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AVITEQ
Vibrationstechnik GmbH
formerly AEG Vibrationstechnik



**Vibrating conveyors
with magnetic or unbalanced drive**

Materials handling

Solutions for your success

Vibrating conveyors with magnetic or unbalanced drive.

AViTEQ Vibrationstechnik

AViTEQ Vibrationstechnik has solutions

Vibration technology - without this kind of drive technology modern material handling would be impossible.

At AViTEQ Vibrationstechnik GmbH (formerly AEG Vibrationstechnik) we manufacture and sell a complete range of systems and drives that use vibratory technology, such as magnetic vibrators and unbalanced motors. For products that have to be discharged, conveyed, or fed horizontally or vertically, filtered or screened, separated, dewatered, classified, cooled, heated or dried, consolidated or fragmented – the AViTEQ Vibrationstechnik GmbH product range covers it all.

Vibrating conveyors from AViTEQ

Vibrationstechnik GmbH are used in applications worldwide, in almost every industry.

Starting in 1938, our company was one of the first in Europe to manufacture vibration technology machines and we continue to produce and set the trend for these machines today.

400,000 deliveries of our vibrating conveyors all over the world prove that our technology works. This brochure covers only some of the materials handling equipment included in our product range.



discharging and batching, conveying horizontally



screening, classifying, dewatering



conveying vertically



compacting, loosening



storing, arranging, feeding



cooling, heating, drying

DIN EN ISO 9001:2000
Zertifikat Reg.-Nr.:
QC-QM-Z-02/044-01

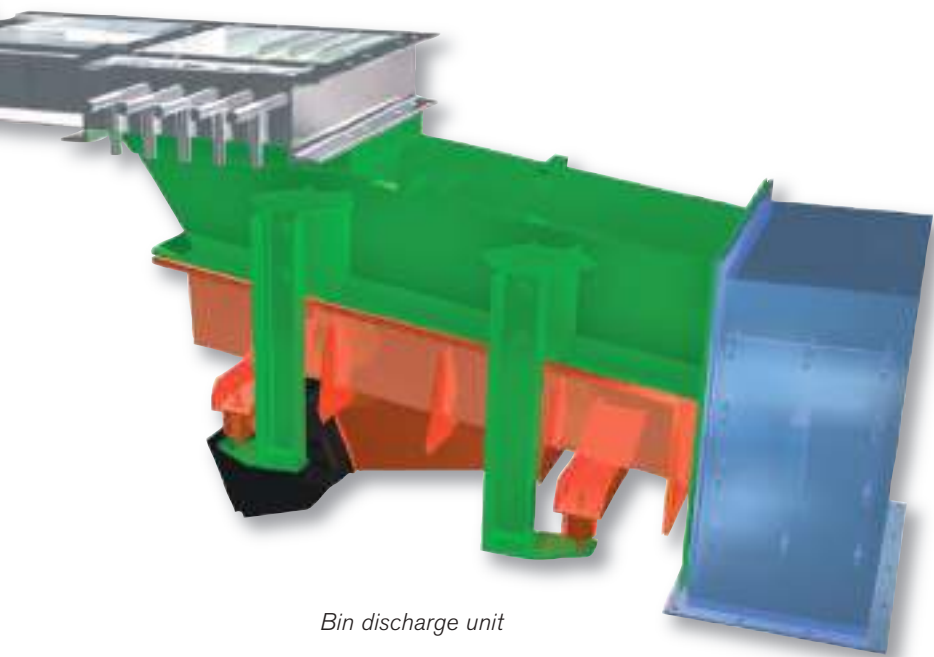


AViTEQ headquarters in Hattersheim, Frankfurt/Rhein-Main



Oberboihingen facility





Bin discharge unit



Spiral conveyor



Tubular feeder



Directionally controlled feeder



Conveying feeder



Tubular feeder



Bin discharge unit



Bin discharge unit with directed force exciter

Vibrating conveyors for feed rates up to 5,000 m³/h

Proven technology

Vibrating conveyors have proven their worth over decades in use with bulk materials: in transportation, in continuous or batch controlled feeding, or in dosing. The design of our devices and the materials used to manufacture them are determined by application, grain size, material density and bulk material characteristics.

The conveying principle

Steel troughs are accelerated with vibration drive in throwing direction so that the material conveyed moves forward gently in "micro-throws". The transportation process is largely determined by vibration frequency, vibration amplitude, angle of impact and inclination. Depending on conveyor length, capacity, bulk material properties and possible secondary tasks to be completed, a variety of conveyors with different drive systems are used.

Design and types

The various types include bin discharge units, trough feeders and tubular feeders.

- Bin discharge units are used as bin closures during standstill. An inclined installation is preferred. Mounted on the bin outlet flange, it consists of a trough feeder, discharge chute, discharge case and safety closing device (needle valve or flat slide valve).

All conveying feeders can be equipped with either a stationary or a resonant cover. Selecting a suitable liner can prevent or reduce wear and the tendency for material to "cake".

- Tubular feeders cover segments of up to 10 m when arranged horizontally in a closed design. This model is used for dust-free transportation of bulk materials at a speed up to 80 m³/h.



Bin discharge unit for layer height

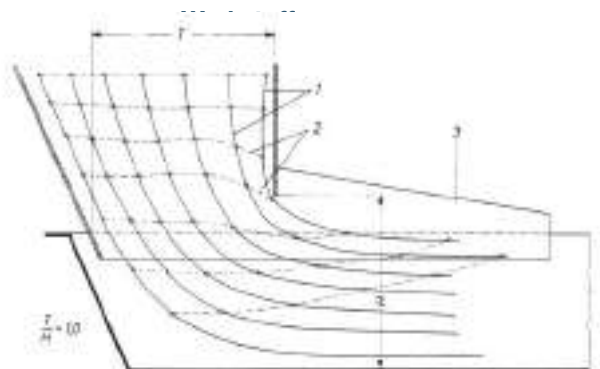


Discharge protection with layer height limiter



Bin discharge for normal layer

- (T) Depth of bin discharge
- (H) Average height
- (1) Grain path
- (2) Lines for the same time
- (3) Side deflector plates



Movement course of bulk material grains at the transition from the bin to the conveying feeder

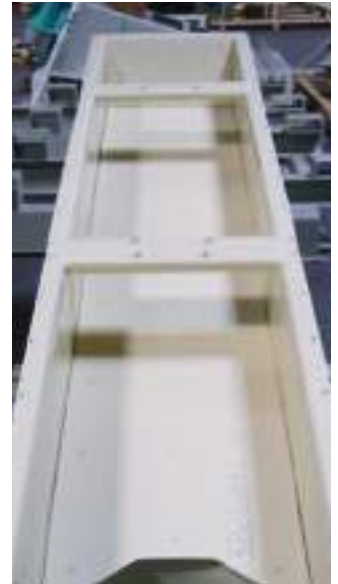
Construction steel S235 JRC is most commonly used to manufacture vibrating conveyors. This material can be easily formed and welded and its wear resistance is sufficient for most applications. For applications subject to greater wear, particularly resistant steels are used. For food products, adhesive or aggressive substances, oxidation resistant nickel chromium steels are used, e.g. V2A or V4A.

In working conditions with temperatures up to 900 °C, temperature and heat resistant steels are available (e.g. Novotherm®).

Liners

Trough feeders can be lined to protect against:

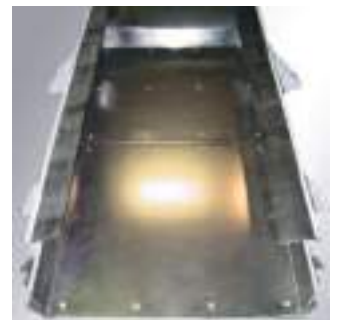
- Wear, using screwed-in wear inserts made of S235 JRC or even harder materials, e.g. XAR30, Hardox®, Dillidur®, Creusabro®, austenitic manganese steel (for extreme wear and temperature conditions) or welded on panels such as EIPA® or Vautid®.
- Caking or chemically aggressive materials, using screwed-in inserts made of rustproof nickel chromium steels or synthetic materials, e.g. RCH1000®, Kalen® or Teflon® or glued-in inserts made of rubber.
- In certain cases, coating systems may also be used.



Plastic lining



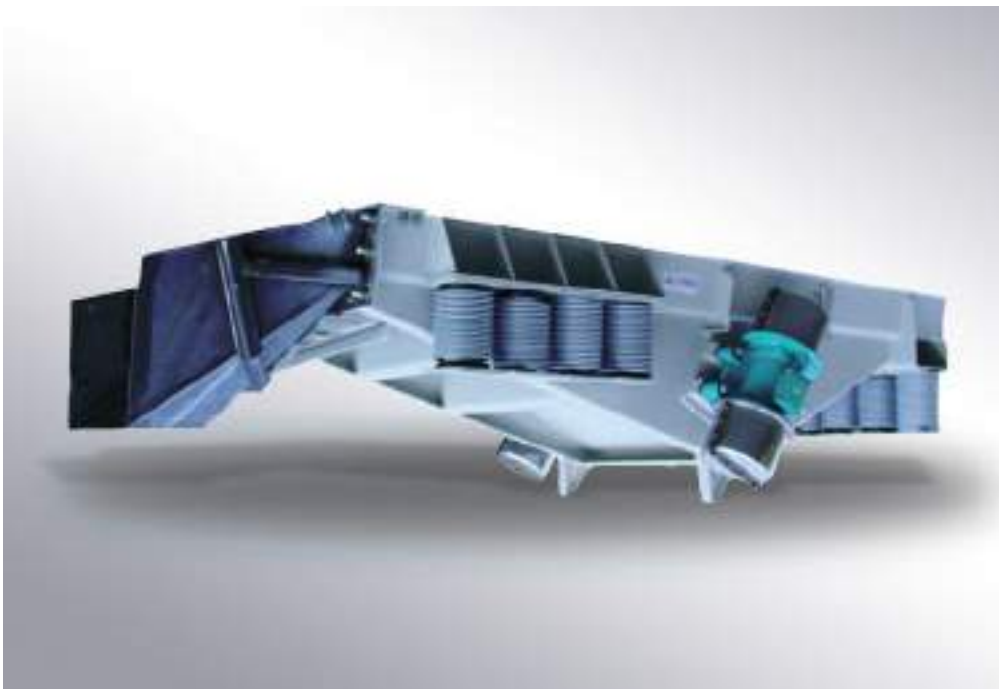
Wear-resistant trough made of Hardox®



Wear-resistant lining made of V2A®



Wear-resistant lining made of manganese steel



Outlet nose made of Novotherm®



Drives and control devices Models



Magnetic vibrators

offer infinitely variable adjustment of the feed rate during operation, full capacity as soon as the system is switched on and within fractions of a second after switching it off the material flow is stopped. Other features include a high number of operating cycles and nearly unlimited service life. Moreover, the magnet system is protected from overheating and its design makes adaptation and initial operation easy.



Thrust crank drives

have proven their worth, particularly connecting rod designs used over long conveyor segments. This drive technology is easy to maintain and is known for its simplicity. An eccentric transforms the circular motion generated by the electric motor into linear motion. Further advantages of this type of drive include low noise operation and small unit heights.



Unbalanced motors

are used especially for discharge applications, conveying over long distances, sieve and dewatering applications. With a working torque up to 2,800 kgcm and centrifugal forces up to 119 kN, unbalanced motors can move up to 5,000 kg of dead weight. AVITEQ unbalanced motors are known for their high performance, reliability and cost-effectiveness in operation. Our motors feature a durable, robust design. In general, unbalanced motors are used in pairs to generate linear vibration.



Unbalanced exciters

provide a cost-effective method for driving vibrating conveyors and sieves with a loading weight of > 4,000 kg. Individual drives with an excitement force up to 424 kN and a working torque of nearly 15,000 kgcm are available. For extremely heavy vibrating conveyors and sieves, several unbalanced exciters can be arranged in parallel. A stationary electric motor drives the unbalanced exciter by means of a cardan shaft. These drives are known particularly for their long service life, quiet running and wide adjustment range.



ATEX

- A large numbers of magnetic vibrators and unbalanced motors are certified according to ATEX
- The design-proved authorization occurred by an independent external authority
- Depending on the performance of the magnetic vibrator it is collision protected by an amplitude regulator (even if the bulk material tends to cake) and insensitive to bulk material load



Housing design



SAE controller



Braking unit



Speed controller



SCE and SDE controller



Brake unit and throttle



Frequency converter

VIBTRONIC®-controllers

are designed to supply AC voltage to control magnetic vibrators. They operate according to the principle of voltage control (phase-fired control). For all standard voltages in the 50 and 60 Hz main supply, AVITEQ has a suitable controller available in either a built-in or housing design. The controllers have voltage compensation for fluctuations in the main supply and some models have a limited control that protects the magnetic vibrator from impact. The setpoint specification can be set using a potentiometer or an external setpoint (0-10 VDC or 0/4-20 mA). Information regarding operational status can be read from the integrated status relay and LEDs. Depending on the model, a vibrator current up to 100 A is possible. Accessories can be used to expand the controllers for use with applications with multiple drives or a vibrating conveyor with reversing operation.

VIBTRONIC®-U-braking systems

are used in operation with unbalanced motors, particularly for decelerating the unbalanced motors after switching off the drives. AVITEQ has the right braking system for every application: controlled or uncontrolled, with or without PTC resistor protection and available in either a built-in or housing design. Our solutions are customized for the respective application or problem. VIBTRONIC®-U-braking systems are also available with transverse vibration monitoring.

VIBTRONIC®-U-speed controllers

are used for the stepless variable adjustment of drives (unbalanced motors and directional exciters) for vibrating conveyors. This makes it possible to regulate capacity in a range between 30 and 100 % of required feed rate. In addition, specialized tasks can be carried out, e.g. consolidating bulk materials or removing contamination. VIBTRONIC®-U-speed controllers are specially designed for AVITEQ unbalanced motors and do not display high sensitivity to full-load flow .

Performance data

Drives and controllers



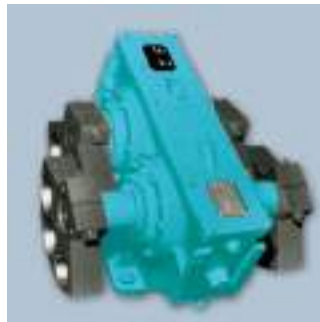
Magnetic vibrator



Unbalanced motor



Housing design



Unbalanced exciter



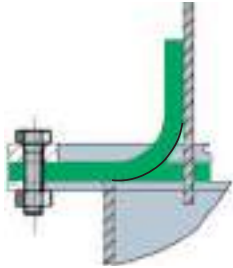
SCE and SDE controllers

	Magnetic vibrator	Unbalanced motor	Unbalanced exciter	VIBTRONIC®-S controller	VIBTRONIC®-U braking system	VIBTRONIC®-U speed controller
Centrifugal force	—	40 to 119 kN	28 to 424 kN	—	—	—
Synchronous rotational speed / frequency	50 Hz mains: 25, 33, 50, 100 Hz, 60 Hz mains: 30, 40, 60, 120 Hz	50 Hz mains: 750, 1000, 1500, 3000 min ⁻¹ , 60 Hz mains: 900, 1200, 1800, 3600 min ⁻¹	750 to 1500 min ⁻¹	50 Hz mains: 25, 33, 50, 100 Hz, 60 Hz mains: 30, 40, 60, 120 Hz	50 Hz mains: 750, 1000, 1500, 3000 min ⁻¹ , 60 Hz mains: 900, 1200, 1800, 3600 min ⁻¹	Variable, for nominal rotational speeds 750, 1000, 1500, 3000, 900, 1200, 1800, 3600 min ⁻¹
Mains supply	AC, 50 or 60 Hz	Three-phase current, 50 or 60 Hz	Three-phase current, 50 or 60 Hz	AC, 50 or 60 Hz	Three-phase current, 50 or 60 Hz	Three-phase current, 50 or 60 Hz
Power consumption	120 to 700 W	0.02 to 10.5 kW (acceptance)	1.8 to 90.0 kW (acceptance)	—	—	—
Voltage	50 Hz mains: 230, 400, 500 V 60 Hz mains: 220, 440, 460, 480 V*	50 Hz mains: 230, 400, 500 V 60 Hz mains: 220, 380, 440, 460, 480 V*	50 Hz mains: 230, 400, 500 V 60 Hz mains: 220, 380, 440, 460, 480 V*	50 Hz mains: 230, 400, 500 V 60 Hz mains: 220, 380, 440, 460, 480 V*	50 Hz mains: 230, 400, 500 V 60 Hz mains: 220, 380, 440, 460, 480 V*	50 Hz mains: 230, 400, 500 V 60 Hz mains: 220, 380, 440, 460, 480 V*
Ambient temperature	From -25 to +40 °C*	From -25 to +40 °C*	From -25 to +50 °C*	—	—	—
Protection class	IP55 (DIN EN 60529)	IP66 (DIN EN 60529) tropicalized insulation, ATEX zones 21 and 22	IP66 (DIN EN 60529)	IP00, IP20, IP55 (DIN EN 60529) depending on design	IP00, IP20, IP55 (DIN EN 60529) depending on design	IP00, IP20, IP55 (DIN EN 60529) depending on design
Optional	Tropicalized insulation, Explosion protection, CSA design	Explosion protection for ATEX zones 1 and 2	Explosion protection based on ATEX, CSA design applies only for stationary motor	Special designs, e.g. for use for use with multiple drive	Special functions by request	Special functions by request
Working stroke	0 to 4 mm	0 to 20 mm	1 to 25 mm	—	—	—
Working weight	From 2 to approx 1,800 kg	1 to approx. 5,000 kg	900 to approx. 20,000 kg	—	—	—
Required accessories	Controller	—	Cardan shaft, drive motor	—	—	—
Optional accessories	Collision protection phase monitoring	Braking unit, speed, controller, device, phase monitoring	Braking device, speed controlling	Control and rectifier unit	Current monitoring	Current monitoring

*Other specifications available on request

Sealing systems

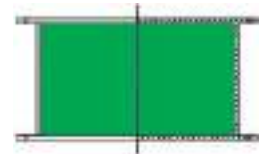
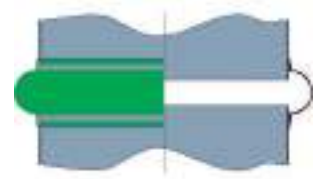
Design models

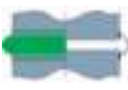






Sealing elements

are used to close off the transition area between stationary components and the vibrating device tight to protect it from dust.

The following standard sealing elements are used with AViTEQ vibrating conveyor systems.



Seal type	Description	Temperature	Advantages	Notes
 Gasket	Closed gasket. Attachment with metal spanner	Depending on cloth material, -20 to +250 °C, up to +400 °C with special design	Simplest and most cost-effective type of sealing for round inlets and outlets	Materials used: Trellex®, neoprene and silicone
 Rubber lip-sealing	Rubber lip-sealing screwed together with steel bar	Depending on cloth material, -20 to +250 °C	Simplest and most cost-effective type of sealing for square inlets and outlets, only limited dust tight in welded sections	Rubber lip-sealing is made of soft rubber material
 Barred sealing	Rubber cloth is screwed together with two steel bars	Depending on cloth material, -20 to +250 °C	Dust-tight sealing design for square and round inlets and outlets	Material often used for sealing cloth: Trellex®
 Sealing with clamping segment	Sealing cloth is mounted with a sectional rubber	Depending on cloth material, -20 to +70 °C	Dust-tight sealing design for square and round inlets and outlets, quick assembly/disassembly	Material often used for sealing cloth: Trellex®
 Compensator	Compensator with hole diagram is screwed together with flanges	Depending on compensator material, -70 to +250 °C	Completely dust-tight sealing design for square and round inlets and outlets	Compression proof up to approx. 0.5 bar

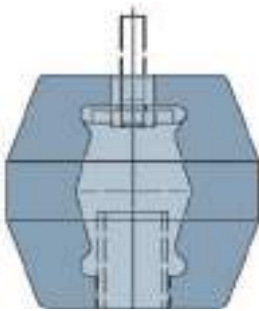
Vibration insulation

Support and suspension equipment

Support and suspension elements

Support or suspension equipment is used with a vibrating conveyor both to take on the entire load and to prevent the vibration from being transferred into the surrounding environment. Although very sturdy elements are required to pick up the load, damping the vibration requires a flexible spring system to transfer as little of the dynamic force to the

supporting structure, the bunker or the building structure as possible. The most important criterion is that the natural frequency of these components must differ from the working frequency of the vibrating conveyor. The following support or suspension equipment is used with AVITEQ vibrating conveyor systems.



Gearing protection



Compression spring



Rubber buffer

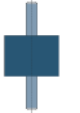










Vibrating conveyor with isolating frame



Compression spring support with gearing protection

Design models

Support type	Description	Vibration frequency	Temperature	Advantages	Notes
 Rubber buffer	Support with pressure loaded rubber buffer	50 to 60 Hz	-20 to +80 °C	Simplest type of support, holds feeder position well, even during switch on and off, little displacement	Holds feeder position precisely
 Rubber buffer with suspension	Suspension with pressure loaded rubber buffer	50 to 60 Hz	-20 to +80 °C	Simple suspension at bunkers or covers, conduit height adjustable	Feeder position not held precisely
 Hollow rubber buffer	Support with pressure loaded hollow rubber buffer	25 to 40 Hz	-20 to +80 °C	Simplest type of support, holds feeder position well, even during switch on and off	Holds feeder position precisely
 Hollow rubber buffer with suspension	Suspension with pressure loaded hollow rubber buffer	25 to 40 Hz	-20 to +80 °C	Simple suspension at bin or ceiling, feeder height adjustable	Feeder position not held precisely
 Tension springs	Suspension with tension loaded helical springs	12.5 to 60 Hz	-40 to +200 °C, up to +300 °C with special design	Flexible bearing, good vibration insulation, suitable for bulk materials at high temperatures	Feeder position not held precisely
 Compression springs	Support with pressure loaded helical springs	12.5 to 60 Hz	-40 to +200 °C, up to +300 °C with special design	Flexible bearing, good vibration insulation, suitable for bulk materials at high temperatures	Holds feeder position precisely, high load capacity
 Compression spring suspension	Support with pressure loaded helical springs	12.5 to 50 Hz	-40 to +200 °C, up to +300 °C with special design	Simple suspension at bin or ceiling, feeder height adjustable	Holds feeder position precisely, high load capacity
 Rubber jointed springs	Support with vibration element	12.5 to 25 Hz	-40 to +80 °C	High self-damping, no wobbling as with coil springs. No torsion in feeding direction, great working stroke possible	Holds feeder position precisely
 Pneumatic elements	Support with pneumatic spring element	12.5 to 60 Hz	-20 to +80 °C	Exact height adjustment by modifying air pressure. Effective noise reduction, great working stroke possible, very good vibration insulation	Holds feeder position precisely, low air pressure required

Other AVITEQ brochures:



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