact vibrator lubricator
Inlet air filter	clean side-channel blower air inlet filter

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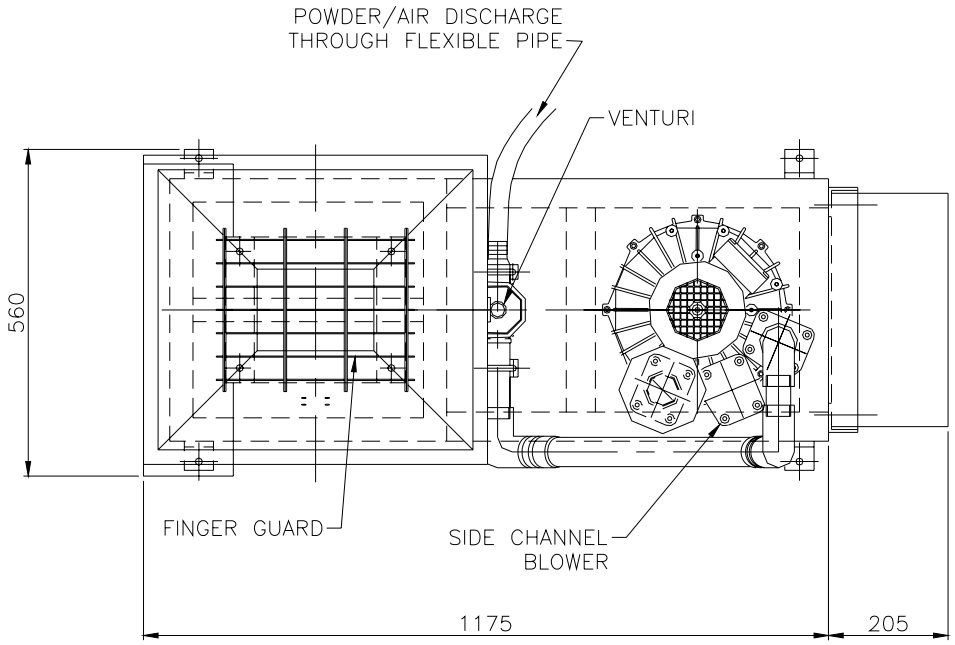

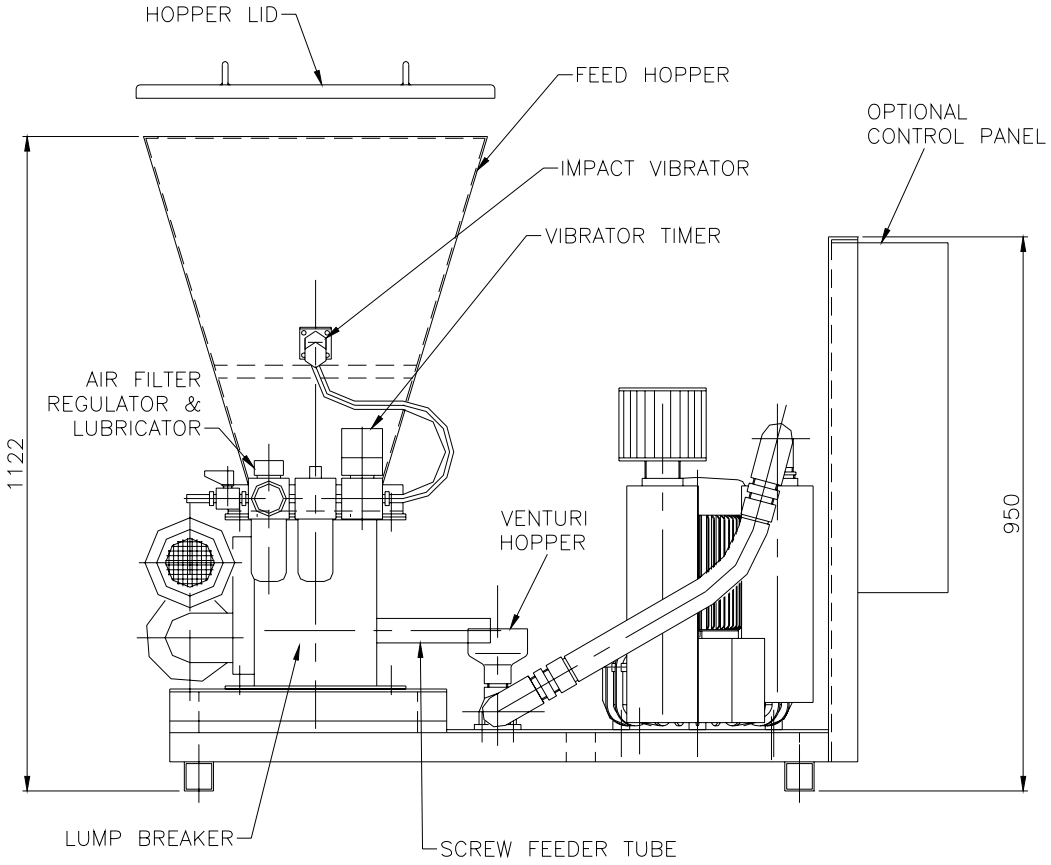

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Customer	POWDER BLOWER
Project	ENGINEERING
Drawn By	CJW
Date	30.03.04
Title	MODEL 'A' POWDER BLOWER
Drawing No	DS011