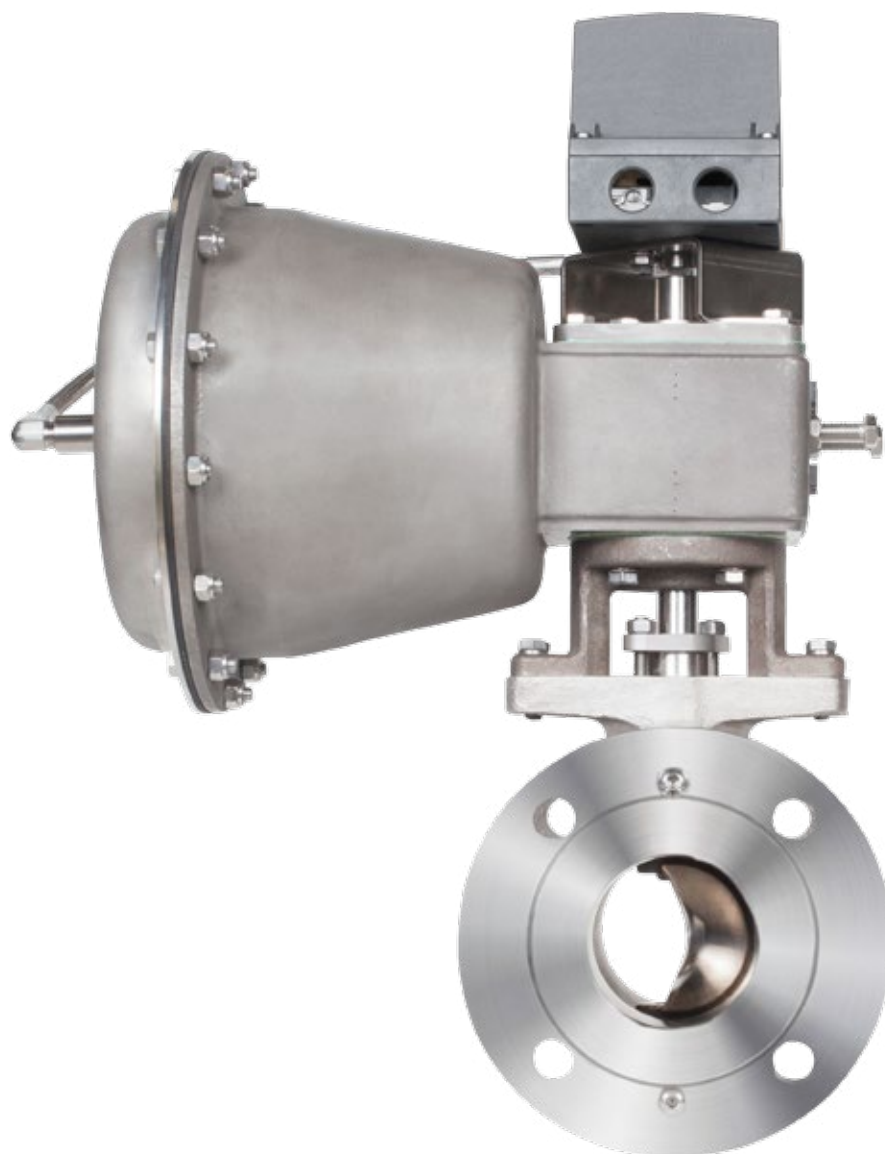




## **DeZURIK VPB V-PORT BALL VALVES**



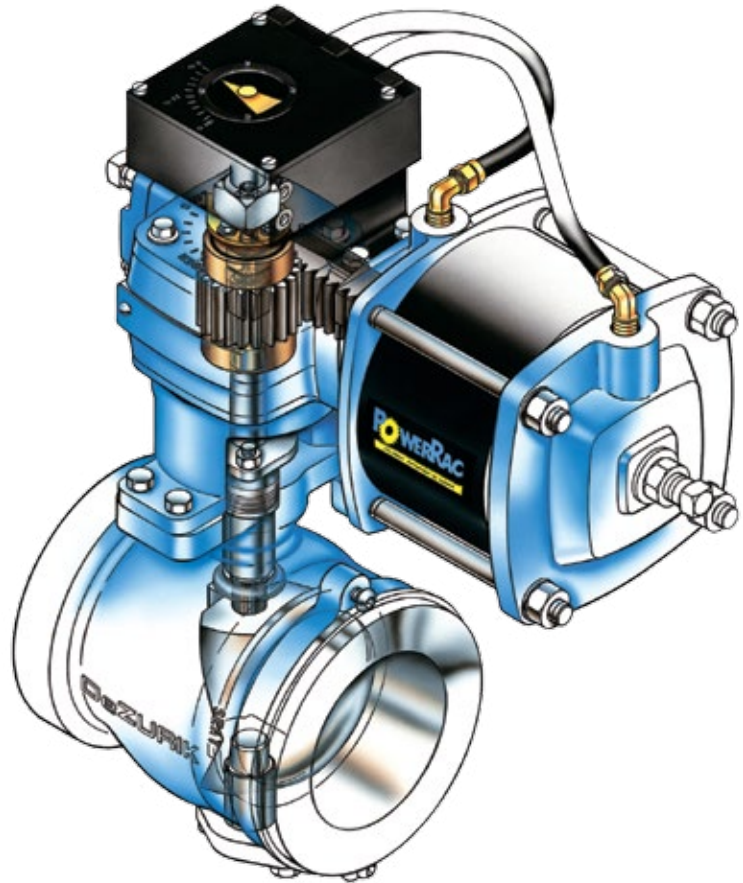
# VPB V-Port Ball Valves

## Design and Construction

DeZURIK V-Port Ball valves deliver superior performance and reliability required to optimize process performance. This versatile valve is designed for control of fibrous suspension applications, plus clean, dirty, viscous and corrosive liquids and gases.

The VPB has an ASME 150 class valve in size range 1-20" and an ASME 300 class valve in size range 1-12". DeZURIK V-Port Ball valves feature one-piece body construction and are available in flanged or flangeless end connections. They conform to or exceed North American and International Standards for control valves. Superior control performance is designed into the geometry of the ball for critical management of flow. A locked ball-to-shaft connection ensures no lost motion for critical control. Bearings, covers and fasteners are designed for maximum valve reliability.

When operated by a high quality DeZURIK actuator and controlled by one of many high performing positioners, the DeZURIK V-Port Ball control valve can deliver control accuracy exceeding 0.5% as measured by the Benchmark Control Valve Diagnostics™ System. Control accuracy will increase process plant efficiency, improve overall profitability and reduce control valve life-cycle costs.



In the event maintenance is needed, DeZURIK's unique design facilitates fast, easy breakdown and assembly of valve components with no special tools required. The result is reduced maintenance time and the lowest overall cost of ownership.

Drop-in-place, self-aligning and interchangeable seat options offer ease in maintenance. Available seat options include reinforced PTFE, flexible metal, rigid metal and clearance.





### **Streamlined Flow Passages**

DeZURIK V-Port Ball valves feature a streamlined flow passage, providing maximum efficiency (Cv/Kv per valve size) and minimizing erosion inside the valve body.

### **Rugged, Easy-to-Maintain Construction**

The heavy-duty cast body is a one-piece design for increased installed-pipe integrity and minimal potential leak paths. Stainless steel construction combined with drop-in seats and a splined shaft and ball connection makes the DeZURIK V-Port Ball valve easy to maintain.

### **Carbon Steel and High Alloy Valves Available**

VPB valve bodies are available in 316 and 317 stainless steel, carbon steel and Hastelloy C.

### **Laying Length Flexibility**

DeZURIK VPB valves offer the ultimate in face-to-face flexibility. The solid one-piece body is available in either ASME B16.10 or ANSI/ISA take-out dimensions. V-Port Ball valves are available in flanged or flangeless construction to meet individual requirements and common piping standards. For added versatility, these valves meet IEC, ISO and EN face-to-face dimensions. In plants that have an installed base of both ASME B16.10 and ANSI/ISA control valves, VPB users have been able to minimize storeroom inventory by stocking valve bodies, ANSI/ISA retainers and ASME B16.10 retainers. A replacement valve with either face-to-face dimension can be quickly installed. DeZURIK also offers an integrally flanged one-piece ASME B16.10 body. Laying length flexibility is just another example of how the VPB can save money.

### **International Flange Drilling**

DIN 10, 16, 25 and 40, and JIS 10, 16 and 20 flange drilling bolt circle options are available in addition to ASME B16.5.



## Uninterrupted Gasket Surface

V-Port Ball valves feature a full, uninterrupted, raised-face gasket surface that provides maximum gasket integrity. The gasket surface provides full seal contact area with ASME B16.20 gaskets.

## Self-Aligning Ball and Seat

The self-aligning ball and seat on the VPB valve reduces lengthy setup time during repair and reassembly. Valves can easily be returned to like-new performance without time-consuming special procedures. And, because of the spring-loaded metal seat design, the ball and seat self-compensate for wear on either surface.



## Common Valve Components

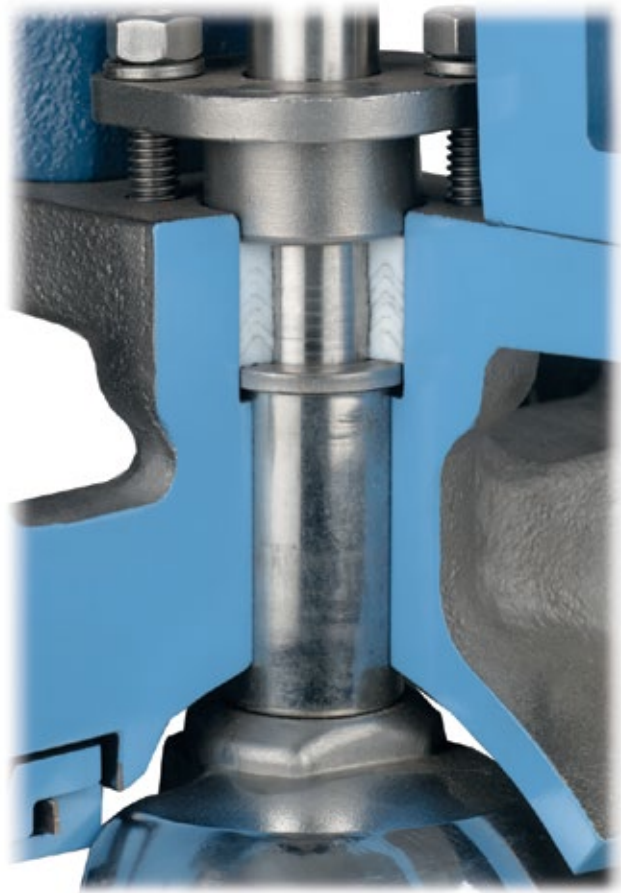
DeZURIK's V-Port Ball valve was designed to share a majority of valve components with the DeZURIK RCV Rotary Control valve. The two valves use the same bodies, packing components, bearings, brackets and fasteners. The common components reduce spare parts in inventory requirements and associated costs for plants utilizing both styles of DeZURIK control valves.

## Stainless Steel Fasteners

As standard, all DeZURIK V-Port Ball valve fasteners are stainless steel, providing easy disassembly. An additional maintenance feature is a bottom access cover for valve disassembly and reassembly.

## Streamlined Maintenance

DeZURIK V-Port Ball valves feature the simplest maintenance procedures among control valves available. There are no threaded trim parts. The seat retainer and trim components drop in place ensuring precise alignment of plug and seat. Disassembly and reassembly are easily completed with no special wrenches or other tools required. On viscous and suspended fibrous services where routine maintenance is expected, the VPB's drop-in trim, optional sealed bearings and self-aligning ball/seat reduce maintenance costs and minimize lost production.





### **V-Ball Design**

Utilizing computer-aided design and extensive flow-loop testing, the v-orifice was designed to provide the high rangeability and precision throttling required on fibrous suspension applications, as well as clean or dirty liquids and gases.

The straight through flow passage provides maximum efficiency and excellent erosion resistance. The ball can be furnished with a range of high-alloy materials, all provided with a heat-treated nickel overlay. This overlay provides a non-porous and lubricous surface, resulting in greater corrosion resistance and less sliding friction. For abrasive and high temperature applications, a 317 stainless steel ball can be furnished with a tungsten carbide overlay or a Hastelloy C ball with nickel overlay can be provided.

### **Sealed Bearings**

The sealed-bearing option prevents media from entering the bearing areas, which can hinder valve operation. PFA Fluoropolymer or FFKM Perfluoroelastomer seals are available for bearings that need exceptional protection from scaling, plating, abrasive or polymerizing media.



### **Corrosion-Resistant Bearings**

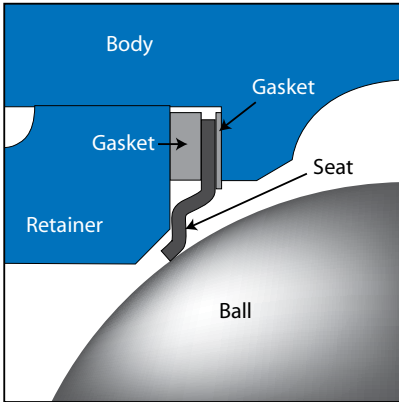
The one-piece bearing provides a large area of radial support to the shaft. The shaft is fully supported, greatly reducing shaft fatigue. The 317 stainless steel wire mesh reinforced PTFE bearing has a low coefficient of friction that minimizes operating torques and reduces actuator sizing requirements. For severe-service applications, a cobalt-chromium alloy bearing is available. A sealed-bearing option is also available.



### **Splined Shaft with Solid Ball-to-Shaft Connection**

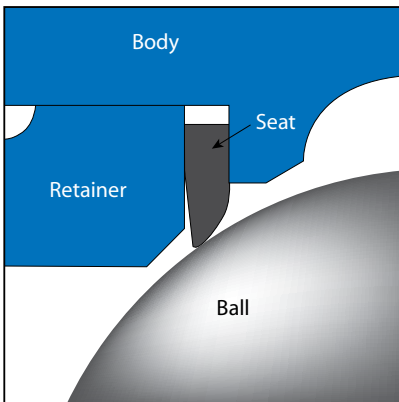
The splined shaft and ball with locking torque screw on DeZURIK V-Port Ball valves provide a high-strength, positive connection that effectively eliminates mechanical backlash and hysteresis. The splined connection with locking torque screw ensures accurate, precise positioning of the ball. The machined diameter of the shaft provides blow-out proof protection.

# Seat Options



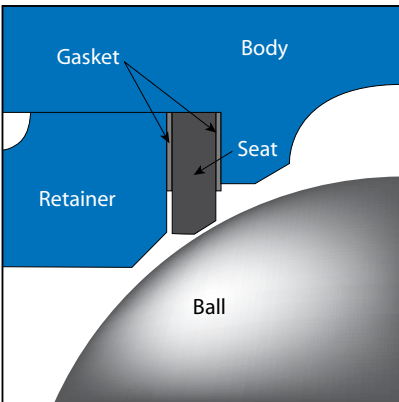
## Flexible Metal Seat

The flexible metal seat is designed to shear fibrous fluids and provides shutoff up to ANSI/FCI 70.2 Class IV standard. Flexible metal seats are rated to the full valve pressure rating with the valve installed in the flow-to-open direction and rated to 150 psi (1030 kPa) pressure differential when installed in the flow-to-close direction.



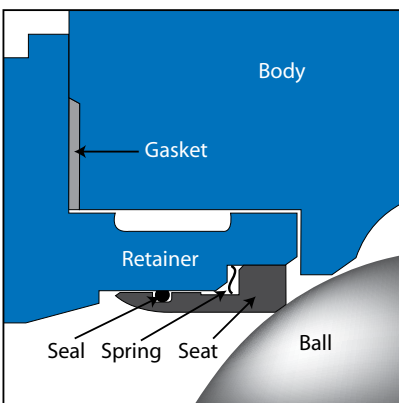
## Reinforced PTFE Seat

Reinforced PTFE seats are typically used on clean fluid applications where ANSI/FCI 70.2 Class VI shutoff is required. DeZURIK V-Port Ball valves feature a reinforced PTFE seat, designed for flow-to-open operation, rated to 285 psi (1895 kPa) pressure differential. For added versatility, all V-Port Ball valve seat options are field-interchangeable.



## Clearance Seat

The clearance seat provides maximum controllability and minimum hysteresis in applications that do not require tight shutoff. This bi-directional seat eliminates seat friction. Shutoff is 5% of valve's maximum flow when closed.



## Rigid Seat

Rigid seats are available for abrasive application including reclaimed fiber systems and applications with suspended chemical solids. The rigid seat provides shutoff performance to ANSI/FCI 70.2 Class IV. Materials include 317 stainless steel and Hastelloy C, all with heat treated nickel overlay. For enhanced abrasion resistance, a 317 stainless steel seat with tungsten carbide seating surface and solid Cobalt-Chromium alloy bearing is available.

An optional nickel-chromium spring can be substituted for the 17-7 PH stainless steel seat spring when added corrosion resistance is required.

The rigid seat is designed for flow-to-open operations and is field-interchangeable with the reinforced PTFE, flexible metal and clearance seats.

## Intelligent Positioners

Digital positioners can be used in a conventional 4-20 mA, analog control environment. They can also be used with HART, Foundation Fieldbus, or Profibus communication protocols bringing you access to diagnostic capabilities that will allow you to ensure your process is operating at its peak effectiveness.



DeZURIK P30A



DeZURIK P85

## Throttling Control

The V-Port Ball valve design ensures unsurpassed accuracy over the 90° range of operation. Splined and locked ball-to-shaft connection, computer-designed ball, characterized v-port, low-friction bearings and low-friction packing combine to give superior control, including fast, accurate response to signal changes. These rigid connections effectively eliminate mechanical backlash and hysteresis.

The V-Port Ball valve with a high quality DeZURIK actuator and one of many high performing positioners will exceed 0.5% control accuracy, delivering over 200 discrete positions. This exceeds industry valve dynamic performance standards as well as the accuracy levels of most alternative pneumatically actuated control valves.

To enhance accuracy of the VPB in real world process systems, the control valve assembly can be fitted with a smart digital positioner that not only provides near zero air bleed but also can be used in control systems using HART, Foundation Fieldbus, or Profibus protocols. This allows precise control and feedback of valve performance to the Distributed Control System (DCS).

## Performance Testing

Control valve performance is tested with a BenchMark Control Valve Diagnostic™ system. Each valve has a discrete test result that can be referenced through the valve's serial number. V-Port Ball valve performance accuracy provides in excess of 200 repeatable positions. With routine maintenance, field monitoring or monitoring through a digital positioner, this performance level can be maintained throughout the life of the valve.

## Control Valve Test Report

All VPB valve/actuator/positioner assemblies are tested for accuracy. The optional CVT Control Valve Test Report can be ordered which documents the response measurement from step inputs per ISA-75.25.01-2000 (R2010).

## Actuator Flexibility Options

V-Port Ball valves are available with DeZURIK PowerRac® or Diaphragm actuators. The actuator top mounting pads or adapter brackets of currently manufactured DeZURIK rotary control and isolation valves (RCV, VPB, BHP) are compatible with the ISO 5211 standard. This common actuator platform increases flexibility and helps reduce spare parts inventory.



## Close Coupling of Actuator to Valve

DeZURIK Diaphragm and PowerRac® actuators rigidly connect to the valve and the positioner on the actuator housing. This accurately feeds exact valve position directly to the positioner. In addition, the close coupling of the actuator to the valve makes the total package as compact as possible.

## Accessories

A full line of accessories integrated to the actuator system is available to meet your individual mill/plant requirements.

## Sales and Service

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

Web Site: [www.dezurik.com](http://www.dezurik.com) E-Mail: [info@dezurik.com](mailto:info@dezurik.com)



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