AIRMATIC® WE'LL HANDLE IT.

Syntron Material Handling

Service Instructions

Syntron®
Pneumatic Turbine Vibrators
Model: TAM, TB, TBM

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Syntron®
Pneumatic Turbine Vibrators
Models TAM, TB, and TBM

■ Installation ■ Operation ■

■ Maintenance ■

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Thank you for buying your equipment from Syntron Material Handling, LLC. This manual will help you to understand how your equipment operates and what is required to maintain peak performance. Please read it thoroughly and keep it on file for reference.

Your satisfaction is important to us, so please direct any comments to our Marketing Communications department.

Date Purchased: _____

Serial No.: _____
(From Vibrator)

Sales Order No.: _____

▪ SAFETY INSTRUCTIONS

WARNING: Failure to read and follow these instructions and safety precautions could result in personal injury, damage, shortened service life, or unsatisfactory equipment performance.

The instructions and data herein are vital to the proper installation and operation of this equipment. In order to avoid delays due to faulty installation or operation, please see that these instructions are read by the persons who will install, operate and maintain this equipment.

Supporting information, such as drawings, may be attached to this manual. The information contained therein takes precedence over corresponding information printed in this manual.

▪ INTRODUCTION

Syntron® Pneumatic Turbine Vibrators are air-driven turbine wheels that produce an orbital vibrating action that assists the flow of bulk solid materials. The low operating noise level (75 dB or less) of these vibrators (Model TB with built-in mufflers, and Models TAM and TBM with mufflers installed) is in compliance with OSHA regulations.

Syntron Pneumatic Turbine Vibrators are available in many models for varied applications. The TAM models are ideal for small to medium size applications such as screening, sizing, settling, aiding flow in parts feeders, and for moving powdered materials through hoppers and chutes. The TB and TBM models are ideal for heavy-duty applications. The TB models feature built-in mufflers for quiet operation, and are ideal for rough applications as well as air material conveying systems, medium size batch hoppers, large bins, hoppers and chutes, packing table and screen applications. The TBM models are ideal for pharmaceutical and food industries because the non-lubricated air supply ensures that there is no oily exhaust.

NOTE: TAM and TBM models should be installed with a muffler to eliminate exhaust hiss and to prevent foreign matter from entering the vibrator.

All models can operate in any position, and are totally enclosed for use outdoors and/or in water splash locations. They are not adversely affected by dusty, dirty or wet locations, and they can run continuously or intermittently.

All units have adjustable force; adjusting the air pressure adjusts speed as well as force. Refer to the specification charts on pages 14, 16, and 18.

Syntron Pneumatic Turbine Vibrators have only one moving part, which is prelubricated for life and never needs oil, even for continuous duty. Therefore, many years of trouble-free service can be expected when a suitable pneumatic turbine vibrator is selected, properly installed, and maintained.

▪ SELECTING THE PROPER BIN HOPPER

BINS OR HOPPERS

In order to move material in a bin or hopper, friction between the material and the bin wall must be broken. Once the friction is broken, material cannot cling to the bin walls, and it will flow through the discharge. For most applications, the vibrator force needed to achieve this is calculated as follows:

First, calculate the weight (in pounds) of the material in the sloping part of the bin only. Normally, this is the only place where friction between the material and the bin wall must be broken.

- For conical bins, calculate as follows:

  .261 x Dia.^{2} x Height x Material Density in lb/ft^3 (kg/m^3)

- For rectangular bins, calculate as follows:

  Length x Width x Height x 1/3 x Material Density in lb/ft (kg/m^3)

After the weight (lb) has been calculated, divide the weight by 10 to get the force (lbf) needed from the vibrator. For example, if the conical part of a 25-ton bin contains 7000 pounds of material, divide 7,000 by 10 to get the force needed from the vibrator. **NOTE:** If the weight has been calculated in kilograms, divide the weight by 1.02 to get the force needed from the vibrator (N). For example, if the conical part of a 25-ton bin contains 3175 kg, divide 3175 by 1.02 to get the force needed from the vibrator (N).

There are several additional things to consider when sizing vibrators to bins:

- If the bin side angle is below 30 degrees, select the next larger vibrator (see pages 14, 16, and 18).
- If the bin has a vertical section, select the next larger vibrator (see pages 14, 16, and 18).
- If bin thickness is extra heavy, select the next larger vibrator (see pages 14, 16, and 18).
- For sticky and hard-to-move materials, use two small vibrators instead of one large one (find the required force for the two smaller vibrators by dividing the required force in half).

VIBRATING TABLES FOR PACKING MATERIALS

Dense materials respond best to high-frequency vibration (3600 rpms or more), while light, fluffy or flaky materials respond best to low-frequency vibration (1800 rpms or less). For packing or settling materials use a vibrator with an impact force of 1-1/2 to 2 times larger than the weight of the material plus container.

VIBRATING SCREENS

For self-cleaning screens, use a vibrator with a centrifugal force 4 times the weight of the material plus the weight of the screen.

CONSOLIDATING CONCRETE

For 3-inch "slump" concrete, use a vibrator with the same force as the weight of the concrete and form. For 1 to 2 inch “slump” concrete, an additional 30 to 50 percent force is needed. For dry mixes, (0 slump), add an additional 100 to 200 percent force.

CHUTES

The force required of the vibrator is equal to the weight of the chute plus the vibrator plus the maximum material in the chute. See page 11 for more details.

▪ INSTALLATION CHECKLIST

CAUTION: The warranty is void if vibrators are not properly installed.

During installation, follow and check off the following steps.

1. Determine where the vibrator(s) should be placed on the bin, one-quarter or one-third up the sloping side. Refer to Figure 1, page 6.

2. Select the thickness and size of the vibrator mounting plate and drill holes for mounting. Refer to Table 1, page 7.

3. Determine the length of the channel iron. Refer to Table 2, page 7.

4. Weld the mounting plate to the center of the channel iron. Refer to Figure 2, page 8.

5. Weld the channel iron to the bin. Refer to Figure 2, page 8.

6. Install and secure the vibrator firmly on the mounting plate. Check the mounting plate for warping. Shimming may be required to provide a flat surface for bolting the vibrator.

7. Plumb the vibrator. Refer to page 12.

8. On larger models, where a lug is provided, install a safety cable.

9. Make sure the vibrator produces sufficient force for the application. Refer to pages 14, 16, and 18.

▪ INSTALLATION

Mount the vibrator with the shaft in the horizontal position, rotating in the direction of material flow. Vibrators with shaft mounted vertically will create a gyratory effect; this may be desirable only if the bin is isolated from its supporting structure. **Figure 1** illustrates how to locate vibrators on various types of bins.

LOCATING A VIBRATOR ON A BIN HOPPER

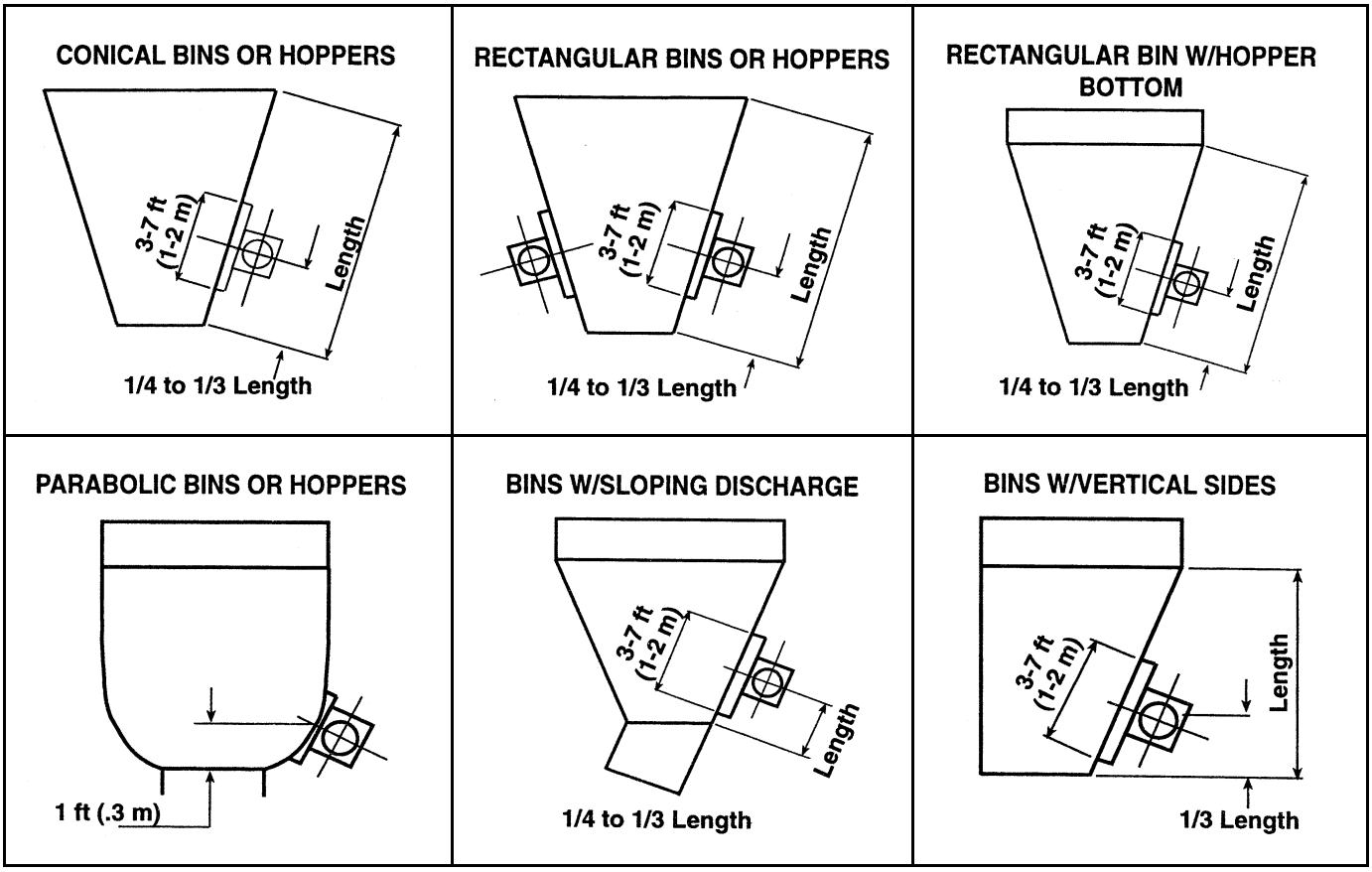


FIGURE 1

Conical bins or hoppers are easily vibrated; however, if a second vibrator is necessary, mount it diametrically opposite to the first vibrator.

For coarse materials: mount one vibrator one-third of the way up the side of the bin and the other vibrator halfway up.

For fine materials: mount the first vibrator one-quarter of the way up and the second vibrator one-third of the way up the side of the bin.

Rectangular bins and hoppers generally require one vibrator. If material continues to stick in the corners, increase the vibration by first changing the force of the vibrator, and if that does not work, change to a larger size vibrator, or use two vibrators.

Rectangular bins with hopper bottoms react the same as rectangular bins; however, more force is usually needed.

Parabolic bins or hoppers normally require only one vibrator for each discharge point.

Bins with sloping discharges require the vibrator to be mounted close to the transition between the chute and bin in order to give the chute sufficient vibration for a steady flow.

Bins with vertical sides react the same as rectangular bins.

▪ MOUNTING THE VIBRATOR

Select the thickness and size of the vibrator mounting plate and drill holes for mounting. Refer to **Table 1.**

TABLE 1 - MOUNTING PLATE DIMENSIONS

VIBRATOR MODEL	MOUNTING PLATE		CHANNEL WIDTH
	THICKNESS	SIZE	
TAM-100, 130, 160, 190 TB-100, 130, 160 TBM-100, 130, 190	1/4 to 1/3 in (6 to 8.5 mm)	5 to 8 in (127 to 203 mm)	3in (76 mm)
TBM-250 TB-250	3/8 in (9.5 mm)	6 to 8 in (150 to 203 mm)	3in (76 mm)
TBM-320, 380, 440, 510, 570 TB-320, 380, 510, 2000, 5000	1/2 to 5/8 in (13 to 16 mm)	12 to 24 in (300 to 610 mm)	4in (102 mm)

Determine the length of the channel iron. Refer to **Table 2.**

TABLE 2 – CHANNEL HOPPER LENGTH

HOPPER	CHANNEL LENGTH*
Less than 3/16 in (4.7 mm)	18 to 36 in (457 to 914 mm)
3/16 to 3/8 in (4.7 to 9.5 mm)	12 to 24 in (300 to 610 mm)
Greater than 3/8 in (9.5 mm)	8 to 12 in (203 to 300 mm)

*For vibrators with forces over 500 lb (2225 N), add 1 to 1-1/2 ft (.3 to .46 m) to the channel iron length.

CAUTION: Never mount the vibrator directly to the bin wall. It must be mounted to a plate or channel iron welded to the bin wall. Refer to Figure 2, page 8.

Weld the mounting plate to the center of the channel iron. Do not weld the ends of the channel. The heat concentration could cause crystallization of the metal, resulting in fatigue cracks. Tack weld the channel iron in place, then weld intermittently, 3-to-6-inch (76 to 152 mm) welds with 3 inch (76 mm) spaces between the welds. Refer to **Figure 2**.

POSITION OF THE CHANNEL AND MOUNTING PLATE

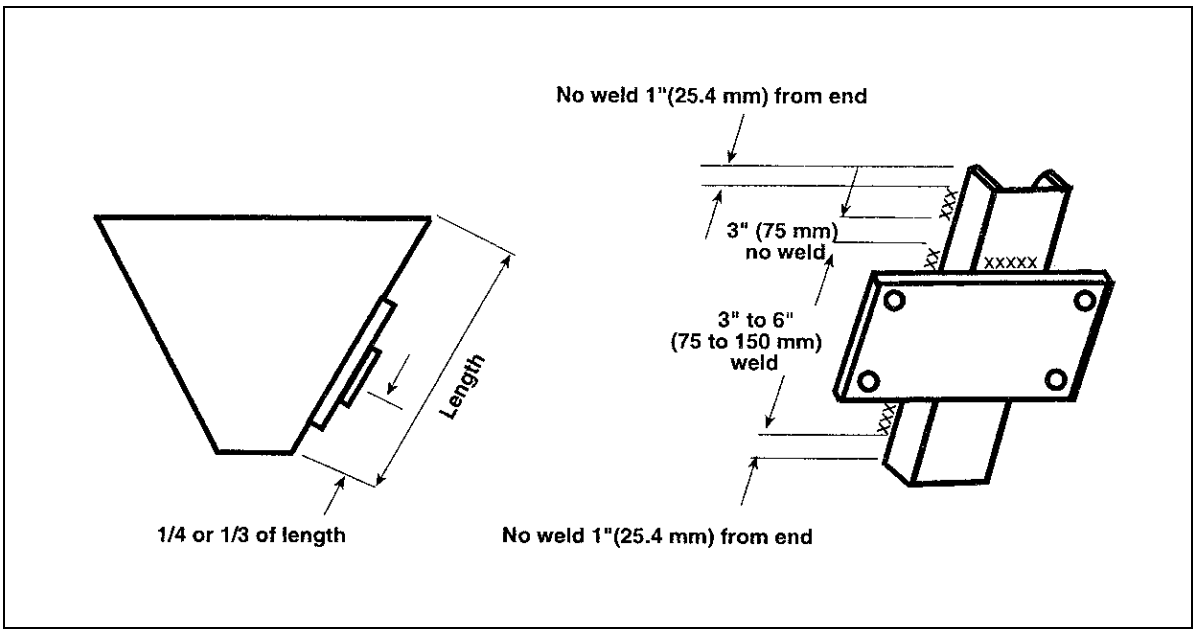


FIGURE 2

If the bin plate is 3/16 inches or less (4.8 mm), weld the mounting plate to the back of the channel iron. If the bin plate is over 3/16 inches, weld the mounting bracket to the legs of the channel iron, making sure that the bracket does not warp. Refer to **Figure 3** for alternate channel mounting suggestions.

ALTERNATE CHANNEL MOUNT SUGGESTIONS

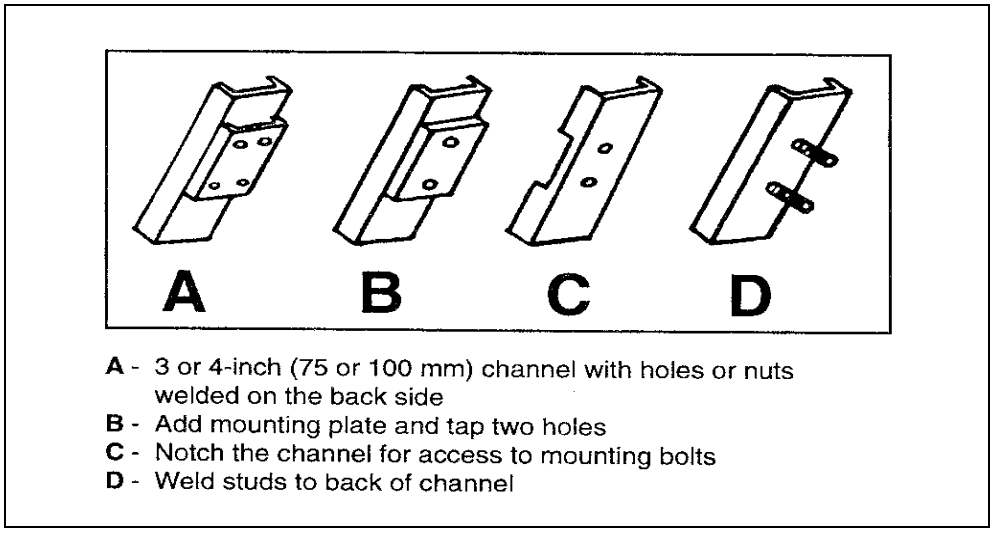


FIGURE 3

Using the mounting bolt(s), install the vibrator on the mounting plate (refer to **Figure 4**, on pages 9 and 10). If the mounting plate is bent or warped due to welding, shim the opposite end of the vibrator (over--shim slightly). Make sure that the vibrator is mounted tightly. After the first 10 to 15 minutes of operation, retighten the bolts. Continue to check them periodically for tightness.

CAUTION: A loose vibrator can cause damage to the bin and the vibrator.

WARNING : Install a safety cable (larger models) to prevent the vibrator from falling into the work area below if it should become loosened from its installation. The safety cable must be long enough so that the action of the vibrator is not hindered.

VARIOUS VIBRATOR INSTALLATIONS

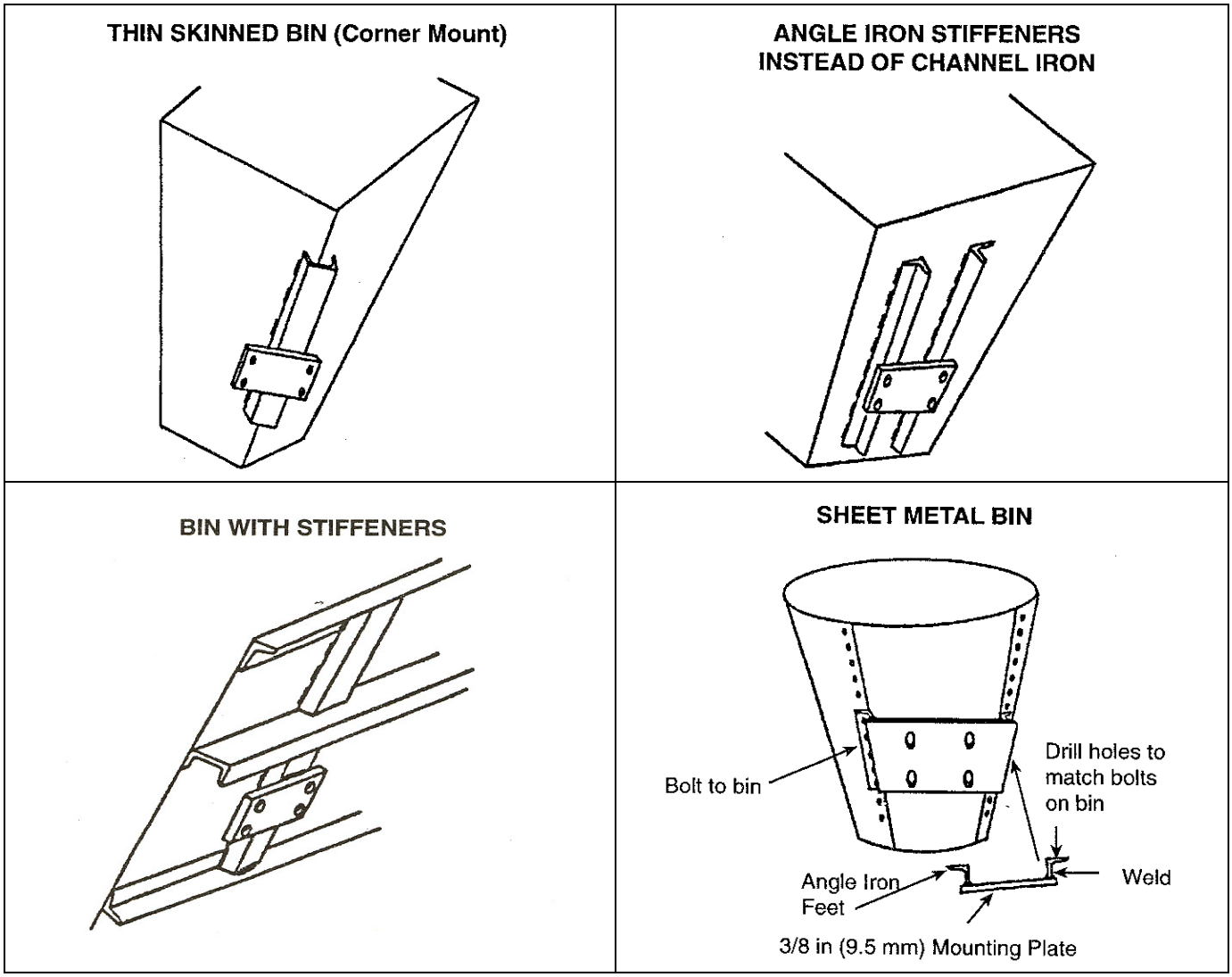
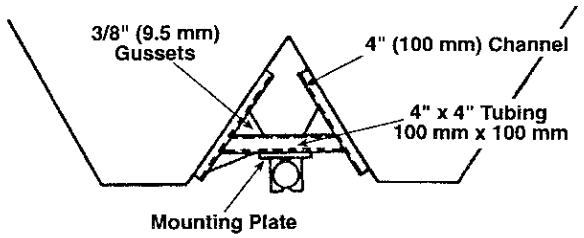


FIGURE 4

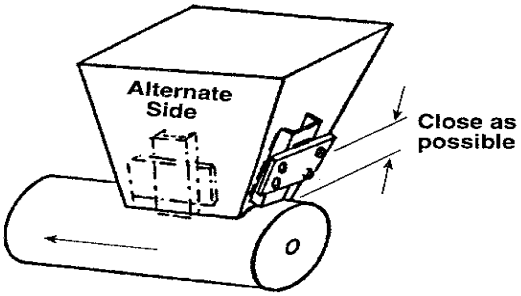
VARIOUS VIBRATOR INSTALLATIONS (cont,d)

DOUBLE BIN WITH ONE VIBRATOR



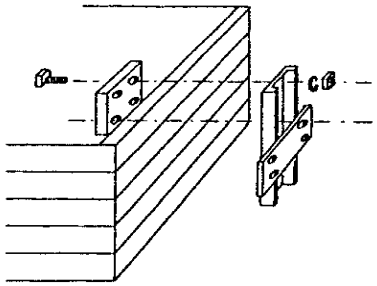
SHORT SCREW FEEDER

(Place vibrator as close as possible to feeder.)

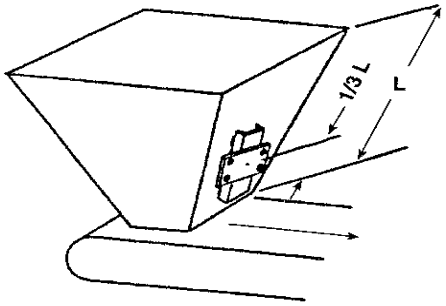


WOOD BIN

(Use steel plate on inside; bolt to outside mounting plate.)

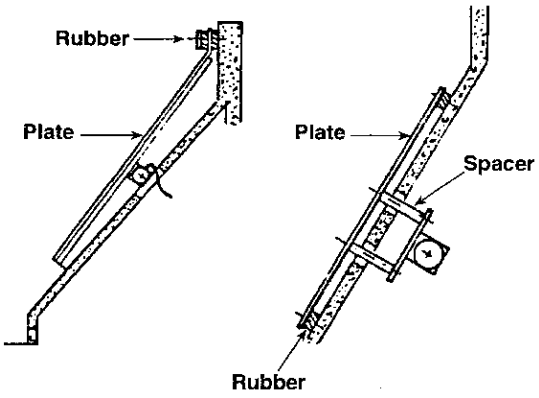


BELT CONVEYOR AND STANDARD BIN



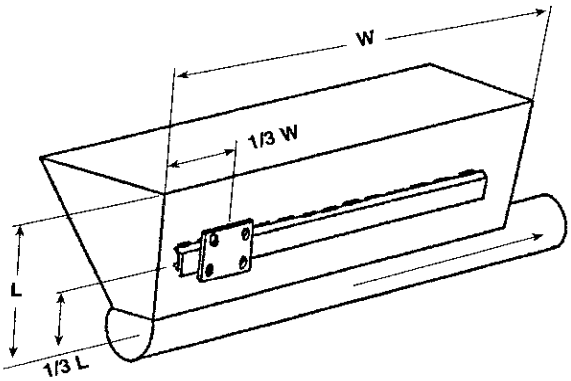
CONCRETE BIN

Mount steel plate on inside of the bin, so the vibrator is 1/3 up the bin side. Isolate the plate from the concrete by using vibration shock absorbers.



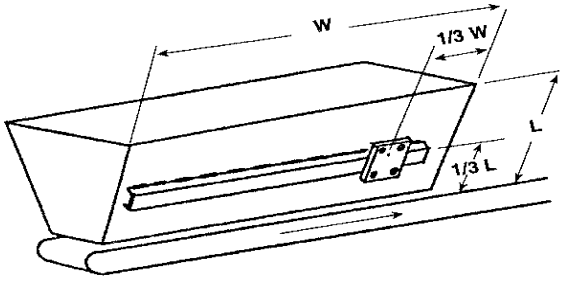
SCREW FEEDER

Feeds from the back. Vibrator should be 1/3 from the inlet. If two vibrators are used, place the second vibrator on the opposite side, one-third from the discharge. Do not run the vibrator at the discharge until the back of the bin is empty and the vibrator at the inlet is shut off.



LONG BIN

Belt conveyor feeds from front. Vibrator should be 1/3 from front. If two vibrators are used, plce one on opposite side and one-third from back. Do not operate the back vibrator until the front is empty and the front vibrator is shut off.



▪ CHUTES

Chutes up to 6 feet (2 m) long are generally handled by one vibrator mounted approximately one-third of the distance from the discharge. Refer to **Figure 5**. On chutes from 6 to 10 feet (2 to 3 m) long, two vibrators are needed; one should be placed 18 to 24 inches (46 to 61 cm) from the discharge, and the other approximately in the middle. Since chutes are very sensitive to vibration, provision should be made to move the lower vibrator six inches (15 cm) in either direction. This could mean the difference between moving the material or not moving it.

LOCATING A VIBRATOR ON A CHUTE

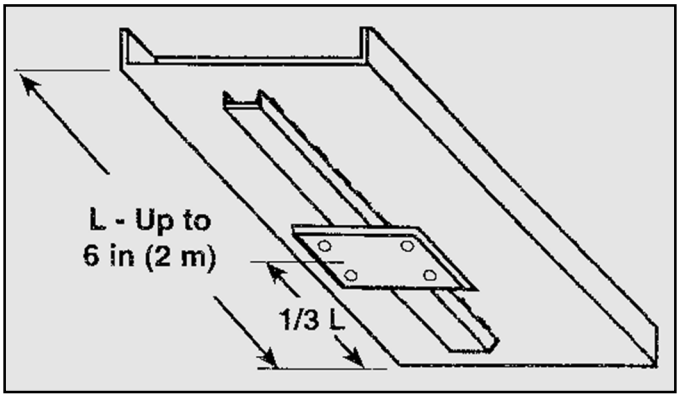


FIGURE 5

The vibrator turbine should rotate in the direction of material flow. The vibrator force required is equal to the weight of the chute plus the vibrator plus the maximum material in the chute.

To move material in a chute, the chute should be inclined no less than half of the "angle of repose" of the material (at least 10°). If this cannot be done, a feeder is required to handle the material. "Angle of repose" can be found in most handbooks or easily measured by dumping a cup of material on a table. The angle the material makes between the table and the cone is the angle of repose.

▪ OPERATION

CAUTION: Do not operate the vibrator while the hopper discharge is closed. This will compact the contents.

It is not necessary to operate pneumatic turbine vibrators at maximum capability to achieve maximum performance. Air regulators, timers, etc. should be used to tune the vibration for optimum performance, save operating dollars, and ensure longer equipment life.

For bulk material handling applications, a pneumatic turbine vibrator should be used to reduce material friction, not as a feeder. Once particle friction has been reduced, gravity flow occurs and the vibrator should be shut off. Contents of a bin that is half-full or more will become compacted under continuous vibration, especially during low discharge rates. This can be prevented by intermittent operation or cycling of the vibrator. When the speed of the vibrator is cycled from zero to maximum, and vice-versa, the material resonance is reached, thereby moving the material more effectively than using a continuous, steady speed. A timer can be used to automatically cycle vibrators. For manual cycling, a

simple 1/4-turn ball valve can be installed.

The on and off times are determined by timing the discharge; when the discharge is just above the minimum rate required, a vibration shock is necessary to keep material moving. For effective, efficient operation, a short cycle of vibration is best (between 5 and 30 seconds for each 1 to 5 minutes of discharge).

▪ PLUMBING THE VIBRATOR

NOTE: Syntron Pneumatic Turbine Vibrators do not require a lubricated air supply. If the vibrator is connected to a lubricated air supply, a filter must be installed to remove the oil.

An air filter is recommended to prolong the life of any pneumatic vibrator. A dirty or moist air supply will harm the unit and prevent it from operating at maximum efficiency and lowest energy consumption. SMH recommends a 40-micron filter, maintained per the manufacturer's instructions as often as conditions (dirt, moisture, oil) dictate.

A flow control valve is recommended to permit tuning of the vibrator to achieve the force necessary to stimulate material flow. The flow volume determines the force and frequency of the vibrator. By throttling the flow, the desired material discharge rate can be found, and the natural frequency of the bin or hopper can be avoided. Avoid speeds (frequency) at which the bin wall and vibrator shake violently. If this occurs, adjust the speed to smooth out unnecessary vibration. On TAM and TBM models, the flow control valve can be on the exhaust side of the vibrator.

Quick-opening valves (1/4-turn ball) are recommended between the air regulator and the vibrator so that the air enters the vibrator with full starting force even at low regulator valve settings. The only requirement is that the air regulator be installed at some distance from the quick opening valve so that the air pressure between the two valves can build up enough to yield the necessary starting force. The regulator should be adjusted to just less than the lowest air line pressure (not to exceed maximum pressure shown on pages 14, 16, and 18) to assure uniform vibration performance.

Solenoid (quick-opening) valves are recommended for automatic operations. For automatic timed cycling, connect the timer directly to the bin or hopper gate switch (refer to **Figure 6**). When the gate is opened, the timed cycling system is activated.

AUTOMATIC TIMED CYCLING OPERATIONS

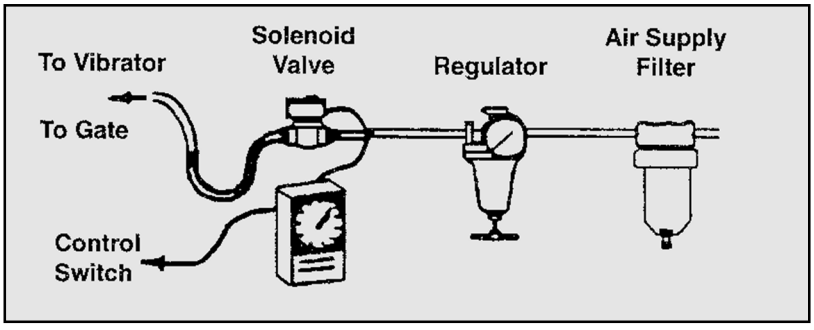


FIGURE 6

The airline to the vibrator should have the same or larger hose inner diameter (ID) as the inlet ID (pipe size) of the vibrator, so that pressure loss from the compressor to the vibrator is minimized. NOTE: Do not connect rigid piping to the vibrator.

Model TB vibrators are equipped with a built-in muffler. Model TAM and TBM vibrators should be used in conjunction with a muffler to reduce exhaust hiss and prevent entry of foreign matter to the vibrator.

▪ MAINTENANCE

WARNING: Stored energy may be present. Lock out power during maintenance. Before operating the unit, guards (if applicable) must be in place.

Syntron Pneumatic Turbine Vibrators require little maintenance. They require no lubrication in the airline. It is recommended that an air cleaner be installed in the line to avoid rust and dirt going through the unit and clogging the muffler. The muffler can be removed and cleaned or replaced, if required.

Periodically check the mounting hardware to ensure that it is tight. Also make sure that the maximum operating temperature 180°F (82°C) and the maximum air pressure 60 or 80 psi (4.2 or 5.6 kgf/cm^2) are not exceeded. Refer to pages 14, 16, and 18.

WARNING: Do not exceed the maximum air pressure of 80 psi (5.6 kgf/cm^2). Air pressure over 80 psi (5.6 kgf/cm^2) may shorten the life of the vibrator or cause structural damage.

New vibrators may be slow to start for one or more of the following reasons:

- The bearings are packed with grease; excess grease will be thrown out of the bearing after operating for a short time.
- Low temperature may cause the grease to be stiff.
- Bearing seals are normally stiff when new or cold.

These resolve themselves after the vibrator has run for several minutes.

▪ RECOMMENDED SPARE PARTS

DESCRIPTION	QTY.	PART NO.
Nameplate (Models TBM - 380, 440, 510 TB - 380, 510)	1	C-226185-001
Nameplate (Models TBM - 250, 320 TB - 250, 320)	1	C-226185-002
Nameplate (Models TAM -100, 130, 160, 190 TBM - 60, 130, 160, 190 TB - 100, 130, 160, 190)	1	C-226185-003
Nameplate (Models TBM - 570 TB - 2000, 5000)	1	C-226197-002
Syntron Material Handling, LLC. Label	1	A-156379-A01

▪ TAM SERIES SPECIFICATIONS

Technical Data

Model	Weight lb	Weight kg	60 psi Speed VPM	60 psi CFM	80 psi Speed VPM	80 psi CFM	80 psi Force lbs	80 psi Force N	80 psi dB✱	MAX Mt'l in Bin▲▲ lb	MAX Mt'l in Bin▲▲ kg	Bin Wall Thickness in	Bin Wall Thickness mm
♦TAM-100	5 oz	.142	12000	3.5	--	--	20	89	66	200	9	1/3 - 1/16	0.8 - 1.6
♦TAM-130	9 oz	.255	8000	4.5	10500	5.5	75	334	67	750	340	1/16 - 3/16	1.6 - 4.7
♦TAM-160	12 oz	.340	8500	5	9000	7	160	712	67	1600	726	3/16 - 5/16	4.7 - 7.9
♦ TAM-190	15 oz	.425	8500	5	10000	7	250	1112	70	2500	1134	3/16 - 3/8	4.7 - 9.5

Data obtained on laboratory test block. Frequency and force will decrease on less rigid mount. Data subject to design changes.

✱ Decibel from A-scale at 1 meter and 80 psi N = Centrifugal force in Newton

▲▲ Rule of thumb for sizing = "1 lb Vibrator Force" for each 10 lb of Bin Content at 80 psi; or "9.8 N Vibrator Force" for each 10 kg of Bin Content at 80 psi

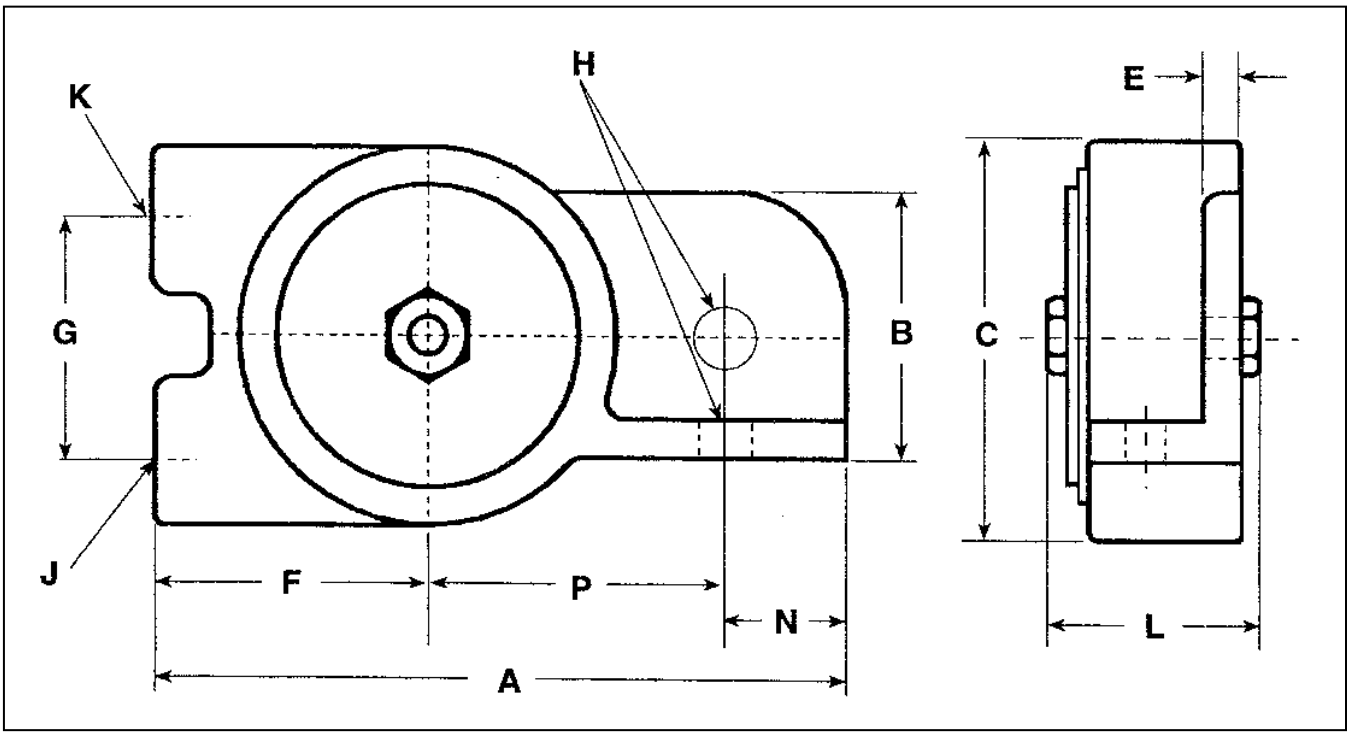
♦ Aluminum Construction

Dimensions

Model	A in	A mm	B in	B mm	C✱ in	C✱ mm	E in	E mm	F in	F mm	G in	G mm	H■ in	H■ mm	J, K✱	L in	L mm	N in	N mm	P in	P mm
TAM-100	3 1/4	83	1	25	1 7/8	37	5/16	16	1 1/4	32	1 1/4	32	5/16	8	1/8-NPT	1 5/8	41	1/2	12	1 3/8	35
TAM-130	3 3/4	95	1 13/16	30	2 1/4	57	5/16	16	1 3/4	44	1 1/4	32	3/8	10	1/8-NPT	1 7/8	48	9/16	14	1 9/16	40
TAM-160	4 1/8	105	1 1/4	32	2 9/16	65	5/16	16	1 3/4	46	1 5/8	41	3/8	10	1/4 -NPT	2	51	11/16	17	1 13/16	46
TAM-190	4 1/8	105	1 1/4	32	2 9/16	65	5/16	16	1 3/4	46	1 5/8	41	3/8	10	1/4-NPT	2	51	11/16	17	1 13/16	46

■ Bolt Size ✱ NPT pipe tap size

▪ TAM SERIES



▪ TBM SERIES SPECIFICATIONS

Technical Data

Model	Weight lb	Weight kg	60 psi Speed VPM	60 psi CFM	80 psi Speed VPM	80 psi CFM	80 psi Force lb	80 psi Force N	80 psi dB✱	MAX Mt'l in Bin▲▲ lb	MAX Mt'l in Bin▲▲ kg	Bin Wall Thickness in	Bin Wall Thickness mm
♦TBM-60	7oz	.198	12000	4	--	--	20	89	66	200	91	1/32 - 1/16	0.8 - 1.6
♦TBM-130	10 oz	.283	8000	4.5	10500	5.5	75	334	67	750	342	1/16 - 1/8	1.6 - 3.2
TBM-160	2	.9	9500	7	11000	8	160	712	70	1600	726	3/16 - 5/16	4.7 - 4.9
TBM-190	3	1.4	5500	7.5	7200	8.5	270	1201	71	2700	1225	3/16 - 3/8	4.7 - 9.5
TBM-250	5	2.3	5200	8	7200	9	480	2136	72	4800	2177	5/16 - 7/16	7.9 - 11.1
TBM-320	8.5	3.9	5500	9	6800	10	600	2669	70	6000	2722	3/8 - 7/16	9.5 - 11.1
TBM-380	13	5.8	4500	16	5000	18	670	2981	74	6700	3039	7/16 - 1/2	11.1-12.7
TBM-440	17	7.7	4300	18	4800	21	700	3114	76	7000	3175	1/2	12.7
TBM-510	18	8.2	4000	18	4500	21	900	4004	77	9000	4082	1/2	12.7
TBM-570	25	11.3	3600	21	4000	26	1050	4671	83	10500	4763	1/2	12.7

Data obtained on laboratory test block. Frequency and force will decrease on less rigid mount. Data subject to design changes.

✱ Decibel from A-scale at 1 meter and 80 psi N = Centrifugal force in Newton

▲▲ Rule of thumb for sizing = "1 lb Vibrator Force" for each 10 lb of Bin Content at 80 psi; or "9.8 N Vibrator Force" for each 10 kg of Bin Content at 80 psi

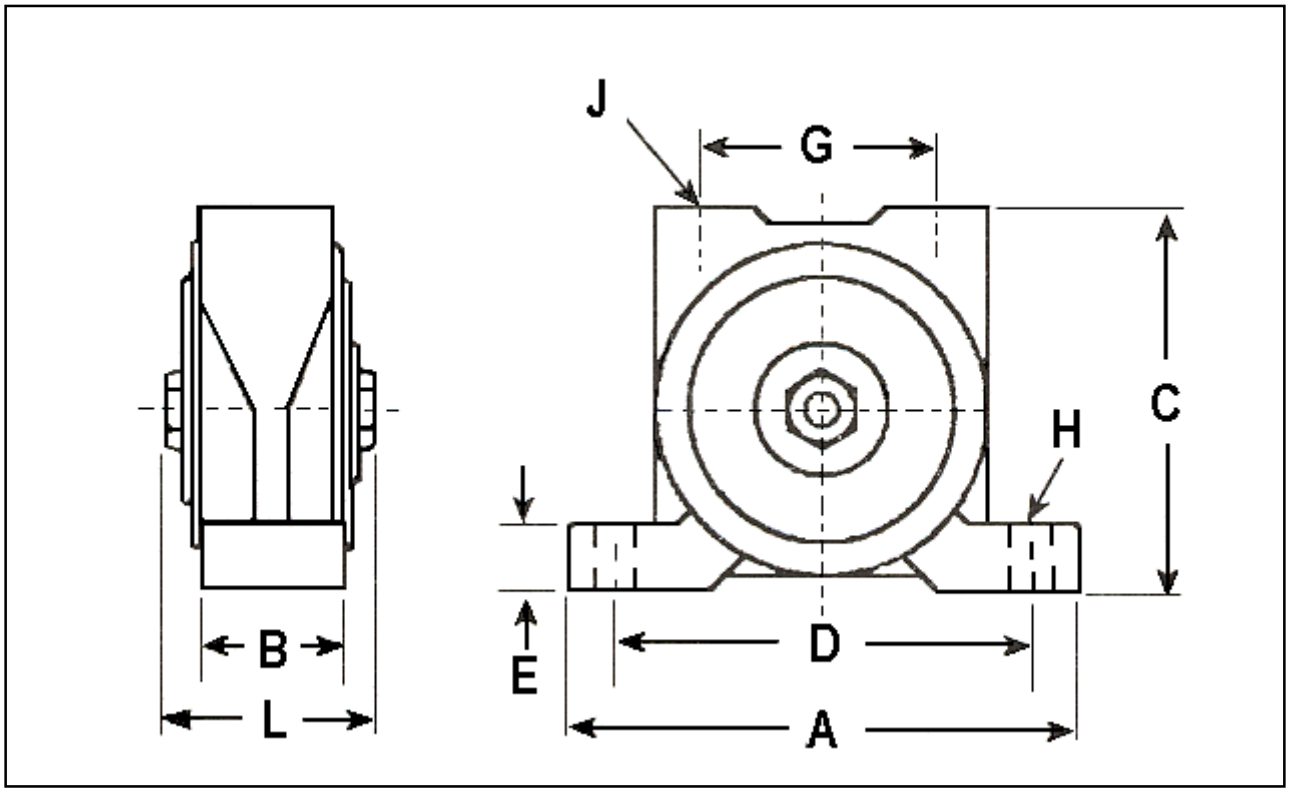
♦ Aluminum Construction

Dimensions

Model	A in	A mm	B in	B mm	C in	C mm	D in	D mm	E in	E mm	G in	G mm	H■ in	H■ mm	J✱	K✱	L in	L mm
TBM-60	3 7/8	98	3/4	19	2 3/8	60	3	76	5/8	16	1 1/4	32	1/4	6	1/8-NPT	1/8-NPT	1 3/16	30
TBM-130	4 7/8	124	7/8	22	2 3/4	70	4	102	3/4	19	1 7/16	37	3/8	10	1/8-NPT	1/4-NPT	1 7/8	48
TBM-160	5 3/16	139	1 1/4	32	3 7/16	81	4	102	7/8	22	1 7/8	48	3/8	10	1/4-NPT	3/8-NPT	2 3/4	70
TBM-190	5 3/16	139	1 1/4	32	3 7/16	81	4	102	7/8	22	1 7/8	48	3/8	10	1/4-NPT	3/8-NPT	3 1/16	78
TBM-250	6 3/4	171	1 5/16	33	3 15/16	100	5	127	7/8	22	2 1/8	54	1/2	12	1/4-NPT	3/8-NPT	3 1/8	79
TBM-320	6 1/2	165	1 5/8	41	4 7/8	124	5	127	1 1/8	29	2 3/4	70	1/2	12	3/8-NPT	1/2-NPT	4	102
TBM-380	7 7/8	200	1 7/8	48	5 7/16	138	6	152	1 1/8	29	2 7/8	73	5/8	16	3/8-NPT	1/2-NPT	4 5/8	117
TBM-440	8 13/16	224	2 3/16	56	5 3/4	146	7	178	1 1/4	32	3 1/8	79	5/8	16	1/2-NPT	3/4-NPT	4 3/4	121
TBM-510	8 13/16	224	2 3/16	56	5 3/4	146	7	178	1 1/4	32	3 1/8	79	5/8	16	1/2-NPT	3/4-NPT	4 3/4	121
TBM-570	10 1/16	256	2 7/8	73	7	178	8	203	3/4	19	3 13/16	97	3/4	19	3/4-NPT	1-NPT	5 3/8	137

■ Bolt Size ✱ NPT pipe tap size

▪ TBM SERIES



▪ TB SERIES SPECIFICATIONS

Technical Data

Model	Weight lb	Weight kg	60 psi Speed VPM	60 psi CFM	80 psi Speed VPM	80 psi CFM	80 psi Force lb	80 psi Force N	80 psi dB✱	MAX Mt'l in Bin▲▲ lb	MAX Mt'l in Bin▲▲ kg	Bin Wall Thickness in	Bin Wall Thickness mm
♦TB-100	7oz	.198	12000	4	--	--	20	89	66	200	91	1/32 - 1/16	0.8 -1.6
♦TB-130	11 oz	.312	8000	4.5	10500	5.5	75	334	67	750	342	1/32 - 1/8	0.8 –3.2
TB-160	2	.9	10000	7	12000	8	160	712	70	1600	726	3/16 - 5/16	4.7 - 4.9
TB-190	3	1.4	4200	7.5	7200	9	270	1201	70	2700	1225	3/16 - 3/8	4.7 - 9.5
TB-250	4	1.8	5500	9	7200	10.5	500	2225	70	5000	2268	5/16 - 7/16	7.9 -11.1
TB-320	6.5	2.9	5200	9	6800	11	600	2669	69	7000	3175	7/16 - 1/2	11.1-12.7
TB-380	11.5	5.2	4600	16	5200	17	725	3226	72	7250	3289	7/16 - 1/2	11.1-12.7
TB-510	15	6.8	4000	18	4500	21	900	4004	77	9000	4082	1/2	12.7
TB-2000	23	10.5	4000	30	6000	35	2000	8900	78	20000	9072	1/2 - 3/4	12.7 - 19
TB-5000	48	21.8	4000	35	6000	40	5000	22245	75	50000	22680	3/4- 1 1/4	19 - 32

Data obtained on laboratory test block. Frequency and force will decrease on less rigid mount. Data subject to design changes.

✱ Decibel from A-scale at 1 meter and 80 psi N = Centrifugal force in Newton

▲▲ Rule of thumb for sizing = "1 lb Vibrator Force" for each 10 lb of Bin Content at 80 psi; or "9.8 N Vibrator Force" for each 10 kg of Bin Content at 80 psi

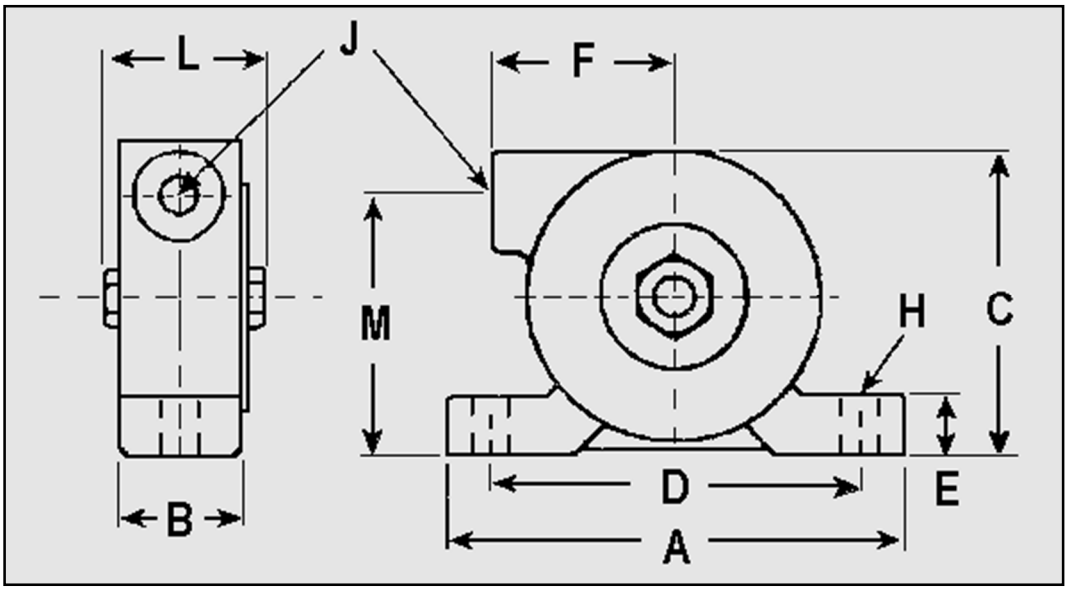
♦ Aluminum Construction

Dimensions

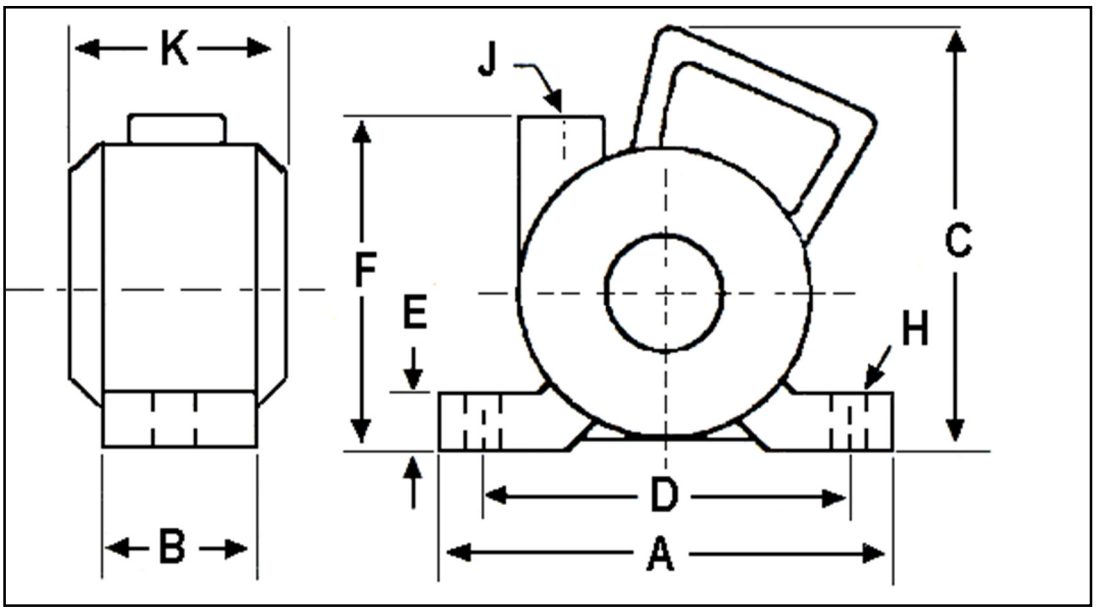
Model	A in	A mm	B in	B mm	C in	C mm	D in	D mm	E in	E mm	G in	G mm	H■ in	H■ mm	J✱	L in	L mm	L in	L mm
TB-100	3 7/8	98	3/4	19	2	51	3	76	5/16	8	1 5/16	33	1/4	6	1/8-NPT	1 7/16	37	1 11/16	43
TB-130	4 7/8	124	15/16	24	2 5/16	59	4	102	5/16	8	1 1/2	38	3/8	10	1/8-NPT	1 7/8	48	1 15/16	49
TB-160	5 1/16	129	1 5/16	33	2 5/16	59	4	102	5/16	8	1 7/8	48	3/8	10	1/4-NPT	2 3/4	70	2 1/2	64
TB-190	5 1/16	129	1 5/16	33	3 5/8	92	4	102	9/16	14	1 7/8	48	3/8	10	1/4-NPT	2 13/16	71	2 1/2	64
TB-250	5 3/8	137	1 1/2	38	3 1/2	89	4	102	9/16	14	2 1/4	57	1/2	12	1/4-NPT	3 1/16	78	2 15/16	87
TB-320	5 5/16	135	1 1/2	38	4 5/8	117	4	102	3/4	19	2 1/4	57	1/2	12	3/8-NPT	4	102	4 1/8	105
TB-380	6 5/8	168	2 1/8	54	4 7/8	124	5 1/2 x 1 1/4 140 x 32		1	25	2 7/8	73	3/8	10	3/8-NPT	4 3/8	111	4	102
TBM-510	6 3/4	171	2 5/8	67	5 3/8	137	5 1/2 x 1 3/4 140 x 44		1	25	2 7/8	73	3/8	10	1/2-NPT	4 3/4	121	4 5/8	118
TBM-2000	7 5/8	194	2	51	7 3/8	187	5 15/16	151	3/4	19	5 7/16	138	5/8	16	3/4-NPT	7 3/4	197	---	
TBM-5000	10 1/16	256	3	76	9	229	8	203	1	25	6	153	3/4	19	1-NPT	8 5/8	216	---	

■ Bolt Size ✱ NPT pipe tap size

▪ TB SERIES



TB (except Models 2000 & 5000)



TB (Models 2000 & 5000)

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