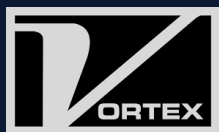


SYCSA®

Gravity Vee Diverter

Quantum
Series

Model No. VXX



PARTNER SYCSA®





Nuestras soluciones



No sólo te vendemos
un producto

SYCSA® te acompaña
en **todas las fases** de tu
proyecto.



DISEÑAMOS



INSTALAMOS



AUTOMATIZAMOS



**BRINDAMOS SERVICIO
POSTVENTA**

Model No. VXX

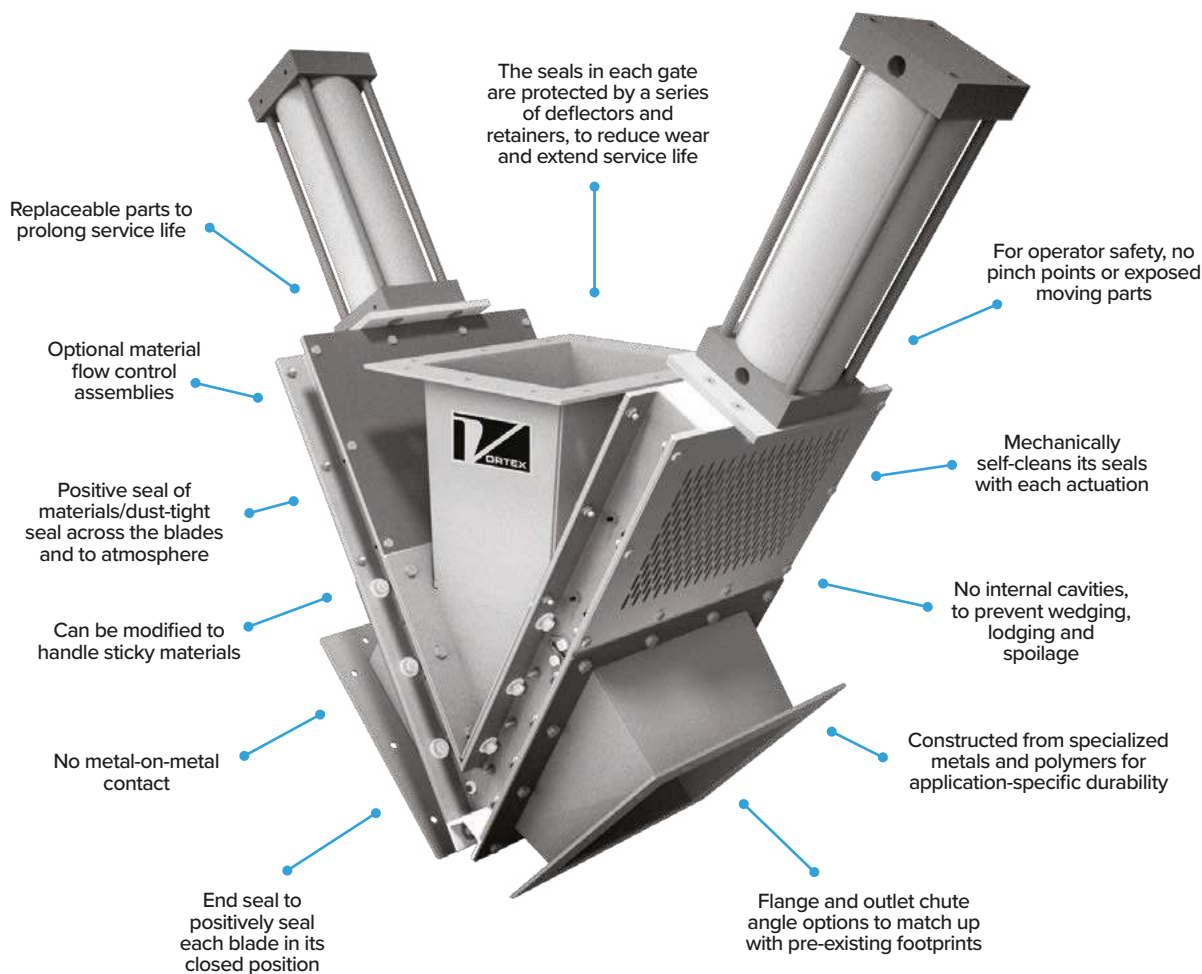
GRAVITY VEE DIVERTER

Ideal application: Replacement for conventional bucket diverters and flap diverters used to divert dry bulk solid materials from one source toward two destinations in gravity flow applications. The Vortex® Gravity Vee Diverter™ is ideal for use in high cycle applications.

Purpose: The Gravity Vee Diverter incorporates a “dual gate” design with independent controls. This allows material flow to be diverted through both outlet chutes simultaneously, each chute individually, or a complete material shut-off. For total control over flow rates, the Gravity Vee Diverter is also compatible with Vortex material flow control assemblies (see pages 65 & 66), in order to achieve proper batchweights, ensure accuracy and provide repeatability in the manufacturing process.



Round



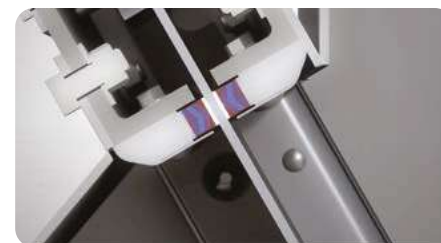
KEY FEATURES



Allows material flow through both outlet chutes simultaneously, each chute individually, or a complete material shut-off



Replaceable bonnet seals for in-line maintenance



Live loaded, wear compensating hard polymer bonnet and side seals

TECHNICAL SPECIFICATIONS

Conveyance Type	Gravity flow only. Contact us to discuss suitability for use in low pressure/vacuum applications.
Materials Handled	Non-abrasive to moderately abrasive powders, pellets and granules. Modifications available for handling sticky and/or corrosive materials & for wash-down.
Standard Sizes	6 – 24 in 150 – 610 mm Contact us for custom sizes
Inlet & Outlets	Available in square or rectangular sizes. Round transition options are available (see page 67)
Overall Height	25 – 60 in 660 – 1,525 mm
Weight	130 – 400 lb 60 – 180 kg
Outlet Chute Angle Options	45° or 60° from center Contact us for custom angles
Flange Options	Standard flange, ANSI #125/150, DIN PN10 Custom flanges are available
Material Temperatures	180°F 80°C for standard gate, with modifications that allow up to 400°F 205°C
Body/Frame Options	6061-T6 aluminum, 304 or 316L stainless steel
Material Contact Options	304 or 316L stainless steel, carbon steel
Bonnet & Side Seal Options	PET, 25% glass-filled PTFE
Load Seal Construction	Silicone rubber
Roller Options	PET, hardened steel 25% glass-filled PTFE, stainless steel and bronze available by request
End Seal Options	UHMW-PE, polyurethane, PET, 25% glass-filled PTFE
Drive/Actuation	Double-acting air cylinder, hand wheel, electric actuator (see pages 61 & 62)
Position Confirmation	Magnetic reed, proximity or mechanical limit switches, and/or clear bonnet covers for visual indication (see page 63)
Material Flow Controls	AVP, IVP, VPO, VPC (see pages 65 & 66)
Other Options	Dual cylinder actuators (see page 61) Sealed body air purge (see page 64)
Compliance	ATEX Zone 20 (internal), ATEX Zone 21 (external), FDA



THE POWER OF COMPARISON

Vortex Gravity Vee Diverter vs. Alternatives

- Flap diverters should not be shifted through a flowing column of material. Doing so can damage the blade and blade shaft. Instead, it is recommended to shut off material flow before shifting the flapper blade. To do so often requires an additional isolation gate above the diverter valve. The Vortex® Gravity Vee Diverter™ is a dual-purpose valve, used as both a diverter valve and as an isolation gate. Both gates can be open to divert through both outlet chutes simultaneously, one gate can be open to divert through one outlet chute independently, or both gates can be closed for a positive material shut-off. It is an ideal solution because it eliminates the need to purchase an additional gate above, and it improves processing speeds by shifting through a flowing column of material, rather than closing off the system to shift a bucket or flap diverter.
- To eliminate metal-on-metal contact, the Gravity Vee Diverter incorporates hard polymer bonnet seals and side seals. Hard polymer provides greater wear resistance and longer service life than alternative sealing materials. The hard polymer seals are "live loaded" with compressed rubber backing to ensure even as the polymer experiences frictional wear from many actuations over time, the rubber load seals continuously force the polymer seals against the blades. This design maintains the diverter's positive seal of materials/dust-tight seal with infrequent maintenance intervention.
- A problem inherent in alternative diverter designs is material packing along the bucket or flapper blade and its seals, resulting in actuation and sealing issues. To ensure positive material shut-off, the Gravity Vee Diverter's sliding blades are designed to mechanically clear materials away from the sealing surfaces with each actuation. With each closing stroke, the sliding blades mechanically self-clean their side seals. With each opening stroke, each gate's bonnet seals prevent the blade from carrying materials back into the bonnet area. Both of these design features ensure migrant materials are forced back out of the seals and are discharged into the process line, rather than packing in the seals and causing actuation issues.
- If materials and dusts begin to migrate and collect in either gate's bonnet area, it indicates that the gate's bonnet seals have partially worn and the compression load is lessened, causing the seals to no longer be forced against the sliding blade as they should be. With this maintenance indication, both gates feature access slots on each side of the gate that allow bonnet seal replacement while the diverter remains in-line. Using simple tools, new bonnet seals are driven into one access port as the worn bonnet seals are simultaneously ejected on the other side of the gate, through the opposite access port.
- When the gates are closed, if materials and dusts begin to leak past the sliding blades, it indicates that the gate's side seals have partially worn and the compression load is lessened, causing the blade to no longer be forced against the side seals as it should be. With this maintenance indication, the Gravity Vee Diverter's gates feature cam-adjustable rollers that can be utilized to restore the gate's dust-tight seal. Using simple tools, the cam rollers can be adjusted to lift the sliding blade against the side seals and restore the compression load. This maintenance process can be performed while the diverter remains in-line, and can be repeated several times before the side seals must be replaced.



CASE STUDY

Multi-Port Diverter Handling Flour

Client: Pasta producer

Application: Pneumatically convey/divert flour from a main supply line into 8 silos. Each silo feeds a separate production line. Each line produces a different pasta type.

Results:

The client previously used a manual hose switching station in this process. They were concerned about labor intensity, workplace safety, profitability, explosion potential, waste reduction and maintenance costs, among other things.

With the Vortex Multi-Port Diverter, the automated system ensures the different grades of flour are conveyed into their proper silo. The client has already saved dollars and labor hours, plus avoided potential processing errors and improved plant safety.



CASE STUDY

Gates & Diverters Handling Plastics

Client: Manufacturer of styrofoam cups, plates & bowls

Application:

- Reintroduce plastic scrap/regrind into the extrusion process.
- Convey resins/compounds into the extrusion process.
- Converge resins from various holding bins into a common convey line.

Valves:

- 7 Roller Gates
- 31 Wye Line Diverters
- 32 Orifice Gates

Results:

This client operates 5 shifts, 24 hours per day — and all but two days each year.

With the addition of Vortex gates and diverters, this client has a solution for automated material transport — and has reduced their manufacturing waste to less than 1%.



CASE STUDY

Seal Tite Diverter Handling Pet Food

Quantity: 4

Special Features: Spin knobs, for easy in-line access without using tools.

Application: Divert kibble into two disc conveyors, to be transported to a packaging line.



CASE STUDY

Iris Valve Handling Powdered Drink Mix

Quantity: 2

Application: Avoid contamination when handling food & beverage materials.

Special Features: A Teflon-coated body was specified because Teflon does not chemically react or corrode from material contact, which would otherwise compromise taste and create contamination. Teflon also assures food purity because it does not absorb preservatives. Because Teflon is non-stick, it also provides ease of maintenance.



TECHNICAL ARTICLE

How to Select a Valve for Solids & Bulk — Handling

Valve suppliers should have the application engineering knowledge and experience to know what valves and modifications should be applied for certain application parameters. Make sure your supplier is asking the right questions.

Many people think that selecting a slide gate or diverter valve for handling dry bulk solid materials is a relatively simple process. They typically assume the only information needed is:

- Opening shape & size
- Available stack-up height
- Matching connections or bolt hole patterns

But in reality, valve suppliers need much more information to be able to identify the right valve for the application. The more information a valve supplier has about the application parameters, costly mistakes are avoided. Misinformation can put you on either end of the spectrum — whether it be using an expensive valve for a simple application, or an inexpensive valve that is poorly designed for the application.

1. Valve Selection

The most critical questions are:

- What is the valve intended to do?
- Is a slide gate, diverter valve, iris valve or butterfly valve needed to best fulfill the application?

Follow-up questions include:

- What is the valve's opening size? Is the opening square, round or rectangular?
- What is the shape and size of the conveying line? Are the lines tube or pipe? If the lines are pipe, is it schedule 10 or 40?
- Will the valve be used in a pressure, vacuum or gravity flow application? If pressure or vacuum, how much? If pressure, will the system convey material in dilute or dense phase?
- Will the valve be installed indoors or outside?
- What is the temperature of the air and materials being conveyed?

- What should the valve be constructed from (aluminum, stainless steel, carbon steel, etc.)?
- Will the valve be subject to wash-downs? If so, will it be washed with hot water or a caustic liquid?
- If the valve is installed below a bin or silo — Will there be flow aides (aeration, vibration, etc.)? What is the sequence of operations for the system (e.g. When are the flow aides activated, in relation to the cycle of the gate valve)? How is material conveyed into the bin or silo?

Then, you must consider material characteristics:

- What is the material?
- Is it in powder, pellet or granular form?
- What is its particle size?
- What is its weight per cubic foot?
- Is it sticky? Abrasive? Corrosive?
- Is there sanitary or spoilage concerns?
- If multiple materials will pass through a common conveying line, is there cross-contamination concerns?

2. Actuator Selection

The most critical questions are:

- What is your power availability? Is compressed air available?
- What is the cycle frequency?
- Will the valve close on material? If yes, will the material be a standing or flowing column?
- Does actuation speed matter?
- If only intended for maintenance purposes, can I use manual actuation?
- If installed outside, will the valve be subject to cold temperatures?
- What are the cost variables for replacement and repair?
- Will the valve operate in a potentially explosive environment?

3. Standard Modifications

Your valve supplier should offer standard modifications to suit your application/material-specific requirements.

When selecting valve modifications, some application-specific factors that should be considered are:

- Is the application high-cycle?
- Is the material handled abrasive duty? Corrosive? Friable? Food-specific?
- Is chemical compatibility a concern?
- How often will the valve be serviced? Are in-line maintenance features desired?

4. Valve Location & Orientation

The most critical questions are:

- Where will the valve be installed (e.g. below a bin/silo, etc.)?
- Will it be installed in a vertical or horizontal orientation?

This helps determine which accessories may be required for your application. For example, if a slide gate is mounted below a surge hopper, a variable positioning assembly may be required to meter material into the weigh hopper.

5. Features Selection

Common modifications include:

- Abrasion-resistant blade & liners
- Adjustable blade rollers
- Custom valve sizes
- Sealed body with an air purge assembly
- Replaceable seals, liners & wetted parts
- Wear-compensating seals
- Wear-reducing material deflectors
- Wear-resistant blade, bucket blade or pivoting chute

...to name a few.

6. Accessory Selection

When specifying valve accessories, there are four distinct areas:

- Variable positioning assemblies — Vortex offers a VPO/VPC (relay control with manual adjustability); AVP (PLC control with manual adjustability); and an IVP (infinite positioning via a 4-20mA signal).
- Feedback — Vortex offers push-button control panels, and valve/sensor manifold technologies with a variety of PLC interfaces.
- Safety devices — A vented ball valve should always be installed in front of the air control valve, in order to bring the slide gate or diverter valve to a “zero mechanical” state before servicing. This type of ball valve bleeds off any residual downstream pressure contained in the air lines supplying the air cylinder. The ball valve should always be installed within arm's reach of the air control.
- Fabricated accessories — Fabricated transitions provide flexibility when mating up to existing equipment. This includes matching special bolt hole patterns, tube stubs, or blind flanges that allow in-the-field hole placement and installation.

- **EQUIPOS PARA RECEPCIÓN, CARGA Y DESCARGA**

- Descarga de sacos y supersacos
- Descarga de liners
- Descarga de ferrocarril
- Boquillas telescópicas
- Rompebóvedas
- Sistema de aireación
- Activadores de tolva

- **ALMACENAMIENTO**

- Silo atornillado
- Silo soldado
- Silo híbrido
- Silo mezclador
- Silo pesador
- Tanque atornillado
- Tanque presurizable
- Tolva

- **VÁLVULAS**

- Guillotinas
- Diversora
- Mariposa
- Rotatoria
- Iris

- **SISTEMAS DE SEGURIDAD**

- Sistemas pararrayos
- Válvulas de alivio vacío/presión
- Páneles de explosión
- Sistemas de supresión
- Válvulas de aislamiento
- Arrestador de flama

- **MEZCLADO**

- Mezcladora tipo listón
- Mezcladora de paletas
- Mezcladora para lodos
- Mezcladores para plásticos

- **TRANSPORTE MECÁNICO**

- Elevadores de cangilones.
- Transportadores de banda sencillo o reversible
- Alimentadores vibratorios
- Transportadores de rastra
- Transportadores helicoidales
- Transportadores tubulares de discos

- **SISTEMAS DE MONITOREO Y TRAZABILIDAD**

- Silos y tolvas pesadoras
- Sistemas de pesaje en línea
- Sistemas de trazabilidad
- Tableros de control
- Celdas de carga
- Básculas camioneras y ferrocarrileras
- Medición de nivel

- **TRANSPORTE NEUMÁTICO**

- Transporte fase diluida
- Transporte fase densa
- Sopladores
- Motosopladores
- Bomba neumática

- **EQUIPO PERIFÉRICO**

- Cargadores
- Enfriadores para aire de transporte
- Secadoras de aire caliente
- Cristalizado de PET
- Secadoras dehumificadoras

- **COMPONENTES PARA LÍNEA DE TRANSPORTE**

- Lanzas y mirillas
- Empaques
- Tubos y curvas
- Coples
- Mangueras PVC y metálicas
- Manifold para vacío
- Caja de vacío

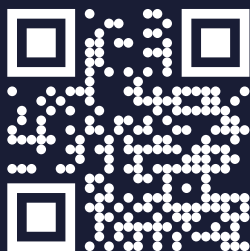
- **DOSIFICACIÓN Y ALIMENTACIÓN A MÁQUINAS**

- Dosificadores volumétricos
- Dosificadores gravimétricos
- Adición de pigmentos o aditivos

- **FILTRADO Y LIMPIEZA DE MATERIAL**

- Filtros para venteo
- Filtros recibidores
- Colectores de polvo
- Trampas magnéticas
- Cribas

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