



# **BV SERIES PISTON VIBRATORS**

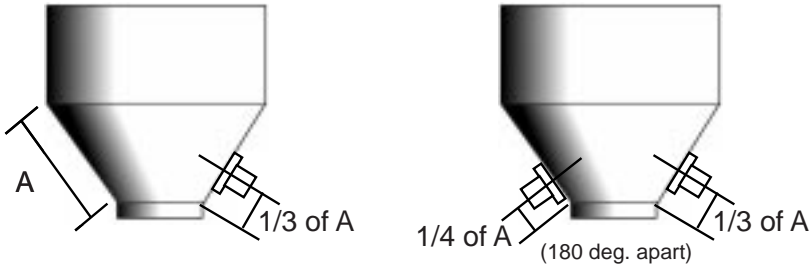
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*Installation & Operation Manual*



## **VIBRATOR PLACEMENT**

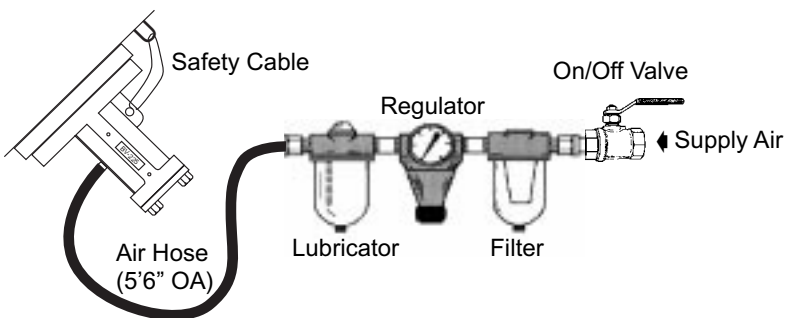
Most applications require only one vibrator. However, multiple units may be used in some instances. When installing only one unit, place the vibrator at  $1/3$  of the distance from the discharge to the top of the cone section of the hopper (distance A). When installing two units, place them  $180^\circ$  from one another around the perimeter of the hopper, with one unit at  $1/4$  of A, and one at  $1/3$  of A, as shown below. For three units, place them  $120^\circ$  from one another around the perimeter, with one at  $1/4$  of A, one at  $1/3$  of A, and one at  $1/2$  of A. Contact HVI for assistance in installing more than three units on one hopper section.



## **SYSTEM COMPONENTS**

In order for your BV Series Piston Vibrator to operate properly, your installation must include a vibrator, a mounting plate, a lubro-control unit, a quick-acting valve, and oil-resistant hose with male fittings.

**PISTON VIBRATORS MUST ALWAYS BE INSTALLED WITH LUBRO-CONTROL UNITS TO INSURE CLEAN SUPPLY AIR AND LUBRICATION.**



The vibrator should be installed no further than 15 feet from the on/off valve and lubro-control unit. The NPT size of the Lubro-Control Unit and On/Off Valve should match the NPT of the vibrator air inlet in single unit installations. When more than one vibrator will be controlled using the same valve and lubro-control unit, the NPT Size of each component should be increased by  $1/4$ " for each vibrator added to the system.

# **MOUNTING**

**Vibrators should NEVER be bolted directly to a bin wall. Always use a mounting plate.**

Before installing your mounting plate, be sure that your bin wall thickness is adequate (See Below).

MODEL	HOPPER CAPACITY	WALL THICKNESS
BV-112	5 CU. FT.	1/16" - 1/8"
BV-150	15 CU. FT.	1/16" - 1/8"
BV-175	30 CU. FT.	3/16" - 1/4"
BV-225	60 CU. FT.	3/16" - 1/4"
BV-312/350	12 TON & UP	1/4 - 3/8"
BV-425	55 TON & UP	3/8" - 1/2"
BV-650	300-1000 TON	3/8" & UP
BV-825	800-1500 TON	1/2" & UP

Capacity Guidelines are based on IMP & QI Models. For AC Models, use multiple units, or a larger model if wall thickness allows. Contact HVI for sizing & selection assistance.

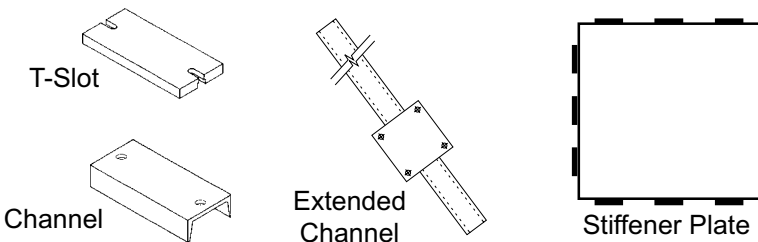
On flat bin wall surfaces, stitch weld the T-Slot to the bin wall, and affix vibrator using mounting bolts provided.

On curved bin wall surfaces, stitch weld the Channel to the bin wall, and affix vibrator using mounting bolts provided.

If an extended channel will be used, the channel should be 2/3 the length of the bin wall, and should be stitch welded to the bin wall with the vibrator mounting plate stitch welded to the extended channel.

When a stiffener plate is used, it should be at least twice the surface area of the vibrator mounting plate, and should be stitch welded to the bin wall. The vibrator mounting plate should be stitch welded to the center of the stiffener plate.

**All mounting plates, extended channels, and stiffener plates should be stitch welded to the structure to prevent small cracks in the welds from detaching the plate from the structure.**



**A SAFETY CABLE OR CHAIN SHOULD BE ATTACHED TO THE VIBRATOR AND SECURELY FIXED TO THE STRUCTURE AT A POINT ABOVE THE VIBRATOR.**

# **OPERATION & MAINTENANCE**

**NEVER OPERATE A VIBRATOR WITH DISCHARGE GATE CLOSED. IF POSSIBLE INTERLOCK OPERATING VALVE WITH DISCHARGE GATE. OPERATING A VIBRATOR WITH GATE CLOSED WILL CAUSE MATERIAL TO PACK.**

## **Air Supply Information**

- All vibrators should be operated with regulated & lubricated air supply. HVI recommends the use of SAE 10 or lighter. Mix anti-freeze or kerosene with oil in extremely cold environments.
- 20 to 80 psi air pressure is adequate in most cases. Excessive pressure above this range will greatly reduce efficiency and cause excessive wear to vibrator & structure.
- Air consumption is greatly reduced when vibrator control is interlocked with solenoid valves operated by timers, conveyors, feeders, etc. Consult HVI for information on installing timers & solenoids in-line.
- Continuous vibration is not usually necessary. Short bursts of a few seconds each will usually dislodge stubborn material.
- For multiple vibrator applications, refer to the chart below to make sure that your air line header is large enough to support all units.

MODEL	PIPE SIZE				
	3/8"	1/2"	3/4"	1"	1-1/4"
BV-112	7	11	18	32	62
BV-150	4	9	16	27	53
BV-175/225	2	4	9	17	30
BV-312/350	1	3	5	9	16
BV-425	-	1	3	6	11
BV-650	-	1	2	3	6

## **Periodic Maintenance**

- Inspect mounting welds for any cracks & repair if necessary.
- Make sure mounting bolts are tightened properly.
- Check filter and drain bowl to remove water & other contaminants.
- Check lubricator and add oil if necessary.
- Check for air leaks in valves and hoses.

## **Troubleshooting**

### **If Vibrator will not operate:**

- Check for adequate air pressure/volume.
- Check that quick-opening valve is operating properly, and that vibrator is within 15 feet of valve.
- Check for broken springs in SS or SI models.
- If piston is within 15° of horizontal when mounted, a start spring must be used.

### **If Vibrator is sluggish or slow to start:**

- Check interior for airline trash, make sure that filter is not clogged.
- Check for proper lubrication.
- Check for defective operating valve.
- Check for loss of air supply pressure or volume.