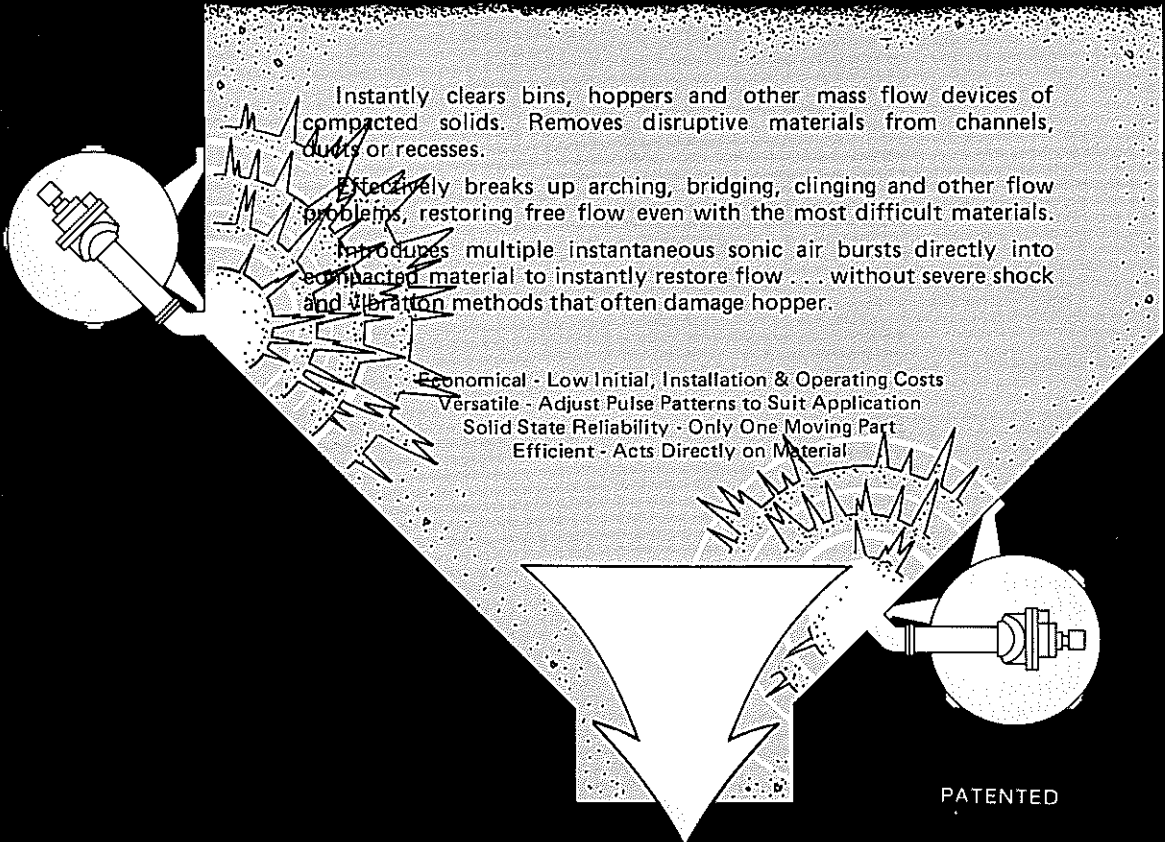


the UNIQUE **PULSONIC™** **BIN** **ACTIVATOR**



Instantly clears bins, hoppers and other mass flow devices of compacted solids. Removes disruptive materials from channels, ducts or recesses.

Effectively breaks up arching, bridging, clinging and other flow problems, restoring free flow even with the most difficult materials.

Introduces multiple instantaneous sonic air bursts directly into compacted material to instantly restore flow . . . without severe shock and vibration methods that often damage hopper.

Economical - Low Initial, Installation & Operating Costs

Versatile - Adjust Pulse Patterns to Suit Application

Solid State Reliability - Only One Moving Part

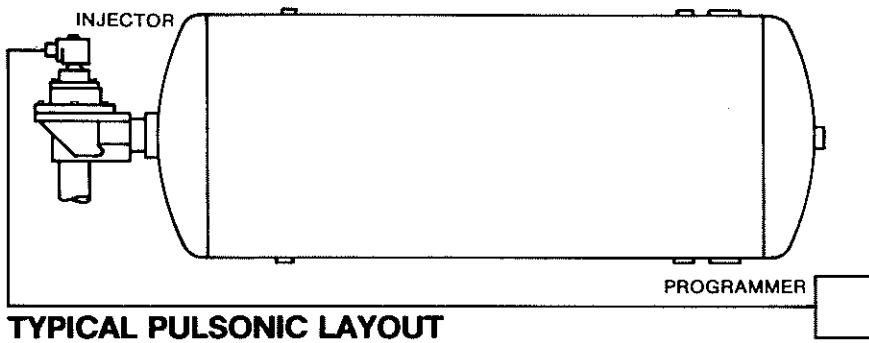
Efficient - Acts Directly on Material

PATENTED

TRY IT AT NO RISK

GUARANTEE

The Pulsonic Bin Activator System must perform to your complete satisfaction or it may be returned for full credit.



TYPICAL PULSONIC LAYOUT

DESCRIPTION

A Pulsonic Bin Activator system has two parts: (1) an INJECTOR consisting of a compressed air reservoir with a solenoid operated release valve, and (2) a PROGRAMMER for controlling the pattern of multiple instantaneous air bursts from the injectors.

A Pulsonic system consists of a single programmer and one or more injectors.

The overall system features simplicity of design, solid state reliability, efficient and versatile operation, low energy consumption and low initial and installation costs with little, if any, maintenance.

PRINCIPLE OF OPERATION

The Pulsonic Bin Activator system injects pre-programmed multiple sonic air blasts directly into the compacted material, restoring free flow in less than 1 to a few seconds. Frees even the most difficult to move materials by breaking up the compaction, aerating it, thus restoring free flow.

The frequency of air bursts can be programmed in the sub-sonic to low sonic range to direct multiple air bursts at whatever pattern most effectively restores material flow. The use of multiple injectors can overlap, space or parallel the pattern. The air burst pattern and number of injectors depends on bin size, shape and flow characteristics of the material being transported.

In the short instant (20 to 100 milliseconds) of the compressed air burst, each burst or injection of compressed air acts directly on the particles it contacts and causes motion in line with the movement and expansion of air. Simultaneously, with the initial movement of the materials, there is aeration of the materials from the expansion of the compressed air. The programmer is set so that before the moving particles from the initial burst come to rest, a second energy release of compressed air is injected into the bulk material. Since the moving particles from the initial burst are still moving, and the activated area is at an elevated pressure, the second burst imparts a greater movement, disruption or aeration force because it is acting on or amplifying the initially moved particles. Each subsequent energy release is programmed to act on materials that are not at rest, but rather have kinetic energy in their

movement such that the subsequent energy releases, even though of lesser energy levels than previous bursts, are more effective than the previous bursts due to the amplification effect. The energy level of the particles in motion increases with each burst or pulse to a higher level, and this higher motion is transmitted to more and more particles with impact and aeration stimulation extended into the entire vessel. The energy bursts or pulses are released at a field adjustable rate or frequency that is most responsive to the bulk material in order to achieve sonic stimulation as well. The multiple instantaneous energy releases of impact, aeration and sonic stimulation, act in concert with one another directly on the material to immediately induce free flow. An entire storage vessel can be totally activated to induce free flow in from less than one second to a few seconds. Disruptive materials in pipes, recessed channels, seal areas and other areas are also similarly removed within this time frame.

The field adjustable air burst pattern allows the operator to select a pattern of air bursts that is most effective for his application resulting in minimum energy consumption. This is done by simply setting the dials on the programmer. The dials control the frequency, duration and cycle of the air burst patterns.

A typical air burst pattern could be programmed to inject five air bursts simultaneously from each of two injectors at a frequency of 20 per second. The injectors could be connected to fire alternately which would double the frequency. It may be that three bursts per injector would establish free flow or it may require nine. Whatever the system requires is simply set into the programmer. The established program is automatically repeated at the time interval selected.

FIELD ADJUSTMENTS

Field adjustment of the Pulsonic System is accomplished by simply setting dials on the programmer. These dials control:

- A. Time between programs (.1 to 99.9 minutes)
- B. The total number of air bursts per program (1 - 9)
- C. The duration of each burst (milliseconds)
- D. The time between bursts (milliseconds)

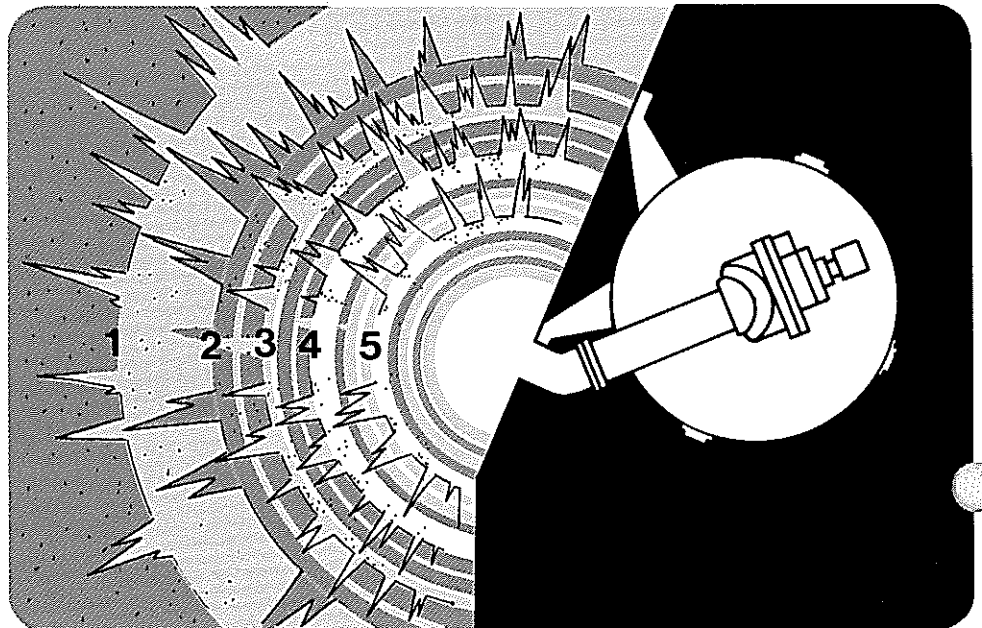
These adjustments permit the operator to vary the number, duration and rhythm of bursts, and the time between burst cycles. Thus, a finely "tuned" program can be achieved that will eliminate material blockages and keep the system free flowing at the minimum amount of energy necessary.

MOUNTING LOCATION

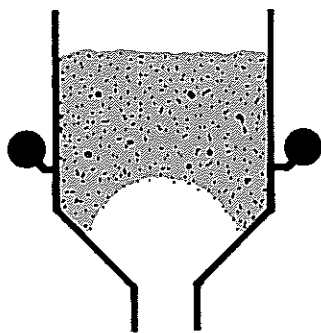
We will be pleased to recommend mounting locations of injectors based on your sketch or drawing of your specific material flow problem. On new installations, recommendations will be made based on experiences in similar structures.

For prevention of material retention in recesses, ducts or channels sketches or drawings of problem areas are necessary.

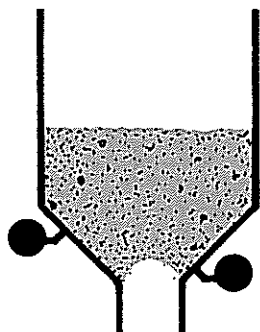
TYPICAL AIR BURST PATTERN



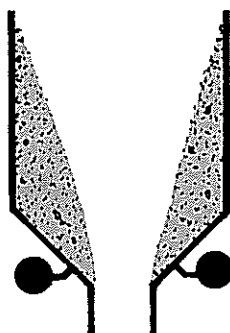
SUGGESTED MOUNTING LOCATIONS FOR COMMON FLOW PROBLEMS



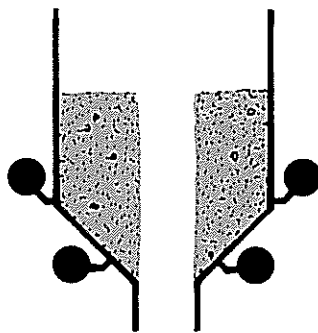
ARCHING



BRIDGING

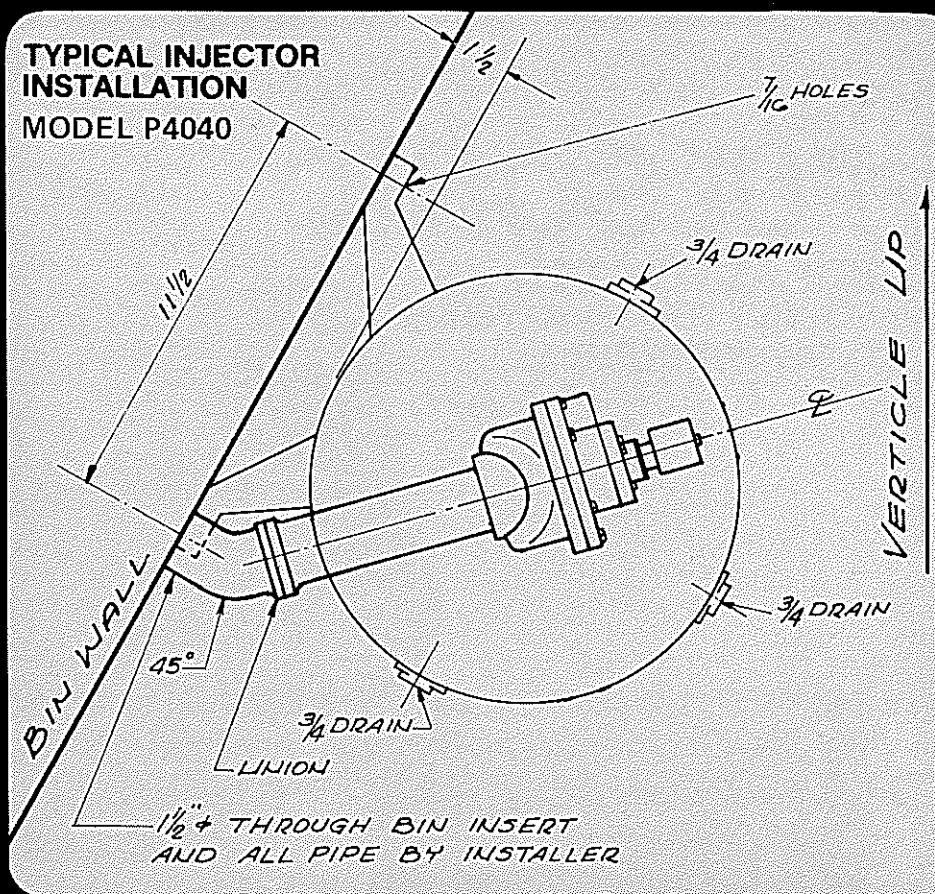


CLINGING



PIPING OR RATHOLE

**TYPICAL INJECTOR INSTALLATION
MODEL P4040**



INSTALLATION

EASY TO INSTALL

Injectors are complete with mounting legs and all field connections can be made with standard pipe.

Connect shop air to tank and power (120/60) to programmer.

EASY TO CONTROL

The programmer will activate the system:

- A. Manually on demand
- B. Automatically on signal
- C. Automatically on time interval

EASY TO ADJUST

The versatility of the Pulsonic system reduces the troublesome task of relieving material blockages to simply dialing the best program for maximum effectiveness and efficiency.

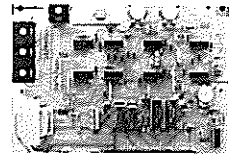
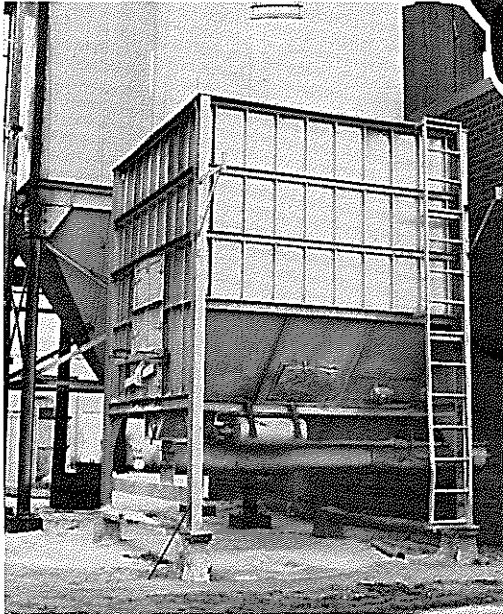
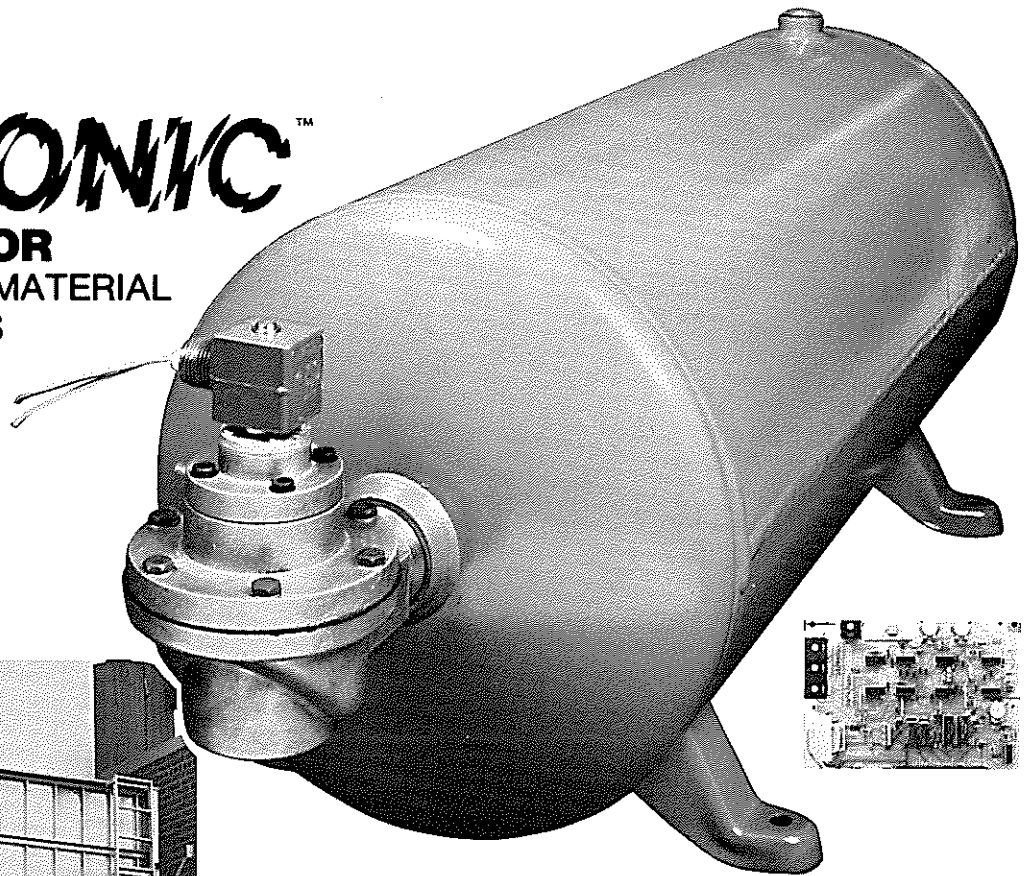
EASY TO SERVICE

The injector valve is the only component with moving parts. Thousands of these valves have over 5 years of field operating time as proof of performance reliability. If service is ever required, one kit replaces all moving parts without disturbing pipe or mounting connections.

TRY IT AT NO RISK

Let us propose a Pulsonic system to solve your flow problem, or order one programmer per system and the number of injectors you estimate are required to solve a problem. We will be pleased to assist you with recommendations for your particular system.

THE
PULSONIC™
BIN ACTIVATOR
SOLVES TOUGH MATERIAL
FLOW PROBLEMS

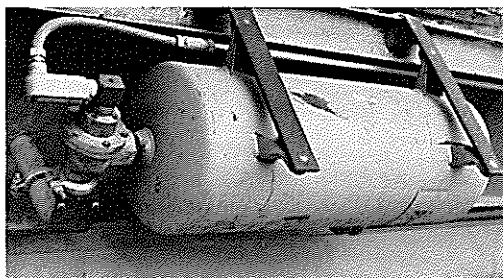
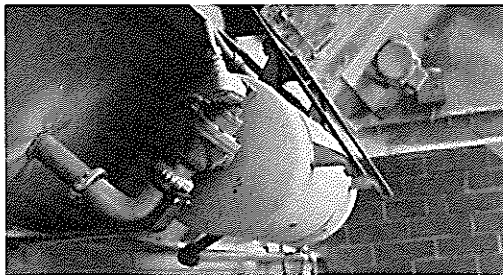


A CASE IN POINT

THE PROBLEM...Wood chips, sawdust and sanding fines were constantly "bridging" in the 10 ft. sq. x 20 ft. high hopper with a screw feed discharge...particularly during periods of high humidity. These stoppages continually interrupted the fuel supply to a 75 h.p. waste wood boiler.

THE REMEDY...A Pulsonic Bin Activator system of one programmer and two injectors. The program selected was to pulse simultaneously directly into the material with a 50 millisecond blast, 30 millisecond off time and a second 50 millisecond blast to complete the program. This program is automatically repeated every 15 minutes.

THE RESULTS...Since installation in November 1977, there has not been a material flow interruption in the hopper. The system operates continuously, 24 hours a day, 7 days a week. The installation uses only 35 S.C.F. of air per hour!



PULSONICS

INCORPORATED

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