

# Vibrating Spiral Elevators

Process While Elevating



# Unique Capabilities To Simplify Your Process

## Multiple Processes

A Carman Spiral Elevator is the perfect way to accomplish multiple processes while elevating your product. Unique features and capabilities include:

- Elevating with gentle vibratory motion.
- Air circulation for convection heating or cooling.
- Jacketed flights for contact heating or cooling.
- Embossed flights for dewatering.
- Quenching with feed tray bath or water sprays.
- Extended product retention for curing.
- Shrouds for atmosphere control.

## Long Retention with Minimal Floorspace

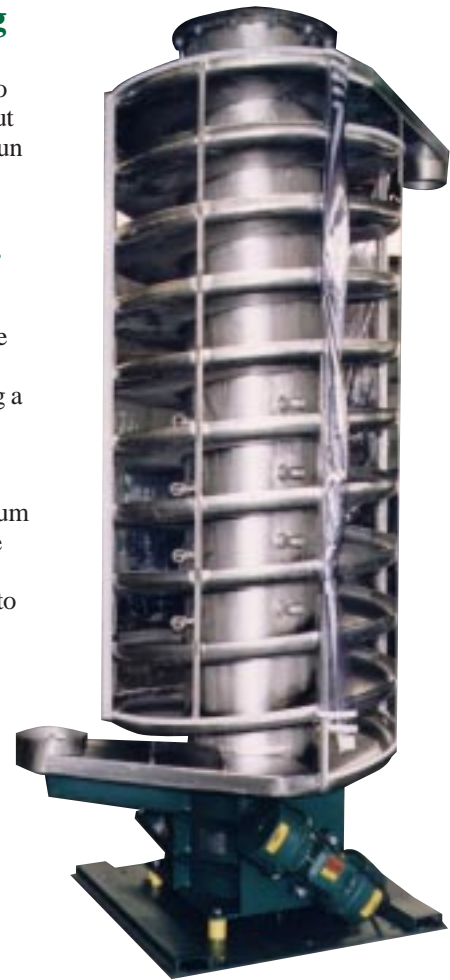
Carman's Spiral Elevator design offers a space-saving footprint with a vertical height capability of up to 35', and closely pitched trough flighting. Extremely long retention time is possible with minimal floor space.

## Gentle, Sanitary Handling

The Carman Spiral Elevator uses smooth, harmonic, vibratory motion to gently toss the product forward without degradation. In addition, Carman's spun metal flight design offers easy cleanability.

## Custom Matched To Your Application

Carman engineers thoroughly evaluate your product, desired throughput, and process requirements before designing a Carman Spiral Elevator to suit your specific needs. Standard flight widths range from 5" to 36" (20" to 120" overall outside diameter) with maximum lift of 35'. Vibratory drive systems are selected based on physical material characteristics and can be engineered to convey virtually any product.



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## Solutions With Proven Performance...Guaranteed



### Tested With Your Product

Using laboratory test equipment, Carman engineers can evaluate process requirements, demonstrate equipment capability, and develop specifications for production equipment. If preferred, rental equipment for plant site testing is available.

### Process Warranty...Your Assurance of Performance

If laboratory tested, Carman Spiral Elevators include a Process Warranty. By optimizing operating efficiencies, Carman engineers are able to suggest the most economical equipment for your process.

# The Carman Vibrating Spiral Elevator

## Flight Designs



**Standard**  
Standard flights are 1/8" thick steel alloy spun into an easy-to-clean helical shape, with sidewalls and radiused corners included.



**Air Sweep**  
Air from the pressurized center tube is directed through nozzle jets across the product for heating or cooling. The air handling package can be located at the top or bottom of the spiral tower.



**Direct Contact Heat Transfer**  
Jacketed flighting is available for conduction heating or cooling applications. Supply and discharge headers, and high pressure hose connectors are available with control valves for zoned operation.

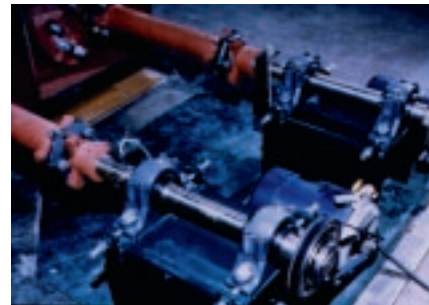


**Custom Flight Design**  
Custom flight designs are available for special applications. The pipe flight configuration shown above is used when an inert atmosphere and conduction heating or cooling are beneficial.

## Drive Systems



Twin rotating eccentric weight assemblies.



Synchronized drive shafts with flexible couplings.



### Standard Duty Twin Motor Drive

This drive system is designed for use on Spiral Elevators requiring smaller drive forces. It includes two totally enclosed, watertight, vibratory motors complete with adjustable eccentric weight assemblies for stroke adjustment. Motors inertially synchronize. Variable frequency drives are available for on-line conveying speed and residence adjustment.

### Heavy Duty Force Vector Drive

Shown here with guards removed, this drive is used on Spiral Elevators requiring large drive forces. It includes twin rotating eccentric weight assemblies synchronized for reliable, low maintenance operation. Each assembly includes off-the-shelf, totally enclosed motors with gear belt speed reduction, interconnecting drive shafts with flexible couplings, high-strength alloy vibrating shafts, adjustable rotating eccentric weight assemblies and heavy duty, grease lubricated, spherical roller bearings. Stroke and attack angle are manually adjustable. Variable frequency drives are available for on-line retention control.



## Isolation Support System



Top-Mounted Isolation Springs



Pedestal Base

Stable isolation support system includes an internal support tube with pedestal base and top-mounted steel coil or solid rubber isolators. This eliminates the need for external tie offs and reduces dynamic force transmission. The isolation assembly ships inside the Spiral Elevator to facilitate installation.

## Flight Enclosures



Enclosures are furnished for heat and dust containment or atmosphere control. Clear plastic and aluminum vibrating covers are shown above. Stationary enclosures are also available.

## Feed Tray

Oversized feed trays receive material without spillage. A drain is provided for applications where excess fluids are anticipated or for quench pool depth control.



Guards not shown for illustrative purposes only.

# On-The-Job In These Industries

## Metal Industry

Preheated 550° F brass chips are elevated 25' at 25,000 PPH to a melting furnace in a brass foundry's melt shop. Vibrating aluminum enclosure minimizes heat loss, reducing furnace energy requirements.



## Polymer Parts

Spiral includes easily removable transparent covers. Portable construction includes integral center-tube isolation system and mounting base with fork-lift brackets. 12" rubber O-rings, oil seals, and gasket preps are quenched in a water spray, then dried and cooled while being elevated. 12 minute retention is accomplished in a 4' x 4' floor space.



## Food Industry

Toasted food products are transferred from the discharge of a fluid bed dryer/cooler to screening and storage. Gentle conveying action reduces degradation, and easily cleanable 304 stainless steel radiused product contact construction assures product purity. Center-tube mounted isolation system simplifies installation and reduces vibration transmission into building structure.



## Plastic Industry

Pellets are indirectly water cooled while being elevated on this 36" diameter Spiral Elevator. Self-cleaning operation and 304 stainless steel product contact surfaces assure product quality and eliminate batch-to-batch contamination. Portable support pedestal includes fork-lift brackets.



## Chemical Industry

Oxidation is minimized as hot product is cooled while being elevated 22' in an inert gas filled pipe. Heat transferred to the pipe is removed with forced air circulation on spiral pipe exterior.



# 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 of interest.

## 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



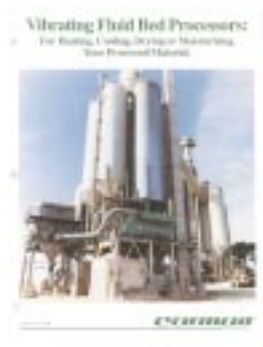
## Vibrating Fluid Bed Processor



### 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



## Vibrating Conveyor



### Convey, Inspect, Orient, Pick, Screen, Clean, Cool, Dry, Feed, Fluidize, Freeze, Heat, Mix, Quench, Size or Sort.

- "Natural frequency" spring system.
- "Positive arm" drive.
- Standard-duty, fiberglass leaf spring or heavy-duty coil spring designs available.

Ask for Bulletin No. 700



## 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



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