

Precision Rotary Airlocks and Diverter Valves

**Utilizing over
40 Years of
Mac Process
Bulk Material
Conveying
Technology**





Airlocks and Diverter Valves

Schenck Process offers a wide range of airlocks and diverter valves for a broad range of bulk handling applications.

- » Diverter valves for pneumatic conveying, gravity flow, scaling and high-pressure sealing
- » Basic airlocks for simple processing and dust collection to high pressure and special applications
- » High throughput airlocks with handling capacities over 200,000 lbs. per hour
- » Easy to disassemble and clean airlocks for chemical, food and pet food process applications
- » Airlocks and diverters available in stainless steel, carbon steel, cast iron and aluminum construction
- » Manufactured in Sabetha, Kansas

Our names have changed, but our world-class service has stayed the same



SEMCO, INC.

Flo^{tronics}

CLYDE
MATERIALS
HANDLING

macprocess
schcnckprocess group



→ schenckprocess



Airlocks



Multi-Duty Airlocks (MD, CMD, WRMD)

Multi-Duty Airlocks consist of a standard industrial model, a cleanable model and a wear resistant model.

- All are designed for use in dilute phase vacuum, pressure or a combination vacuum/pressure pneumatic convey system
- Rated up to a 15 psi pressure differential



Round Airlock Multi-Duty (RAM)

Round inlet and outlet design connections with 150 lb. ANSI flange drilling.

- Available in six sizes with options that include closed end rotors, wear resistant designs, adjustable tip rotors, abrasion resistant coatings and elevated temperature service



Heavy Duty (HD) Airlocks

Typically are used in pneumatic conveying systems or for the gravity discharge of filters, cyclones and storage tanks.

- Rated up to a 15 psi pressure differential
- Available in eight standard sizes ranging from .175 CFR to 16.6 CFR
- Materials of construction include cast iron or fabricated carbon steel



MTA Airlocks

Ideal for high pressure continuous dense phase applications where operational differential pressures up to 30 psi are required.

- A precision-machined valve designed with a heavy duty cast
- Available in nine standard sizes ranging from .19 CFR to 8.6 CFR



High Efficiency (HE) Airlocks

HE Airlocks provide high-quality, reliable service during continuous on-stream duty.

- Features angled cast inlet to reduce shear and distribute wear
- Removable inspection panel allows easy access to the adjustable tips



Convey Heavy Duty (CHD) Airlocks

Designed for pressure or vacuum pneumatic conveying applications where the system requires very large conveying rates.

- Equipped with a heavy duty, 12-vane machined rotor, machined housing, over-sized shaft and bearings to reduce shaft deflection at higher differential pressures



GCA Airlocks

An easy to clean airlock that is perfect for high process rate applications.

- Suited for hygienic processes making it ideal for pet food and food manufacturing
- Oversized rotor shaft creates a naturally radiused rotor pocket for more complete product release
- 316 stainless steel construction



High Pressure (HP) Airlocks

Designed for extreme high rate and pressure.

- HP8 through HP16 airlocks are designed for operation up to 60 psi and include cast housing and end plates with a tapered bore. Material of construction is stainless steel.
- The HP650 and HP850 are designed for pressures to 50 psi, and include cast aluminum or stainless steel housing



CV Airlock

The CV blow-through design allows the airlock to meter product from the rotating pockets directly into the conveying line.

- Ideal for low profile or sticky product applications
- Maximum operating pressure of 15 psi



Fabricated Square and Round (FS and FR) Airlocks

Equipped with flexible wiper blade rotors to provide superior handling for stringy or fibrous materials.

- Suited for use in the wood, grain and agricultural industries
- Designed in carbon steel, but can be optionally constructed in 304 stainless steel



WG Airlocks

Equipped with flexible wiper blade rotors to provide superior handling for stringy or fibrous materials.

- With a high capacity throughput, the WG Airlock is ideal for handling wood and grain dust from a dust collector hopper discharge
- Designed in carbon steel



Airlocks and Valves for Customer Replacement Only (Model Types):

- Rotary Valve (RV)
- Outboard Bearing Rotary Valve (OBRV)
- Side Entry Airlock (SEA)
- FloTronics Airlock (FTA)
- Tapered Rotary Airlock (TRA)

High Pressure Valve



ProDV® Spheri Valve®

A valve that provides totally unrestricted full bore material flow through a uniquely designed dome assembly.

- Forms a pressure tight seal when closed and handles pressures up to 435 psi
- Designed to withstand a wide range of temperatures from -40 °F to 900 °F (-40 °C to 482 °C)
- Long lasting, 1 million cycles between major overhauls
- Configurable for gravity and pneumatic conveying applications

Pneumatic Conveying Diverters



Butterfly Scale Diverters

Heavy duty butterfly valve seal/divert blade combination available in aluminum or stainless steel construction.

- Mounts directly to the top of the receiver bin to solve low head height requirement
- Facilitates accurate scaling/ weighments into the receiver, while fill/pass arrangement allows multiple bins to be serviced
- Suitable for line pressures up to 15 psi



PST30 Diverters

Available in 30 degree angles with port to port rotation of 150 degrees.

- Equipped with a plug, these diverters are designed for pellet and powder handling applications at line pressures up to 60 psi.
- Features machined housings with food grade inflatable seals at each port and flanged 150 lb. drilling inlet and outlet connections
- Available in aluminum or 316 stainless steel construction, 304 SS sleeved unit available



BV Diverters

BV Diverters are designed in both 30 degree and 45 degree angles with port to port rotation of 150 degrees.

- Features machined housings with Teflon packing gland seals, bronze shaft bushings and flanged 150 lb. drilling inlet and outlet connections
- Suitable for line pressures up to 15 psi
- Available in aluminum or stainless steel construction



PV Diverters

Available in both 30 and 45 degree angles with port to port rotation of 150 degrees.

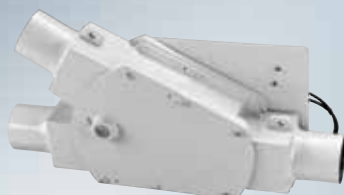
- Equipped with a plug, these diverters are designed for pellet handling applications at line pressures up to 15 psi
- Features machined housings with Teflon packing gland seals, bronze shaft bushings and flanged 150 lb. drilling inlet and outlet connections
- Available in aluminum or stainless steel construction



PT45 Diverters

The PT45 Diverter features a tunnel that rotates 45 degrees port to port.

- Can be used in convey line applications operating at line pressure up to 110 psi depending on size
- Available in aluminum or 316 stainless steel construction. 4" and 6" sizes available in cast iron.
- Stainless steel port sleeves available



Sealed Blade Line Diverters

These valves divert product at a 30 degree angle.

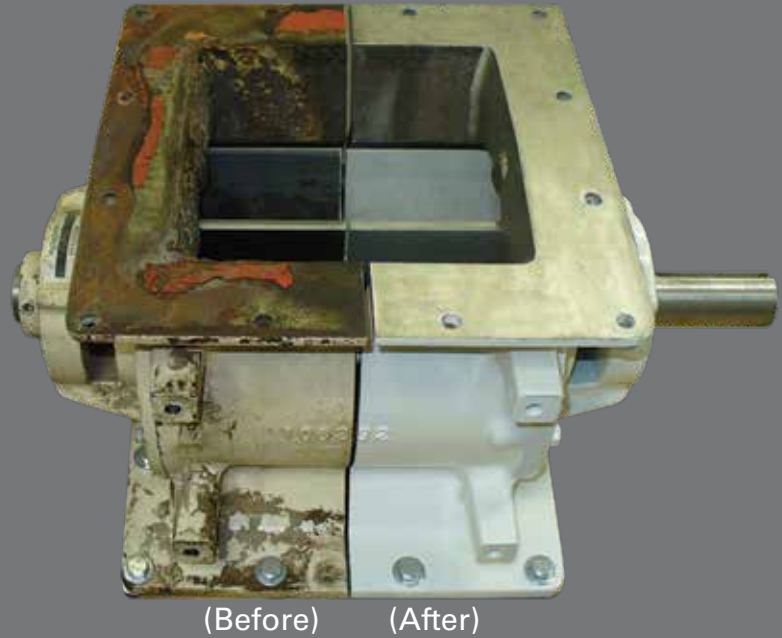
- Features a heavy-duty wear blade with a synthetic polymer insert to seal against the valve and plates
- Designed for use in vacuum or pressure systems directing material from two sources into one destination



YV Diverters

Featuring a stainless steel diverting blade that diverts at a 22.5 degree angle.

- Includes a replaceable, resilient urethane sleeve to provide a tight seal for the diverting blade. Food grade nitrile sleeve is available.
- Available in cast iron, aluminum or stainless steel



(Before) (After)

Rebuilds and Parts

As part of the Schenck Process rebuild program our skilled technicians will complete a full evaluation of your equipment and provide you with a detailed estimate of repair needs and cost. Additionally, they can review wear patterns, study your application and make recommendations to improve the performance of your airlocks and valves. A full list of the Schenck Process rebuild services includes:

Rebuild Services:

- » Re-machine castings
- » Replacement of seals, o-rings and packing bearings
- » Sandblast
- » Paint
- » Re-anodize
- » Replace shaft blades
- » New actuator packages
- » Check NFPA compliance if required
- » Equipment is rebuilt using OEM parts
- » Rebuild all brands of airlocks and valves
- » Full factory 12 month warranty

Wear and Corrosion Resistant Airlock Packages

Wear is difficult to control and can occur in pneumatic conveying or gravity applications. Each has specific characteristics that must be addressed in different ways. Schenck Process technicians will examine the wear patterns of your equipment to find a solution that will extend the life of your airlock.

After evaluation, Schenck Process will provide a recommendation on a wear coating that meets your specific application. Options for wear coatings include:

- » Hard Chrome
- » Ceramic Tiles
- » Nedox
- » Tungsten Tiles
- » Tungsten Spray
- » Ceramic Spray



Wear resistant airlock with ceramic tiles

Airlock Accessories



Drives

All Schenck Process airlocks can be purchased with or without drives. Schenck Process offers airlock drives as replacements or for use with bare Schenck Process airlocks. There are three types of drives offered, right angle, parallel shaft and direct drive.



Right Angle Drive

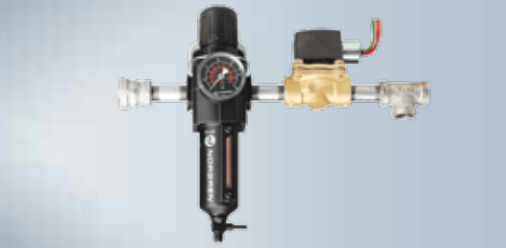
- Most commonly used
- For use on MD, HD, HE, FS, WG, RAM and FR airlocks

Parallel Shaft Drive

- The motor is set parallel to the rotor and housing
- Available on all Schenck Process airlocks
- Comes standard on the RV, HP, OBRV, CV and MTA airlocks

Direct Drive

- The motor is mounted directly to the rotor shaft
- No chain to repair or replace requiring less maintenance
- Standard on GCA and CMD. Optional on MD, RAM and MTA airlocks.



Air Purge Kits

Implemented for eliminating product degradation on the airlock seals and bearings. Air purge should be set at 5 psi above the pressure in the conveying line.



Blow-Thru Adapters

The Schenck Process blow-thru adapter is designed to introduce product into the convey line. The adapter is available in 1.5" to 10" line sizes, offering attachment capabilities to all Schenck Process standard MD Airlocks. Schenck Process blow-thru adapters can be mated to other manufacturer's airlocks.



Surge Hoppers

Surge hoppers are used in applications where it is necessary to vent the airlock or to better control the flow of product into the airlock. The surge hopper is available for attachment to any airlock.



TS4 Seals

Designed to provide superior sealing capabilities even in severe operating conditions versus packing. Longer life with essentially no maintenance. They are standard on MD and RAM airlocks and available for the HD and HE models.

- Requires no adjustments to maintain seal integrity
- Designed to last as long as the airlock bore
- Standard temperature, high temperature and wear resistant features



NFPA Compliant Airlocks

Application:

- » Airlocks used as an explosion isolation device
- » NFPA 69 Compliant

You cannot put a price on safety and as a result Schenck Process does not charge extra for NFPA compliant airlocks. In today's bulk handling systems, nearly all materials are combustible under the right conditions. With the right mixture of fine particles, oxygen and an ignition source an explosion could happen at any time. It is up to the end user to make sure their system is safe and compliant with the applicable NFPA standards.

Schenck Process reviews each airlock application with the customer to select the correct airlock for their process. Where required, NFPA 69 (12.2.4) compliant airlocks are quoted to provide explosion isolation in addition to their normal functionality in the system.

What Makes an Airlock Compliant?

- » Valve body and rotor vanes are metal construction
- » Valve body and rotor are sufficient strength to withstand the maximum expected explosion pressure within the connected equipment
- » Rotors include a minimum of (6) diametrically opposed blades with at least (2) vanes on each side of the valve housing in a position of minimum clearance at all times

- » Endplate bearings are located outside of the product stream (outside of the shaft seals)
- » Close-clearance isolation valves are designed with a clearance between rotor blades and body of less than 0.2 mm (.008 inch)
- » An independent explosion detection device or interlock from the connected equipment shall be included in the design to automatically stop the airlock when an event occurs

Facts:

- » There is no such thing as NFPA Certification. An airlock can be tested for propagation/isolation/containment, but NFPA or independent testing companies do not certify. Airlocks can only be NFPA compliant.
- » Airlocks with flexible tips are typically not NFPA compliant unless test data proves otherwise
- » The more times an airlock is rebuilt and the bore is machined, the less chance the valve is capable of containing the explosion. Keep track of your rebuilds.
- » An airlock can wear. It is the end users responsibility to regularly check clearances and send the airlock out to a reputable airlock rebuild center when the airlock becomes out of specification.
- » Schenck Process offers maintenance programs to make sure your airlocks remain NFPA compliant



Schenck Process is committed to making your process work with the highest quality airlocks and valves. Whether you need an airlock with a wear resistant coating or a rebuilt valve, we will provide the equipment that meets your specific application requirements.

Keeping your bulk materials flowing freely

schenck process 

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