

BIN ACTIVATORS



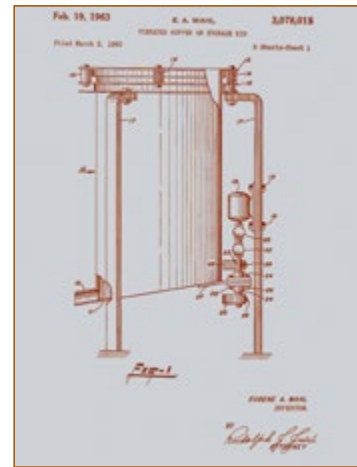
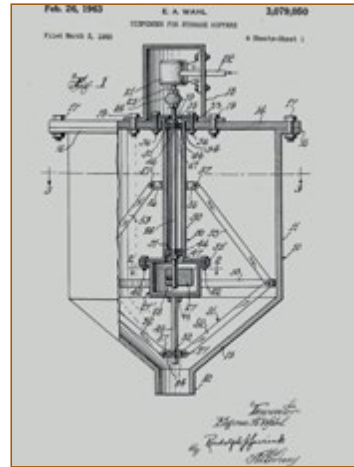
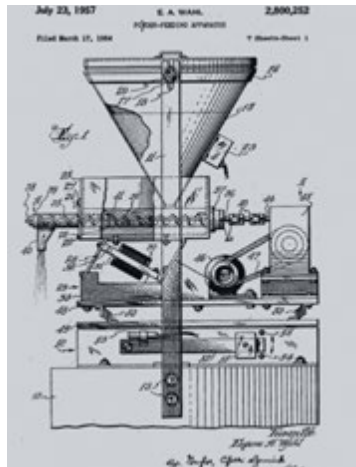
Vibra Screw® Inc.

THE INVENTION

Vibra Screw was founded by Eugene A. Wahl as an out growth of his years of experience in materials handling. The basic idea on which he built Vibra Screw was to employ controlled vibration to move and meter dry bulk materials.

It is common knowledge that most liquids flow readily and most solids don't. Mr. Wahl's contribution to the state of the art was to design a feeder which permitted handling bulk solids as if they were liquids. His method: to overcome flow resistance by imparting motion to the material through controlled vibration. It sounds simple, as many "basic" inventions do, but no one else had thought of it before.

His invention, a vibrated screw feeder, on which he obtained patents, produced a new order of accuracy in volumetric feeders. But another problem arose. As feed rates got higher there was a need for larger supply hoppers and discharging these on demand created the need for another device entirely: "The Bin Activator".

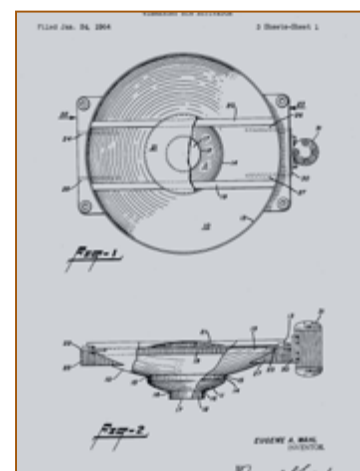
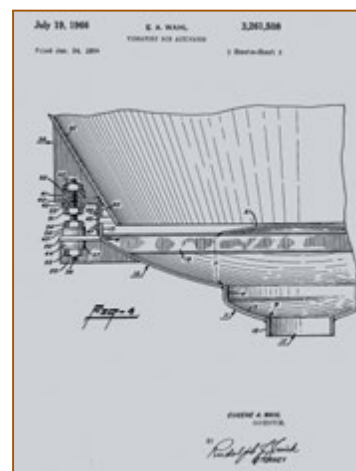
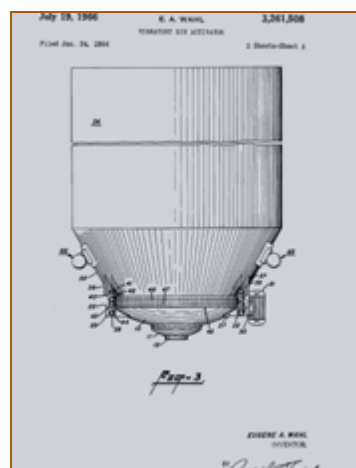


It soon became apparent that the accuracy of Vibra Screw feeders was often directly and adversely affected by an uncontrolled, external factor: the spasmodic flow of materials from storage. A whole vocabulary has been devised to describe these problems: *agglomeration, clogging, packing, jamming, arching, bridging, plugging, piping, and ratholing*.

In the years that followed, the company's experience has been that bulk materials as a rule become flow resistant in storage, and that to install a storage bin without a vibrated bottom is to risk production failures.

Over the years through extensive testing the "Bin Activator" took many forms. through extensive experimentation in design. The result was our invention and patenting of the Bin Activator, which has since achieved a rare degree of industry acceptance, with more than 100,000 successful installations around the world, in virtually every known process industry.

The flow of ideas has been a continuing one at Vibra Screw. To meet expanding requirements of the pulp and paper industry, we developed the world's largest Bin Activator, an 18-ft diameter unit. The world's largest Storage Pile Activator, at 16-ft, has special usefulness in moving large quantities of coal and aggregate out of storage.



TECHNOLOGY and DEVELOPMENT

Vibra Screw created the first Bin Activator test facility in 1959.

When we invented the Bin Activator we started out with the side discharge design than moved to the cone shape, the "funnel" of conventional storage bins and applied vibration to it.

Further testing confirmed that the compound shape of an ASME dished head with steeper angle lower cone not only provides superior performance but superior construction design.



In 1979 Vibra Screw built its second generation Bin Activator test facility. Located at the company's Fairfield, NJ building which also housed its particle processing test lab and large capacity manufacturing site.

Two 8 ft diameter, 500 ft³ storage bins designed to accommodate Bin Activator sizes from 8 ft to 3 ft diameter. Test materials could be discharged to a number of feeding devices and transferred from one bin to the other using a positive pressure pneumatic conveying system.

Material flow could be monitored and variations in baffle design, vibration amplitude and frequency changes, support hanger and flexible sleeve design that directly affect the Bin Activator performance could be changed.



In 1981 to meet the expanding requirements of the pulp and paper industry, Vibra Screw built a free-standing test system at its Totowa, NJ facility which included a 10 ft diameter storage bin equipped with 10 ft Bin Activator, bucket elevator for bin refill and chip meter (not shown) to regulate material flow simulating actual wood chip installation.

We developed the worlds largest Bin Activator at 18 ft specifically for the unique stresses and high temperature applications of the pulp & paper industry.

MORE DESIGNS AND FEATURES THAN ANYONE ELSE

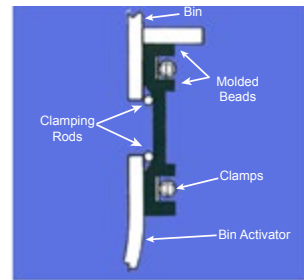
Vibra Screw has three basic Bin Activator designs to meet all the various requirements of today's process needs. The original Dished Head design, the Model HDBD which uses a compound slope body and the rolled cone Bin Discharger design.

Exclusive Features result in Performance and reliability unequaled by any other Bin Discharge Device



PREASSEMBLED MOUNTING RING

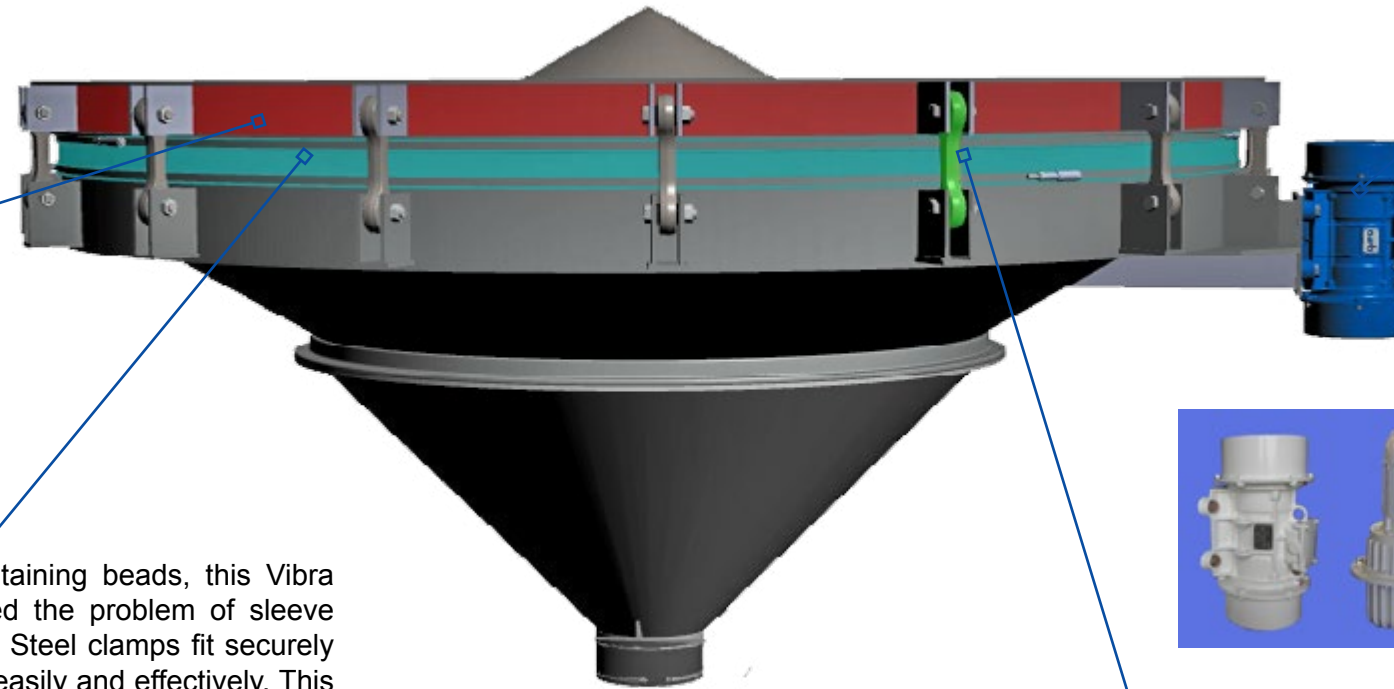
For trouble free installation, we offer a pre-assembled mounting ring. This means the Bin Discharger can be assembled and ready to be bolted or welded to the bin.



PATENTED BEADED SLEEVE

Molded in one piece with 4 retaining beads, this Vibra Screw innovation has eliminated the problem of sleeve leakage and slippage. Stainless Steel clamps fit securely between the beads and tighten easily and effectively. This sleeve design is so effective it will withstand 10 PSI internal pressure and is standard in all our Bin Activator designs. Special compounds for high temperature and a flanged bolted sleeve for high pressure are also available.

Vibra Screw has three basic Bin Activator designs to meet all the various requirements of today's process needs. The original Dished Head design, the Model HDBD which uses a compound slope body and the rolled cone Bin Discharger design.



OIL-LUBRICATED GYRATOR OR GREASE LUBRICATED VIBRATOR

Two vibrators to choose from. Oil Lubricated and cooled Gyrator offered exclusively by Vibra Screw guaranteed for 50,000 hrs of use. The large force-generated eccentric weights are mounted on a massive shaft revolving in oversized, precision bearings. The drive motor is mounted inline with the eccentric weight assembly, but works through a floating coupling so that the motor bearings carry only the motor rotor. Motor life is several times that of typical shafted motor.



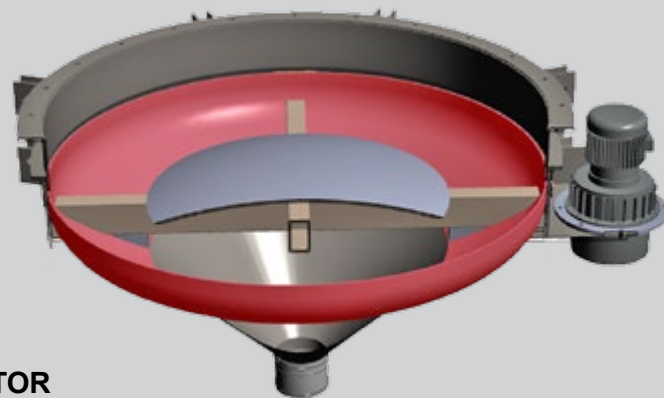
Grease lubricated gyrator A special designed rotating motor with oversized shaft, bearings and eccentric weights on the shaft generates centrifugal force. Force output is adjusted by changing the unbalance of the weights.

FORGED STEEL SUSPENSION SYSTEM

Each Vibra Screw Bin Discharger is supported by a series of forged steel hangers, fitted with steel core elastomer vibration isolators. The result is enormous strength along with near total isolation of the Bin Discharger vibration from the bin and surrounding structure. Cast or fabricated metal hangers with unpredictable performance characteristics under stress never used on Vibra Screw Bin Dischargers



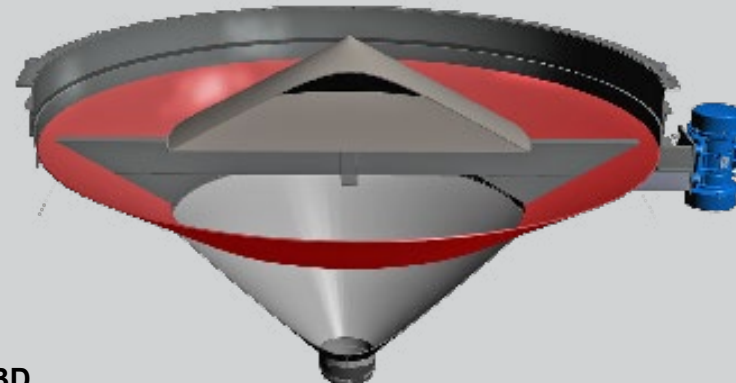
Bin Activator, Dished Head Body



BIN ACTIVATOR

The Vibra Screw Bin Activator uses our proprietary, patented ASME Dished Head design. It is used for its superior strength and better flow pattern, particularly in larger sizes from 7 to 18 ft diameter. Larger size Bin Activators use more powerful vibrators and the dished head has the inherent strength to handle such vibration forces. It also provides a two slope flow profile which avoids packing of material at the outlet in larger applications.

Model HDBD, Compound Slope Body



MODEL HDBD

Vibra Screw has introduced a line of Heavy Duty Bin Dischargers for large silos. These machines offer the advantages found only in Vibra Screw's patented dished head Bin Activators at lower cost.

The Heavy Duty Bin Dischargers combine a shallow upper section with a steeper lower cone. This compound shape eliminates bridging and packing at the discharge outlet that is common with single sloped designs. No secondary baffles required.

Heavy Duty Bin Dischargers are available in diameters from 6' to 12'. Heavy Duty Bin Dischargers use the same flexible sleeve, vibration isolation system and vibratory drives as Vibra Screws Bin Activator so existing customers will find complete compatibility in fit up and spare parts inventory

Bin Discharger, Rolled Cone Body



BIN DISCHARGER

The Vibra Screw Bin Discharger is a bin activator made from a rolled single slope cone. We use it predominantly in smaller sizes up to 6 ft diameter. It is completely satisfactory in smaller sizes since vibration forces are less and the cone volume of the Bin Discharger is small, avoiding packing at the outlet.

SPECIAL FEATURES

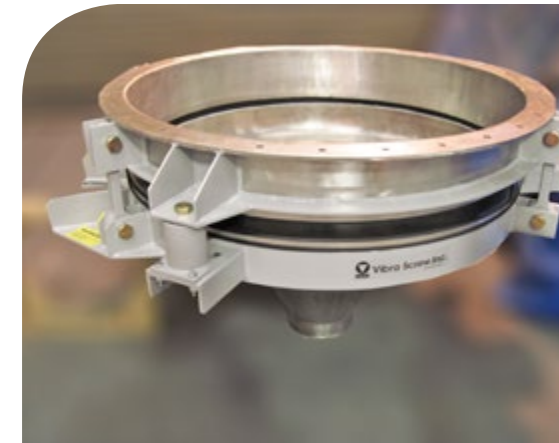
Vibra Screw can manufacturer its Bin Activators to meet a wide range of industry requirements.

Special features include:

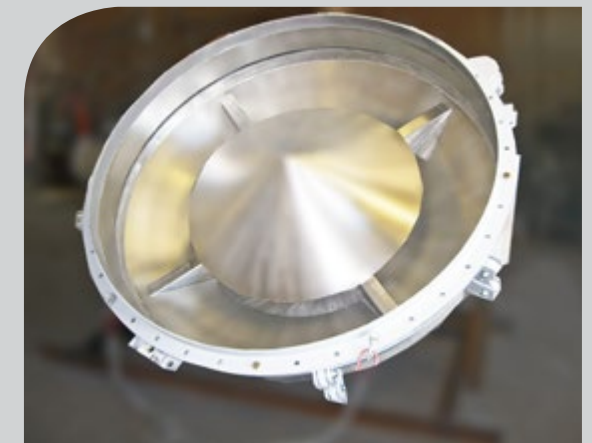
- Sanitary Construction – various versions/options
- Polishing
- High Temperature – Modifications
- Negative or Positive Pressure Modifications
- Abrasion Resistant:
 - 1) Design 2) Liners – UHMW, Steel, Stainless Steel
- Access Door/Hatch
- Clean-Out Ports
- Vibrator/Gyrator: Different Classes/Divisions, HP by size
- Bead Blasting
- Epoxy Paint – Standard & Food Grade
- Clean-In-Place
- Multiple Outlets



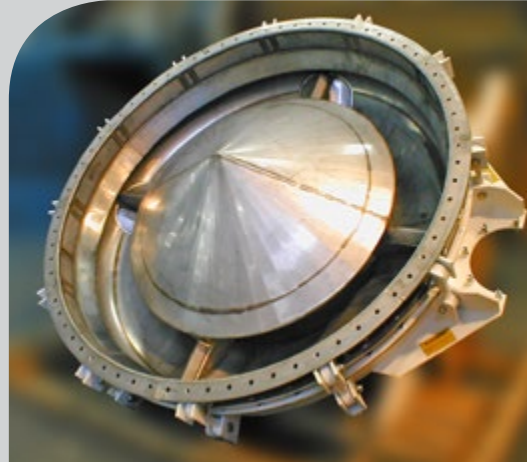
STORAGE PILE ACTIVATOR for COAL



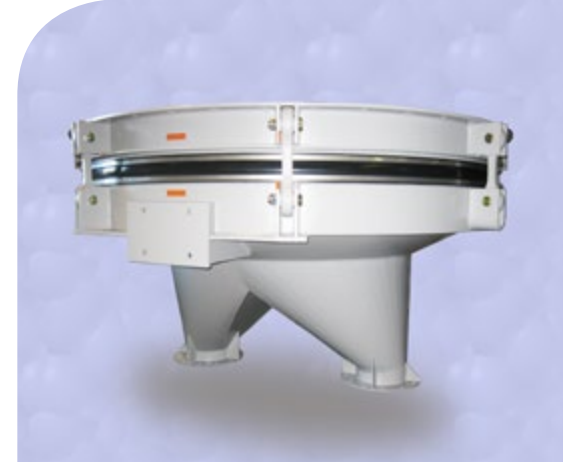
HIGH VACUUM PRESSURE DESIGN



SANITARY POLISHED INTERIOR



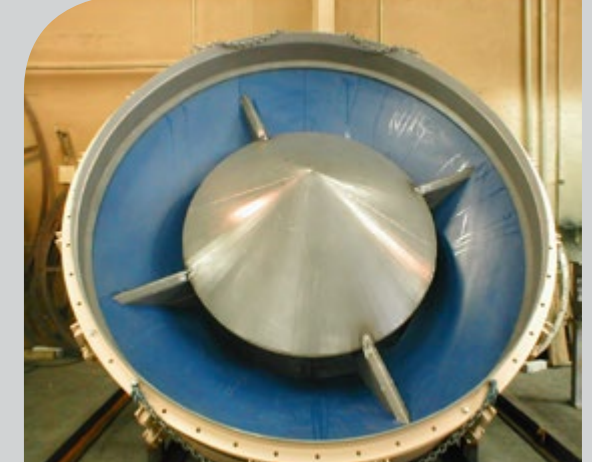
WOOD CHIP DESIGN



MULTIPLE OUTLET DESIGN



SPLIT DESIGN FOR FIELD WELDING



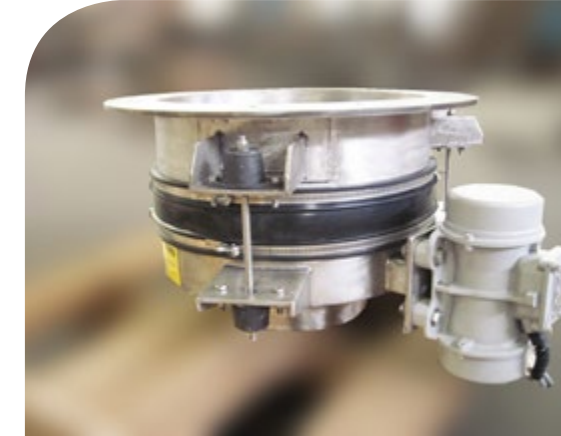
UHMW ABRASION RESISTANT LINERS



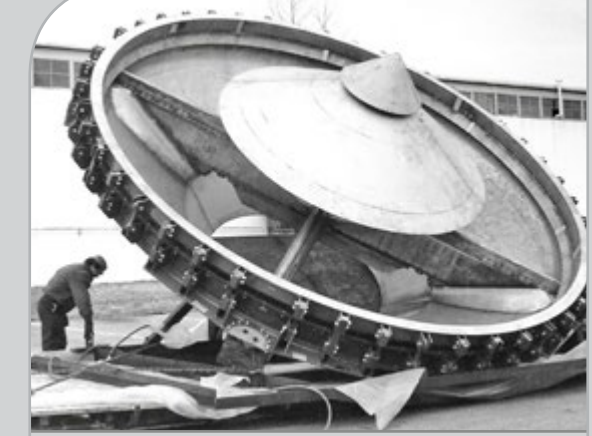
HIGH TEMPERATURE / HIGH PRESSURE
FLANGE SILICONE SLEEVE



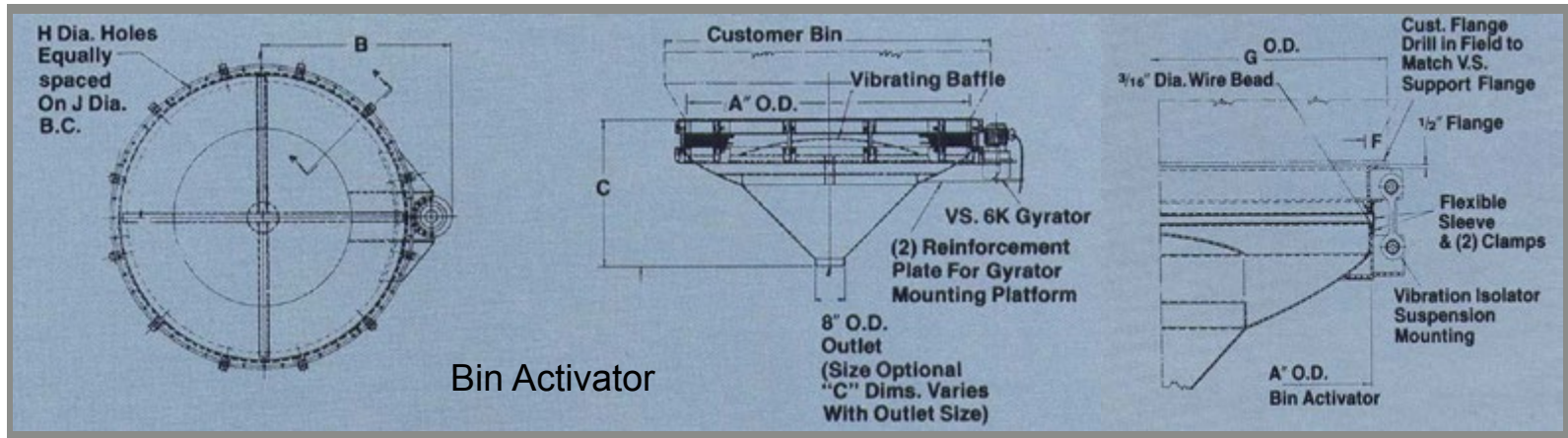
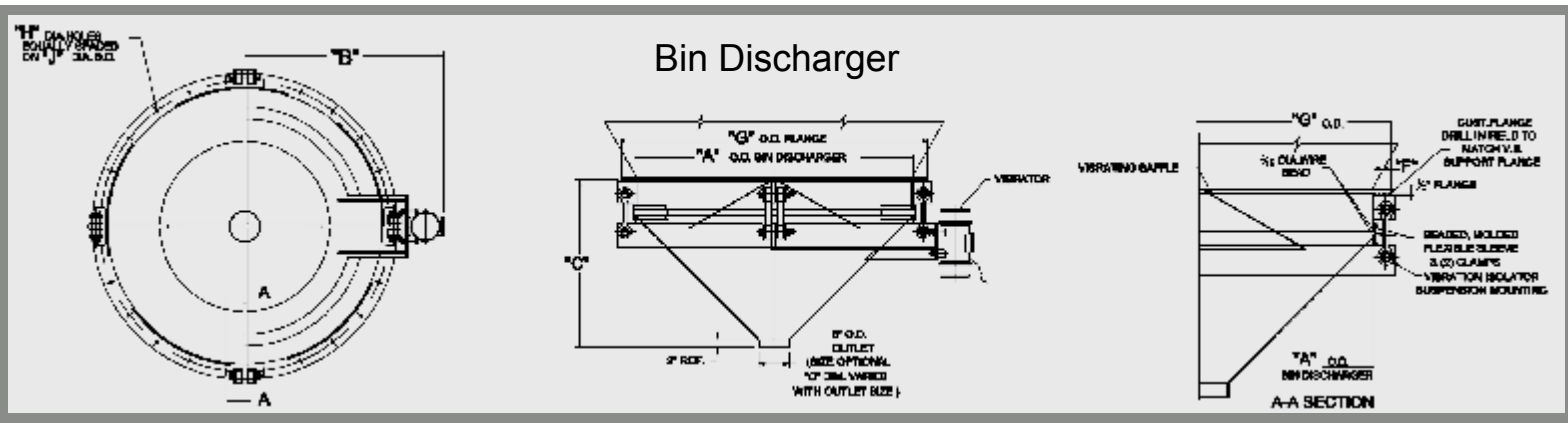
VIBRATED MATERIAL CONTROL NOZZLE
MOUNTED on OUTLET



18 INCH DIA BIN DISCHARGER

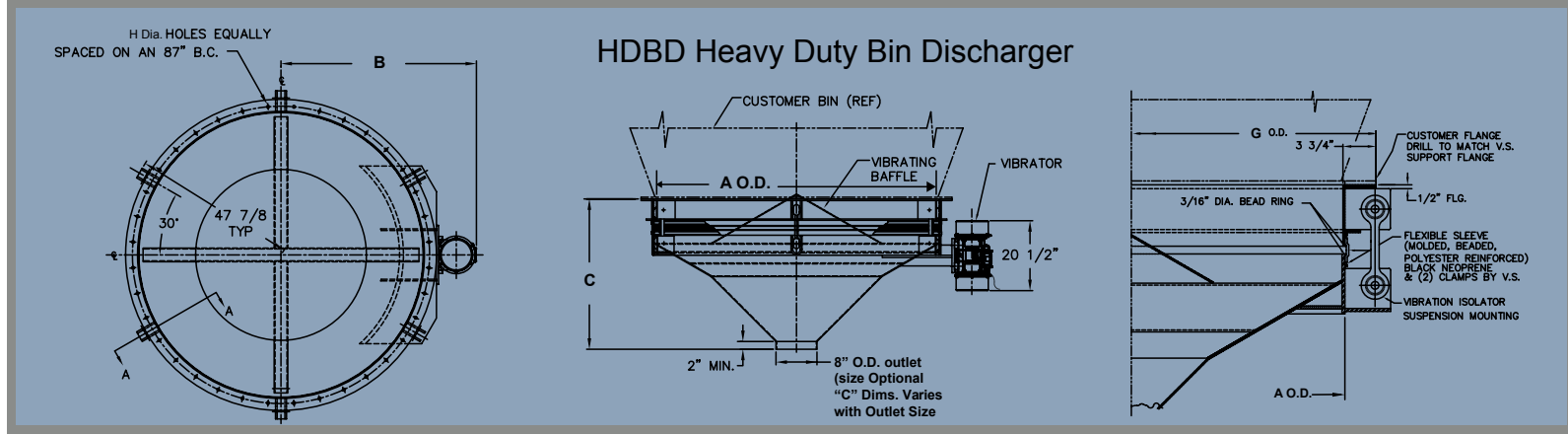


18 FT BIN ACTIVATOR WOOD CHIP
PRE-STEAMER



VIBRA SCREW BIN DISCHARGER Dimensions inches (mm)											
SIZE	A	B	C	F	G	H	#	J	HP	(KW)	WGT
2' (0.6m)	24" (610mm)	28 5/16" (719mm)	19 3/8" (492mm)	3" (76mm)	30" (762mm)	11/16" (17mm)	12	28" (711mm)	0.62	0.46	340 lb (153kg)
3' (0.9m)	36" (914mm)	34 5/16" (872mm)	24 3/8" (619mm)	3" (76mm)	42" (1067mm)	11/16" (17mm)	16	39" (991mm)	0.62	0.46	425 lb (191kg)
4' (1.2m)	48" (1219 mm)	41 1/4" (1046mm)	30 3/8" (772mm)	3" (76mm)	54" (1372mm)	11/16" (17mm)	16	51" (1295mm)	1 1/2	1.1	510 lb (230 kg)
5' (1.5m)	60" (1524mm)	47 1/4" (1200mm)	36 3/8" (924mm)	3 1/2" (89mm)	67" (1702mm)	11/16" (17mm)	20	63" (1600mm)	1 1/2	1.1	850 lb (383kg)
6' (1.6m)	72" (1829mm)	55 3/8" (1407mm)	43 3/8" (1102mm)	3 1/2" (89mm)	79" (2007mm)	11/16" (17mm)	24	75" (1905mm)	2 1/2	1.9	1200" (540kg)

Note: Dimensions are for reference only, not design



VIBRA SCREW Bin Activator & HDBD Heavy Duty Bin Discharger Dimensions inches (mm)												
SIZE	A	B	C	F	G	H	J	HP	(KW)	WGT		
3'	36" (914mm)	29 5/16" (648mm)	25 1/2" (648mm)	3 1/4" (83mm)	42" (1067mm)	11/16" (17mm)	39" (991mm)	0.82	0.46	425 lb (191kg)		
4'	48" (1219 mm)	37 1/16" (945mm)	30 1/4" (763mm)	3 1/4" (83mm)	54" (1372mm)	11/16" (17mm)	51" (1295mm)	1 1/2	1.1	510 lb (230 kg)		
5'	60" (1524mm)	43 3/16" (1097mm)	36 1/8" (918mm)	4" (102mm)	67" (1702mm)	11/16" (17mm)	63" (1600mm)	1 1/2	1.1	850 lb (383kg)		
6'	72" (1829mm)	51" (1295mm)	41 1/2" (1054mm)	4" (102mm)	79" (2007mm)	11/16" (17mm)	75" (1905mm)	2 1/4	1.9	1200" (540kg)		
7'	84" (2134mm)	60" (1524mm)	46" (1168mm)	4" (102mm)	91" (2311mm)	13/16" (21mm)	87" (2210mm)	3	2.24	2340 lb ((1061kg)		
8'	96" (2438)	67" (1702)	52 1/4" (1327mm)	4" (102mm)	103" (2616mm)	1 1/8" (29mm)	99" (2515mm)	3	2.24	2810 lb (1274mm)		
10'	120" (3048mm)	79" (2007mm)	62 3/4" (1594mm)	4" (102mm)	127" (3226mm)	1 1/8" (29mm)	123" (3124mm)	3	2.24	4900 lb (2222kg)		
12'	144" (3658mm)	91" (2311mm)	72 1/2" (1842mm)	4" (102mm)	151" (3835mm)	1 1/8" (29mm)	147" (3734mm)	5	3.73	6740 lb (3057mm)		
14'	168" (4267mm)	103" (2616mm)	89 1/2" (2273mm)	4" (102mm)	175" (4445mm)	1 1/8" (29mm)	171" (4343mm)	(2) 5	3.73	12,200 lb (5533kg)		
15'	180" (4572mm)	109" (2769mm)	92" (2337mm)	4" (102mm)	187" (4750mm)	1 1/8" (29mm)	183" (4648mm)	(2) 5	3.73	14,000 lb (6349kg)		
16'	192" (4877mm)	115" (2921mm)	97" (2464mm)	4" (102mm)	199" (5055mm)	1 1/8" (29mm)	195" (4953mm)	(2) 5	3.73	16,000 lb (7256kg)		
18'	216" (5486mm)	127" (3226mm)	106 3/4" (2702mm)	4" (102mm)	223" (5664mm)	1 1/8" (29mm)	219" (5562mm)	(4) 5	3.73	24,000 lb (10886kg)		

Note: Dimensions are for reference only, not design

CONTACT MATERIALS

- a. Carbon steel
- b. 304 stainless steel
- c. 316 stainless steel
- d. Abrasion-resistant steel

EXTERNAL SUPPORT BRACKETS

- Carbon Steel

FLEXIBLE BEADED SLEEVES

- **Standard:** Black Nordel or Neoprene 2-ply polyester, for temperatures to 325°F (163 °C).
- **Optional:**
 - o White Nordel or Neoprene, 2-ply polyester, for temperatures to 325°F (163°C).
 - o Silicone, Nomex ply, for temperatures to 500°F (260°C).
 - o Molded flanged sleeve for pressures to 14.9 psi. Standard sleeve for pressures to 10 psi.

MOTORS

- Standard:**
 - 230 or 460/3/60 totally enclosed, supplied with 6 ft Neoprene - covered cable -chemical type.
- **Optional:**
 - o Explosion proof, Class I, Group D, Class II; Group F & G.
 - o Severe Duty.
 - o Special Voltages on request.
 - o Pneumatic, hydraulic.

COATINGS

- Note: All mild steel surfaces are sandblasted in Vibra Screw's modern sandblasting department prior to coating.
- **Standard External:**
 - o Machinery gray enamel.
- **Optional External:**
 - o Epoxy Paints.
 - o Corrosion-resistant paints.
 - o Customer-specified special paints or colors.
- **Standard Internal:**
 - o Stainless steel units, uncoated
 - o Carbon steel units, coated with rust preventive.
- **Optional Internal:**
 - o Epoxy painted, food grade.
 - o UHMW Polyethylene lining.

OUTLET NOZZLES:

Bin Dischargers can be supplied with adjustable nozzles to feed a belt or vibrating pan conveyor.



Keeping Dry Materials Moving

With a wealth of knowledge and experience in the use of controlled vibration to process dry bulk materials, Vibra Screw engineers have devised systems to handle most materials -- probably your material included.

As the leader in dry solids processing, our name is recognized and trusted worldwide in such diverse industries as:

FOODS

Flour, Soy, Meal, Sugar, Vitamin Supplements

MINING

Aggregate, Kiln Feed, Crushed Ores, Coal, Lime

CHEMICAL

Pigments, Additives, Starch, Carbon Black

STEEL

Foundry Sand, Ores, Binders, Ferrous & Non-Ferrous Additives

FOREST PRODUCTS

Chips, Sawdust, Waste-byproducts

PLASTICS

Regrind, Virgin, Colorant, Talc

ENVIRONMENTAL CONTROL

Filter Aids, Resource Recovery, Lime, Soda Ash, Activated Carbon, Fly Ash, Solid Wastes, Scrap

ORDNANCE

Ammonium Nitrate, Oxidizing Salts, Solid Base Propellants, Ammonium Perchlorate, HMX, RDX

AGRICULTURE

Cattle Feed, Soy Bean Meal, Nutritional Supplements, Mill Feed, Spent Grain

PHARMACEUTICALS

Calcium Carbonate, Aspirin, Sodium Bicarbonate, Ascorbic Acid



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The Vibra Screw Product Line

For additional information, ask for literature on the following:

- **AccuFeed**
- **Batching Systems**
- **Bin Activator**
- **Bulk Bag Filler**
- **Bulk Bag Unloader**
- **DE Feeder**
- **Heavy Duty Screw Feeder**
- **Loss-In-Weight Feeder**
- **Live Bottom Bin**
- **Live Bin**
- **Live Bin Screw Feeder**
- **Pan & Tube feeder**
- **Portable Bin Unloader**
- **Screener**
- **Storage Pile Activator**
- **VersiFeeder**
- **Vibra-Blender**
- **Vibrating Screens**
- **Volumetric Belt Feeder**
- **Weigh Belt Feeder**
- **Water Treatment Systems**

THE VIBRA SCREW GUARANTEE

If your Vibra Screw equipment doesn't perform in the service for which it was sold, we'll refund your money. Ask any other equipment manufacturer to put that in writing.

No time limits. No conditions.