



## VALVE SELECTION GUIDE



# Plug Valves



## DeZURIK Eccentric Plug Valves (PEC)

Design Features: Eccentric action and resilient plug facings assure lasting dead-tight shutoff. An inherent linear flow characteristic is ideal for throttling applications. Heavy-duty stainless steel bearings, choice of resilient plug facings, welded-in corrosion resistant nickel seat, adjustable packing and a variety of end styles are available. Capable of handling clean and dirty liquids and gases, sludges and slurries.

Size Range: ½ - 72" (15 - 1800mm)

Temperature Range: to 450°F (232°C)

Pressure Rating: 125 - 450 psi (860 - 3100 kPa) CWP

Shutoff Class: Resilient plug face — drip tight rating to 175 psi (1200 kPa) options to 450 psi (3100 kPa)  
Bi-Directional

End Connections: Flanged, mechanical joint, grooved, threaded

Actuator Type: Lever, handwheel, chainwheel, square nut, G-Series cylinder, electric motor

Body Materials: Cast iron, aluminum, carbon steel, 316 stainless steel, Alloy 20, Monel and ductile iron, acid resistant bronze

## DeZURIK 100% Port Eccentric Plug Valves (PEF)

Design Features: Port is 100% of standard pipe area, including straight through body design with flushing port to maximize flow capacity and reduce headloss. Rectangular port design provides wide tolerance seating geometry for lasting superior shutoff. Standard features include corrosion resistant bearings, welded nickel seat, grit excluders, adjustable packing and a choice of resilient plug facings.

Size Range: 3 - 36" (80 - 900mm)

Temperature Range: to 250°F (121°C)

Pressure Rating 3 - 12" 175 psi (1200 kPa) 14 - 36" 150 psi (1030 kPa)

Shutoff Class: Resilient plug face — drip tight rating to 175 psi (1200 kPa) Bi-Directional

End Connections: Flanged, mechanical joint

Actuator Type: Lever, handwheel, chainwheel, square nut, G-Series cylinder, electric motor

Materials: Cast iron body with ductile iron plug



### **DeZURIK 3-Way and 4-Way Plug Valves (PTW/PFW)**

Design Features: 3-Way and 4-Way Plug Valves are designed for throttling and diverting of clean, dirty, viscous and corrosive liquids; sludge; abrasive and fibrous slurries; clean and dirty corrosive gases. Single and double plug styles can be arranged into a variety of flow combinations. Features include heavy-duty stainless steel bearings, long-life stem seal, resilient plug facings for dead-tight shutoff, and metal plugs for high temperature applications.

Size Range: 3 - 16" (80 - 400mm)

Temperature Range: to 400°F (200°C)

Pressure Rating: 125 psi (860 kPa) CWP

Body Materials: Cast iron, aluminum, carbon steel, 316 stainless steel

End Connections: Flanged

Actuator Type: Lever, handwheel, chainwheel, cylinder, electric motor



### **DeZURIK Pump Check Valves**

Specially designed to protect pumps from water hammer, reverse flow and backspin.

### **DeZURIK Balancing Valves**

Specially designed for adjusting and reading flow in condensers, and hot/chilled water systems of heating and air conditioning systems.

### **DeZURIK Soft Rubber Lined Eccentric Valves**

Ideal for on-off corrosive and abrasive slurry service.

# Butterfly Valves



## DeZURIK AWWA Butterfly Valves (BAW)

Design Features: DeZURIK AWWA Butterfly Valves meet the requirements of AWWA C504 standards. They are used for shutoff on clean and dirty water and gases. Offset disc design, corrosion resistant shaft, stainless steel disc edge, and self-compensating shaft seals are features on all DeZURIK AWWA valves. Molded-in body seat with disc locators provides positive sealing and longer seat life on sizes 3 - 20" (80 - 500mm). Large valves, 24 - 144" (600 - 3600mm), feature adjustable, replaceable seat, non-hollow disc structure, and rubber seat retained within a dovetail groove in the valve body and locked in place by an epoxy wedge.

Size Range: 3 - 144" (80 - 3600mm)

Temperature Range: to 290°F (143°C)

AWWA Class: 75B, 150B, 250B

Pressure Rating: 75 psi (520 kPa),  
150 psi (1030 kPa), 250 psi (1700 kPa)  
CWP Shutoff - Bubble tight to full rated pressure.

Body Materials: Cast iron, ductile iron, carbon steel,  
stainless steel

End Connections: Flanged, mechanical joint

Actuator Type: Lever, handwheel, chainwheel, square  
nut, cylinder, electric motor

## DeZURIK High Performance Butterfly Valves (BHP)

Design Features: High Performance Butterfly Valves are designed for shutoff and throttling control of liquids and gases. The dynamic PTFE seat provides bubble-tight shutoff in both directions. The Fyre Block® seat, designed for fire safe applications, meets API607 fire test standards. Stem seal options for fugitive emissions control are available. The single offset disc design provides lower torque and longer cycle life. NACE trim available. Pressurized neck extensions to accommodate additional insulation or cold box dimensions are available as an option.

Size Range: 2 - 60" (50 - 1500mm)

Temperature Range: to 700°F (370°C). On application  
-320°F (-196°C) to 1000°F (540°C)

ANSI Class Rating: 150, 300

Pressure Rating: 275 - 740 psi (1890 - 5100 kPa)

ANSI B16.104 Shutoff Class: PTFE and Fyre-Block®  
Seat, Class VI; or metal seat, Class IV or V

Body Materials: Carbon steel, 316 or 317 stainless  
steel

Valve Style: High performance butterfly valve, wafer  
or lugged

Actuator Type: Lever, handwheel, chainwheel,  
square nut, PowerRac® double-acting and spring-  
return, diaphragm, Compak® double-acting and  
spring-return



### **DeZURIK Resilient-Seated Butterfly Valves (BOS-US)**

Design Features: BOS Resilient-Seated Butterfly Valves are designed to handle a wide variety of liquids and gases. BOS-US Valves are available in Ductile Iron-Lugged or wafer bodies with Ductile Iron/Nickel Plated or 316 Stainless Steel discs.

BOS-US Valves feature an uninterrupted seat design; one-piece body; solid, one-piece shaft and high-performance resilient seat bonded to the body.

Size Range: 2 - 36" (50 - 900mm)

Temperature Range: to 350°F (176°C)

Pressure Rating: 250 psi (1724 kpa)  
2 - 20" (51-508 mm) with DI disc (316 Stainless Steel 200 psi)

24 - 36" (610 - 900mm) 175 psi (1206 kpa)

Dead-end - full rating, lugged valves only

24" Hg vacuum

Body Material: 2 - 20" (50 - 500mm) Ductile Iron  
24 - 36" (610 - 900mm) Cast Iron



### **DeZURIK Resilient-Seated Butterfly Valves (BOS-CL)**

Design Features: BOS Resilient-Seated Butterfly Valves are designed to handle a wide variety of liquids and gases. BOS-CL valves are available in Lugged or wafer bodies with Ductile Iron/Nickel Plated or 316 Stainless Steel discs.

BOS-CL valves feature an on-center disc; one-piece body; solid, one-piece shaft and a high-performance resilient seat bonded to a solid backing ring.

Size Range: 1½ - 24" (40 - 600mm)

Temperature Range: to 350°F (176°C)

Pressure Ratings:

1½ - 12" (40mm - 300mm) 200 psi (1379 kpa)

14 - 24" (350mm - 600mm) 150 psi (1034 kpa)

Dead-end - full rating, lugged valves only

Body Material: Cast Iron

# Rotary Control Valves



## DeZURIK V-Port Ball (VPB)

**Design Features:** The V-Port Ball Valve is a quarter-turn v-orifice ball valve for accurate throttling control of fibrous suspension applications plus clean, dirty, viscous and corrosive liquids and gases. It is designed to meet the highest industry standards for dynamic performance. Flanged or flangeless designs meet ANSI or ISA face-to-face dimensions. Design features include blow-out proof shaft protection, high flow capacity, splined ball-to-shaft connection for ease of maintenance and zero backlash. Seat options include flexible metal, rigid metal and reinforced PTFE seats.

Size Range: 1 - 20" (25 - 500mm)

Temperature Range: to 1000°F (540°C)

ANSI Class Rating: 150, 300

Shell Pressure Rating: to 275 - 740 psi (1890 - 5102 kPa)

Shut Off Pressure Rating: to 275 psi (1890 kPa)

ANSI B16.104 Shutoff Class:  
Flexible Metal-ANSI Class IV  
Reinforced PTFE Seat - ANSI Class VI  
Rigid Metal-ANSI Class IV

Body Materials: Carbon steel, 316 and 317 stainless steel, Hastelloy C

Valve Style: V-port ball, flanged or flangeless

Actuator Types: PowerRac® double-acting and spring-return actuators, spring & diaphragm actuator, lever, handwheel, chainwheel

## DeZURIK Rotary Control Valve (RCV)

**Design Features:** The RCV Rotary Control Valve is an eccentric rotary control valve for throttling liquids, gases and slurries. It combines precise throttling accuracy and control over a full 90° of rotation. Tungsten carbide coated trim components and design features provide superior erosion resistance. The RCV valve is designed for bi-directional flow capability and includes four trim options for flexibility. It is designed for ease of maintenance with no internal threaded components and self-aligning seat and plug. Flanged or flangeless designs meet ANSI or ISA face-to-face dimensions.

Size Range: 1 - 12" (25 - 300mm)

Temperature Range: to 1000°F (540°C)

ANSI Class Rating: 150, 300

Pressure Rating: 285 - 740 psi (1965 - 5100 kPa)

ANSI B16.104 Shutoff Class: Up to 20 times better than ANSI Class IV standard

Body Materials: 316 and 317 stainless steel, carbon steel, Hastelloy C, Titanium

Trim Sizes: High, Full, .5 Reduced, .2 Reduced

Actuator Types: PowerRac® double-acting and spring-return actuators, spring & diaphragm actuator, handwheel, chainwheel

## Knife Gate Valves



### **DeZURIK Precision Electric Control Valve (PPE)**

**Design Features:** The DeZURIK Precision Electric Control Valve is recognized industry wide as the most accurate and reliable basis weight control valve available. This high-resolution control valve is specifically designed for critical paper stock control, and is used for basis weight and headbox level control applications. It provides unmatched control accuracy, positioning and repeatability with up to 7760 repeatable positions. Accepts digital or analog signals. It features total electric operation with backlash that is essentially zero. Flange drilling is per ANSI standards.

Size Range: 4 - 20" (100 - 500mm)

Temperature Range: to 32 - 450°F (0 - 232°C)

Pressure Rating: 275 psi (1890 kPa) CWP

Body Material: 316 stainless steel

Valve Style: V-port concentric or straight concentric plug, flanged

Actuator Type: AC synchronous motor

Feedback Mechanisms: Potentiometer or resolver



### **DeZURIK Cast Stainless Steel Knife Gate (KGC)**

**Design Features:** Cast Stainless Steel Knife Gate Valves are designed for on-off and isolation services handling corrosive, abrasive and viscous liquids; abrasive slurries, pulp stock, and dry materials. The solid cast-bodied full port knife gate valve features a corrosion-resistant stainless steel body, gate, stem and packing gland. Improved packing chamber design. Cast-in guides and jams ensure long-lasting operation. Resilient seats provide bubble-tight shutoff; metal seats meet TAPPI Leakage Rate standards. Special v-orifice design available for throttling applications.

Size Range: 2 - 36" (50 - 900mm)

Temperature Range: to 1000°F (540°C)

Pressure Rating: 150 psi (1030 kPa) CWP

Body Materials: 304, 316 and 317 stainless steel

Valve Style: Knife gate, lugged

Actuator Type: Lever, handwheel, chainwheel, bevel gear, cylinder, electric motor



### **DeZURIK Unidirectional Knife Gate Valves (GKU)**

Design Features: Unidirectional Knife Gate Valves (GKU) feature a cast stainless steel body, stainless steel gate and stem. GKU features a full lug single piece cast stainless steel body. This model can be used with the same functionality of flanged valves, including end-of-line applications. The superstructure also allows interchangeability between pneumatic and manual actuators.

Size Range: 3 - 48" (50 - 1200mm)

Temperature Range: 1000°F (540°C)

Pressure Rating: 150 psi (1030 kPa) CWP

Body Materials: 304 & 316 stainless steel as standard — other material on request.

Seat Materials: Metal and Resilient

End Connection: Lugged

Actuator Type: Handwheels, chainwheels, bevel gears, pneumatic cylinders, hydraulic cylinders, electric motors



### **DeZURIK Cast Stainless Steel Knife Gate (KGN)**

Design Features: Cast stainless steel one piece body with metal seat to meet the shut-off requirements of TAPPI.

The body and gate are available in 304 and 316 stainless steel material. The packing gland is the same material as the body and supports a variety of packing types for temperature up to 1000 Degrees F. Valves can be mounted with a variety of accessories including cylinders with limit switches and solenoids.

Size Range: 2 - 24" (50-600mm)

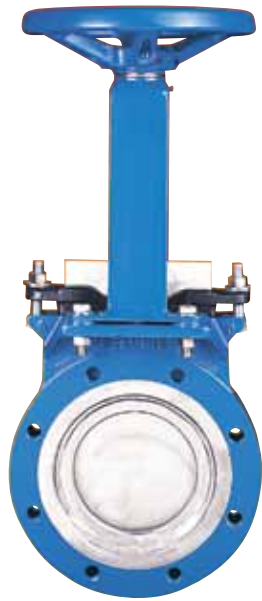
Temperature Range: to 1000°F ( 540°C)

Pressure Rating: 150 psi (1030 kPa) CWP

Body Materials: 304 and 316 stainless steel

Valve Style: Knife gate, lugged

Actuator Types: Handwheel, chainwheel, bevel gear, cylinder. Electric motor.



### **DeZURIK Stainless Steel Knife Gate (KGL)**

Design Features: Fabricated Stainless Steel Knife Gate Valves are designed for on-off and isolation services handling corrosive, abrasive and viscous liquids; abrasive slurries, pulp stock, and dry materials. The all-fabricated knife gate valve features a corrosion-resistant stainless steel body liner, gate, stem and packing gland. Welded-in guides and jams ensure long-lasting operation. Resilient seats provide bubble-tight shutoff. Special v-orifice design available for throttling applications.

Size Range: 30 - 72" (750 - 1800mm)

Temperature Range: to 1000°F (540°C)

Pressure Rating: 30" & 36" (750 - 900mm) 100 psi (690 kPa) CWP

42" & larger (1067mm & larger) 25, 50 & 150 psi (173, 345 and 1030 kPa) CWP

Body Materials: 304, 316 and 317L stainless steel

Valve Style: Knife gate, lugged

Actuator Type: Bevel gear, cylinder, electric motor



### **DeZURIK Bi-directional Knife Gate (KCB)**

Design Features: A perimeter seat provides dead-tight shutoff in either direction and on dead end service. Seat design eliminates pockets that trap process media. Provides maximum flow capacity. Designed for on-off service for abrasive and viscous liquids; abrasive slurries and pulp stock. Resilient seats are locked into the valve body and provide guiding for the gate.

Size Range: 2 - 36" (50 - 900mm)

Temperature Range: to 350°F (177°C)

Pressure Rating: 2 - 24" (50 - 600mm) 150 psi (1030 kPa) CWP

30" and 36" (750 & 900mm) 75 psi (520 kPa) CWP

Body Material: 304 and 316 stainless steel

Valve Style: Bi-directional knife gate, lugged

Actuator Type: Handwheel, chainwheel, bevel gear, cylinder, electric motor



### **DeZURIK Urethane Knife Gate (KGU)**

Design Features: One-piece cast-in-place urethane liner designed especially for handling abrasive slurries and dry materials in the mining industry. Provides drip-tight shutoff. Rugged stainless steel gate, long-life packing, stainless steel stem, corrosion resistant yoke sleeve, and heavy-duty superstructure.

Size Range: 4 - 24" (100 - 600mm)

Temperature Range: -40 - 180°F (82°C)

Pressure Rating: 150 psi (1030 kPa) CWP

Body Materials: Cast iron with gates of 304, 316 stainless steel

Valve Style: Urethane lined knife gate valve, wafer

Actuator Type: Lever, handwheel, chainwheel, cylinder, electric motor



### **DeZURIK ANSI Class Knife Gate (KHP)**

DeZURIK ANSI Class Knife Gate Valves withstand high pressures and abrasive slurries found in mining, steel, power, chemical, and paper industries. Ideal for isolation in high-pressure, high-density slurry lines, the valves are pressure rated to ANSI Class 150 and 300.

Available in sizes from 3 - 60" (80 - 1500mm), these High Performance Knife Gate Valves feature cast carbon steel construction to meet demanding performance requirements. Valves feature purge-ports to allow flushing of media from the valve interior. ANSI Class 150 valves match standard pipe IDs, and ANSI Class 300 valves match extra-strong pipe IDs. The seat/wear ring matches the pipeline ID to reduce turbulence and pressure loss across the valve. A wide variety of hardened trim options is available on the gate, seat and the wear ring.

An integral bonnet is optional on ANSI Class 300 valves. To reduce maintenance costs, a pressure-energized rod seal and heavy-duty braided scraper ring are replaceable without removing the bonnet or rod.

Temperature Range: 500°F (260°C)

ANSI Class Rating: 150, 300

Pressure Rating: 285 - 740 psi (1965 - 5100 kPa) CWP

Body Materials: 2205 Duplex stainless steel, carbon steel and other alloys



### **DeZURIK Level Sensor Isolation Valve (KLS)**

Design Features: Specially designed to mount between the stock chest and the level sensor. Allows removal of sensor without draining stock chest. Ratchet or socket drive actuator allows close mounting of valve to tank.

Size Range: 3" (80mm)

Temperature Range: to 450°C (233°C)

Pressure Rating: 150 psi (1030 kPa) CWP

Body Materials: 316 and 317 stainless steel, Hastelloy C, 254 SMO stainless steel

Valve Style: Level sensor knife gate valve, lugged

Actuator Type: Ratchet handle or square drive with non-rising stem



### **DeZURIK Coal Burner Isolation Knife Gate (KCI)**

Design Features: Specially designed to isolate pulverized coal burner lines on coal-fired boilers during periodic maintenance shutdowns. Features include rugged body construction, removable and rotatable seat ring, stainless steel rising or non-rising stem, and internal explosion pressure rating to 50 psi (340 kPa) per NFPA standards. A variety of hard faced seats for extended service life are available. ANSI 125/150, NFPA and Babcock & Wilcox end connections available.

Size Range: 6 - 24" (150 - 600mm)

Pressure Rating: 50 psi (343 kPa) CWP

Temperature Range: On application

Body Materials: 304, 316 stainless steel, carbon steel

Valve Style: Coal burner isolation knife gate valve

Actuator Type: Handwheel, chainwheel, nut, cylinder

# Special Service Gate Valves

## **DeZURIK Mixing and Diverting Knife Gate Valves (KGY)**

Available with either an integral body or a replaceable body. Valves with the replaceable body design are bolted to a Y-pattern pipe, allowing easy replacement of a single valve rather than the entire assembly.

They can be mounted in Y-pattern or Y-lateral configurations for either direct or reverse flow operation. Diverter valves with one inlet and two, three or four outlets are available in Y-pattern arrangements, with 60 or 90 degree angled valves. Mixing valves are available with one outlet and two, three or four inlets.

## **DeZURIK Dust Collector Valves (KSG)**

Specially designed cylinder actuated knife gate valve with double packing and overlapping gates to overcome the difficulties in handling steel mill blast furnace dust.

## **DeZURIK Square/Rectangular Knife Gate Valves (KSR)**

Specially designed to fit special piping configurations.

## **DeZURIK Sledge Hammer Gate Valves**

Specifically designed to provide shutoff on a standing column of dry material.

## **DeZURIK Thru-Port Knife Gate Valves**

Manually actuated goggle plate valve designed specially to overcome the difficulties in handling steel mill blast furnace dust.

## **DeZURIK Bonneted Knife Gate Valves**

Special designs to prevent media from entering the atmosphere. Pressurized bonnet is bolted above packing area.

# Ported Gate Valves



## DeZURIK Ported Gate Valve (PGV)

Design Features: Innovative, pressure-assisted sealing system utilizes elastomer sleeves with radial and gate thrust support rings. Design features include streamlined flow passage, bi-directional shutoff, adjustable packing and rounded gate edges. Stem protection and actuator lockout device is standard.

Size Range: 2 - 24" (50 - 600mm)

Temperature Range: to 400°F (204°C)

Pressure Rating: 150 psi (1030 kPa) CWP

Valve Style: Ported gate valve, wafer

Body Materials: Ductile iron, 316 stainless steel

Actuator Type: Handwheel, chainwheel, pneumatic and hydraulic cylinder, electric motor



## DeZURIK O-Port Knife Gate (KGO)

Design Features: Specially designed to handle high-density paper stock, wood chips, plastic pellets, cleaners, trash dump, and refiner bypass isolation applications. Adjustable chest guides provide positive gate-to-seat support and eliminate stock build-up and gate jamming. Flush ports allow prevention of stock dewatering in the valve body. Full standard port diameter minimizes turbulence and pressure loss. PTFE or hardened metal seat available for extra protection.

Size Range: 3 - 36" (80 - 900mm)

Temperature Rating: to 1000°F (540°C)

Pressure Rating: 100 - 740 psi (690 - 5100 kPa) CWP

Body Materials: 316 and 317 stainless steel and carbon steel

Valve Style: 0-port knife gate valve, flanged ANSI 150 or 300

Actuator Type: Handwheel, chainwheel, bevel gear, cylinder and electric motor

# Consistency Transmitters



## DeZURIK Rotating Consistency Transmitter (SDP)

Design Features: Consistency range from 0.75% to 10% at velocities from 0.1 to 10 feet (.03 to 3 meters) per second. Motor-driven sensor located in pulp stock flow is highly sensitive to consistency changes and insensitive to flow changes. Capable of measuring consistency changes as small as  $\pm .0025\%$ .

Chamber Size: 12 - 36" (300 - 900mm)

Chamber Pressure Rating: 125 psi (860 kPa)

Chamber Material: 304, 316 or 317L stainless steel

Shaft, Sensor Material: 316 or 317L stainless steel

Chamber Style: Horizontal, vertical, open, pan

Output: Pneumatic, electronic



## DeZURIK Accutrax Consistency Transmitter (SBC)

Design Features: Designed to operate over a wide range of velocities from 1.5 feet (.5 meter) to 16 feet (5 meters) per second and consistencies from 1.5% to 16%. Unique sensor design allows transmitter to accurately measure consistency over changing production rates and varying pressures, sensing changes as small as  $\pm .0075\%$ . The pipeline module can be easily and quickly installed and withdrawn without process shutdown.

Mounting Module Materials: 316 stainless steel, Hastelloy C

Temperature Rating: to 212°F (100°C)

Pressure Rating: 200 psi (1380 kPa)

## Check Valves



### **APCO Automatic Control Check Valves (MODEL 8000 Shown)**

Excellent where Pump Discharge Control is essential, due to high velocities (10 FPS or more), and high pressures (over 100 PSI). Electrically operated, to permit remote control of automatic pump stations, features: Shut-Off Valve - Throttle Flow Valve - Control Check Valve - Drain Valve and during electrical power loss, this valve will automatically shut-off, without assistance. Equipped with manual override and replaceable Buna-N-Seat. Body-Cast Iron or Ductile Iron, Disc-Ductile Iron, Shaft-High Strength Stainless. Ratings 125#, 250#, 300# class.

Size Range: 6 - 48"



### **APCO Cushioned Swing Check Valves (MODEL 6000 Shown)**

Heavily constructed, exceeds AWWA standards, used on Water or Raw Sewage Pumping Stations. Available with Air Cushion (Fast Closing), or Oil Cushion (Slow Closing) to prevent slam and water hammer. Flow area is full ported and equal to pipe area. All internals easily replaced thru top cover without removing valve from the pipeline. Ratings 125#, 150#, 250#, and 300# class.

Size Range: 2 - 66"



### **APCO Slanting Disc Check Valves (MODEL 800 Shown)**

The most reliable and efficient check valve available. The disc pivot point is off center. This precise constructed feature slows the closing of the disc. Split body design increases the flow area around the disc by 40% creating very low head loss. Seating is metal to metal. This valve is built to last! Available as a 'free swinging', 'free open-controlled close', or 'controlled open and close check valve'. The body is available in Cast Iron, Ductile Iron, Cast Steel or Stainless Steel. Pivot Pins and Seats are Bronze or Stainless Steel. Highly recommended for maximum efficiency in Power Plants and Water Pumping Stations. Ratings 125#, 250#, 300#, 600# class.

Size Range: 2 - 78"



**APCO Rubber Flapper  
Swing Check Valves  
(MODEL 100 Shown)**

Unique Simple Design with no moving parts. The Flapper does not swing from a Hinge Pin, it simply flexes open. The seat is on a 45° angle. The Flapper travels 35° from open to close usually before column reversal can occur. It has non-slam characteristics. The flapper is made of synthetic rubber (Buna-N standard). The valve can be buried and requires no regular maintenance. Recommended for Water, Sewage, Gas, Oil and Rubber lined for Chemicals. Cast Iron Body rated 125# class and 175 PSI working pressure (higher pressures available).

Size Range: 2 - 36"



**APCO Double Door Check Valves  
(MODEL 900 Shown)**

Very short length, results in lowest purchase and installation costs. Double doors are spring loaded for fast non-slam shut-off against rubber seat in the body. Recommended for Refineries, Petro-Chemical Plants, and Water Pump Stations, Body and Door material-Iron, Steel, Bronze or Stainless. Spring and Hinge Pin-Stainless. Body Seal-Buna-N or other materials for higher temperature rating. Ratings 125#, 250#, 300#, 600#, 900#, 1500# class.

Size Range: 2 - 72"



**APCO Silent Check Valves  
(MODEL 600, 300 Shown)**

Excellent to prevent Water Hammer, in multi-story buildings and vertical turbine pump installations, when pumping from a well to an elevated reservoir. The Valve closes, SILENTLY! Low in cost, reliable and requires no regular maintenance. Principle of operation: When pump stops, spring forces disc closed against slight pump head at zero velocity, (theoretically a static condition) hence, SILENT CLOSURE! Body - Cast Iron, Ductile Iron, Cast Steel, Stainless Steel or Bronze. Internals - Bronze, Stainless. Ratings 125# - 600# class.

Size Range: 1 - 42"

# Air Valves



## **APCO Air Release Valves (MODEL 200 A, 55 & 50 Shown)**

Air Release Valves function to release air pockets that collect at each high point of a pressured pipeline. Air Release Valves can open against internal pressure, because the internal lever mechanism multiplies the float force to be greater than the internal pressure. This greater force opens the orifice whenever air pockets collect in the valve. Air Release Valves are essential for pipeline efficiency and water hammer protection.

Size Range: 1/2 - 6"



## **APCO Combination Air Valves (MODEL 143 C & 1800 Shown)**

Combines the features of Air/Vacuum Valves and Air Release Valves. These valves are also called Double Orifice Air Valves. These valves are installed on all high points of a system where it has been determined dual function Air/Vacuum and Air Release Valves are needed to release air and also protect a pipeline from vacuum. Combination Air Valves are available in 2 body styles - 1) single body combination or 2) custom built combination with two bodies. The single body combination is used where compactness is preferred. Generally, it is sound engineering practice to use Combination Air Valves instead of simple purpose Air/ Vacuum Valves.

Size Range: 1 - 36"



## **APCO Air/Vacuum Valves (MODEL 150 & 142 Shown)**

Air/Vacuum Valves are float operated, having a large discharge orifice, equal in size to the valves inlet. Air/Vacuum valves allow large volumes of air to be exhausted from or admitted into a water pipeline as it is being filled or drained. As the pipeline fills, water enters the Air Valve, raises the float and shuts-off. When draining the pipeline, the float drops, allowing air to enter, preventing vacuum, possible pipeline collapse or damaging water column separation. Air & Vacuum Valves are an efficient means to fill and drain pipelines.

Size Range: 1/2 - 36"



**APCO Slow Closing  
Air and Vacuum Valves  
(MODEL 1900 Shown)**

Are standard Air/Vacuum Valves mounted on a Surge Check Unit. The Air/Vacuum Valve operates in the normal fashion allowing air to escape freely. The Surge Check is a normally open valve (spring loaded) so that air passes through unrestricted, but when water rushes into the Surge Check Unit the disc closes against the spring and reduces the rate of flow of water into the air valve by means of throttling holes in the disc. This ensures normal gentle closing of the Air/Vacuum Valve and minimizes surges when the valve closes. As soon as the Air/Vacuum Valve is closed, the pressure on both sides of the surge Valve disc equalizes and the disc automatically returns to its open position. This means an Air/Vacuum Valve can open at any time the water level drops and line pressure approaches atmospheric and immediately have full re-entry flow of air into the pipe line before a vacuum can form. Ratings 125# thru 900# class.

Size Range: 3 - 36"

**APCO Air Release Valves & Air/  
Vacuum Valves for Sewage Lines  
(MODEL 400, 401, 440 Shown)**

Operate same as Air Valves for Water, differing only in appearance with elongated taller bodies. Elongated bodies minimize clogging by permitting use of a much longer float stem, to prevent the sewage from fouling up the mechanism. For ease of maintenance, Flushing Attachments are recommended with the Valves, as shown. When adding Sewage Air Valves to your pipeline, the same criteria applies, as with the standard Air Valves. However, the potential for air entrapped with Sewage pipelines, is even greater than that found in water lines, because Sewage media generates large quantities of gases. Therefore, it is recommended each high point be protected with an automatic Sewage Air Release Valve.

Size Range: 1/2 - 14"

## Air Valves



### **APCO Syphon Air Valve (Make and Break) (MODEL 5200 Shown)**

SYPHON AIR VALVES are a unique type of Air/Vacuum Valve incorporating a paddle which hangs down into the main pipeline flow stream. The valve will allow a syphon flow to be developed and maintained after the pump is stopped. Subsequently should the syphon flow reverse, the paddle swings in reverse causing the port to open and break the syphon. The APCO Syphon Air Valve requires no electrical connections or regular maintenance and is ideally suited for remote outdoor environments. Also in recent years with the emphasis on energy conservation consulting engineers for water and waste water often consider pumping by means of a syphon loop. APCO SYPHON AIR VALVES are ideally suited for this application. Solenoid valves for small diameter syphons or pneumatically operated butterfly valves for large diameter syphons may also be adapted for this application, but installation and maintenance is complicated. For example, power lines and air lines must be installed to operate these valves. An air compressor is also needed.

APCO SYPHON AIR VALVES are mechanically operated, requiring no auxiliary power. They merely respond to flow (in either direction) to make the syphon or break it and the maintenance is virtually nil.

Size Range: 3 - 16" for syphons up to 60" diameter



### **APCO Hydraulically Controlled Air/ Vacuum Valves (MODEL 7000 Shown)**

For positive pipeline protection from damaging pressure surges. The operating principle of this valve is the same as the CONVENTIONAL Air/Vacuum Valve with one exception... Hydraulically Controlled Air/Vacuum Valves slowly close only after spilling a regulated volume of water to prevent a pressure surge. This valve provides excellent pipeline protection against primary and secondary surge pressures which can occur when filling or draining a pipeline. The closing time of this valve is adjustable by means of a hydraulic control system. Ratings 125# and 250# class.

Size Range: 4 - 20"



### **APCO Vacuum Relief/Air Inlet Valves (MODEL 1500 Shown)**

Vacuum Relief/Air Inlet Valves are normally closed valves and when the System Pressure becomes Negative -IT OPENS IMMEDIATELY- allowing air into the system to prevent a vacuum forming. When system pressure returns to positive, the Vacuum Relief/Air Inlet Valve closes air tight. Standard Vacuum Relief/Air Inlet Valves are designed to open with a minimal, 1/4 PSI, pressure differential across the orifice. Higher or lower relief settings are available to suit the application. Rated 125# and 250# class.

Size Range: 3 - 36"



### **APCO Air Valves For Vertical Turbine Pumps with Water Diffuser (MODEL 140 DAT Shown)**

Air Valves For Vertical Turbine Pumps with Water Diffuser are essential to vent air from the pump column at the point of discharge from the pump (in advance of the pump check valve). Each valve is equipped with a water diffuser which performs like the water bubbler on a water faucet, breaking down the solid destructive column of water into an aerated non-destructive stream of water.

Likewise, the surging water entering the Deep Well Air Valve is diffused and broken down into a smooth flowing stream of water. In this manner, positive closure of the vertical turbine air valve without water hammer or damage to the valve pump is accomplished. Additionally, the Double Acting Throttling Device permits regulation of the flow of air escaping from the valve to establish a back pressure, slowing the rising column of water and reducing start up surges. The Double Acting Throttling Device spring loaded mechanism allows full flow air in during draining of the system. This action results in a smoother trouble free operation of the pumping system.

Size Range: 1/2 - 6"

# Ball and Cone Valves



## **Willamette Ball and Cone Valves (MODEL 2600 & 2200 Shown)**

Willamette Ball and Cone Valves have full bore unobstructed waterways resulting in the lowest (negligible) amount of head loss compared to any inline Plug-Gate Butterfly or Check Valve. Both the Ball and Cone valves utilize unique link and lever torque units to permit very controlled opening and closing. These valves are ideally suited for pump stop/start and check service, controlling flow discharge to prevent pressure surges. Also highly recommended for high velocities (above 15 FPS) flow control or buried service with critical isolation applications. Ruggedly designed with metal to metal seating to last for decades. Hundreds still operating satisfactorily for over 40 years. Fully automatic Electric, Hydraulic or Pneumatic operators or Manual Hand Wheel operated. Ratings 125, 150, 300 PSI service.

Size Range: 6 - 60"

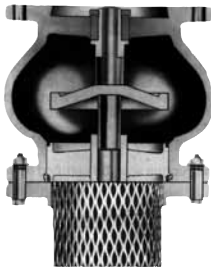
## Other Products and Systems



### **APCO Pump Protectors (MODEL 2123 Shown)**

Pump Protectors consist of an Air Release Valve (for water or sewage) and a Water-Level Control Switch, shipped completely assembled as shown. The Water-Level Control Switch will shut-off the pump upon loss of prime and prevent the pump running dry. This protects against pump burn out and costly repair bills. It may be wired to a horn or warning light to give immediate warning that the pump has been shut down. The Air Release Valve exhausts air that collects in the pump, allowing it to fill with liquid and insures maximum pump efficiency. Pump Protectors are an inexpensive way to protect very expensive Centrifugal Pumps from damage, due to loss of prime for any reason.

Size Range: 1" & 2" NPT



### **APCO Full Flow Foot Valves (MODEL 1400 Shown)**

Full Flow Foot Valves are a form of check valve, installed at the bottom of Pump suction line, inside the wet well. Foot valves are an inexpensive way to maintain prime on a single centrifugal pump. The Foot Valve is designed with a 10% larger flow area (including heavy stainless steel strainer) than the pipe size to insure minimal head loss. Since Foot Valves are continually submerged in the wet well and not readily accessible for inspection or repair, it is important to select a Foot Valve of high quality long wearing construction. APCO Foot Valves are such valves and have heavy cast iron bodies, rugged bronze internals and most importantly they have drop tight resilient seating to guarantee no loss of suction. The resilient seal is compression molded (not glued or chemically bonded) onto the seat for long life. Ratings 125# and 250# class

Size Range: 3 - 36"



### **APCO Surge Relief Valves (MODEL 3000 Shown)**

In recent years Pumping Systems have become more complex than ever before. As a result of this complexity, Design Engineers must resort to detailed water hammer and pressure surge analysis to insure the system will not be damaged, due to negative or positive pressure surges. Water Hammer, caused by sudden changes in flow, usually the starting and stopping pumps, but sometimes the opening or closing of a valve. One method, most often used by Engineers to prevent damage to the system, is to spill the media from the system, thereby, dissipating the pressure surges. Typically, for this application, APCO can provide two (2) spilling type Surge Relief Valves, Models 3000 and 6500, and the engineering expertise to insure their proper application. Surge problems should be analyzed from their point of origin, because at this point, they are easiest to control.

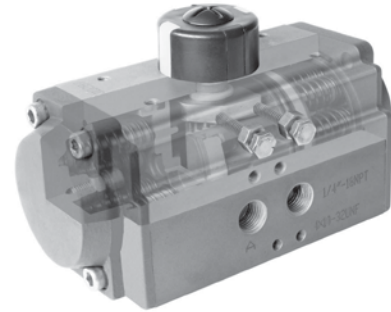
Size Range: 2 - 30"

# Actuators



## DeZURIK G-Series Manual Actuators

DeZURIK manual actuators are constructed for dependable and lasting performance. Rugged worm gear design and heavy duty-corrosion resistant bearings provide easy valve operation and reliable long life. Both above ground and buried actuators are equipped with corrosion resistant stainless steel input shaft and bolting as standard. Housing is fully sealed and grease filled for maintenance-free service.



## DeZURIK Compact Actuators

Compact actuators are a versatile rack and pinion design. The compact, modular design allows the actuator to be mounted for a low profile assembly.



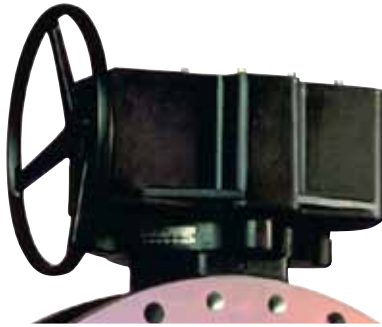
## DeZURIK G-Series Cylinder Actuators

DeZURIK cylinder actuators have demonstrated reliability and performance to match. These actuators utilize a rack and pinion design for smooth and efficient operation. The cylinder barrel is not only corrosion resistant but also highly impact resistant fiberglass resin composite. At the heart of the cylinder is a unique piston seal design that applies a triple teflon wiper with nitrile rubber backing for resiliency. This seal design has been used in our cylinders for generations with proven reliability and long life.



## DeZURIK M-Series Actuators

M-Series Actuators are designed for use on smaller DeZURIK AWWA Butterfly Valves. The M-Series Actuator meets the requirements of AWWA C504 standards. The fully enclosed scotch yoke mechanism allows the M-Series Actuator to provide a torque curve that matches the torque requirements of the valve. The thread system of the traveling nut is self-locking, maintaining disc position under varying flow conditions.



### DeZURIK LA-Series Actuators

LA-Series Actuators are designed for use on large DeZURIK AWWA Butterfly Valves. The LA-Series Actuator meets the requirements of AWWA C504 standards. The link-arm mechanism allows the LA-Series Actuator to provide characterized closure that slows valve travel and increases torque as the disc comes into the seat. The actuators feature high compressive strength yoke nut bearings that ensure reliable operation and increased cycle life. The actuator is self-locking, maintaining valve position under varying flow conditions.



### DeZURIK MG-Series Actuators

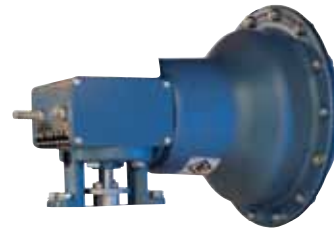
Manual Gear Actuators feature a ductile iron gear with sintered bronze bearings on each end of the stainless steel input shaft for durability and performance.



### DeZURIK PowerRac® Cylinder

The rack and pinion design of PowerRac® Actuators provides high-operating torque for accurate control in modulating services, and high opening torque for on/off services. The unique square collet coupling rigidly clamps the drive pinion to the valve shaft, eliminating backlash in the drive connection. This rigid connection allows thrust from the cylinder to precisely position the valve. Positioners are solidly mounted on the actuator housing with a square nut, feeding exact valve position directly to the positioner. No lost motion assures accurate valve positioning. The modular design and compact size allow the actuator to be close coupled to the valve. Standard ISO bolt circle allows PowerRac® Actuators to be used on all DeZURIK quarter turn valves. Double-acting or fail-safe spring-return cylinder options available. PowerRac® Actuators are available with safety lockout devices.

Lifetime Warranty: DeZURIK has always been committed to the highest quality products and service, and our Lifetime Warranty on PowerRac® demonstrates our confidence in the quality and features of this actuator. Contact your local DeZURIK representative for details



### DeZURIK Rotary Diaphragm

DeZURIK Diaphragm Actuators are designed specifically for use on quarter-turn valves. They feature all steel, cast iron and stainless steel construction for corrosion resistance in caustic environments. The actuators are designed for on/off or modulating service in either a fail-open or fail-closed mode. Action can be easily changed in the field with no additional parts required. The spring cartridge is cage retained at the factory for increased safety. The output shaft is supported at the top and bottom with bronze bearings that absorb side thrust and insure smooth, efficient, and accurate throttling control. Diaphragm Actuators are available with safety lockout devices.


# DeZURIK Valve Selection Chart

1 = Typical Application
  2 = May Be Used
  3 = Limited Application
  4 = Not Used

Application Requirements	Butterfly Valves			Plug Valves			Gate Valves		Rotary Control Valves	
	AWWA	Resilient Seated	High Performance	Standard Port Eccentric	100% Port Eccentric	3-Way & 4-Way	Knife Gate	Ported Gate	Rotary Control Valves	V-Port Control Valve
<b>Function:</b>										
On-Off	1	1	1	1	1	4	1	1	1	2
Throttling	1	1	1	1	1	1	3	4	1	1
Diversion	3	3	3	4	4	1	4	4	4	4
<b>Media:</b>										
Liquids (Clean)	1	1	1	1	1	1	1	3	1	1
Liquids (Dirty)	2	2	3	1	1	1	1	1	1	1
Liquids (Viscous)	2	1	2	1	1	1	1	1	1	1
Liquids (Corrosive)	4	2	1	1	1	1	2	1	1	1
Slurries (Sludge)	2	2	3	1	1	1	1	1	1	1
Liquids & Slurries (Scaling)	4	4	4	2	2	4	4	1	2	3
Slurries (Abrasive)	4	3	2	2	2	2	1	1	1	3
Slurries (Fibrous)	4	2	2	2	2	1	1	1	4	1
High Pressure Steam (+150lbs.)	4	4	1	4	4	4	4	4	1	3
Low Pressure Steam	4	4	1	3	4	3	4	3	1	1
Gasses (Clean)	1	1	1	1	1	1	2	2	1	1
Gasses (Dirty)	2	2	3	1	1	1	2	2	1	1
Gasses (Corrosive)	4	2	1	1	1	1	2	2	1	1
Dry Materials	4	2	4	2	2	4	1	1	4	4
<b>Valve Characteristics:</b>										
High Flow Capacity	1	1	1	2	1	1	1	1	1	1
Low Head Loss (Wide Open)	1	1	1	2	1	1	1	1	N/A	1
Low Torque/Thrust	2	2	1	2	2	1	2	2	2	1
High Temp., 800°F+ (425°C+)	4	4	3	3	4	4	1	4	3	4
Cryogenic	4	4	3	4	4	4	4	4	2	4
Erosion Resistance	4	3	2	1	1	3	1	1	1	3
Cavitation (Kc) @ 60% Open	.35	.35	.35	.59	.59	N/A	N/A	N/A	.60	.49
Recovery Factor $F_L^2$ @ 60% Open	.40	.40	.43	.70	.70	N/A	N/A	N/A	.70	.61
Shutoff Class	AWWA C504	ANSI VI or better	ANSI IV, V, VI or better	ANSI IV, VI or better	ANSI VI or better	N/A	TAPPI	Class VI or Better	ANSI IV-VI	ANSI II, IV, VI OR BETTER
Pressure Rating	AWWA 25, 75, 150 & 250	200/250 psi CWP	ANSI 150 & 300	125-450 psi CWP	150-175 psi CWP	125 psi CWP	ANSI 150 & 300	100/150 psi CWP	ANSI 150-300	ANSI 150 & 300

**Note:** This valve selection chart is designed to provide you with a quick reference on valve style capabilities. The chart considers both cost and performance factors for a specific application when determining whether a valve style is rated Typical, May Be Used, or Limited Application. For more information, contact DeZURIK, Inc. or your local representative with your specific application requirements.

# Check Valve Selection Guide

 = Feature

Feature	Cushion Swing Check Valve	Double Door Check Valve	Rubber Flapper Swing Check Valve	Slanting Disc Check Valve	Silent Check Valve (Wafer)	Silent Check Valve (Globe)	Automatic Control Check Valve
Lowest Initial Cost							
Shortest Laying Length							
Highest Head Loss							
Lowest Head Loss							
Resilient Seat (Standard)							
Resilient Seat (Optional)							
Metal Seat (Optional)							
Can be Rubber Lined							
Waste Water and Raw Sewage							
Clean Water							
Buried Service							
Vertical Installation (Flow Up or Down)							
Vertical Installation (Flow Up Only)							
Free Open - Free Close							
Silent Closing Characteristics							
Cushion Closing							
Control Open and Close (Standard)							
Control Close (Optional)							
Remote Control							
Shut Off Valve							
Throttling Valve							
Reverse Flow (For Draining)							
Electric Motor Operated							
Disc Position Indicator							
125/300# Class							
Outside Lever Available							
Up to 250/300# Class							
Up to 600# Class							
Up to 1500# Class							
Velocities to 10 FPS							
Velocities to 15 FPS							
Velocities in Excess of 15 FPS							

**Note:** This valve selection chart is designed to provide you with a quick reference on valve style capabilities. The chart considers both cost and performance factors for a specific application when determining whether a valve style is rated Typical, May Be Used, or Limited Application. For more information, contact DeZURIK, Inc. or your local representative with your specific application requirements.

# Air Valve Selection Guide

Function	Air volume	Installation Location	Media	Product line	Application
Vent Air	Small	Pipe High Points, Pressure Filter Tank	Water	Air Release Valves	Vent Small Pockets of Air that Accumulate at the Highpoints in the System During Normal Operation.
		Pipe High Points	Sewage	Air Release Valves for Sewage	
	Small	Pump	Water	Air Release Valves for Centrifugal Pumps	Allow Small Volumes of Air to be Exhausted From the System as it is Filled.
	Small	Fuel Transfer System	Liquid Fuel	Air Release Valves for Fuel Transfer Systems	Vent Small Pockets of Air that Accumulate at the Highpoints in the System During Normal Operation.
Vent/Vacuum Air	Large	Pipe High Points	Water	Air/Vacuum Valves	Allow Large Volumes of Air to be Exhausted from or Admitted into the System as it is Filled or Drained.
			Sewage	Air/Vacuum Valves for Sewage	
			Water	Slow Closing Air Valve	Ensures Gentle Closing, Minimizes Pressure Surge when the Valve Closes.
			Water	Hydraulically Controlled	Used for Positive Pipeline Protection Against Damaging Pressure Surges.
			Water	Syphon Air Valve (Make and Break)	Allows a Syphon Flow to Be Developed. Ideally Suited for Pumping by Means of a Syphon Loop.
	Pump	Water	Air Valves for Vertical Turbine Pumps	Essential to Prevent Large Volumes of Air Entering the System Each Time the Pump is Started and to Break a Vacuum when the Pump Stops.	
Both Small and Large	Pipe High Points	Water	Combination Air Valves	Vent Small Pockets of Air that Accumulate at the Highpoints in the System During Normal Operation and Allow Large Volumes of Air to be Exhausted From or Admitted into the System as it is Filled or Drained.	
Vacuum Air/Air Inlet	Large	Pipe High Points	Water	Vacuum Relief/Air Inlet Valves	Permits Air To Enter the Pipeline or System to Break the Vacuum. No Air Escapes When the System Pressure Returns to Positive.
			Sewage	Vacuum Relief/Air Inlet Valves for Sewage	
Pump Protection	Small	Pump	Water or Sewage	Pump Protectors	Loss of Prime Protection for Pumps

**Note:** This valve selection chart is designed to provide you with a quick reference on valve style capabilities. The chart considers both cost and performance factors for a specific application when determining whether a valve style is rated Typical, May Be Used, or Limited Application. For more information, contact DeZURIK, Inc. or your local representative with your specific application requirements.

## **Sales and Service**

For information about our worldwide locations, approvals, certifications and local representative:

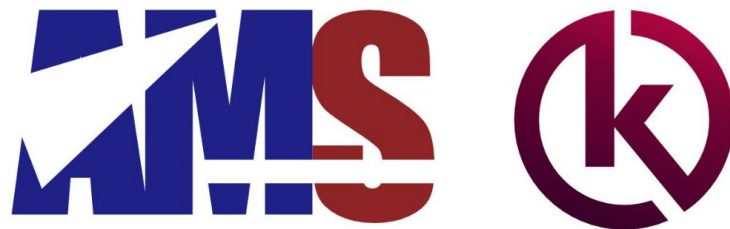
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*DeZURIK, Inc. reserves the right to incorporate our latest design and material changes without notice or obligation. Design features, materials of construction and dimensional data, as described in this bulletin, are provided for your information only and should not be relied upon unless confirmed in writing by DeZURIK, Inc. Certified drawings are available upon request.*

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