

Model A-HP Powder Feeder - Equipment Data

What It Does

Injects powders into process gas flows where the process gas is at a pressure up to 0.3 bar gauge. Allows remote location for convenient sack and pallet handling. Can handle most gas treatment powders but lime, $\text{Ca}(\text{OH})_2$, can cause blockages in the venturi eductor.

How It Works

Sorbent powder is purchased in 25kg bags. Bags are emptied through a door into the powder hopper, which can hold about 2½ sacks of powder. The powder hopper is fitted with a dust extraction unit. The fan sucks air and entrained dust from the bag discharge point through cartridge filter elements which filter the air and return the collected dust to the hopper.

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 **powder feed screw** 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 through the **tundish** to the **venturi**. The auger is driven via a manually controlled variable speed unit, different gear box ratios are available giving several ranges of powder delivery rate.

The venturi is driven by **compressed air** at 6 bar. This discharges air through a nozzle under the powder feed point and this airflow entrains the powder. The venturi discharges into a tube for connection to the process. The **shut off valve** closes automatically if the air pressure to the venturi is lost.

Capacity

Powder hopper	approximately 60 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	30 Nm ³ /h
Entrained air	depends on conveying distance, typically 10 Nm ³ /h
Conveying distance	15m horizontally, 5m vertically, up to 3 swept bends

Motors

Impact vibrator	requires 6 bar air and 110v supply for air solenoid valve
Lump breaker	0.37 kW, 3-phase
Screw feeder	0.25 kW, 3-phase
Fan	0.75 kW, 3-phase
Filter cleaning controller	110v supply
Compressed air	requires 110v supply for ball valve, n/c.

Control

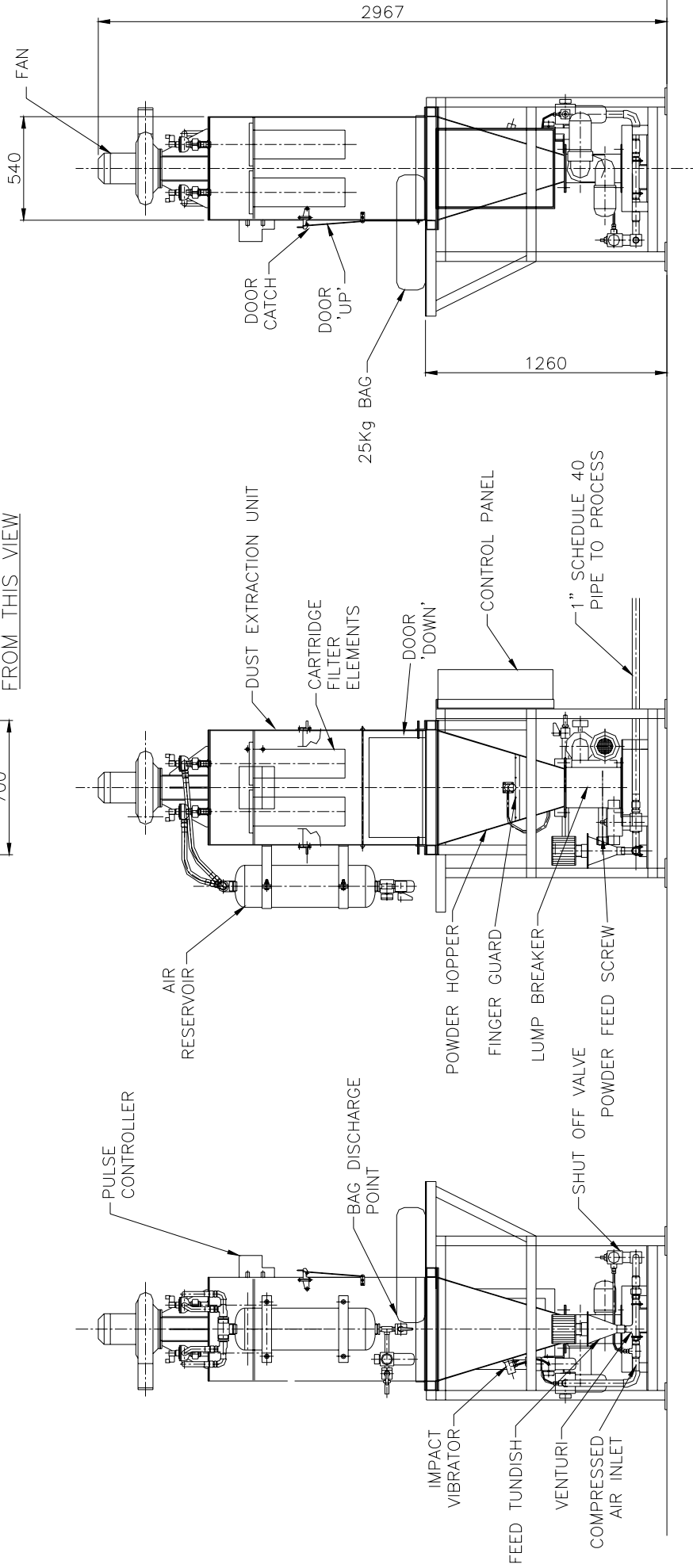
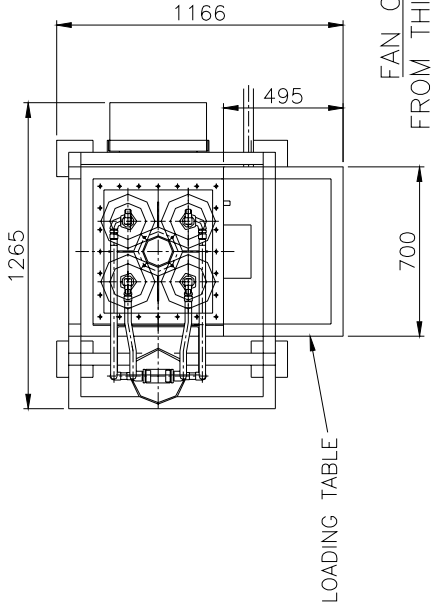
Two interlocked start signals are required: on the 'Start Blowing' command, the compressed air valve and impact vibrator are switched on; on the 'Start Feeding' command the lump breaker and screw feeder are started. The 'Stop' signals reverse the effect of the corresponding 'Start' signals.

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.

Maintenance

Lubrication	top up oil in impact vibrator lubricator
Inlet air filter	clean entrained air inlet filter

DO NOT SCALE IF IN DOUBT ASK



Issue	By	Date	Issue	By	Date	Issue	By	Date	Issue	By	Date

Customer	Project	Drawn	Checked	Scale	Issue No
	A-HP POWDER BLOWP	CJW			04.08.04
					031001-00C

THE GENERAL ARRANGEMENT SHOWING DUST HANDLING

CALPEC
ENVIRONMENTAL ENGINEERING LTD.