

Bin aerators VBS for silos, hoppers and pipes

A disc in the silo wall that directs compressed air towards the outlet instead of up into the material.

Dry, fine powders consolidate in the cone and stop flowing. A VBS is a small disc-shaped aerator with a silicone membrane, mounted in the wall, that fluidises the material exactly where it is stuck. The range covers nine variants from Ø55 to Ø104 mm, in food-grade, high-temperature and metal-detectable versions.

Working pressure 0.8-6 bar	Recommended 4 bar	Temperature -40 to 235 °C	Membrane FDA 177.2600	Variants 9
--------------------------------------	-----------------------------	-------------------------------------	---------------------------------	----------------------

Two faults, one cause

A bridge and a rathole look different, but they share a cause: the particles have been allowed to consolidate, and the material now carries its own weight. Pressurised air breaks that cohesion, and the material starts to flow again.

Bridge over the outlet

The material forms an arch across the opening and carries its own weight. The silo is full, but nothing comes out. The technical term is bridging.

Rathole through the middle

A narrow channel runs down through the centre while the rest stands still along the wall. Only a fraction of the capacity comes out, and the remainder ages in the silo.

Loadout too slow

The material does come out, but more slowly than the plant needs. This is what the VBS is built for: the air flow is aimed at the outlet instead of spreading in all directions.

Tramontana®: air in one direction

An ordinary fluidising nozzle blows air evenly in every direction. That loosens the material, but a large share of the air goes upward, where it is not needed.

The Tramontana® disc is shaped differently. Its underside is a Venturi cavity, which gives the air a preferred direction, down towards the outlet. The material is loosened where it needs to leave, not up in the silo. The outer face of the disc is smooth, so no layer builds up on it.

The aerator runs on ordinary non-lubricated compressed air. The circuit needs a filter and a flow control valve, and the recommended working pressure is 4 bar. The full range is 0.8 to 6 bar, and 0.8 to 2 bar for the Micro versions.

Technical specifications

Application	Silos, hoppers and pipes. Also dry bulk tank trailers and dry bulk rail tankers
Material in the vessel	Dry, fine, granular powder
Problem solving	Bridge and rat-holing
Duty cycle	Continuous or discontinuous
Working pressure	0.8 to 6 bar (12 to 87 psi). Recommended 4 bar (58 psi)
Working pressure, Micro	0.8 to 2 bar (12 to 29 psi)
Pneumatic circuit	Filter and flow control valve

Air supply quality	Non-lubricated compressed air, class 5.4.1, or dry inert gases
Technology	Vibro-aerator
Membrane	Silicone, food grade, FDA 177.2600. Red membrane for high temperature, blue membrane metal detectable
Stem	Aluminium or AISI 316 stainless steel, food and pharmaceutical grade
VBSE, external version	Polyamide body with steel ring and Supralen filter
Options	External mounting kit, rectangular or circular, stainless steel. Electronic control board for up to fifteen units, with a timer and coils from 24 V to 230 V, also in an ATEX version

All nine variants

Air consumption is given in NI/min, normal litres per minute at the stated pressure. The dashes at 4 and 6 bar for the Micro versions are not missing data: the Micro works at a maximum of 2 bar. Dimension A is the disc diameter, B the overall length.

Model	Membrane	Stem	0.8 bar	2 bar	4 bar	6 bar	Temperature	A	B	Connection
VBS	White	Aluminium	600	800	950	1150	-40 to 170 °C	Ø104	79	1/2"
VBSI	White	Stainless steel	600	800	950	1150	-40 to 170 °C	Ø104	79	1/2"
VBSIHT	Red	Stainless steel	600	800	950	1150	-40 to 235 °C	Ø104	79	1/2"
VBSIMD	Blue	Stainless steel	600	800	950	1150	-40 to 170 °C	Ø104	79	1/2"
VBSM	White	Aluminium	150	200	-	-	-40 to 170 °C	Ø55	54	1/4"
VBSMI	White	Stainless steel	150	200	-	-	-40 to 170 °C	Ø55	54	1/4"
VBSMIHT	Red	Stainless steel	150	200	-	-	-40 to 235 °C	Ø55	54	1/4"
VBSMIMD	Blue	Stainless steel	150	200	-	-	-40 to 170 °C	Ø55	54	1/4"
VBSME	White	Nylon	130	150	-	-	-40 to 80 °C	Ø66	62	3/8"

How to read the model name: VBS is the OLI aerator, VBSM the Micro version, I means a stainless steel stem, HT high temperature, MD metal detectable and E external mounting.

White, red or blue – and when to choose which

The colour is not cosmetic. It tells you which silicone the membrane is made from, and therefore what the aerator can take and what it may touch.

White silicone · -40 to 170 °C

The standard version. Food-grade silicone to FDA 177.2600. This is the one most plants need. Models: VBS · VBSI · VBSM · VBSMI · VBSME

Red silicone · -40 to 235 °C

The high-temperature version, 65 degrees above the rest. Chosen where the material or the silo is hot, typically downstream of a dryer or a kiln. Models: VBSIHT · VBSMIHT

Blue silicone · -40 to 170 °C

Metal detectable. If a piece of the membrane comes loose, the metal detector in the line will catch it. A requirement in many food and pharmaceutical plants. Models: VBSIMD · VBSMIMD

The VBSME is the only one with a nylon body and is therefore limited to 80 °C. The other eight have an aluminium or AISI 316 stainless steel stem.

Rings around the cone, not a single row

The aerators do not sit in a single row but in concentric rings up the cone, and each ring is turned half a step relative to the one below. That is the whole point: if the rings sit directly above one another, they work the same vertical paths through the material over and over while the rest of the cone stands still. Offset, they cover the whole surface.

How many rings are needed depends on the height of the cone and on the material. Drag the slider to see how the number and the placement relate, on an 80 tonne silo with a shell diameter of 4400 mm.

Silo	Ø4400 mm · 80 t
Rings in the example	Ø2980: 6 stk · Ø2120: 4 stk · Ø1260: 4 stk · Ø863: 2 stk
Total	16

The drawing is an example, not a sizing rule. We work out the number and the placement for your silo together with you, from the cone angle, the material and the pressure you have available.

How a disc gets inside a closed silo

The aerator is normally fitted from the inside: you enter the vessel, push the stem out through a hole in the wall and tighten the nut from outside. But many silos cannot be entered, and then the disc has to go in through the wall from outside. That is what the two mounting kits solve, each in its own way.

Circular mounting kit · CPKIT

For round silos and hoppers. Here the hole in the wall is larger than the disc, so the aerator passes straight through.

Hole in the wall	Ø 110 mm
The disc	Ø 104 mm — passes straight through
Material	AISI 304 stainless steel plate with an S235JR steel flange, NBR gasket
Working temperature	-40 to +80 °C

1. A round hole of Ø 110 mm is cut in the silo wall.
2. The aerator is pushed through the hole from outside so that the disc ends up inside the silo and the stem points outwards.
3. The flange with its gasket is placed over the hole and fixed with the three bolts. The gasket seals against the wall.
4. The nut is tightened on the stem from outside and the air line is connected. All the work is done outside the silo.

Rectangular mounting kit · RPKIT

For rectangular silos and hoppers. Here the hole is a narrow, long slot, and the disc is turned into place behind the wall.

Hole in the wall	67 × 162.5 mm
The disc	Ø 104 mm — enters edgewise through the slot
Material	AISI 304 stainless steel plate, EPDM gasket
Working temperature	-20 to +95 °C

1. A slot of 67 × 162.5 mm is cut in the wall, oriented along the slope of the cone.
2. The slot is longer than the diameter of the disc. The aerator is therefore fed in edgewise through the slot, with the disc at an angle.
3. Behind the wall the disc is turned a quarter turn so that it lies flat against the wall and covers the whole slot from inside.
4. The cover plate with its EPDM gasket goes on the outside and is tightened with the nut. The plate closes the slot, and the stem is ready for the air line.

The aerator is not included in the mounting kit. The VBSME is a ready-made Micro version for external mounting with its own nylon body.

Where it sits and what it works in

Vessels	Silos, hoppers and pipes
Transport	Dry bulk tank trailers and dry bulk rail tankers
Materials	Cement, lime, pigments, plastics, starch, flour, sugar and coffee
Suitability	Compatible with foods and chemicals. Available in two sizes, Micro and standard, and with external mounting

Shall we work it out?

Tell us what is in the silo, how large the cone is and what your compressed air can deliver. We come back with a number, a placement 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/bin-aerators/
Product selector	particulair.eu/flow-aid/en/product-selector/

This datasheet is generated from the same source as the product page and updated 2026-08-04. Subject to change by the manufacturer.