



## DeZURIK RCV ROTARY CONTROL VALVES



## Design and Construction

The DeZURIK RCV Rotary Control Valve has been specially engineered for extremely precise throttling control in severe-service applications in the pulp and paper, chemical, power, petroleum and refining industries. The RCV is ideally suited for tough applications where high-pressure media contain entrained water vapor or suspended abrasive particles:

- scaling liquor service,
- dirty steam service,
- kaolin slurry,
- lime mud,
- TiO<sub>2</sub> slurry,
- fly ash slurry,
- coking, and
- other hard-to-handle liquids, gases and slurries.

The DeZURIK RCV Rotary Control Valve combines the control accuracy of a globe valve with the strength of a severe-service ball valve. Traditionally, a ball valve that could withstand erosion, corrosion and scaling media couldn't provide precise throttling accuracy. And a globe valve could provide great control, but could only handle clean media. But, with the RCV you don't have to sacrifice control to get a valve that can withstand the tough applications.

Hard-faced trim components and unique design features provide erosion resistance up to eight times better than trim produced from Alloy #6. The RCV is designed for high-capacity, bi-directional flow capability and includes four trim options for flexibility.



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.

Available in sizes 1–12" (25–300mm), the DeZURIK RCV Rotary Control Valve is available in ANSI 150 and 300 ratings. Body material options include 316 and 317 stainless steel, carbon steel, Hastelloy C or Titanium. Flanged or flangeless designs meet ANSI or ISA face-to-face dimensions.

Metal-seated valves provide FCI 70-2/ANSI Class IV shutoff and temperature capabilities up to 1000°F (540°C). Soft-seated valves utilizing reinforced PTFE provide FCI 70-2/ANSI Class VI shutoff and handle temperatures to 500°F (260°C).

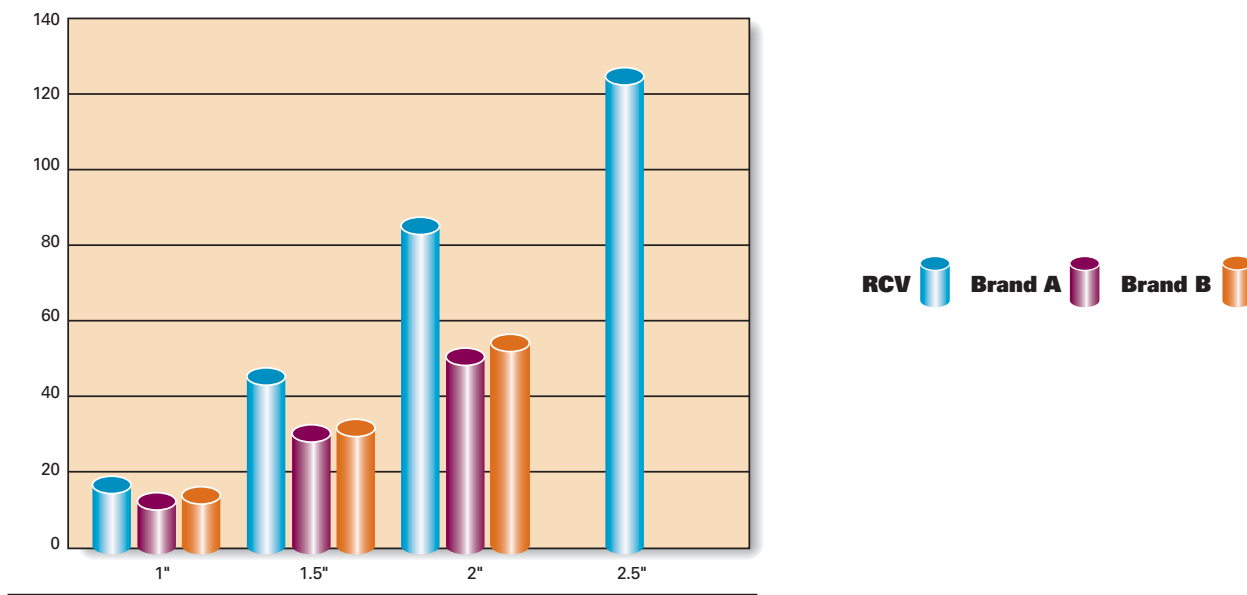
## High Flow Capacity Saves Money

DeZURIK RCV Rotary Control Valves have the highest flow capacity ratings in the industry. On new plants or retrofits, RCV can save plants thousands of dollars because of their high flow capacity. The charts below compare the maximum flow capacity (Cv) of the RCV with those of two other leading brands.

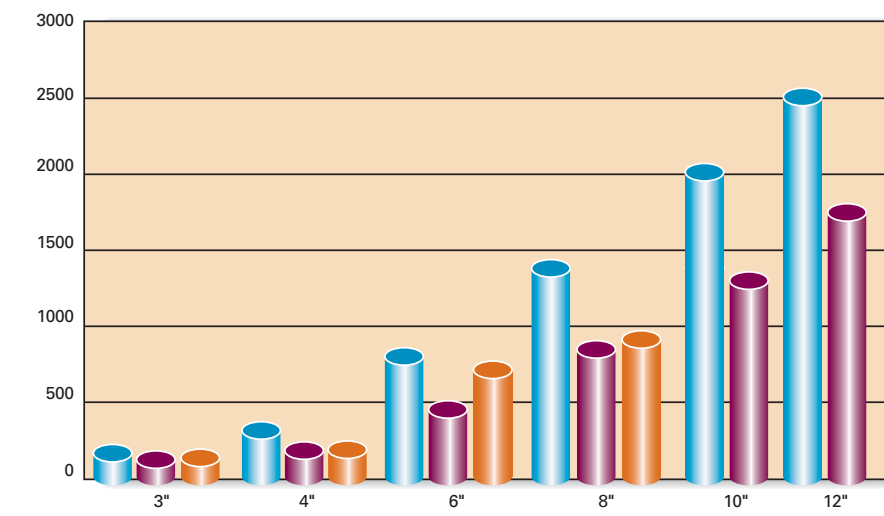
Size for size, the RCV provides far more Cv per dollar—an average of 30% more—allowing the use of smaller, lighter and more cost-effective valves and actuators. The high flow capacity means that one size, or sometimes two sizes, smaller valves can be used, saving precious capital expenditure money. Smaller valve and actuator sizes also mean less costly maintenance and repair over the life of the valve.

### Cv Values

#### 1-2.5" (25-65mm), RCV vs Brands A and B



#### 3-12" (80-300mm), RCV vs Brands A and B



## 90 Degree Control

While other rotary control valves offer only 60° range of motion (180 positions), DeZURIK RCV Rotary Control Valves operate over the full 90°, providing up to 200 discrete positions. The additional range of motion allows the RCV to provide finer, more precise control. RCV have a modified equal percentage flow curve.

## Throttling Accuracy

DeZURIK RCV Rotary Control Valves provide unparalleled control of the process, including fast, accurate response to signal changes. Accuracy of up to 0.5% means a resolution of up to 200 discrete positions of operation. The RCV exceeds both industry valve dynamic performance standards and the accuracy levels of most competitive valves. The rigid splined and locked plug-to-shaft connection effectively eliminates mechanical backlash and hysteresis.



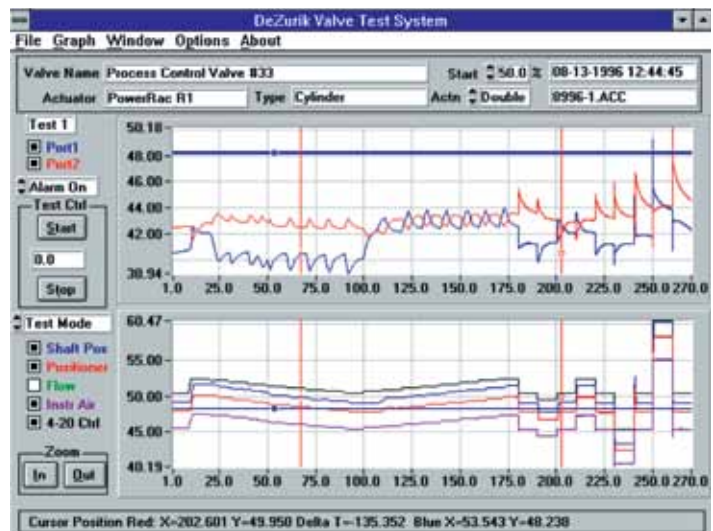
DeZURIK RCV

Rotary Control Valve is often an economic alternative in 3–12" (80–300mm) sizes in clean liquid or gas service because it is capable of industry-leading accuracy and speed of response.



## Four Flow Capacity Ranges

DeZURIK RCV Rotary Control Valves are available with four flow capacity ranges to provide the maximum in application flexibility. High, full, 0.5 and 0.2 reduced trims all provide precise flow control and can easily be interchanged in the field. High flow capacity means smaller valves can often satisfy the same flow requirement as larger competitive valves. Because smaller valves can be used, economics also becomes a positive factor along with smaller, less-costly actuators.



## Capacity Increases Easily Accomplished

The four trim sizes of the DeZURIK RCV Rotary Control Valve allow a valve with reduced trim to be installed that provides optimal control for today's conditions. In the future, when capacity increases are needed, the valve seat can be changed to allow much more capacity. With a simple seat change, rather than a valve replacement, the plant's capacity can be increased without compromising control or incurring significant expense.



## Seat Options

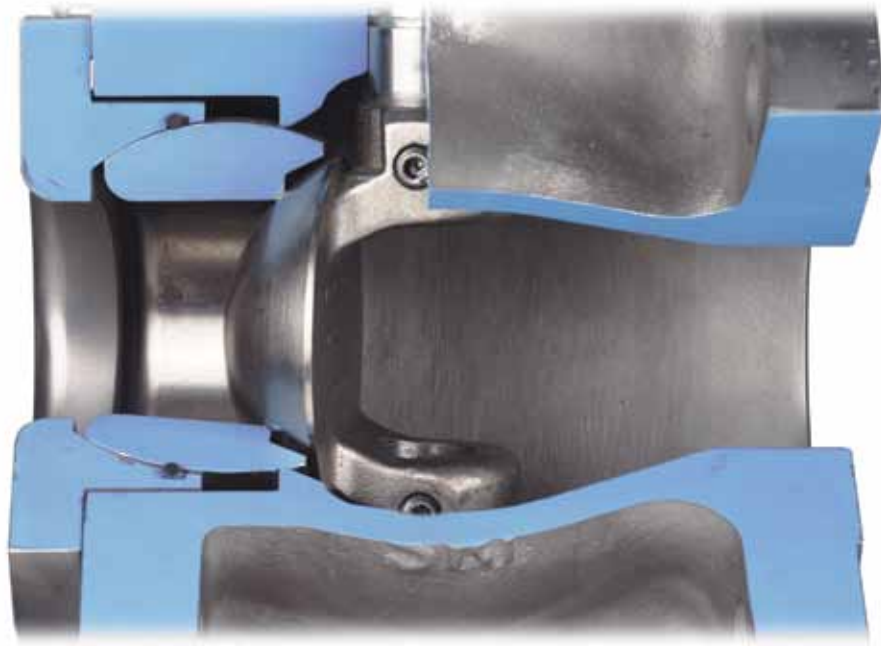
Maximum flexibility is achieved with three seat material options: reinforced PTFE, electroless nickel coated stainless steel and stainless steel with tungsten carbide overlay. Shutoff is ANSI Class IV and VI.

## **Streamlined Maintenance**

DeZURIK RCV Rotary Control Valves feature the simplest maintenance procedures of any rotary eccentric or globe-style control valve 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 highly erosive services where routine maintenance is expected, the RCV's drop-in trim, sealed bearings and self-aligning plug/seat reduce maintenance costs and minimize lost production.

## **Common Valve Components**

DeZURIK RCV Rotary Control Valve was designed to share a majority of valve components with DeZURIK's V-Port Ball valve (VPB). The two valves use the same bodies, packing components, bearings, brackets and fasteners. Within RCV valve sizes there are common parts as well. Trim components between 150 and 300 pressure classes are the same. Many sizes share identical valve shafts, packing sets and packing glands. These common components help minimize expensive storeroom inventory of replacement parts.



## **Self-Aligning Plug and Seat**

The self-aligning plug and seat on the DeZURIK RCV Rotary Control 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 orbital seat design, the plug and seat self-compensate for wear on either surface. This means that plugs and seats do not have to be machine-matched the way many competitive styles do. Individual plugs and seats can be maintained in storerooms—again reducing inventory on hand and associated costs.

## **Bi-Directional Flow Capability**

DeZURIK RCV Rotary Control Valves provide bi-directional flow capability that increases the valve's flexibility. On slurry and erosive applications, valve and trim life can be optimized by installing the valve in a flow-to-close direction.

Erosion-Resistant Services Package

DeZURIK RCV Rotary Control Valve has been designed specifically for highly erosive services. The tungsten carbide coated trim components have a Rockwell C68 hardness and provide superior erosion resistance compared to typical valve trim facings. Combined with the sealed bearing option that prevents media from hindering continuous operation, the RCV provides long life on tough applications.



Field-Proven Durability

DeZURIK RCV Rotary Control Valves have been proving their durability in highly erosive services with high-pressure drops for years. For example, the chart below lists actual case histories in which all valves exceeded customer expectations.

Application	Pressure Drop Across The Valve psi (kPa)	Temperature Degrees F (C)
Digester Gas-Off	180 (1240)	460 (240)
Kaolin Slurry	70 (480)	320 (160)
Fly Ash	35 (240)	500 (260)
Titanium Dioxide	70 (480)	70 (20)
Steam	45 (310)	281 (140)

Steam Service Package

The DeZURIK RCV Rotary Control Valve is an excellent choice for economical steam control compared with more expensive globe-style valves. The RCV withstands pressures up to 740 psi (5100 kPa). The steam service package is designed for long-term, trouble-free valve performance and includes a carbon steel body, 2205 super duplex stainless steel shaft, 440C stainless steel bearings, a seat with a tungsten carbide overlay and a non-porous, hardened electroless nickel-coated plug (RC70).

### High-Alloy Valves Available

Titanium RCV valves are ideally suited for severely corrosive applications such as sodium chlorate, chlorine dioxide, terephthalic and hot acetic acid. RCV valves are also available in 316/317 stainless steel, carbon steel, Hastelloy C and other alloys.

### Stainless Steel Fasteners

As standard, all DeZURIK RCV Rotary Control Valve fasteners are stainless steel for easy disassembly. An additional maintenance feature is a bottom access cover for valve disassembly and reassembly.

### Uninterrupted Gasket Surface

DeZURIK RCV Rotary Control Valves feature a full, uninterrupted raised-face gasket surface that provides maximum gasket integrity. The gasket surface provides full seal contact area with ANSI B16.20 gaskets.



### 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 or high-alloy construction, combined with drop-in seats and a splined plug-to-shaft connection make the DeZURIK RCV Rotary Control Valve easy to maintain.

## Sealed Bearings

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



## Actuator Flexibility Options

DeZURIK RCV Rotary Control 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, BRS) are compatible with the ISO-5211/1 standard. This common actuator platform increases flexibility and helps reduce spare parts inventory.

## 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 and breakage. The metal bearing has a low coefficient of friction that minimizes operating torques and reduces actuator sizing requirements.



## Sales and Service

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

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