

BULLETIN 964A

INSTALLATION & OPERATION

Flo-Pad Bin Aerator

Monitor's Flo-Pad bin aerator is a device used to promote the flow of bulk powder material from a storage vessel.

PRINCIPLE OF OPERATION

The Flo-Pad operates by continuously introducing air into a mass of stored powder. When first conveyed into a storage vessel, the powder is actually a highly aerated mixture of air and particulate. In this state, the mixture flows quite easily.

As the material settles, the particulate and air separate. The material decreases in volume and increases in density, and in turn, begins to behave more like one solid mass rather than a fluid-like mixture of individual particles. By replacing the naturally lost air, the high air-to-particulate mixture ratio is held, maintaining the fluid-like characteristic of the aerated powder.

PRE-INSTALLATION CONSIDERATIONS

Air Quality – Compressed air is needed for operation. The quality of air introduced into the stored powder will be that of the compressed air system. An oil and water trap installed on the feed lines will prevent contamination of stored powders.

Air Volume – Depending on the number of Flo-Pads installed, a large volume of air may be required. Small quantities of Flo-Pads can be operated from a compressor. Typically, large quantities are more economically operated from a blower.

Air Supply – It is strongly recommended the Flo-Pad be operated on a continuous basis. It is critical that the operating pressure of the Flo-Pads exceed the interior vessel pressure at all times in order to prevent possible material back-flow problems. Vessel filling via pneumatic conveying will increase internal vessel pressure. This should be considered when determining the continuous operating pressure for the Flo-Pad. Operating pressure is typically recommended at 3-5 psid (the difference between air feed pressure and internal vessel pressure). Demanding applications may require operating pressures of up to 80 psid (consult factory). See tables 1A and 1B for air pressure and consumption rates.

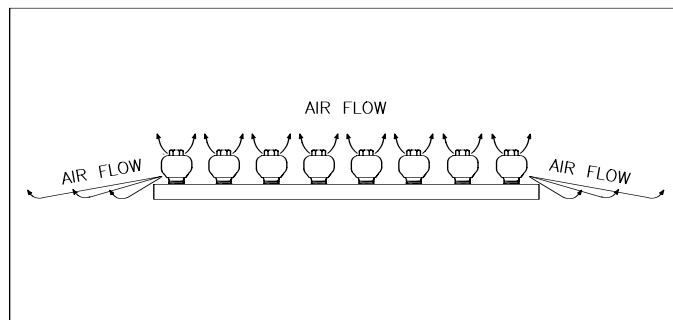


Figure 1: Flo-Pad Principle of Operation

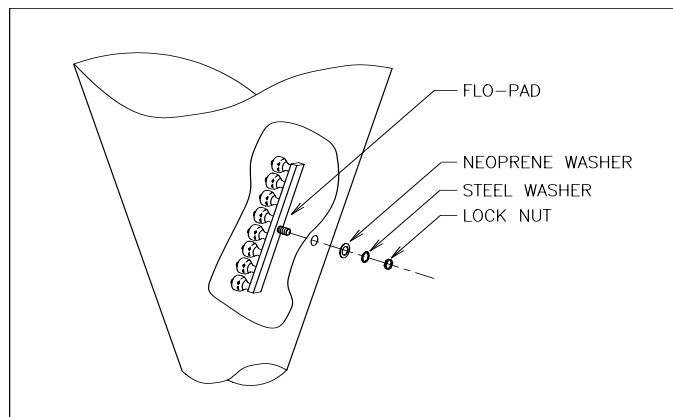


Figure 2: Flo-Pad Installation

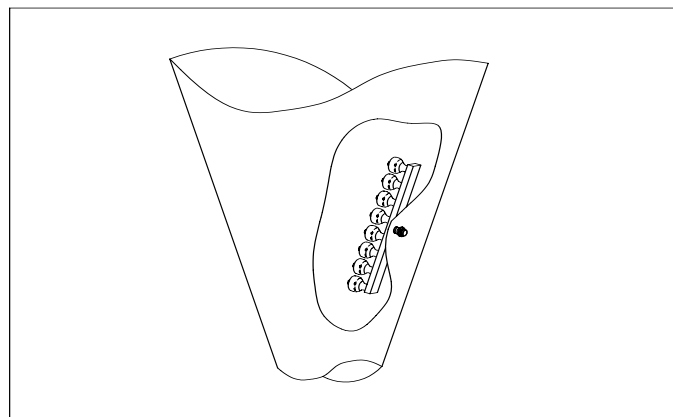


Figure 3: Flo-Pad Final Installation



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Monitor Technologies LLC

MECHANICAL INSTALLATION

Mounting – Drill one 1-7/16” diameter hole through the bin to accept the Flo-Pad plenum pipe nipple. Assemble the Flo-Pad to the inner wall using rubber and steel washers. Secure with lock nut. To prevent the Flo-Pad assembly from “propellering” when subjected to swiftly flowing material, it is recommended to secure the up-stream portion of the Flo-Pad with a tack weld or bracket.

Location – The Flo-Pad is typically located near the discharge opening, where most flow problems originate. Space the Flo-Pads so the entire troublesome area is influenced by the air. Knowing the origin of a flow problem is most beneficial. Once this knowledge is at hand, a few Flo-Pads can be installed to fluidize the footing of the flow obstruction. Our application engineers can assist in selecting the proper number and location of aeration equipment best-suited to your individual application.

Air Connections – A 1” I.D. air hose is used to connect each Flo-Pad air nipple to the distribution manifold. The air manifold will ensure the individual Flo-Pads are fed a reasonably uniform air pressure and volume. If necessary, a commercial plumber can be contracted to install such a system.

Air Consumption Disclaimer – Air consumption based on the tables provided does not take into account losses due to such factors as line friction, line length, line configuration, Flo-Pad insert filters or boots. Our application engineers can assist in determining the effect(s) of these factors based on your individual application.

Table 1A: C.F.M. Required for Various Nos. of Flo-Pads

No. of Flo-Pads	C.F.M. Required								
	1	2	3	4	5	6	7	8	9
18"	25	50	75	100	125	150	175	200	225
60"	90	180	270	360	450	540	630	720	810

Table 1B: Pipe Size Needed for Manifold with Different C.F.M. and PSIG Required

C.F.M. Required

	25	75	90	100	125	150	175	180	200	225	250	270	275	300	360	450	540	630	720	810	900	990	1080
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Manifold Size in Inches

* PSIG	C.F.M. Required																						
	25	75	90	100	125	150	175	180	200	225	250	270	275	300	360	450	540	630	720	810	900	990	1080
2	3/4	1	1	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	2	2	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	3	3
4	3/4	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	1 1/2	2	2	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	3
6	3/4	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	2	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2
8	3/4	3/4	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	2	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2
10	3/4	3/4	1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	2	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2
12	3/4	3/4	3/4	1	1	1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	2	2	2 1/2	2 1/2	2 1/2	2 1/2

* Material level in feet above center of pad multiplied by .433 will give PSIG required for proper operation.

FORMULA: SL = Material Level in Feet (SL) (.433) = PSIG

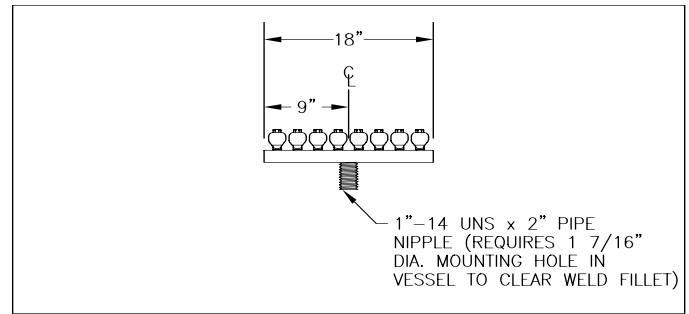


Figure 4: 18” Flo-Pad Dimensions

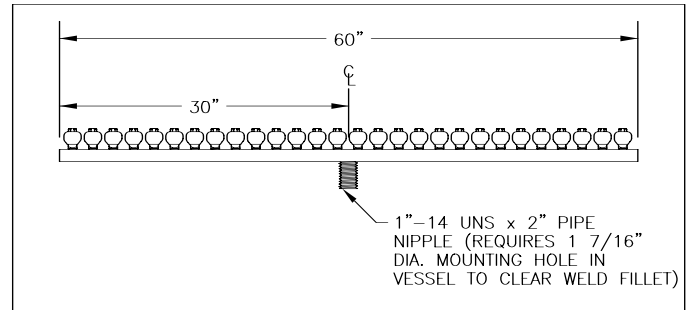


Figure 5: 60” Flo-Pad Dimensions

WARRANTY

Monitor Technologies LLC warrants each Flo-Pad bin aerator it manufactures to be free from defects in material and workmanship under normal use and service within two (2) years from the date of purchase within North America, and within one (1) year from date of purchase outside of North America. The purchaser must give notice of any defect to Monitor within the warranty period, return the product intact and prepay transportation charges. The obligation of Monitor Technologies LLC under this warranty is limited to repair or replacement at its factory. This warranty shall not apply to any product which is repaired or altered outside of the Monitor Technologies LLC factory, or which has been subject to misuse, negligence, accident, incorrect wiring by others or improper installation.

Monitor Technologies LLC reserves the right to change the design and/or specifications without prior notice.



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