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RA Series Rectangular Aerator Operation Manual

Introduction

The RA Series rectangular aerators are designed to fluidize fine powders in bins and silos by using the proven principle of aeration.

Operating Principle

Low-pressure air is introduced into the powder material contained in a bin or silo thereby restoring its natural ability to flow. In this manner, blockages, bridging and rat holing can be overcome without the use of industrial vibrators that can damage some vessels and are very loud. Almost all flow problems inherent to dry, fine materials are caused by the packing of the material as it settles and the entrained air escapes. When a low-pressure airflow is introduced into a fine powder material, the material will be "fluidized" and will regain its natural tendency to flow uniformly and readily.

RA series rectangular aerators feature a fiberglass diffuser which is resistant to moisture absorption and clogging. The RA aerator pad provides equal distribution and consumption of air. It is easily installed.

Application and Use

The RA series aerator pads will provide best results when used with materials with a 60 mesh size or smaller, and 3% or less moisture content. Specific materials that respond well to aeration include lime, Portland cement, carbon black, diatomaceous earth, flour, soda ash, gypsum, fly ash, pigments, soap powders, bentonite, bran, clay, cereals, fullers earth, detergents, and many others. For questionable materials, please contact our sales department.

Aerator Selection

For best results, locate the lower row of RA aerators as close to the discharge outlet as possible. If material is retained within the bin for a long period of time and/or has been compacted at all, it is recommended that the aerators be installed on 12" centers rather than 15" centers.

Aerators on 12" Centers		Aerators on 15" Centers	
Length of Sloping Bin Wall	Number of Aerators Per Row	Length of Sloping Bin Wall	Number of Aerators Per Row
1' 8" – 2' 7"	2	1' 11" – 3' 1"	2
2' 8" – 3' 7"	3	3' 2" – 4' 4"	3
3' 8" – 4' 7"	4	4' 5" – 5' 7"	4
4' 8" – 5' 7"	5	5' 8" – 6' 10"	5
5' 8" – 6' 7"	6	6' 11" – 8' 1"	6
6' 8" – 7' 7"	7	8' 2" – 9' 4"	7
7' 8" – 8' 7"	8	9' 5" – 10' 7"	8
8' 8" – 9' 7"	9	10' 8" – 11' 10"	9
9' 8" – 10' 7"	10	11' 11" – 13' 1"	10

Typically four rows of RA rectangular aerators on 12" or 15" center-to-center spacing is recommended. On cylindrical bins these rows are spaced equally. On rectangular bins the rows are spaced equally on the sloping sidewalls or in the valleys if material tends to hang up at those locations.

Air Supply

Air supply must be clean and dry. We recommend positive displacement, low pressure blowers. Plant air can be used, but the pressure must be reduced to 3-5 psi, and a filter or moisture trap used on the low-pressure side. The volume of air required is a limiting factor on the use of plant air.

Manifold Piping Size Guide		Air Consumption Guide per Aerator	
Piping Size	Number of Aerators in a Row	Air Pressure, psi	Cubic Feet Per Minute
3/4"	1-5	1	4.2
		2	5.7
1"	6-9	*3	6.5
		4	7.1
1-1/4"	10-12	5	7.6
		*Recommended for most applications	

Installation

For internal mounting drill 7/16" holes through the bin wall on predetermined centers (12" or 15"). Insert special air inlet tank nipple on back side of RA aerator and then through the hole and lock into place with locknut. Rubber gasket and spacer washers are furnished to complete the installation (refer to Figure 2).

Figure 1: Typical Layout - Cylindrical and Rectangular Cones

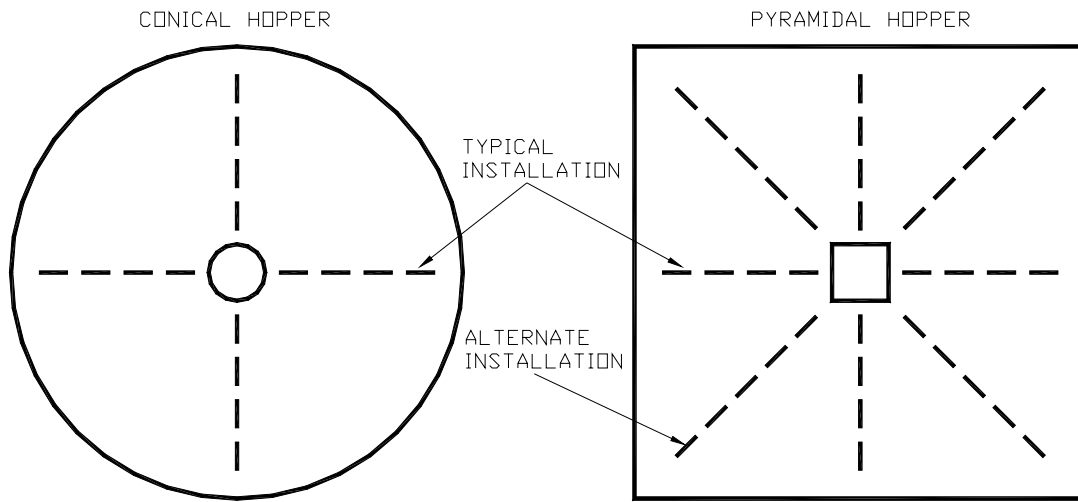


Figure 2: RA Series AF100 Aerator Installed (internal mounting)

