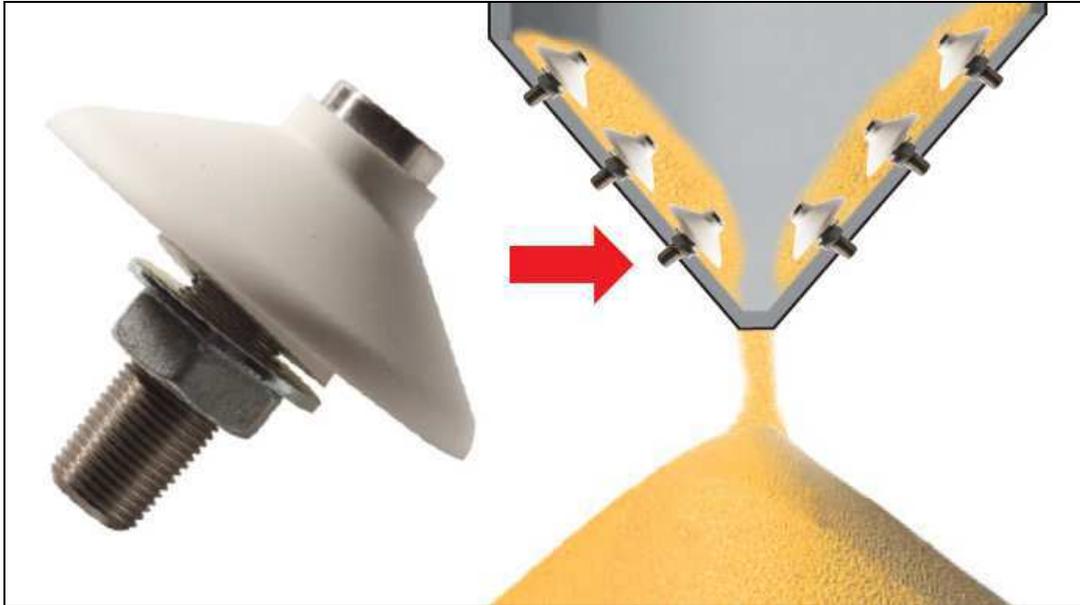


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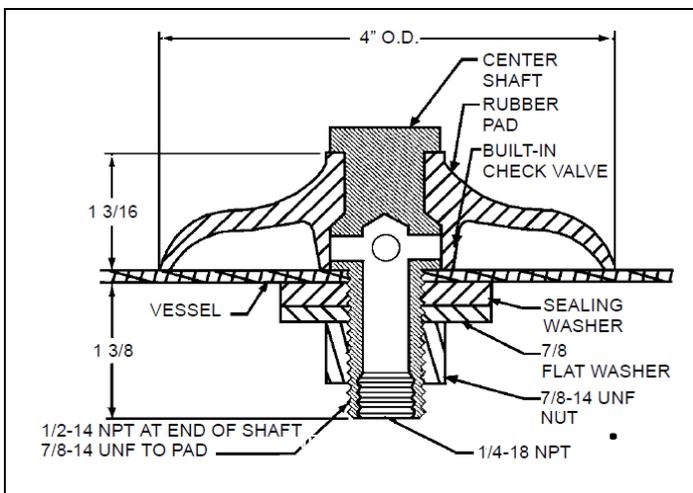
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Vibrating Bin Aerators AFI Mounting- & Operating Instructions Manual



How it works

Compressed air is introduced by the Vibrating Bin Aerators into the bin or hopper in a round pattern generating a thin layer of air between the bin wall and the product. Thanks to this air cushion, product friction against the wall is drastically reduced thus causing material to fall much easier. In addition to being a fluidizer, Vibrating Bin Aerators act like a flow aid device. The white polymer cone is shaken by the compressed air generating a light vibration helping evacuate the material. When the nozzle is totally immersed in the product and not operating, product weight and the elasticity of the plastic cone keep the device against the wall preventing any product from entering the air line.



PART DESCRIPTION

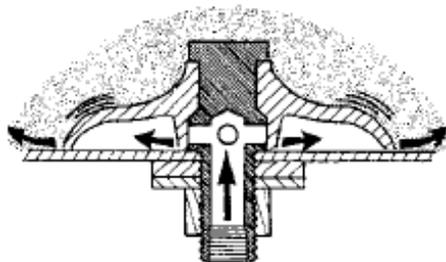
1. 303 stainless steel aeration stud
2. 7/8" plated flat washer
3. 7/8-14 UNF plated hex nut
4. White sealing washer
5. White silicone pad
rated at 400 Deg. F
or white neoprene
rated at 250 Deg. F

Note: All pads are built to an ASTM standard and are acceptable in food grade applications as permitted by the FDA.

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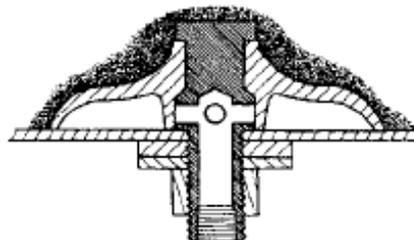
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Operation



AIR ON

Air is introduced in the silo or bin through the Vibrating Bin Aerator. As the air discharges in the material it provides aeration effect to fluidize the material. The positive air pressure keeps the material from getting under the boot. The air flowing under the boot causes it to vibrate. The vibration of the boot helps move material that has the tendency to hang up or bridge.



AIR OFF

When the air is removed from the boot, the pressure of the material and the design of the boot forces the boot against the side of the bin or hopper. This prevents material from getting under the boot and into the air supply line. The whole functions as a double non-return valve.

Air Consumption

Continuous Air Supply		Cubic feet per Vibrating Bin Aerator		
		Pulse time in seconds		
PSIG	CFM	1	2	3
60	55	0.93	1.83	2.75
50	40	0.67	1.33	2.00
40	30	0.50	1.00	1.50
30	20	0.33	0.67	1.00
20	16	0.27	0.53	0.80
15	13	0.22	0.43	0.65
10	10	0.17	0.33	0.50
5	5	0.08	0.17	0.25

Vibrating Bin Aerators are operated by pulsing air on and off. The CFM required is calculated by multiplying the cycle time per minute by the air flow at the supply times the number of pads. For example, if using 4 Vibrating Bin Aerators with an on-time of

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2 seconds, and an off -time of 10 seconds, and a supply pressure of 20 PSIG, the CFM is calculated as follows: $60 \text{ seconds per minute} / 12 \text{ seconds total cycle time} = 5 \text{ cycles per minute} \times .53 \text{ (see chart at 20 PSIG)} \times 4 \text{ pads} = 10.60 \text{ CFM}$. The actual on/off time is dependent on the application.

Air Requirements

We recommend that the Vibrating Bin Aerators be operated in a pulsing mode with regulated air pressure. This will conserve air consumption and increase the efficiency of the Vibrating Bin Aerator. The specific air pressure and pulse times for operating the Vibrating Bin Aerator is determined by the number of Aerators used and the type of material being aerated. Sticky and clinging types of material will require higher air pressure and a more rapid pulse rate as opposed to a drier relatively free flowing type of material. Higher air pressure and rapid pulse rates create more vibration out of the Aerator, thus keeping sticky materials broken up and flowing freely. While drier materials don't tend to bridge as easily, a lower pressure of air and fewer pulse times will keep this type of material free flowing (See air consumption chart).

Air Quality

The compressed air must be filtered. The Vibrating Bin Aerators might work correctly for years without any maintenance if oil particles, rust and other contaminants are removed from the compressed air flow.

Installation

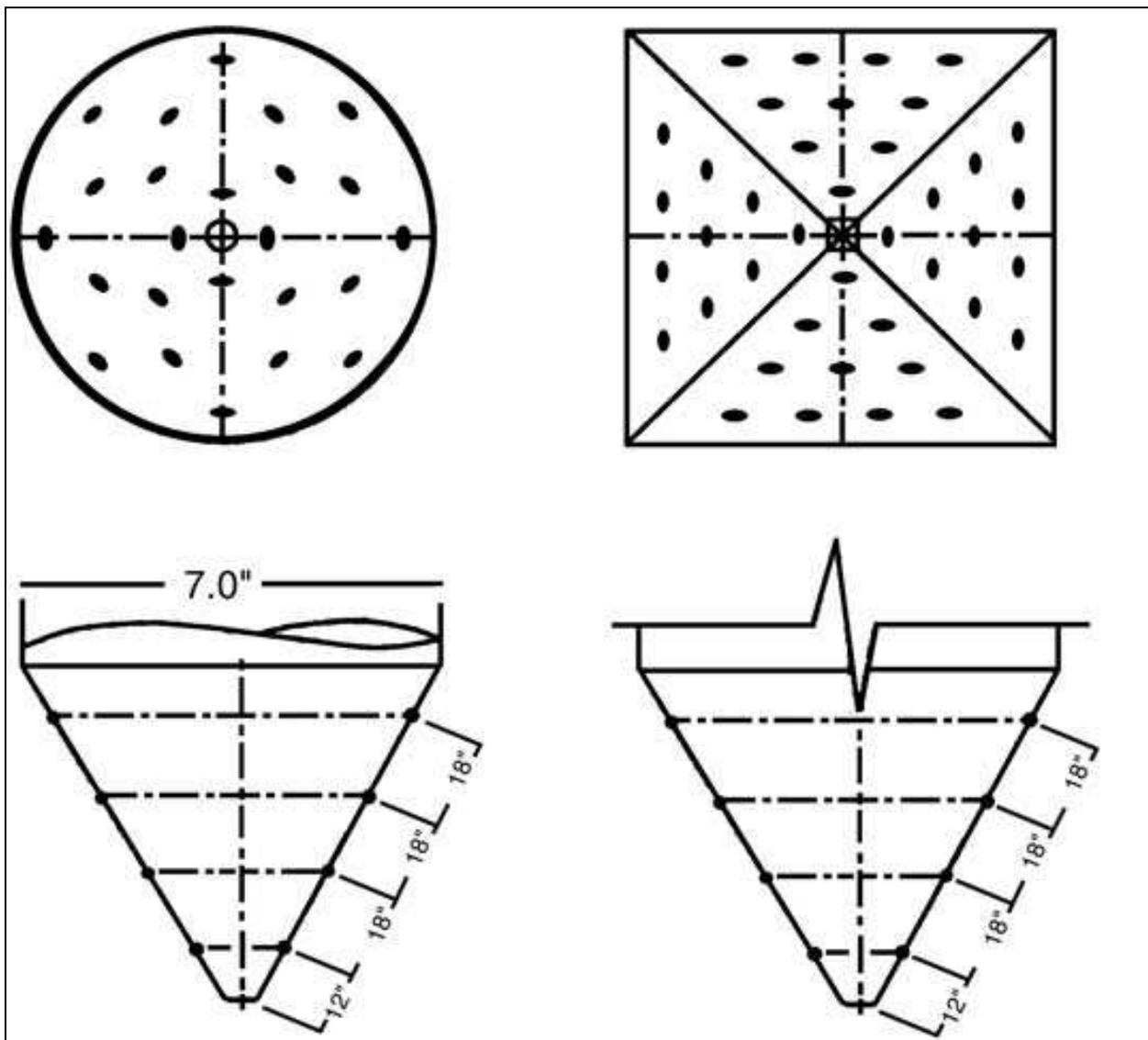
To install the Vibrating Bin Aerator, drill a 7/8" hole in the hopper, bin, silo, etc., wall where material flow is a problem. From the inside, place the stainless steel shaft and silicone pad assembly through the walls. From the outside, slip on the sealing washer, 7/8" flat washer and 7/8-14 UNF hex nut. Tighten down until snug. The unique design of the Vibrating Bin Aerator allows the pad to be mounted on virtually any kind of surface, but for best results, try mounting on a clean and smooth surface. The Aerators stainless steel shaft has an 1/4" NPT internal thread and 1/2 NPT external thread for connecting to the air supply.

Sizing Recommendations

Determining the amount of Vibrating Bin Aerators and their installations is subject to the material flowability, hopper size, and hopper configuration. Placement of the Vibrating Bin Aerator is essential to its effectiveness. Vibrating Bin Aerators are to be placed in the cone or transition portion of the bin or hopper. The diameter of the hopper or the bin determines the number of Vibrating Bin Aerator needed. Starting approximately 12" - 18" above the outlet of the bin or hopper, install 3 - 4 Vibrating Bin Aerators equally spaced. Go up approximately 18" - 24" and install another row of 4 - 6 Vibrating Bin Aerators with staggered spacing of the original row. Continue up the cone or transition in this manner, adding Aerators to each row as the diameter

increases. Vibrating Bin Aerators should not be needed 2' - 3' prior to the transition area where the hopper or bin wall goes to vertical. Aerators can be placed farther apart in each row as you work your way up the transition. Keep in mind that material bridging occurs most often from the outlet to 3/4 way up the transition. Two to six Vibrating Bin Aerators are generally plumbed in series. Manifold style plumbing is required to insure the proper working of each Vibrating Bin Aerator if you are installing six or more units in series.

Typical Installation Layout



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