

Bin aerators VBT for dry bulk trailers

Three discs in every hopper that aim the blower air down at the outlet, so the trailer empties instead of standing and waiting.

A dry bulk trailer is unloaded with the driver standing beside it and the engine running. If the powder stops in one of the hoppers, it costs time on a ramp where time is most expensive. The VBT is OLI's vibro-aerator for exactly that: a disc in the hopper wall with the Tramontana® membrane, which gathers the blower air into one direction down towards the outlet instead of spreading it. Four variants that differ only in the air collector, so three units in the same hopper can be chained onto a single air line.

Working pressure 0.7-2 bar	Duty cycle Continuous	Temperature -40 to 170 °C	Membrane FDA 177.2600	Variants 4
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Three ways to lose time on a ramp

The catalogue puts it briefly: the VBT solves bridging and rat-holing. Behind those two words lie the situations a driver knows: the hopper that will not empty, the hopper that empties halfway, and the load that simply takes too long.

Bridge over the outlet

The powder forms an arch across the opening and carries its own weight. The hopper is full, but nothing comes out, and the blower works without moving anything.

Rathole through the middle

A narrow channel runs down through the centre while the rest stands still along the wall. The trailer leaves with a residue that has to come off somewhere else.

Load-out takes too long

The material does come out, but more slowly than the schedule can carry. This is what the VBT is built for: the air is aimed at the outlet instead of spreading in every direction.

Tramontana®: air in one direction — at low pressure

An ordinary aeration nozzle blows air evenly in every direction. The underside of the Tramontana® disc is shaped as a Venturi cavity, which gives the air a preferred direction, down towards the hopper outlet. The material is loosened where it has to leave.

On a trailer the decisive figure is pressure. The VBT works from 0.7 to 2 bar. For comparison, the VBS silo version works up to 6 bar. The low pressure is not a limitation but the premise: the air comes from the truck's own blower, and the duty is continuous, precisely together with the blower.

The circuit is the trailer's own. The VBT suits a standard pneumatic bulk trailer circuit and works with all standard designs. No control box and no solenoid valve are supplied; the air collector on the outside of the hopper wall is the pipework, and it is part of the model.

Technical specifications

Application	Dry bulk tank trailers and dry bulk rail tankers
Material in the hopper	Dry, fine, granular powder
Problem solving	Bridging and rat-holing
Duty cycle	Continuous. Suitable to be used with a blower
Working pressure	0.7 to 2 bar (10 to 29 psi)

Pneumatic circuit	Suits a standard pneumatic bulk trailer circuit, works with all standard designs
Working temperature	-40 to 170 °C (-40 to 338 °F)
Technology	Vibro-aeration
Membrane	White silicone. Blue silicone is metal detectable and complies with FDA 177.2600
Stem	Black polyarylamide, glass-fibre reinforced, to 10/2011/EC, FDA and UL94
Air collector	Black polyarylamide, glass-fibre reinforced, to 10/2011/EC, FDA and UL94, or transparent polysulphone to ISO 10993, FDA 21 CFR 177.1655, NSF 51 and UL94
T-handle	Black polyarylamide, glass-fibre reinforced. Stainless steel threaded shaft
Gaskets	Silicone. EPDM as an option
Mounting hole	Ø38 mm (1 1/2 in) in the hopper wall
Units per hopper	Three units, 120 degrees apart
Options	Hopper saver plate in AISI 304 stainless steel. EPDM gasket

Four variants, one difference

The four models are the same aerator with a different air collector on each. The collector decides how three units in the same hopper chain onto a single air line: three-way in the middle, two-way along the way and one-way at the end, in a left-hand or right-hand version. Dimension A is the disc diameter, B the vertical spout that only the three-way has, and C the mounting hole.

Model	Air collector	Drawing	Temperature	A	B	C	D
VBT30	Three-way	Y1	-40 to 170 °C	Ø104	Ø50.8	Ø38	6-7
VBT20	Two-way	Y2	-40 to 170 °C	Ø104	-	Ø38	6-7
VBT1L	One-way, left-hand	Y3	-40 to 170 °C	Ø104	-	Ø38	6-7
VBT1R	One-way, right-hand	Y4	-40 to 170 °C	Ø104	-	Ø38	6-7

How to read the model name: 30 is a three-way air collector, 20 two-way, 1L one-way left-hand and 1R one-way right-hand. The number is the number of ways out of the collector, not a size.

White or blue

The colour is not cosmetic. It tells you which silicone the membrane is made from, and therefore what it may touch. Both cover the full temperature range from minus 40 to 170 degrees.

White silicone · -40 to 170 °C

The silicone membrane in its ordinary version. The whole VBT range is suitable for food and complies with UL94. Models: VBT30 · VBT20 · VBT1L · VBT1R

Blue silicone · -40 to 170 °C

Metal detectable and to FDA 177.2600. If a piece of the membrane comes loose, the metal detector at the receiving plant will catch it. A requirement in many food and feed plants. Models: VBT30 · VBT20 · VBT1L · VBT1R

Apart from the colour the two are identical: the same silicone, the same temperature range and the same dimensions. Choose the blue one where the receiving plant has a metal detector — otherwise it makes no difference in service.

What sits on the hopper

A VBT is not one part. The membrane sits inside the hopper, the stem passes out through the hole, and the air collector and the T-handle sit on the outside. It is the collector that turns three units into one installation.

The air collectors · C · D · E · F

Four models, one installation. The three-way collector sits where the air enters the hopper, the two-way carries it on, and the two one-way collectors close the row at either end. That is why the collector exists in a left-hand and a right-hand version.

Three-way	VBT30
Two-way	VBT20
One-way left	VBT1L
One-way right	VBT1R

Material Black polyarylamide or transparent polysulphone

1. Three units per hopper, 120 degrees apart.
2. The mounting hole in the hopper wall is Ø38 mm.
3. The collector has its own gasket, and the disc has its own.
4. The T-handle locks the unit with a stainless steel threaded shaft.

Hopper saver · H

A stainless steel plate over the disc. It is used for highly abrasive materials, where the powder would otherwise work on the membrane itself. It is an option and is not included.

Material	AISI 304 stainless steel
Intended for	Highly abrasive materials
Supplied	As an option

1. The plate sits over the membrane and takes the wear.
2. It is also known as a hopper saver disc.

If you need weights, air consumption, ATEX details or the user manual for a project, we obtain them from the factory. Call or write, and we will get what you are missing.

Where it sits and what it works in

Vehicles	Dry bulk tank trailers and dry bulk rail tankers
Materials	Cement, lime, pigments, plastics, starch, flour, sugar and coffee
Sectors	Building and construction, energy, feed and food, lines and machines, plastics and chemicals, heavy industry and environmental technology
Suitability	The entire range is suitable for food and complies with UL94. The polymer withstands both desert heat and arctic cold
Other vehicles	Dump trucks, concrete pumps, salt spreaders and vacuum trucks are solved with vibrators, not with the VBT

What taper are your hoppers?

Tell us how many hoppers the trailer has, what angle they sit at and what you haul. We come back with a number, a combination of air collectors 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-for-trucks/

Product selectorparticulair.eu/flow-aid/en/product-selector/

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