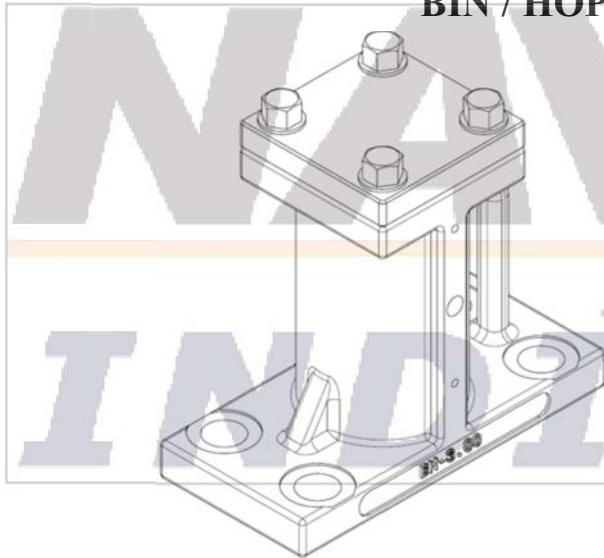


# BH 3

## BIN / HOPPER VIBRATOR



OPERATING CHARACTERISTICS		
	IMPACTING	SILENT
FREQUENCY	3400 VPM	1800 VPM
AIR CONSUMPTION	11.6 C.F.M. @ 50 PSI	11.6 C.F.M. @ 50 PSI
	328.5 L.P.M. @ 3.45 Bar	328.5 L.P.M. @ 3.45 Bar
SOUND LEVEL	96 dbA	76 dbA

HOPPER SIZING CRITERIA	
HOPPER CAPACITY	10 – 20 tons (9071.85 – 18143.7 kgs)
WALL THICKENSS RANGE	1/4" (6.35 mm) – 3/8" (9.5 mm)

The NAVCO BH 3 is a Pneumatic Piston Vibrator designed to provide reliable and effective performance, even when exposed to sever adverse elements. The size and operating characteristics of the BH 3 make it ideally suitable for solving medium duty bulk material flow problems.

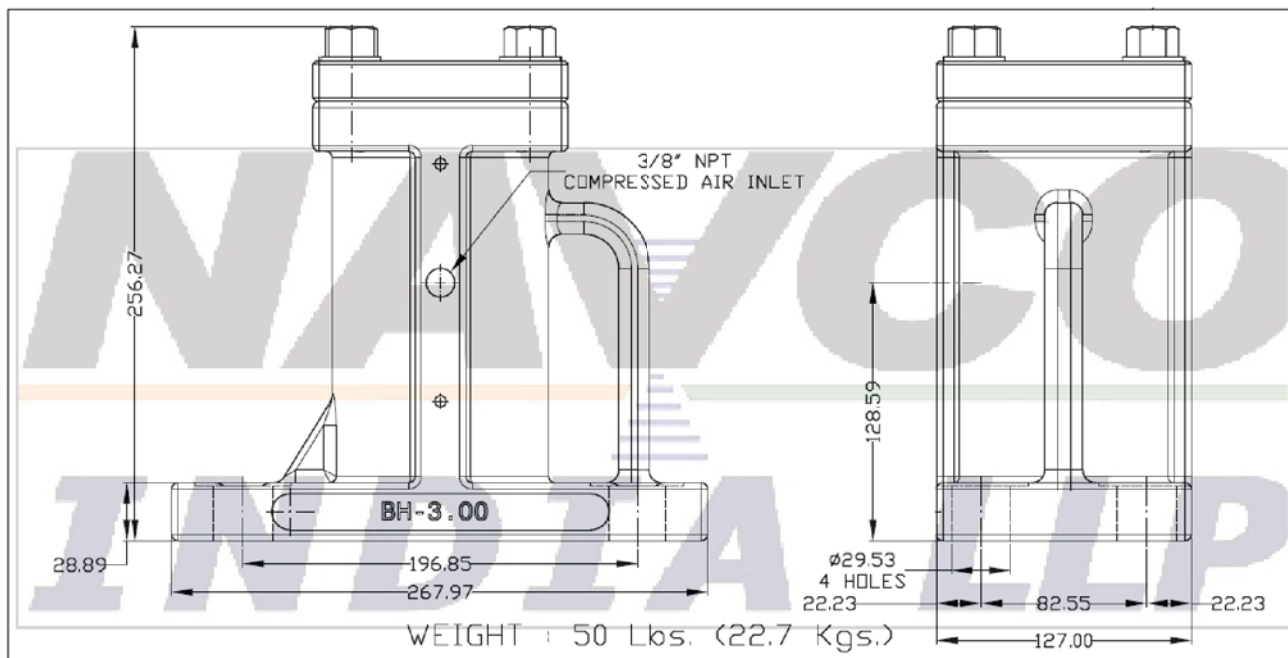
### Operation and Construction

The model BH 3 vibrator incorporates a nominal 3" piston and bore. During operation, compressed air is alternately directed from one end of the piston to the other through a series of internal ports. The piston is the only moving part, which makes the pneumatic piston vibrator a reliable, low maintenance device. *The vibrator housing is a one piece, ductile iron casting. This adds to the durability and reliability of NAVCO Pneumatic Piston Vibrators.*

The action of the piston in a pneumatic piston vibrator generates high amplitude vibration with unidirectional or linear force vectors. High amplitude characteristics enable the vibrating energy to be transmitted in the capacity required to overcome the strength of the bulk material involved in a bridge (arch) or a rathole (pipe). Other advantages of high amplitude, linear vibrators include low utility consumption and minimum bin wall stress.

### **Linear Vibration offers the following advantages:**

- The work or energy generated by the vibrator can be directed normal or perpendicular to the flow of bulk material to address a specific material flow problem. The vibrator work is used very efficiently to reduce the sliding friction angle of the hopper and to overcome the strength of the bulk material in the hopper. These two factors are the key to promoting the flow of bulk solid materials.
- Vibrators that generate linear vibration do not develop high shearing forces at the bin wall. This allows a simple, more direct approach to mounting these vibrators.
- Linear vibration is ideal for driving vibratory feeders and compaction tables.



NOTE: External Dimensions of BH 3.00 IGO, BH 3.00 SGO & BH 3.00 IGT are same.

## Model Types

The NAVCO BH 3 is available in three model types; **Impacting, Silent and Timed Impact.**

### Impacting Vibrator:

The **Impacting Model BH 3 IGO** develops a high amplitude repetitive impulse when the piston strikes the base of the bore sharply on each cycle. The piston is air cushioned at the head plate on the upward stroke. Momentum and energy are transmitted through the bin wall and into the material by each elastic collision between the piston and the vibrator base. *The repetitive impacts enable the Vibrator to affect material over a large area of influence overcoming the bulk material strength and reducing the wall friction angle.*

NAVCO Impacting Pneumatic Piston Vibrators are excellent for all bulk

material flow problems, especially those involving cohesive materials with marginal to poor flow characteristics. They are also effective in cleaning adhering material from empty bins and process vessels.

### Silent Vibrator:

The **Silent Model BH 3 SGO** generates a sinusoidal output by creating an air cushion at each end of the piston stroke. *NAVCO Silent Pneumatic Piston Vibrators are effective in applications involving non-cohesive or free flowing materials where a slight increase in energy is required to initiate or maintain flow.* The Silent Units are

also ideal as drivers for vibratory tables and feeders.

### Timed Impact Vibrator:

The **Timed Impact Model BH 3 IGT** delivers a single, high amplitude impulse each time it is energized. NAVCO Timed Impact units may be operated using pneumatic or electronic timers, programmable controllers, or any other device that can deliver an intermittent control signal to the unit. *The impulse of Timed Impact unit is very effective in evacuating hoppers and process vessels. Specific advantages of NAVCO Timed Impact units are low noise levels and very low air consumption.*

## Choosing Proper Vibrator

Proper sizing and Installation of vibrators are critical to the success of the flow aid system.

*The three major factors to consider in selecting pneumatic piston vibrators for hopper applications are:*

- The wall thickness of the hopper.
- The volume and mass of material in the hopper.
- The flow characteristics of the bulk material.

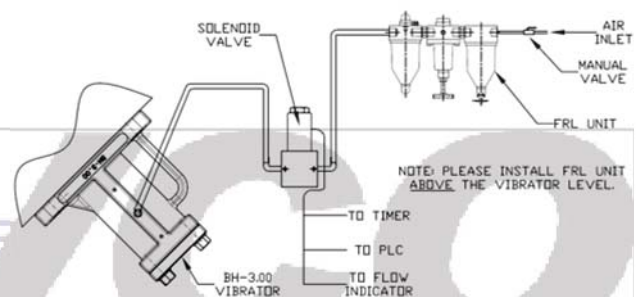
The NAVCO BH 3 is a medium duty vibrator. It may be applied to hoppers with a capacity of 10 – 20 tons, with a wall thickness of 1/4" (6.35 mm) – 3/8" (9.5 mm). On thinner walls, a reinforcement plate is recommended. On thicker wall, a larger unit should be selected.

## Installation

The optimal mounting location for a vibrator in a typical hopper application is at the point of the flow restriction. If the exact position is unknown, the vibrator should be located from 1/4<sup>th</sup> to 1/3<sup>rd</sup> of the height of the hopper from the discharge. For large hoppers, hoppers with unusual geometry, or particularly difficult material flow problems, multiple vibrators may be required.

The vibrator mounting plate should be skip welded to the hopper wall using a low hydrogen welding rod. If reinforcement is required, it should be skip welded, also with a low hydrogen rod.

To ensure proper application and operation of NAVCO vibrators, NAVCO offers a complete line of system accessories. The BH 3 has a 3/8" NPT Inlet and therefore utilizes 3/8" NPT accessories.



**For Assistance, please contact**

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