PRODUCT DATA SHEET

Vibratory Feeders



Control the Flow of Bulk Materials in Your Process

The Cleveland Vibrator Company's Vibratory Feeder Models are used to feed raw materials or finished products into mixers, shredders, crushers, screeners, furnaces, production processes or final containers. Available in a wide variety of styles and finishes, Vibratory Feeders are ideal for foundries or the chemical, food, metal or paper industries, just to name a few. Fully adjustable volumetric flow allows for automated or semi-automated production processes or fill stations.

BENEFITS INCLUDE

- Lower production cost and improved quality and throughput by ensuring controlled and consistent material flow
- Reduced cost of maintenance and parts replacement compared to mechanical feeders
- Flexibility in design options ensures a seamless fit into your existing production processes for your specific application
- Safety under the most hazardous conditions

Product Overview



The Cleveland Vibratory Company tailors our product to the individual needs of your business. Call today to find out how we can improve your productivity and profits.

The Cleveland Vibrator Company offers a wide range of light, medium and heavy-duty **Vibratory Feeders** for controlling the flow of your bulk materials.

Production line systems incorporating Vibratory Feeders can provide:

- Fully automated or semi-automated fill stations
- Fully adjustable volumetric flow
- Linear motion that is smooth and uniform
- Safety under the most hazardous conditions

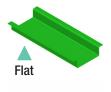
VIBRATORY FEEDERS ARE IDEAL FOR:

INDUSTRY	WHAT DO THEY DO?						
Chemical Plants	For the controlled flow of ingredients to mixing tanks						
Aggregate	Control the feed rate of your materials to your crushers						
Foundries	For the addition of binders and carbons to sand processing systems						
Pulp & Paper Industry	For chemical additive feeding in the bleaching process and chip handling systems						
Metals	For feeding metal parts or scraps furnaces						
Ceramics	For controlled ingredient flow in the batching process						
Glass	For feeding glass cullet to the furnace						
Chemical Additive Handling	Such as lime or diayomaceous earth in water and sewage treatment plants						

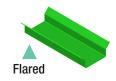
Tailored On Demand

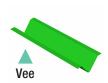
TRAY SHAPES

Vibratory Feeder capacity will vary with tray configuration. A tubular or vee-shaped tray will not move the same volume as a standard flat tray, Consult factory for capacity data on tubular or vee-shaped output.









DISCHARGE OPTIONS:

- Standard Flute Chute
- Tapered Chute
- Circular Chute
- Side Discharge

EQUIPMENT OPTIONS:

- Levelling Gate
- Dust Cover
- Liners
- Impact Plates

ISOLATION OPTIONS:

- Air Mounts
- Coil Springs
- Sandwich Rubber
- Marsh-Mellow®Mounts

CONTROL OPTIONS:

 Electromechanical Magnetic Starter Variable Frequency Dynamic Brake

Air Powered

Filter Regulator Lubricator Explosion-Proof Solenoid

- Electromagnetic

 Variable Amplitude
- Special Controls
 Remote Operation
 Two-Speed
 Batch Weighing
 Multiple Feeders

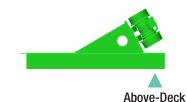
DRIVE LOCATIONS



The standard below-deck mounting of air or electric vibrators is the most widely used.



Side mounting of drives is also available for the EMF Series with dual Rotary Electric Motors.



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Where installation requirements dictate, the above-deck mounting can also be used.

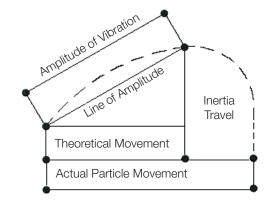
Our Vibratory Feeders are available in a variety of trough shapes. Units can be furnished with special trough coatings such as neoprene, UHMW, urethane, nonstick polymer, non-stick textured surfaces or removable abrasive-resistent steel plate. The trough can be furnished in steel or polished stainless steel to meet the most demanding requirements.

The Cleveland Vibrator Difference

SIMPLE PRINCIPLE, GREAT SUCCESS

HOPS, NOT STREAMS

While it appears to move in a uniform flowing stream, in reality the material makes a series of short, continuous, rapid hops forward that are imperceptible to the eye. How does this happen?



The power source is attached to the feeder at a prescribed angle. The force and angle create a forward and upward motion of materials but returns back to its original position. However, the material doesn't move backwards due to the slower action of gravity happening during the return motion.

DESIGNED FOR YOU, YOUR MATERIAL AND YOUR PROCESS

DESIGN EXPERIENCE

The Cleveland Vibrator Team has over 60 years of collective experience sizing and designing vibratory feeders for 100's of materials and applications. So, you know you will get the right force, frequency, amplitude and custom options to make your project successful.

SIMPLE

Our feeders are designed and built for minimal wear parts to make maintenance an infrequent and easy task.

IN-HOUSE TESTING

Cleveland Vibrator's in house testing lab includes an EMF Electromechanical Feeder with independent variable frequency and variable amplitude controls to allow determination of optimal vibration conditions for any material AND prediction of feed rates and process outcomes.

LINEAR VIBRATION

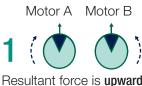
Sure, using one motor would cost less. But, 99% of feeding applications perform best with linear vibration, in line with gravitational forces, that are easily achieved with two synchronized vibrator motors, using the **Dual Motor Principle**. (Refer to diagram on right)

LARGE LOADS? NO PROBLEM

Cleveland Vibrator has experience designing and building feeders to vibrate loads at a rate of up to 300 ton per hour

QUALITY COMPONENTS

Uras or Cleveland Vibrator Motors, Yaskawa Controls, Firestone isolation mounts, Mettler-Toledo weigh modules, to name a few. We use only the best brands of components, recognized for quality and continuous duty.



Resultant force is upward



Resultant force is zero



Resultant force is downward





Resultant force is zero

SEE IT BEFORE YOU RECEIVE IT



Visit The Cleveland Vibrator Company's YouTube Channel to see 175+ videos of Vibratory Feeder Models in action.

Helpful Installation Tips

CALCULATE TO FIT YOUR INDIVIDUAL FEEDER NEEDS

THE TONS-PER-HOUR CAPACITY OF OUR FEEDERS IS BASED ON THE FLOW OF DRY SAND THAT WEIGHS 100 LBS. PER CUBIC FOOT.

To better utilize the charts in this catalog, follow these simple steps to determine the actual capacity of your product:

- 1. Determine your desired output of materials in tons-per-hour (TPH)
- 2. Determine the weight of your materials in pounds per cubic foot
- 3. Use the chart below to determine the CVC density factor
- 4. Multiply your required capacity by the CVC density factor

Example:

You need to move 30 tons-per-hour of a material that weighs 60 lbs/ft³. On the chart, the CVC density factor for materials weighing 60 lbs/ft³ is 1.7. Simply multiply the desired output (30) by the found CVC density factor (1.7) to determine your products equivalent to the normal capacities shown in the catalog chart. $30 \times 1.7 = 51 \text{ tons per hour}$

MATERIAL WT. (LBS/FT³)	25	30	35	40	45	50	55	60	70	80	90	100	125	150	175	200
CVC Density factor	4.0	3.3	2.9	2.5	2.2	2.0	1.8	1.7	1.4	1.3	1.1	1.0	0.8	0.7	0.6	0.5

EMF Electromechanical Feeders can be arranged for either base or suspension installation. Here are a few helpful considerations for proper installation and maximum feeding efficiency.

Figure #1

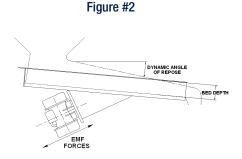
STATIC ANGLE OF REPOSE OF MATERIAL ANGLE

TROUGH ANGLE

TROUGH LENGTH

FEEDER AT REST

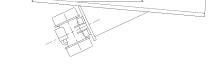
Feeder trough length is determined by the material's static angle of repose and trough slope. The feeder trough must be of sufficient enough length to assure complete material shut-off when the feeder is at rest.



FEEDER OPERATION

The dynamic angle of repose is the angle the material seeks while being vibrated and conveyed.





PROJECTED VERTICAL OPENING

The projected length and width of the vertical opening should be two or three times greater than the largest particle dimensions. Materials with bridging tendencies require sufficient openings to assure good product flow.

The projected horizontal opening is determined by particle size and bed depth requirements. The minimum horizontal opening should be approximately two times the largest particle dimension, but no less than the required bed depth.

Electromechanical Feeders





Cleveland Vibrator's Model **EMF Electromechanical Vibratory Feeder** utilizes twin Rotary Electric Vibrator Drives (RE) which are available in four speeds for medium to heavy-duty applications. These twin drives all produce a linear motion that provides smooth, uniform, volumetric flow which is fully adjustable.

Units are mounted horizontally, requiring no gravitational assistance for product conveying. The continuous duty rated vibratory motors are the only moving parts, ensuring a lower cost of maintenance than other mechanically driven feeders.



FIELD IMAGE: Vibratory Feeder in use at a Battery Recycling Plant, to consistently feed materials through processing

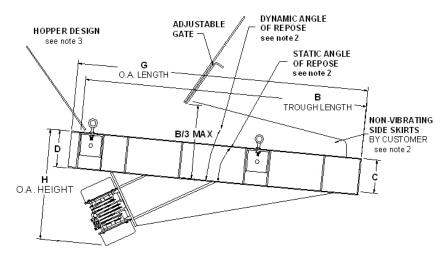


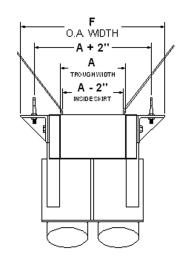
FIELD IMAGE: Vibratory Feeder in use at a Plastics Recycling Plant, powered by two (RE) Rotary Electric Motors

Benefits of the EMF Electromechanical Feeder include:

- Control feed of bulk materials, parts or scrap from bins, hoppers and conveyors into production or melt down processes
- Rugged and low maintenance design ensure low cost over long product life
- Improved production rates and product quality
- Faster, more streamlined production lines
- Isolators with support base limits noise levels
- Controls allow you the flexibility to adjust vibration intensity and frequency
- Choose from our many options for product contact surface materials, including stainless steel, UHMW plastic lining and water cooled heat exchangers

Electromechanical Feeders





EMF • HEAVY-DUTY ELECTROMECHANICAL FEEDERS

A TROUGH WIDTH	B Trough Length	C TROUGH DEPTH	D SIDE DEPTH	F O.A. WIDTH	G O.A. LENGTH	H O.A. HEIGHT	VIBRATORY DRIVE MODEL REQUIRED	NORMAL CAPACITY (TONS PER HOUR)	
	36"				38"	26"	RE 5-6		
12"	60"	28"	50"	26"	RE 5-6	42 TPH			
			62"	28"	RE 9-6				
	60"				62"	28"	RE 9-6		
	72"				74"	28"	RE 9-6		
18"	84"	6"	8"	34"	86"	29"	RE 13-6	63 TPH	
	96"				97"	29"	RE 13-6		
	120"				122"	29"	RE 13-6		
	60"					29"	RE 13-6		
	72"		8"	40"	74"	29"	RE 13-6		
24"	84"	6"			86"	31"	RE 18-6	84 TPH	
	96"				98"	31"	RE 18-6		
	120"				122"	31"	RE 24-6		
	60"				66"	29"	RE 13-6		
	72"				74"	31"	RE 18-6		
30"	84"	6"	8"	46"	86"	31"	RE 18-6	105 TPH	
	96"				98"	34"	RE 24-6		
	120"				122"	34"	RE 24-6		
	60"				62"	35"	RE 18-6		
	72"				74"	35"	RE 18-6		
36"	84"	8"	12"	52"	86"	38"	RE 24-6	168 TPH	
	96"				97"	38"	RE 24-6		
	120"				122"	41"	RE 34-6		
	60"				62"	41"	RE 24-6		
	72"				74"	44"	RE 34-6		
48"	84"	10"	15"	64"	86"	44"	RE 34-6	280 TPH	
	96"				96"	44"	RE 34-6		
	120"				122"	46"	RE 45-6		

Capacities based on material that weighs 100 lbs. per cubic foot with the feeder installed at 0° to 10° and drives selected to provide minimum flow of 40 feet per minute rate of travel. Consult factory for details on other capacities. 1-800-221-3298

NOTES

Capacity is based on feeding sand that weighs 100 lbs. per cubic foot with the unit installed at a 10° down slope. Maximum gate opening or bed in trough at inlet area not to exceed tray length (B) divided by 3.

2 Design parameters for the above illustration are based on free flowing sand with a static angle of repose at approximately 35° and a dynamic angle of repose at approximately 15°.

3 Non-vibrating skirt boards must be provided by others to avoid spillage over the sides of the feeder trough when capacity exceeds the side depth.

Hopper should be designed to facilitate adequate material flow while keeping direct head load on the trough to a minimum.



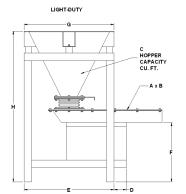
Volumetric Feeders

The Cleveland Vibrator Company's **Volumetric Vibratory Feeder** is a compact, self-contained unit that incorporates a bulk supply hopper with a vibrator and a vibratory pan feeder.

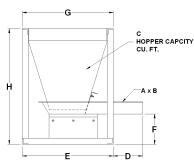
Both air and electric powered units can be equipped with independent variable controls for adjusting flow rate and vibratory intensity.

Special control features are available where timed feed rates or operation from a scale signal is required. Scale operated machines can be equipped with an automatic or manual two-station push button control. One button controls the fast speed to accomplish most of the filling, while a second button controls slow dribble feed that enables the operator's scale to stop at the desired rate.

LIGHT-DUTY DIAGRAM



HEAVY-DUTY DIAGRAM





MODEL	A Trough Width	B Trough Length	С	D	E	F	G	Н	NORMAL Capacity
RFM-A-216	2"	16"	3⁄4 ft.2	6"	17"	8"	15 in. ²	29"	1250 lbs./hr.
RFM-A-318	3"	18"	11/4 ft.2	8"	17"	8"	19 in. ²	35"	2 tons/hr.
RFM-A-524	5"	24"	3 ft. ²	8"	27"	10"	24 in. ²	46"	5 tons/hr.
RFM-A-630	6"	30"	3 ft. ²	17"	27"	14"	27 in. ²	45"	8 tons/hr.
RFM-A-1036	10"	36"	18 ft. ²	10"	41"	17"	36 in. ²	59"	30 tons/hr.
RFM-A-1436	14"	36"	40 ft. ²	5"	56"	24"	48 in. ²	72"	30 tons/hr.

^{*} Capacities based on air-powered/flat tray units with no down-slope and 100 lbs. per cubic foot bulk density.

RFM Integra Series

The Cleveland Vibrator Company has extended their line of Volumetric Rectangular Feeder machines to include the compact, self-contained RFM Integra Series Vibratory Feeders with a built-in bulk hopper inlet to aid in your material flow. Engineered for continuous flow control, the RFM Integra eliminated the need for steeply angled hopper walls associated with gravity hoppers. The Integra models offer a lower overall height and hopper walls angled at less than 30° for reduced material dump height. An adjustable swing-out gate further aids in flow control and reduces the potential for hang up as material moves from the hopper to the feeder tray. Models can easily be equipped with independent variable frequency controls (VFC) for adjusting flow rate. Special control features are available where timed feed rates or operation from a scale signal are required. Units are available in a wide range of feeder tray sizes and hopper capacities.



Tube Feeders

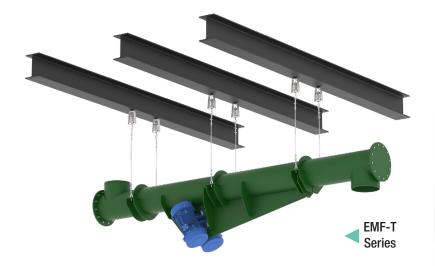
Cleveland Vibrator's **Vibratory Tube Feeders** convey dusty or fragile bulk material loads where product protection from environmental elements is required. The low maintenance design provides an easy-to-clean option that will virtually eliminate process downtime. Bulk material is conveyed in a series of small movements using low frequency and long stroke vibrations that results in gentle conveying and nearly no degradation of the product.

The Cleveland Vibrator's model EMF-T utilizes twin rotary electric vibrator drives which are available in four speeds for medium to heavy-duty applications. These drives synchronize to produce a linear motion that provides smooth, uniform, volumetric flow which is fully adjustable. Units are mounted horizontally, requiring no gravitational assistance for product conveying. The continuous duty rated vibratory motors are the only moving parts, ensuring a lower cost of maintenance than other mechanically driven feeders.

The CT-A model is economical and effective, while meeting demands for feed rates up to 50 tons per hour in hazardous and explosion proof environments. CT-A feeders enable controlled and reliable flow of bulk materials and parts ensuring efficient feeding into production processes.

Benefits of the Vibratory Tube Feeder Include:

- Optimal for applications that have strict sanitary or dust control requirements
- Conveys difficult flowing or friable dry solids materials
- Improved production rates and product quality
- Prevention of product contamination with fully enclosed tube
- Accurate ingredient flow into batches





Air Powered Feeders

Cleveland Vibrator's **Air Powered Feeders** are primarily used in applications where simple, economical control of the feed rate is desired. Air Powered Feeders are recommended for hazardous areas instead of more expensive electric alternatives.

The drive is a dependable air-cushioned piston vibrator. The double diameter piston vibrator guarantees starting at any mounting angle without the use of a return spring. An exhaust muffler is provided to reduce noise level, while further noise reduction can be achieved by porting the exhausting air way from the work area.

Coating the bore to enable operation without lubricated air is available. Standard air controls include a quick acting solenoid valve (115/1/60) lubro control and 5' hose with fittings. Explosion proof valves are also available.

Capacities are based on standard flat tray models using materials that weighs 100 lbs. per cubic foot. Other tray options available.

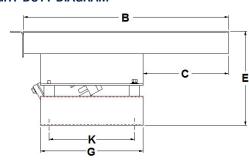


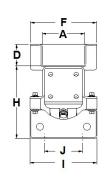
CF-A • LIGHT-DUTY AIR POWERED FEEDERS

MODEL	A Tray Width	B Tray Length	С	D	E	F	G	Н	1	J	K	NORMAL Capacity
CF-A-1½-12-125	11/2"	12"	31/2"	1"	11"	4"	81/4"	10"	6"	31/2"	61/4"	1250 lbs./hr.
CF-A-318-125	3"	18"	61/2"	11/2"	111/2"	51/4"	10"	10"	61/2"	4"	8"	2 tons/hr.
CF-A-524-200	5"	24"	10"	21/2"	11"	7¾"	12"	81/2"	71/8"	41/2"	10"	5 tons/hr.
CF-A-630-300	6"	30"	121/2"	4"	16"	91/2"	15"	12"	9¾"	6"	12"	8 tons/hr.
CF-A-1036-350	10"	36"	11"	4"	16"	131/2"	18"	12"	11"	7"	141/2"	15 tons/hr.

LIGHT-DUTY DIAGRAM





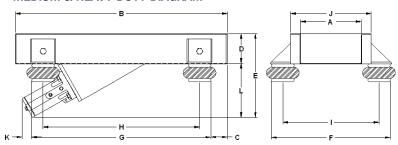


CF-A • MEDIUM & HEAVY-DUTY AIR POWERED FEEDERS

MODEL	A TRAY WIDTH	B TRAY LENGTH	С	D	E	F	G	н	1	J	К	-	NORMAL Capacity
CF-A-1436-400	14"	36"	6"	6"	23"	25"	30"	26"	21"	17"	61/2"	17"	30 tons/hr.
CF-A-1830-500	18"	30"	11"	6"	251/2"	30"	24"	201/2"	26"	22"	11"	191/2"	50 tons/hr.

Have dimensions certified for installations purposes. For more information on sizing, capacity ratings, installation and additional options, call our Sales Department at 1-800-221-3298

MEDIUM & HEAVY-DUTY DIAGRAM



Other Vibratory Equipment

THE CLEVELAND VIBRATOR COMPANY OFFERS A FULL RANGE OF FABRICATED VIBRATORY

EQUIPMENT SUITABLE FOR ANY SIZE JOB. All equipment is fully customizable and can be incorporated into automated or semi-automated production lines. Vibratory Equipment can ensure less waste of space and materials, faster production times, and more thorough feeding and screening.

Vibratory Screening



Model EMBS Electromechanical Screener with Ball Tray Deck

Relieve screen deck plugging and clogging while saving costs of maintenance and provides high efficiency in your screening process.



Model SF-A Air Powered Screener

Primarily used in applications where simple, economical control of the feed rate is desirable. Also, these screeners are recommended for hazardous-duty areas.



Model PSC-E Portable Slope Deck Screener

Offers a customizable screening option with lightweight portability for use across multiple applications dealing with fine bulk materials.



Model RSM Volumetric Screener

The all in one unit enables production efficiencies for easily dumping material from an inexact process and getting a controlled and uniform product outcome.

VIBRATORY SCREENERS

We offer multiple vibratory screener, scalper and sieve styles to handle separation and sizing of materials, or removal of unwanted materials from a batch, such as liquids, fines or oversized products. Pneumatic and Electric Powered Models Available.

- Volumetric Screeners
- Electromechanical Screeners
- Air Powered Screeners
- Gravity Flow Screeners
- Portable Sloped Screeners

Model EMS Electromechanical Screener

Fit with dual Rotary Electric Drives, this model is designed for precise screening where high efficiency is required in the end particle size. Units are mounted horizontally, requiring no gravitational assistance.

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Fine Mesh Screening

HK TECHNOLOGIES

An Affiliate of The Cleveland Vibrator Company

FINE MESH SCREENERS

Used for sizing, fines removal or liquid/solid separation, HK Technologies' Fine Mesh Screening Equipment can handle screening dry or wet materials from 10 micron to #10 mesh. Add Ultrasonics to achieve maximum throughput of materials and increase sieving rates while utilizing 100% of the screen surface.

- Lab & Pilot Sieves
- Production Sifters & Screeners
- Ultrasonic Deblinding Systems
- Rescreening & Remeshing Services

Fine Me for small

Fine Mesh Vibratory Sieves for small batch processing & quick sieve analysis of product samples. Get consistent throughput and repeatable sampling compared to manual sieve shaking methods for particle sizing applications.

Lab & Pilot Sieves



Production Sifters & Screeners

Fine Mesh Vibratory Sifters & Screeners for large batch processing and continuous screening or scalping applications. Designed to handle difficult-to-screen products and high capacity screening applications.

Ultrasonic Deblinding Systems



Convert your existing gyratory screners, sieve or sifter to an ultrasonic screener in the matter of minutes, no matter who manufactured it.



Rescreening & Remeshing Services

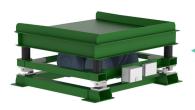
HK's turn-key remeshing and rescreening services offers a 1-3 day turn around time, providing a quick solution to keep your operations running.

Other Vibratory Equipment

VIBRATORY TABLES

Handle tough material challenges of condensing, settling, densifying, de-airing and packing and built to fit your needs in production, filling and packing or weighing.

- Light-Duty Packers
- Jogger Tables
- Shake-Out Tables
- Specialty Systems
- Flat Deck Tables
- Grid Top Tables
- Weigh-Scale Packers
- Vibratory Conveyor Systems



Model WFT Weigh Scale Flat Deck

Weigh Scale Packers allow for filling, weighing, and vibration of bulk containers. Tables can be fitted with digital scale instruments that incorporate set points to control the start and stop of the fill device, as well as the vibration sequence.

*Weigh Scales are available in a variety of deck options to meet any requirements.



Live Beam Vibratory Table Model

Built primarily for the consolidation of concrete or castable materials in large forms and moulds. Ideally suited for pre-stressed concrete forms, the beams can be spaced apart as much as 10 to 15 feet for handling long and narrow, yet extremely heavy loads.



Model BT Belt Conveyor

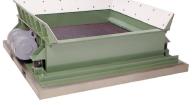
The Belt Table Conveyor is designed to simultaneously settle product within its container while transporting the container to a closing and sealing machine. Linear vibration aids in settling the material in its container before the container is closed.



Model GT Grip Top

Ideal for automatic and semiautomatic packaging and filling lines that use roller conveyor systems. The table is installed at the filling or compaction station of an in-line conveyor system. GT Grid Top Tables are available in standard, low profile or custom configurations.





Foundry Shake-Out

Shake-Out Tables feature a low profile design and quiet operation, with no noise generated from the steel isolation springs, belts, pulleys, or vibrating crank arms of other designs. Units with UHMW coated side deflectors are available. Able to handle loads up to 12,000 lbs. depending on deck size.

Vibratory Packers & Joggers



Model VJ Electromagnetic Vibratory Jogger

Ideal for filling small moulds in the plastic and fuse industries, it has also been used in the chocolate and candy industry. This rugged unit comes with a HDPE (High Density Polyethylene) deck and built-in controls. The unit is designed for 115/1/60 operation and the frequency is fixed at 3600 VPM.



Model VP Light Duty Tables

Commonly used for compacting coffee, pharmaceuticals, or other powdered products in small containers such as bottle, cans or bags. Force and frequency of Air Powered Models are adjustable by air pressure regulation, while electric tables are adjustable by mechanical means or an optional (VFC) Variable Frequency Controller.



Drum Packer Model

Eliminate dead space in large drums before shipping, reducing container costs. Common applications include compacting granules, powders, pellets, molded or stamped rubber, plastics and steel parts. It's rugged yet compact design takes up less than 6 square feet of floor space and is rated for continuous duty. Air Powered and Electric Powered options available. Meets OSHA Noise Requirements.



FOR MORE INFORMATION

Call: Sales at 800-221-3298

Email: sales@clevelandvibrator.com Buy Online: www.clevelandvibrator.com















The Cleveland Vibrator Company has been driving innovations in materials handling since 1923. From our corporate headquarters in Cleveland, Ohio, and in partnership with HK Technologies located in Salem, Ohio, we've met the challenges of more

than 15,000 customers all around the globe in a vast array of industries. Our comprehensive product line includes air-piston, rotary electric, electromagnetic, turbine and ball vibrators, as well as a wide variety of fabricated feeders, vibratory screeners,

ultrasonic screeners, vibratory conveyers and vibratory tables used for light, medium and heavy-duty industrial applications.

clevelandvibrator.com

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ax 216-241-3480