



# LOADING

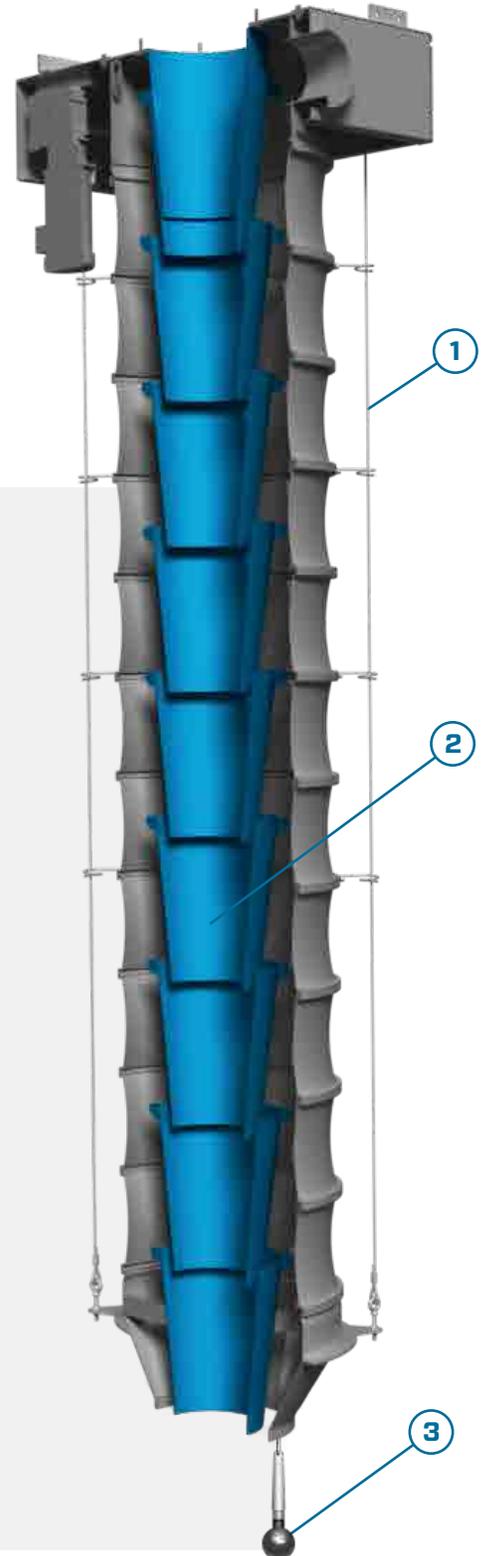
SOLUTIONS

*Dust Free  
Loading Spouts  
& Equipment*

# Loading Spout



**Vortex Loading Spouts** enable the fast and dust-free loading of many types of dry bulk solids such as powders, pellets, and granules. Standard volume loading spouts consist of internal material stacking cones that contain and direct the material flow using gravity and negative pressure. A flexible outer sleeve encompasses the stacking cones to capture any fugitive dust. High volume loading spouts feature a telescopic tube-in-tube design. In open loading applications, the discharge scavenger is also equipped with a neoprene rubber skirt system to further control dust emissions.



## 1 **4-Cable Lifting Design**

Unique to the industry, the proprietary 4-cable lifting design provides maximum stability and more lifting torque, compared to the standard 2- or 3-cable system used on standard loading spouts. This hoist drive system also incorporates a unique 3-piece pulley design and center mounted motor.

## 2 **Cone Material Options**

Several cone construction materials are available, depending on application requirements and the type of product being dispensed through the loading spout.

## 3 **Auto Raising Technology**

A mercury-filled, level-sensing probe enables you to automate and speed up your loading process for both open and closed vessels. This auto-raise feature eliminates the need for visual monitoring as the vessel fills up and avoids overfilling.

## + **Optional Control Pendants**

A handheld pendant (tethered or remote) equipped with control and emergency stop buttons is an option. The pendant allows for immediate control over every function of the spout.

## + **Optional Open Loading Skirt**

In open loading applications, the discharge scavenger is equipped with a neoprene rubber skirt system to further control dust emissions.

# Loading Spout

DETAILS



### 3-Piece CNC Machined Pulleys

The CNC machined pulleys feature chamfered edges and precision cable grooves to significantly reduce cable wear and backlashing as the loading spout extends and retracts, especially during the misalignment of the hatch opening. Because the cables do not fray, cable failure is eliminated and so is downtime for repairs. In fact, we are so confident of the increased lifespan of these lifting cables that we cover them with a **10-year warranty for wear and tear and workmanship, compared to the industry standard 1-year warranty.**



### Center Mount Motor

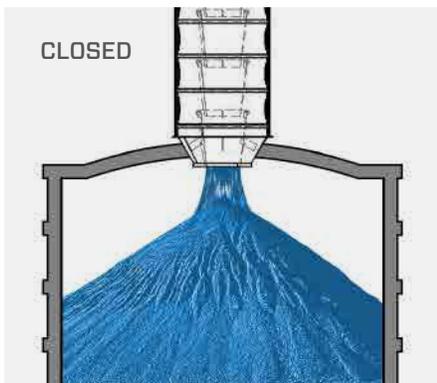
The drive unit is center mounted beneath the main support pan assembly for better protection from the elements and is easily accessible for service, as needed. It features a premium motor/reducer drive unit standard with an integral braking system, as well as, forged idler rollers with double sealed roller bearings. These are used in place of simple stamped rollers with bushings. Vortex offers a 1-year warranty on all motor and electronic components.

### Level Sensing Probe

Mounted on the outside of the skirt in open loading applications, the probe slowly tilts as the pile of material gets higher in the vessel or on the stockpile. Its “auto-raise” feature sends a signal to the loading spout motor to slowly retract the spout up. When the spout reaches a preset height, it signals the material feed gate or belt conveyor to cut off the material flow. This feature eliminates the need for visual monitoring and avoids overfilling.

For more information about our full line of dust free loading equipment please visit [WWW.VORTEXLOADING.COM](http://WWW.VORTEXLOADING.COM)

OPTIONS



### Types of Loading Spouts

Vortex Loading Spouts can be utilized in enclosed or open trucks, semi-tankers, railcars, and small stockpile situations. Both standard and high volume spouts are made to handle a wide range of application parameters.

# Filtration System

**Vortex Spout Filtration Systems** are engineered to capture the fugitive dust emitted from the spouts and deposit it back into the material flow during the loading process, eliminating material loss. These filter systems are more cost-effective than a free-standing dust collection system, which often requires the installation of additional ductwork, discharge air lock and some way to reintroduce the material back into the system.



## Compact In-line Filter

Vortex in-line filters feature a unique square-shaped design, reducing the overall height of the system. Equipped with a single high-volume exhaust blower that pulls the material dust, located within the outer sleeve of the loading spout, upward and into several pleated cartridge filters.

### 1 Filter Cartridges

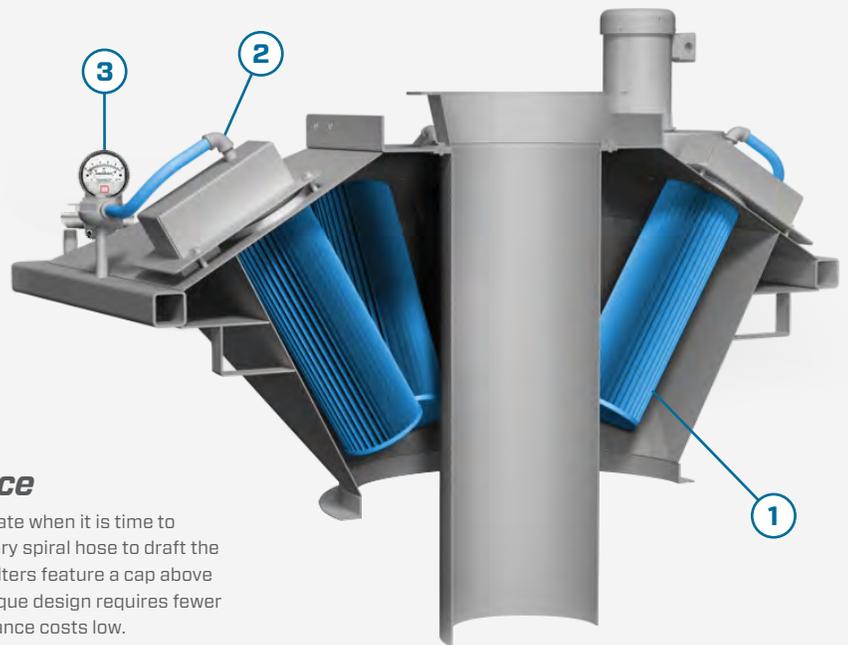
Vortex filter systems feature pleated polyester filter cartridges that are easily replaceable reducing downtime.

### 2 Pulse Jet System

An automatic pulse jet filter cleaning system uses high-pressure compressed air to purge the filters of accumulated material dust sending it back down the spout through the material flow stream and into the vessel.

### 3 Low Cost Filter Maintenance

Easily visible Magnehelic® pressure gauges indicate when it is time to change the filters. Instead of featuring a secondary spiral hose to draft the air out which can rot and crack, these cartridge filters feature a cap above them that draws the air directly through. This unique design requires fewer parts that can wear or fail, keeping your maintenance costs low.



## Multi-Stage In-line Filter

The optional multi-stage filter is located at the bottom of the spout and is utilized for additional dust control. It performs much like the compact in-line filter, except that it has 4 high-volume exhaust blowers. The unit pulls the material dust within the outer sleeve upward and into numerous pleated cartridge filters. This system can be used as a stand alone filter or in conjunction with the Compact In-line Filter.



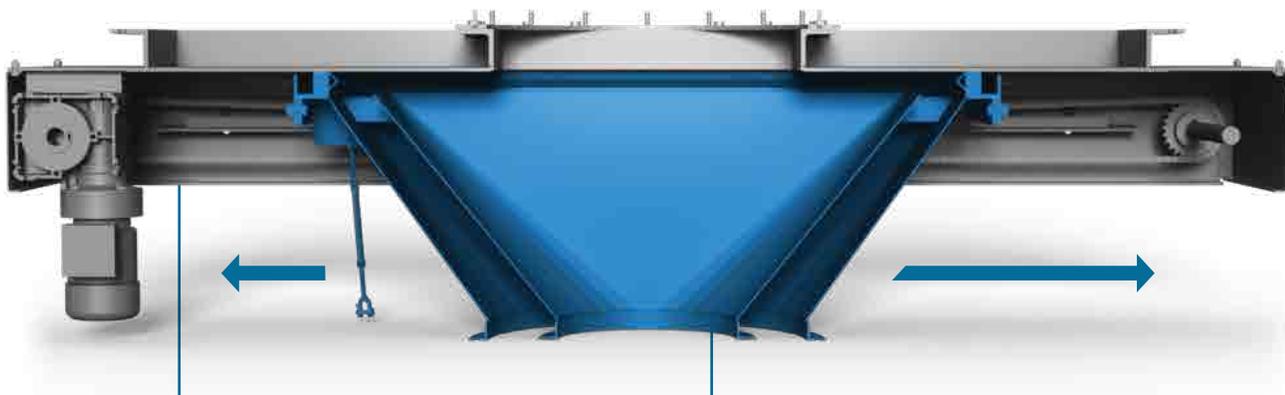
4 High Volume Blowers



Pleated Cartridge Filters

# Spout Positioner

**Vortex Loading Positioners** are used in conjunction with standard volume loading spouts to facilitate and speed up the loading of open or enclosed trucks and railcars at loadout stations. They allow for the fast and accurate single-axis or double-axis placement of the loading spout, which eliminates the need to reposition vehicles once they have entered the loading station. Loading spout positioners are made out of steel and can be designed and manufactured to meet your individual project specifications to handle almost any flow rate and travel distance.



## 1 Fixed Support Pan

The support pan stays stationary allowing the hopper to easily slide and find its destination

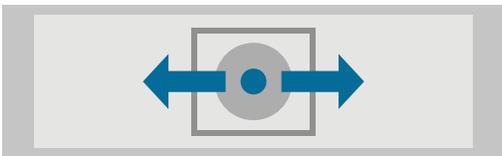
## 2 Traversing Hopper

The traversing hopper connects to the spout and allows for exact positioning in conjunction with the support pan

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### Single Direction Spout Positioner

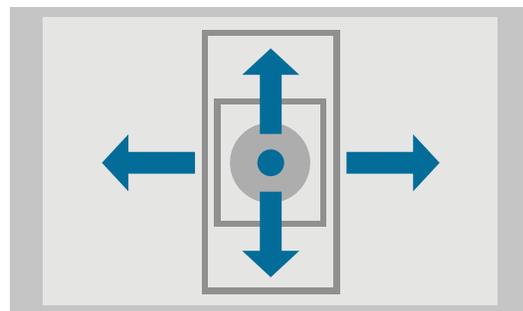
The single-axis loading spout positioner allows the operator to traverse the standard duty loading spout in X axis (front to back) over the vehicle.



For additional positioning options see our Articulating Arm Positioner on page 6.

### Dual Direction Spout Positioner

This option allows the operator to traverse the loading spout in X axis (front to back), as well as in Y axis (side to side).





# Slide Gates & Diverters

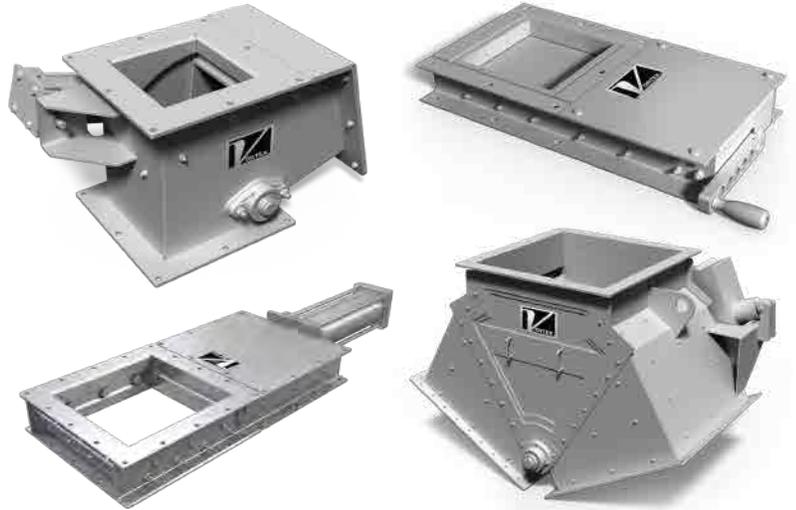
Most often, Vortex loading spout systems will be used in conjunction with slide gates and diverter valves that control the material flow during the loadout process. Used at the bottom of a silo or hopper to shut off material flow, slide gates are placed right above dust collecting filter systems, loading spouts and positioners.

**Titan Series slide gates & diverters**

are engineered for gravity flow material handling throughout a wide range of heavy-duty applications including frac sand, potash, coal, grain, limestone and much more.

**Quantum Series slide gates & diverters**

are designed to shut off, meter, and divert dry/bulk materials in a wide variety of medium-duty material handling applications.



View all of our Slide Gates & Diverters at [WWW.VORTEXVALVES.COM](http://WWW.VORTEXVALVES.COM)

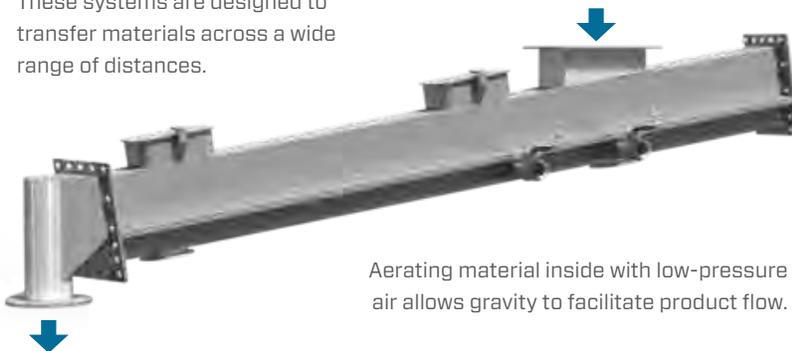
OVERVIEW & OPTIONS

# Aeration Systems

**Vortex Aeration Systems** are designed to convey dusty, powdery or flaky materials by using gravity on a downward slope. They can be installed on the inside bottom of a storage container or mounted to follow a specific path inside the plant. The Vortex line of aeration systems include aerated conveyor systems, aerated bin bottoms, and aerated trough systems. All aeration systems are custom designed and manufactured to your individual project specification, so they can handle any material and desired flow rate.

***Aerated Conveyors & Trough Systems***

These systems are designed to transfer materials across a wide range of distances.



Aerating material inside with low-pressure air allows gravity to facilitate product flow.

***Aerated Bin Bottoms***

Attached to the bottom of silos or hoppers allowing a larger area of material to be fluidized and flow with ease.



OVERVIEW & OPTIONS

# Accessories

## Articulating Arm Positioners

They allow for the fast and accurate single or dual-axis placement of the loading spout, which eliminates the need to reposition vehicles once they have entered the loading station.



## Service & Support



Vortex assembles, tests and packages every loading spout system before shipping it to your facility to expedite installation and start-up. We can also custom engineer any system to meet your most demanding loadout application requirements, including corrosive or hazardous materials, long distances, high temperatures, etc.

**Vortex offers a full range of services to make your installation, operation and maintenance needs as simple as possible:**

- On-site equipment installation and start-up supervision
- On-site equipment operation and maintenance training
- Technical phone support
- Dimensional drawings available upon request

For more information about our full line of dust free loading equipment please visit [WWW.VORTEXLOADING.COM](http://WWW.VORTEXLOADING.COM)



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## Vortex Product Lines >



### Quantum Series

Valves for Dry Bulk Processing & Conveying



### Quick Clean

Valves Engineered for Sanitary Applications



### Titan Series

Valves for Heavy Duty Material Handling



### Loading Solutions

Dust Free Loading Spouts & Equipment



### Engineered Solutions

Custom Valve Solutions Built for Application

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