

Vibrating Conveyors

For Bulk Material Flow, Batch Loading and Unit Handling



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Carman Vibrating Conveyors

The World's Most Versatile Bulk Solids Handling Equipment



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Versatile Movement

Carman Vibrating Conveyors can solve your most difficult material handling problems. The versatility of our vibrating conveyors means your bulk materials can be moved at the speed you want, in the volume you need. You'll get efficient flow rates, low power use and minimum maintenance demands. Carman Vibrating Conveyors are moving foods, chemicals, mined materials, wood products, tobacco, foundry materials, metals...virtually any bulk material you can think of.

Versatile Processing

The reason vibrating conveyors have proven to be highly effective in so many industries is the number of processes which can be accomplished along with the movement. The vibrating motion continuously pitches and catches the product forward. The dynamics of the motion and configuration of the conveyor allow dozens of processes to be accomplished along the way. The chart to the right shows processes being efficiently performed with Carman Vibrating Conveyors.

Applications

<ul style="list-style-type: none"> • screening • separating • sorting • classifying • distributing • flow splitting • sizing 	<ul style="list-style-type: none"> • feeding • orienting
	<ul style="list-style-type: none"> • bag flattening
<ul style="list-style-type: none"> • inspection • picking • metal removing 	<ul style="list-style-type: none"> • heating • cooking • drying • dewatering
<ul style="list-style-type: none"> • cooling • freezing 	<ul style="list-style-type: none"> • cleaning • washing • leaching • quenching • coating • dedusting
<ul style="list-style-type: none"> • blending • mixing 	

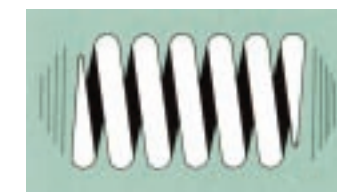
Versatile Handling Ability

Carman Vibrating Conveyors will work in hostile environments (inside and outside) and with all types of hard-to-handle materials.

- High Temperature – Carman conveyors handle high temperature materials to 2000°F (1094°C), and work in environments to 400°F (205°C).
- Severe Impact – Carman's heavy duty designs will absorb severe impacts routinely.
- Corrosive Materials – Corrosion resistant conveying troughs are available to provide years of trouble-free service.
- Abrasive Materials – Abrasive material applications are ideally suited for Carman Vibrating Conveyors.
- Dust Tight – Carman Vibrating Conveyors can be designed as dust-tight enclosures to convey and process simultaneously.
- Food Grade – Stainless steel designs with polished internal welds and easily cleanable external surfaces.

Natural Frequency

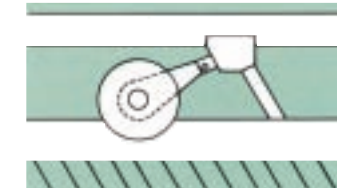
Carman Vibrating Conveyors use natural frequency principles to move material smoothly and efficiently. Carman combines a custom engineered spring system tuned to the weight of the conveying trough to make the total elastic system resonate at a desired frequency. By operating the conveyor at or near natural frequency, 90% of the required driving force is obtained from the spring system, reducing drive horsepower requirements and distributing forces along the entire conveyor length.



Natural frequency supplies 90% of driving force.

Positive Arm Drive

Carman Vibrating Conveyors use a positive, crank arm drive to transmit energy to the spring system at its resonant frequency. The positive arm drive compensates to maintain proper trough stroke in spite of load surges. The continuous positive force to the conveyor assures long life, low maintenance and smooth, even movement of your product.



Carman's positive arm drive compensates for load surges and other out-of-phase forces.

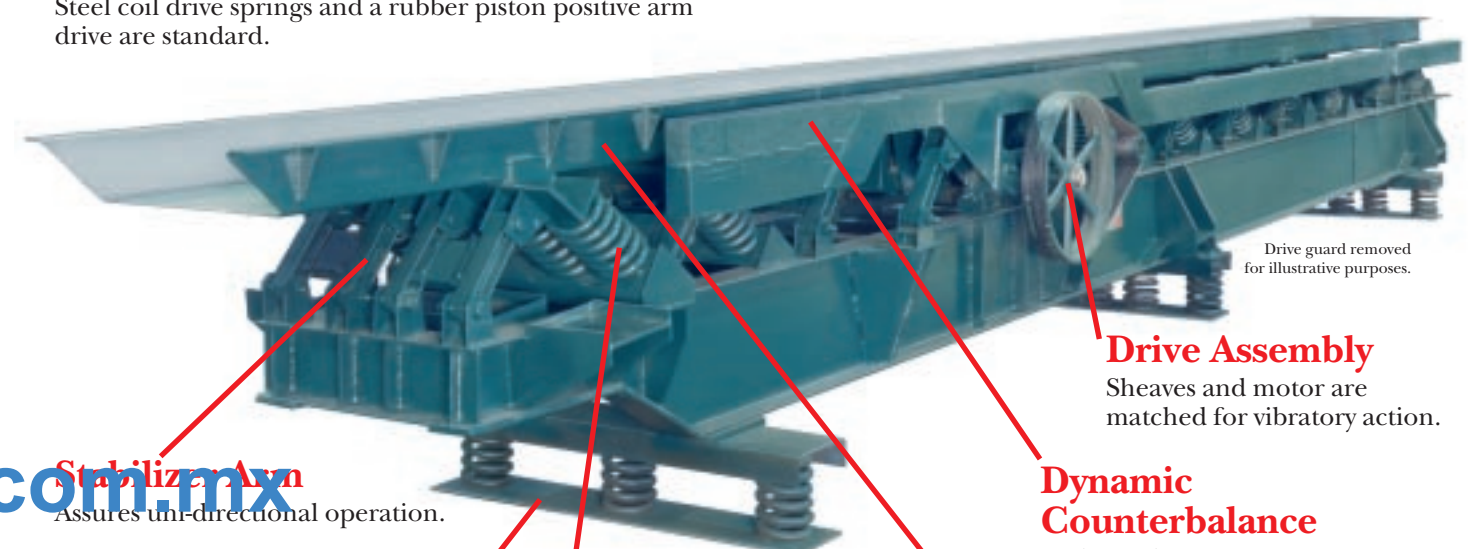
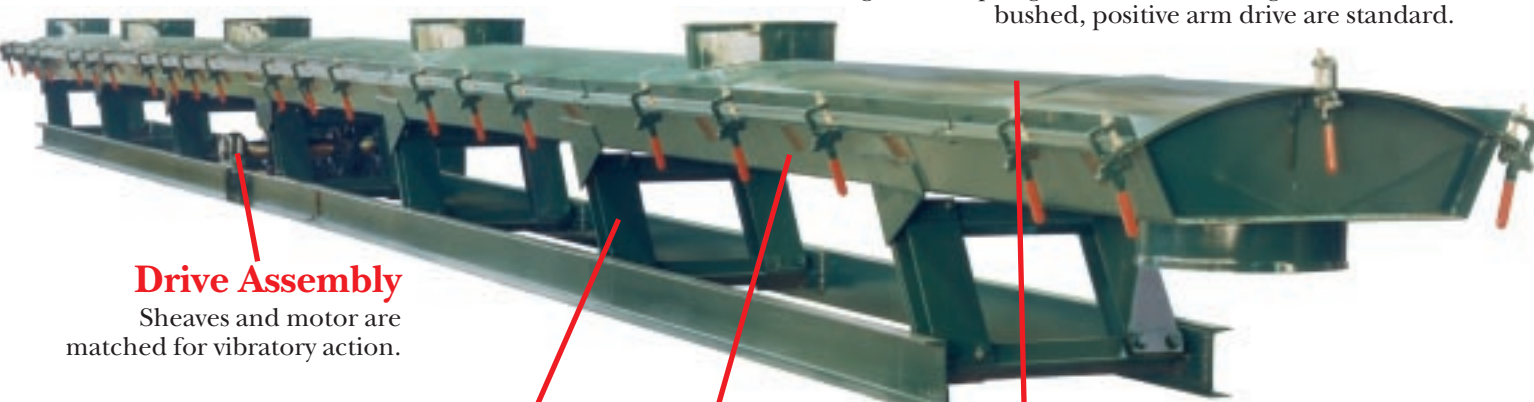
Standard Duty and Heavy Duty Designs

Standard Duty

Carman Standard Duty Vibrating Conveyors handle light and medium density materials at capacities to 40 TPH and conveying speeds up to 60 FPM. Extruded one-piece fiberglass leaf springs of infinite-life design and a torsion bushed, positive arm drive are standard.

Heavy Duty

Carman Heavy Duty Vibrating Conveyors will meet the most rugged demands of industry. Capacities exceeding 500 TPH with 90 FPM conveying speeds are possible. Steel coil drive springs and a rubber piston positive arm drive are standard.



Drive Assembly
Sheaves and motor are matched for vibratory action.

Infinite Life Leaf Springs
Assures uni-directional operation while driving conveyor at natural frequency.

Trough
Fabricated in unlimited configurations to match application requirements.

Dust-Tight Cover

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Stabilize Arm
Assures uni-directional operation.

Isolation System
Simplifies installation and reduces dynamic reaction transmission to supporting structure.

Steel Coil Springs
Heavy duty steel springs drive conveyor at natural frequency.

Drive Assembly
Sheaves and motor are matched for vibratory action.

Dynamic Counterbalance
Reduces dynamic force transmissions to support structure.

Trough
Fabricated in unlimited configurations to match application requirements.

Torsion Bushed Positive Arm Drive

One-piece machined eccentric shaft with double-roll heavy-duty bearings. Torsion bushings compensate for load surges and other out-of-phase forces.



Options

- Dust-tight covers
- Side discharge gates
- Bottom discharge gates
- Special liners
- Divided troughs
- Quench pools
- Screens
- Perforated plates
- Grizzly decks
- Metal detectors
- High temperature designs
- Non-stick coatings
- Food grade designs
- Heaters
- Dryers
- Coolers
- Central lubrication system

Ask for Engineering Bulletin 2011 for more information.



Rubber Piston Positive Arm Drive

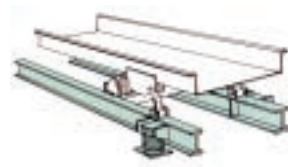
One-piece machined eccentric shaft with double-row heavy-duty bearings. Rubber pistons compensate for load surges and other out-of-phase forces.

Remove Transmitted Vibrations

All Vibrating Conveyors generate dynamic reaction forces which will be transmitted into your support structure unless compensated for in conveyor design. Carman offers several types of counterbalancing techniques to reduce these transmitted forces.

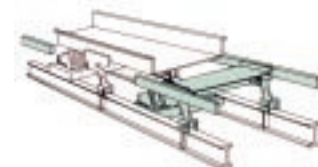
Reactive Counterbalance

The single mass reactive counterbalance shown at right requires very little additional horsepower to operate. It is positively driven and includes isolation springs. This economical design reduces transmitted forces by 85 to 95%.



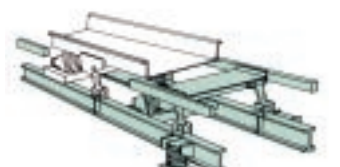
Dynamic Counterbalance

The dynamic counterbalance design shown at right consists of a separate spring-mass system identical to the conveyor trough. It is positively driven 180° out-of-phase with the trough and effectively cancels 90% of the trough's dynamic forces.



Dynamic Counterbalance With Isolation

This design includes a dynamically counterbalanced conveyor mounted on isolation springs. Transmitted reaction forces are reduced by 98%.



Carman Vibrating Conveyors On-The-Job In These Industries



Foundry Industry

Poured molds are transferred to a rotary sand/casting separator by this 4' wide by 75' long conveyor. Circular discharge eliminates sand spillage and prevents casting blockage.



Foundry Industry

This 3' by 20' accumulating conveyor, the first of three in the cooling system, transfers and cools castings at a controlled rate from a shakeout to the cleaning area of a major southern foundry. Heavy duty features include natural frequency design, cooling system, high temperature pan construction and piston drive.

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Chemical Industry

Batch quality is assured by this dynamically counterbalanced 2' wide by 22' long standard duty conveyor which positively transfers pre-weighed raw materials to either of two mixers using a pneumatically operated dual discharge gate. Easily cleanable dust-tight construction includes clamped covers, polished stainless steel product contact surfaces and flexible inlet and outlet connectors.



Chemical Industry

Senotex-lined 2' wide by 55' long heavy duty conveyor is one of two transferring wet, abrasive product from a centrifuge to a fluid-bed dryer without pan wear or product buildup. Lining provides side abrasion and corrosion resistant wearing surface.



Forest Products Industry

A movable splitter distributes wood chips in adjustable proportions to either of two chip screeners at a 150 TPH capacity. Accurate distribution is assured by inclined leveling section and chip quality is improved by the use of a magnetic separator mounted over a stainless steel trough section. This 4' wide by 70' long conveyor includes dynamic counter-balancing and isolation to simplify installation and minimize dynamic force transmission to its supporting structure. Ask for Application History Case #1072 for more information.

Food Industry

A mid-western bakery transfers bread crumbs to a fluid-bed dryer using this 2' wide by 12' long food grade conveyor. Design features include polished stainless steel product contact surfaces, FDA paint, totally enclosed drive system, rubber isolators and easily cleanable construction.



Rubber Industry

This 30" wide by 36' long water-cooled heavy-duty conveyor efficiently transfers hot, sticky O-ring, oil seal and gasket preps. Polished stainless steel conveying pan minimizes sticking. Gas-tight covers and flexible connectors maintain a dry atmosphere which eliminates condensation.

Food Industry

Cocoa beans are conveyed through a roasting oven at varying rates by this 4' wide by 20' long high temperature conveyor. Heavy duty natural frequency design includes piston drive and frequency inverter for retention control.



Other Carman Vibratory Equipment

Carman manufactures the most complete line of vibratory material processing equipment in the industry. For more information, call and ask for the bulletin listed under the product you're interested in.

Adjust-A-Flow Vibrating Feeder



Feed, Meter, Scalp, Charge or Distribute.

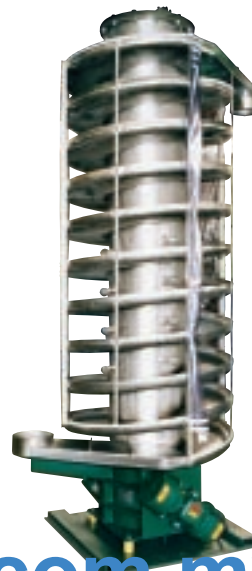
- Rugged design well suited for impact loading and handling sticky materials.
- Non-resonant drive.
- Designed and constructed to suit application.
- Isolation system reduces force transmissions.
- Variable capacity control.

Ask for Bulletin No. 610



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Vibrating Spiral Elevator



Heat, Cool, Dry, Cure, Dewater, or Quench While Elevating.

- Long retention with minimal floorspace requirements.
- Direct or indirect processing capability.
- Integral isolation system minimizes force transmission.
- Non-resonant drive with long-life vibrating service motors.
- Process Guarantee.

Ask for Bulletin No. 910



Vibrating Bin Discharger



Eliminate Bridging, Ratholing and Segregation. Maximize Hopper Volume.

- Custom applied hanger arms and internal pressure cone.
- Double clamps eliminate leakage of fine product.
- Long-life vibrating service motor.
- Guaranteed performance.

Ask for Bulletin No. 365



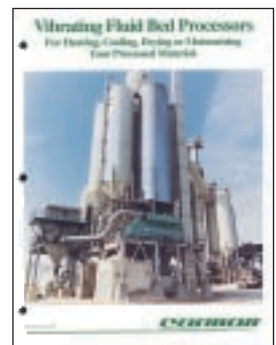
Vibrating Fluid Bed Processor



Heat, Cool, Dry, Classify, Moisturize, Toast, De-Dust, Crystallize or Freeze.

- Controlled process air and vibration combine for efficient fluidization.
- Intensive intermixing for direct heat and/or moisture transfer.
- Process flexibility.
- High thermal efficiencies.
- Process Guarantee.

Ask for Bulletin No. 1200



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