Fluidisation pads I100 for silos and hoppers

A flat pad in the cone wall that lays air in under the material across its whole face — at 0.2 bar.

A dry, fine powder that has stood still holds on to itself. It forms a bridge over the outlet, a rathole through the middle, or it settles like a cake along the cone wall. The I100 is OLI's fluidisation pad for exactly that: a flat pad of 166 by 98 millimetres that sits on the inside of the wall and blows air out through a porous face. Because the face is gently domed, the air leaves at a wide angle rather than as a jet — the material just above the pad becomes a layer that can flow. It happens at 0.2 bar, the lowest working pressure in the whole range. It is also called an aeration pad and a fluidizing plate.

Working pressure	Air consumption	Duty cycle	Temperature	Dimensions
0.2 bar	**30 Nl/min**	**Continuous**	**-20 to 80 °C**	**166 x 98 x 32 mm**

Three ways a dry powder holds on to itself

The catalogue puts it in one sentence: low pressure aeration prevents bridges, rat holes, lumps and deposits on the bottom of the cone. Behind those four words lie three situations any plant engineer knows.

Bridge over the outlet

The powder spans an arch across the opening and carries its own weight. The silo is full, but nothing comes out, and the discharge works in empty space.

Rathole through the middle

A narrow shaft runs down through the centre while the rest stands still along the wall. The silo appears to empty, but most of the contents stay where they are.

Lumps and deposits in the cone

The material does come out, but slowly, and a cake stays behind on the cone wall. This is what a pad is built for: the air is laid in exactly where the cake sits.

A wide angle instead of a jet

A nozzle blows the air out through one hole. A pad blows it out through a face. The top of the I100 is a porous membrane in high density polyethylene measuring 140 by 70 millimetres, and beneath it lies a cavity in which the air first distributes itself. So it does not come out in one place, but across the whole face at once.

The shape does the rest. The face is not flat but gently domed — 32 millimetres high over a length of 166 — and the semi-convex shape guarantees a wide emission angle. The air therefore runs out along the wall to both sides instead of drilling up into the material. The layer nearest the wall loses its internal cohesion and behaves like a liquid. That is what is meant by creating a fluid bed.

It does not take much. The working pressure is 0.2 bar and the consumption 30 normal litres a minute per pad — the lowest in the entire Flow Aids range. In return the air has to be dry: quality class 5.4.1 is required, and a porous face is precisely where damp powder would take hold.

Technical specifications

Application	Hopper and silo
Material in the silo	Fine, light and dry powders (cement and lime)
Problem solving	Bridge and rat-holing

Duty cycle	Continuous
Working pressure	0.2 bar (2.9 psi)
Air consumption	30 Nl/min (1.05 cfm) per pad at 0.2 bar
Pneumatic circuit	Filter and flow control valve
Air supply quality	Class 5.4.1
Working temperature	-20 to 80 °C (-4 to 176 °F)
Technology	Fluidisation
Material	High density polyethylene, polyamide body
Connection	1/4 in BSPP
Dimensions	166 × 98 × 32 mm
Position	Internal, in contact with the material

One version, four dimensions

The I100 comes in one size. A is the short side, B the long side, C the height above the mounting face, and D the thread of the connection on the back.

Model	Air consumption at 0.2 bar	A	B	C	D
I100	30 Nl/min	98	166	32	1/4"

The membrane window in the porous face measures 140 by 70 millimetres. That is the area the air actually leaves through, and therefore the one that has to face the material.

The pad and the two ways of getting it into the wall

An I100 sits on the inside of the cone with the porous face towards the material. The connection passes out through the wall and the air line goes on from the outside. Where the cone cannot be reached from the inside, the pad comes on a stainless plate mounted externally.

The pad · I100

The porous face in high density polyethylene sits in a polyamide body. The connection is on the back, and with it come the rubber gasket, the washer and the nut — what holds the pad against the wall from the inside.

Dimensions	166 × 98 × 32 mm
Porous face	140 × 70 mm
Connection	1/4 in BSPP
Material	High density polyethylene, polyamide body
Working pressure	0.2 bar

1. The porous face turns towards the material.
2. The connection sits in the middle of the back and passes out through the wall.
3. The gasket seals between pad and wall.
4. The air line goes on from the outside, onto the 1/4 in BSPP thread.

External mounting ·

On a silo where the cone cannot be reached from the inside, the pad sits on a stainless plate with a gasket frame. The plate bolts on from the outside, and the pad still ends up with the porous face towards the material.

Plate	Stainless steel
Sealing	Gasket frame around the pad
Mounting	From the outside

1. Used where there is no access into the silo.
2. The plate spreads the load over a larger area of the wall.
3. The pad itself is the same as above.

Which of the two fits depends on what the wall is made of, how thick it is, and whether there is access into the silo. Tell us, and we come back with the right version and a number of units.

Where it sits and what it works in

Plant	Silos and hoppers
Materials	Fine, light and dry powders. The catalogue names cement and lime
Tasks	Silo and hopper emptying, filter cleaning and big-bag emptying
Sectors	Building and construction, food and feed, heavy industries, plants and machinery, plastics and chemical processing, recycling and environment technology, and renewable energies
Food powders	For powders in food production we recommend the VB vibro-aerators rather than the pads

How many pads does your cone need?

Tell us the dimensions and angle of the cone, what you handle, and what the compressed air can deliver. We come back with a number, a layout and a price — not with a catalogue.

Sales and orders	+45 70 23 12 03 · sales@particulair.com
Product page	particulair.eu/flow-aid/en/products/fluidisation-pads/
Product selector	particulair.eu/flow-aid/en/product-selector/

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