THE ULTIMATE SOURCE

BIN ACTIVATORS

BD 12 31 18



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 industery, 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.









MORE DESIGNS AND FEATURES THAN ANYONE

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



Model HDBD, Compound Slope Body



Bin Discharger, Rolled Cone 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

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 7' 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 compatability in fit up and spare parts inventory

BIN DISCHARGER

The VSI 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.

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.

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

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 Discharger designs. Special compounds for high temperature and a flanged bolted sleeve for high pressure are also available.

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.

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, Stn/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



STORGAGE PILE ACTIVATOR for COAL



HIGH VACUUM PRESSURE DESIGN



WOOD CHIP DESIGN



HIGH TEMPERATURE / HIGH PRESSURE FLANGE SILCONE SLEEVE



MULTIPLE OUTLET DESIGN



VIBRATED MATERIAL CONTROL NOZZLE MOUNTED on OUTLET



SPLIT DESIGN FOR FIELD WELDING



18 INCH DIA BIN DISCHARGER



SANITARY POLISHED INTERIOR



UHMW ABRASION RESISTANT LINERS



18 FT BIN ACTIVATOR WOOD CHIP PRE-STEAMER



VIDRA SCREW BIN DISCHARGER DIMENSIONS INCHES (IMM)											
SIZE	A	В	С	F	G.	Н	#	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											

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:** ٠
- o Epoxy Paints.
- o Corrosion-resistant paints.
- o Customer-specified special paints or colors.

Standard Internal:

- Stainless steel units, uncoated,. •
- 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.







VIBRA SCREW Bin Activator & HDBD Heavy Duty Bin Discharger Dimensions inches (mm)												
				F		G	G H					
SIZE	Α	В	С	*C.S.	**S.S.	C.S. & S.S.	Dia.	NO	J	HP	(KW)	WGT
3'	36" (914mm)	29 5/16" (648mm)	25 1/2" (648mm)	3 1/4" (83mm)	3 1/4" (83mm)	42" (1067mm)	11/16" (17mm)	18	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	3 1/4" (83mm)	54" (1372mm)	11/16" (17mm)	30	51" (1295mm)	1 1/2	1.1	510 lb (230 kg)
5'	60" (1524mm)	43 3/16" (1097mm)	36 1/8" (918mm)	4" (102mm)	3 3/4" (95mm)	67" (1702mm)	11/16" (17mm)	30	63" (1600mm)	1 1/2	1.1	850 lb (383kg)
6'	72" (1829mm)	51" (1295mm)	41 1/2" (1054mm)	4" (102mm)	3 3/4" (95mm)	79" (2007mm)	11/16" (17mm)	36	75" (1905mm)	2 1/4	1.9	1200" (540kg)
7'	84" (2134mm)	60" (1524mm)	46" 1168mm)	4" (102mm)	3 3/4" (95mm)	91" (2311mm)	13/16" (21mm)	36	87" (2210mm)	3	2.24	2340 lb ((1061kg)
8'	96" (2438)	67" (1702)	52 1/4 (1327mm)	4" (102mm)	3 3/4" (95mm)	103" (2616mm)	1 1/8" (29mm)	40	99" (2515mm)	3	2.24	2810 lb (1274mm)
10'	120" (3048mm)	79" (2007mm)	62 3/4" (1594mm)	4" (102mm)	3 7/8" (98mm)	127" (3226mm)	1 1/8" (29mm)	48	123" (3124mm)	3	2.24	4900 lb (2222kg)
12'	144" (3658mm)	91" (2311mm)	72 1/2" (1842mm)	4" (102mm)	3 7/8" (98mm)	151" (3835mm)	1 1/8" (29mm)	48	147" (3734mm)	5	3.73	6740 lb (3057mm)
14'	168" (4267mm)	103" (2616mm)	89 1/2" (2273mm)	4" (102mm)	4" (102mm)	175" (4445mm)	1 1/8" (29mm)	72	171" (4343mm)	(2) 5	3.73	12,200 lb (5533kg)
15'	180" (4572mm)	109" (2769mm)	92" (2337mm)	4" (102mm)	4" (102mm)	187" (4750mm)	1 1/8" (29mm)	90	183" (4648mm)	(2) 5	3.73	14,000 lb (6349kg)
16	192" (4877mm)	115" (2921mm)	97" 2464mm)	4" (102mm)	4" (102mm)	199" (5055mm)	1 1/8" (29mm)	96	195" (4953mm)	(2) 5	3.73	16,000 lb (7256kg)
18'	216" (5486mm)	127" (3226mm)	106 3/4" (2702mm)	4" (102mm)	4" (102mm)	223" (5664mm)	1 1/8" (29mm)	96	219" (5562mm)	(4) 5	3.73	24,000 lb (10886kg)

Note: Dimensions are for reference only, not design

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-by-products

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, Nutricianal 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.