

# ***BINMASTER***<sup>®</sup>



## **Airbrator**

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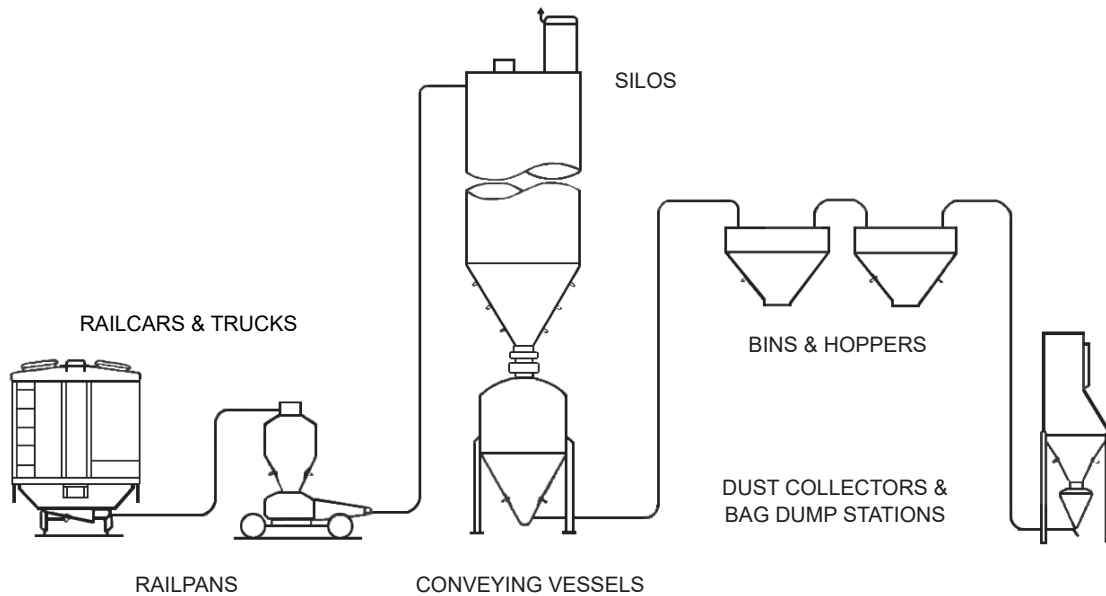
# AIRBRATOR

## THE AIR PAD WITH AERATION & VIBRATION

### Features:

- Economical
- Durable construction
- Easy installation
- Self-cleaning
- Suitable for abrasive materials
- Use low or high pressure air
- Vibratory action promotes material flow
- Use with granular or powdered material
- Stainless steel shaft
- Food grade
- Use in any type of silo or bin
- Rated to 250°F

### SOLVES FLOW PROBLEMS WITH MANY APPLICATIONS AND MATERIALS



ALUMINA  
ASH  
BAG HOUSE DUST  
BARLITE  
BENTONITE  
CEMENT

CLAY  
CACIUM CARBONATE  
CORNSTARCH  
CEMENT CLINKER  
DIATOMACEOUS EARTH  
FLY ASH  
FLOUR

FLOUROSPAR  
GYPSUM  
LIME  
PERLITE  
PVC RESIN  
SALT  
SAND

SODA ASH  
SUGAR  
SOUP POWDER  
TALC  
....AND MORE

## AIRBRATOR AIR PADS

Do you have problems getting your bulk material to consistently flow from your silos and bins?

Is your material sticky or have a high angle of repose?

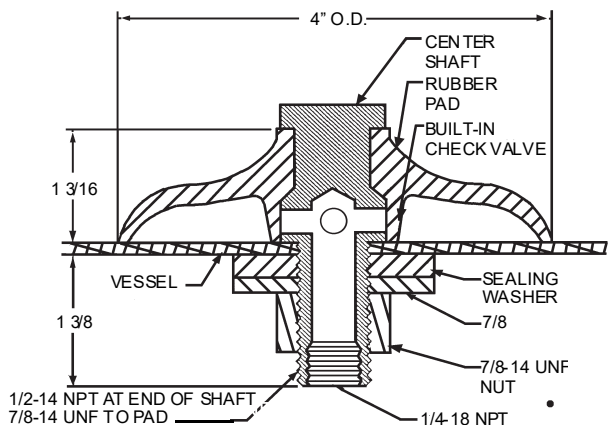
Have you tried aeration and found your material continues to hang up or bridge?

The BinMaster Airbrator Air Pad will help you economically solve these and other common material flow problems.

## AERATION PLUS VIBRATION

Airbrator combines aeration and vibration to solve even the most difficult material flow applications. The special design creates a vibration as the air flows between the pad's boot and bin wall. This provides a very effective flow aid for all types of dry products. Plus, Airbrator pads do not require a specific air pressure for operation. You may use blower air from as low as 5 PSIG to high-pressure air up to 60 PSIG.

## AIRBRATOR SPECIFICATIONS

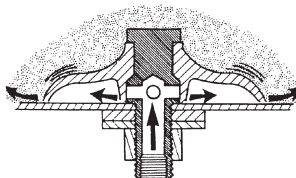


## PART DESCRIPTION

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 250°F

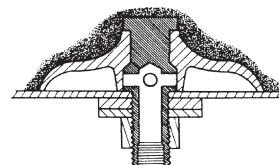
Note: All pads are built to an ASTM standard and are acceptable in food grade applications as permitted by the FDA.

## OPERATION



### AIR ON

Air is introduced in the silo or bin through the Airbrator pad. As the air discharges in the material it provides an 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. This prevents material from getting under the boot and into the air supply line.

## AIR CONSUMPTION

Airbrator pads 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 four Airbrator pads with an on-time of two seconds, and an off-time of 10 seconds, and a supply pressure of 20 PSIG, the CFM is calculated as follows: 60 seconds per minute/12 seconds total cycle time = 5 cycles per minute x .53 (see chart at 20 PSIG) x 4 pads = 10.60 CFM. The actual on/off time is dependent on the application.

		Cubic feet per aerator		
Continuous		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

*When using internal thread*

## OPERATION OF THE BINMASTER AIRBRATOR

The Airbrator is a flow aid designed to ensure product movement. The special design of the airbrator causes a vibration as the induced air flows between the pad's boot and the bin wall. The result of these two actions, aeration and vibration, provide a very effective flow aid that can be used with all types of dry products.

## AIRBRATOR AIR REQUIREMENTS

We recommend that the Airbrator be operated in a pulsing mode with regulated air pressure. This will conserve air consumption and increase the efficiency of the Airbrator. The specific air pressure and pulse times for operating the Airbrator is determined by the number of Airbrators 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 Airbrator, 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).

## INSTALLATION OF THE BINMASTER AIRBRATOR

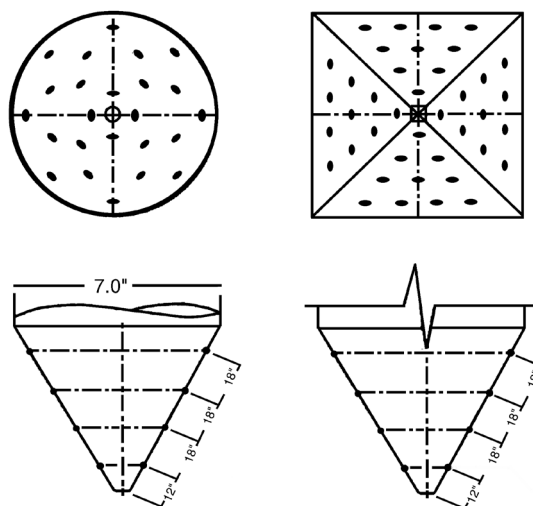
To install the Airbrator, drill a 7/8" hole in the hopper, bin or silo wall where material flow is a problem. From the inside, place the stainless steel shaft and silicone pad assembly through the walls. From the outside, slip on the sealing washer, 7/8" flat washer and 7/8-14 UNF hex nut. Tighten down until snug. The unique design of the Airbrator 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 Airbrator stainless steel shaft has an 1/4" NPT internal thread and 1/2" NPT external thread for connecting to the air supply.

## AIRBRATOR SIZING RECOMMENDATIONS

Determining the number of Airbrators and their installations is subject to the material flowability, hopper size, and hopper configuration. Placement of the Airbrator is essential to its effectiveness.

Airbrators 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 Airbrators needed. Starting approximately 12" - 18" above the outlet of the bin or hopper, install 3 - 4 Airbrators equally spaced. Go up approximately 18" - 24" and install another row of 4 - 6 Airbrators with staggered spacing of the original row. Continue up the cone or transition in this manner, adding Airbrators to each row as the diameter increases. Airbrators should not be needed 2' - 3' prior to the transition area where the hopper or bin wall goes to vertical. Airbrators 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 the way up the transition. Two to six Airbrators are generally plumbed in series. Manifold style plumbing is required to ensure the proper working of each Airbrator if you are installing six or more units in series.

## TYPICAL INSTALLATION LAYOUT



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