

## How to save compressed air while running your bin aerator

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Here are some simple ways to save valuable compressed air when operating your bin or silo aerator.

An aerator (also called a *fluidizer*) is a common bulk solids flow aid, available in various designs, for promoting complete discharge from a bin or silo. Multiple aerators are typically installed through the wall of a vessel's hopper section and linked to a compressed-air supply. By sending a short burst of compressed air into the hopper section and directing the airflow along the wall, the aerator loosens compacted material and promotes its flow from the vessel. With some aerators, each compressed-air burst also gently vibrates the hopper wall to maintain flow.

The aerator's use of air to promote material flow has given rise to the common misconception that sending more air through the device will improve its performance. But this isn't always the case. And because your plant's compressed-air supply can be a precious commodity, it's wise to consider how much air you really need to run your aerator. The following three tips can help you control the amount of compressed air your aerator consumes without affecting its flow-promoting performance.

### 1. Run the aerator only when the vessel is discharging.

By running the aerator when the vessel's discharge outlet is closed, you could be doing more harm than good. When the material has nowhere to go, the air injected into the vessel will find the path of least resistance, after a while creating a hole or chamber in the material next to the aerator. Then, when the vessel's discharge outlet is opened, the material may not flow out properly because the air injected by the aerator flows into the hole rather than into the material.

### 2. With multiple aerators, run only some aerators at a time.

Running multiple aerators simultaneously will quickly eat up compressed air without necessarily speeding up vessel discharge. In a large vessel that has multiple aerators installed in rows around the hopper section, you don't need to run all the aerators at the same time. For instance, in a bin with eight aerators installed in two rows of four around the hopper section, running only one row at one time and then switching to running the other row will save compressed air and promote good flow.

### 3. Fine-tune the aerator's operation.

How often to run your aerator depends on your vessel and material. A good starting point is to set the aerator system controller to pulse the aerator for

2 to 3 seconds, then turn it off for 10 to 15 seconds. You can then fine-tune the system by adjusting the on-off times until you get the discharge performance you need while conserving as much compressed air as possible.

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### For further reading

Find more information on flow aids in articles listed under "Solids flow" in *Powder and Bulk Engineering's* comprehensive article index at [www.powderbulk.com](http://www.powderbulk.com) and in the December 2003 issue.

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