



ISO 600 Valve with Water Cooled Gate

- Port Sizes from 2 to 32 Inch, 63 to 800 mm
- ANSI, ISO, JIS, Conflat® or Custom Flanges
- Electric Motor or Electro-Pneumatic Actuator
- Available for DIV. 1, grp. B, C, D, E, F, Environments
- All Aluminum For Maximum Thermal Exchange
- High Efficiency Internal Coolant Channels
- Helium Leak Tight to Better Than  $10^{-10}$  scc/sec
- Vacuum From  $10^{-9}$  Torr To 10 Atmosphere
- Water Cooled Gate and Body Flanges

As a leading supplier of vacuum valves and weldments Vacuum Research can provide either aluminum or mild steel valves with water cooled gates, bodies or flanges.

We have more than 50 years experience with vacuum valves on systems that include temperature, pressure, hazardous environments and of course, high vacuum.

Water cooled valves in both gate and poppet styles are available with ANSI flanges up to 32 inches and with ISO flanges up to 800 mm. Highly efficient cooling water circuits with low  $\Delta P$  and high overall 'u' maximize thermal transfer and minimize cooling water consumption. In addition to water cooling all valve styles can be provided with thermal radiation shields on the gate.



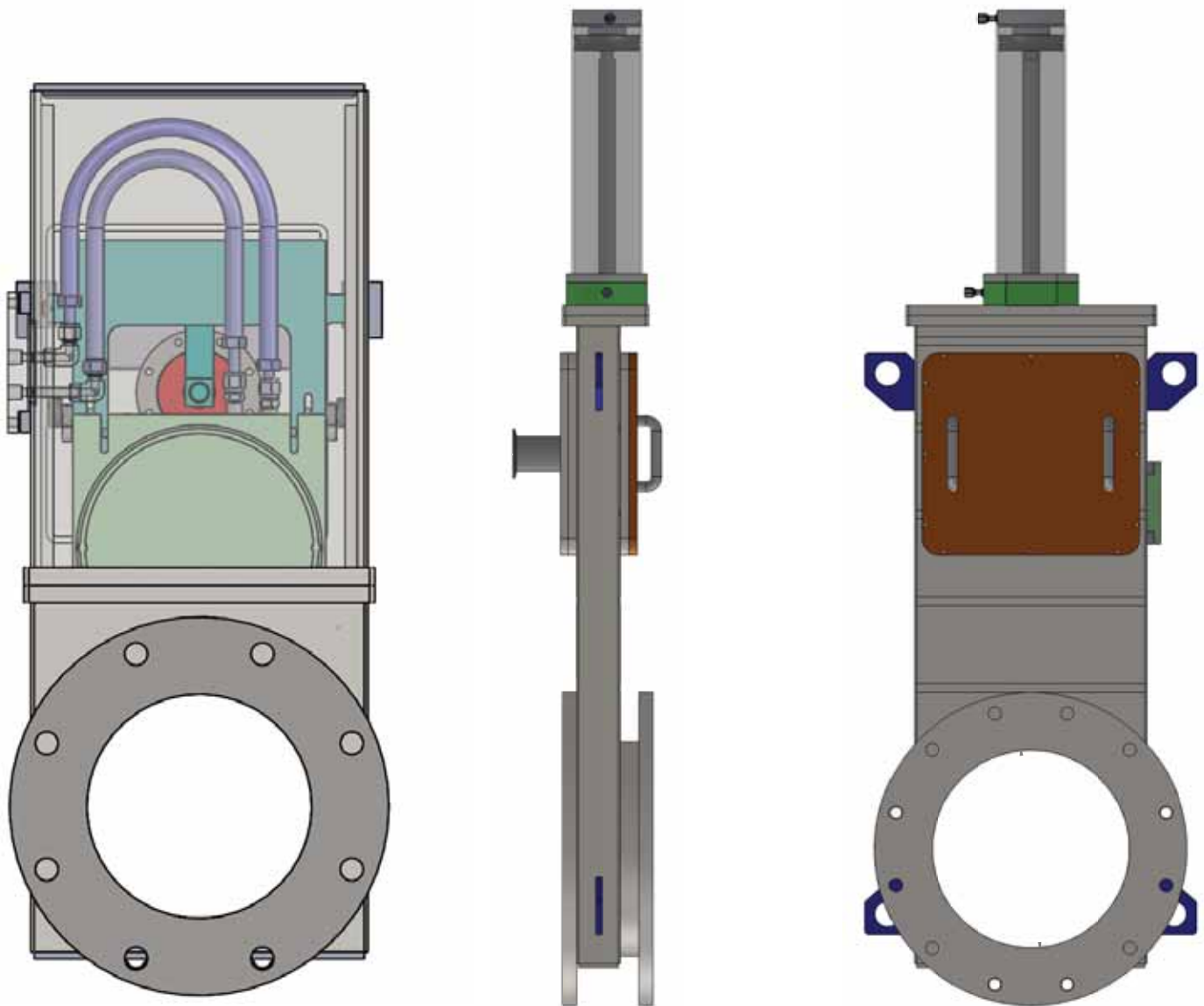
Poppet Valve with Cooling Shroud



Water Cooled Flanges with Port Shroud



Water Cooled Gate and Port Flanges



### Ordering Information

Water Cooled Valves are always custom-built to provide the features required for each application, however the starting place is our standard LPWA, End-Operated, or Poppet Valves described in this valve catalog and on our web site: [www.vacuumresearch.com](http://www.vacuumresearch.com).

Select the valve style and size that fits your needs and we will send a SolidWorks drawing showing the water cooling and radiation shield needed.

Also available are the many standard options described in the accessories section of this catalog. The most popular of these options are position indicators for remote indication of the valve position, and gauge or roughing ports with NW style flanges. Special solenoids and position indicators for hazardous areas and combinations of ISO, ANSI and Conflat® flanges are also available.



Valve on left is fully open with protective ring in place. Particles are directed through the port instead of into the valve body.

Although Vacuum Research valves are not affected by small amounts of dust and dirt some processes are so dirty that frequent cleaning is required. For such processes our Protective Ring Valve with the Dirt Sump can substantially reduce your costs by increasing the time between cleanouts. The Protective Ring and Dirt Sump are available on valves with port sizes from 2 to 24 inch (50 to 600 mm ISO). Other Vacuum Research options such as Position Indicators and ports for gauges and roughing can also be provided on these valves.

- Protective Ring Keeps Dirt Out of Valve
- Aluminum, Stainless Steel or Mild Steel
- Water Cooled Port Flanges Available
- Radiation Shield for Gate is Optional
- Water Cooled Gate Described on Page 32
- Easy to Clean Dirt Sump Bonnet
- Helium Leak Rate Less Than  $5 \times 10^{-10}$  scc/s
- Port Sizes From 2 to 24 Inch, 50 to 600 mm
- ANSI, ISO, JIS or Special Flanges
- Fail Safe Design, Close on Power Loss

Our protective ring valves are operating in multiple process configurations. We are especially proud of our success in large valve production of the Protective Ring Valves and we'd like the opportunity to meet your requirements. Call or email us with your application design. Our engineering and production teams can work with you to fit our valve to your process. We may already have designed a valve that is close to fitting your system and we can work with you on the details to finish the job.



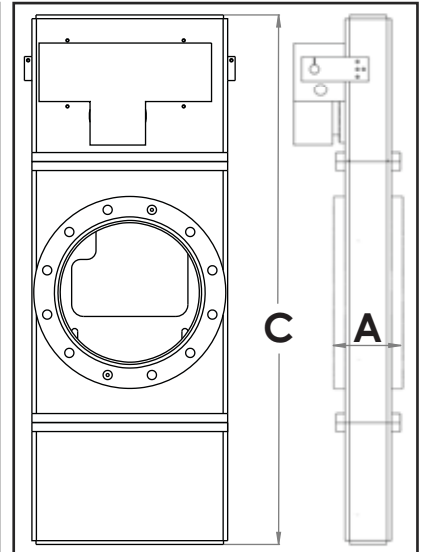
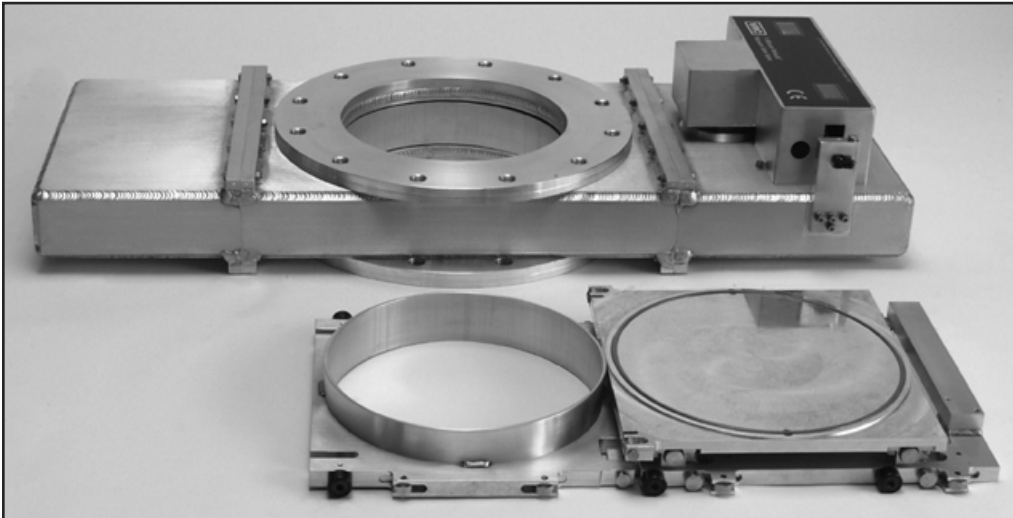
ISO 600 Powder and Chunk with Water Cooled Gate



500 mm Powder and Chunk Valve Final Assembly



# Protective Ring Valves for Dirty & Dusty Applications



Fully open valve with protective ring in place. Gate/carriage assembly showing standard protective ring.

ANSI Flanges				ISO f Flanges			Operator Type	A Flange To Flange (in.)	C OAL With Sump	Body Width (in.)	Net Weight lbs. (kg)	Ship Weight lbs. (kg)	Price without Water Cooled Gate or Port Flanges
Nominal Size	Port Diameter	Bolts (no.)-thrds.	Flange O-Rings	Nominal Size	Port Diameter	Bolts (no.)-pitch							
2 Inch	2.7 in.	(4) 5/8-11	3.50 x .139	ISO 63	63 mm	(4) M8-1.25	The valves described here use VRC's Rotary Actuator.  End Operated Actuators with a linear piston are also available.	4.0	21.0	6.5	20 (9)	30 (13)	\$4103.
4 Inch	6.0 in.	(8) 5/8-11	5.75 x .139	ISO 100	100 mm	(8) M8-1.25		4.1	21.0	6.5	50 (23)	65 (30)	\$5044.
6 Inch	8.0 in.	(8) 3/4-10	7.50 x .139	ISO 160	160 mm	(8) M10-1.5		5.3	30.0	12.0	70 (32)	85 (39)	\$6599.
8 Inch	10.0 in.	(8) 3/4-10	9.0 x .275	ISO 200	200 mm	(12) M10-1.5		5.3	30.0	12.0	74 (34)	89 (40)	\$7197.
10 Inch	12.0 in.	(12) 7/8-9	12.0 x .275	ISO 250	250 mm	(12) M10-1.5		5.5	44.0	14.2	150 (68)	172 (78)	\$8788.
12 Inch	12.0 in.	(12) 7/8-9	13.0 x .275	ISO 320	320 mm	(12) M12-1.75		5.5	46.0	16.3	163 (74)	183 (83)	\$9074.
16 Inch	16.0 in.	(16) 1-8	17.5 x .275	ISO 400	400 mm	(16) M12-1.75		6.5	55.0	22.0	650 (295)	750 (341)	\$16,879.
20 Inch	20.0 in.	(20) 1 1/8-7	22.0 x .275	ISO 500	500 mm	(16) M12-1.75		8.1	69.6	25.8	800 (363)	950 (432)	contact factory
24 Inch	24.0 in.	(20) 1 1/4-7	26.0 x .275	ISO 630	630 mm	(16) M12-1.75		8.5	79.0	30.4	1100 (295)	1400 (635)	contact factory

**Stainless Steel Gates in Aluminum Valves:** To specify a stainless steel gate in an aluminum valve add a suffix to the model number "SS Gate". See "Optional Features and Accessories" page in this catalog for pricing information.



## Optional Quick Release Bonnet



- 5 Seconds for Complete Disassembly
- No Tools Required for Bonnet Removal
- Leak Tight to 5 X 10<sup>-10</sup> STD. CC/Sec.
- 2" to 10" and ISO 63 to ISO 250 Available
- Manual, Pneumatic, or Motor Actuators
- Safe Lever Prevents Accidental Release

In extremely dusty and dirty furnaces and coating systems where frequent cleaning is needed the Quick Release Bonnet will save operator time and reduce labor cost. The double locking safety lever prevents accidental release but still allows removal of the internal mechanism without tools in just a few seconds. Clamps are all stainless steel with vinyl grips.

**Quick Release Bonnet for Valves with Aluminum Bodies:** part no. X810927 ..... \$780.

**Quick Release Bonnet for Valves with Stainless Steel Bodies:** part no. X810927SS ..... \$728.



Vacuum Research valves are available with dozens of options to allow you to select exactly the features you need for your vacuum system. The model number system illustrated below will accurately describe most valves, but if you have any questions about the best way to specify what you need, just call or fax our customer service department and we will be happy to help you. All Valves are (RoHS) 2002/95/EC Compliant.

### Basic Valve Style

<b>LPWA</b>	Bonnet Style, Large Port Aluminum
<b>TBWA</b>	Thick Body Valves for Dirty Environments
<b>X-LPWA</b>	Bonnet Style, Extra Large Port Aluminum
<b>LPSS</b>	Bonnet Style, Large Port Stainless Steel
<b>X-LPSS</b>	Bonnet Style, Extra Large Port Stainless Steel
<b>BEL</b>	Bellows Seal, Welded Aluminum
<b>END STD</b>	Standard Port Aluminum Gate Valves
<b>END LP</b>	Oversize Large Port Aluminum Gate Valves
<b>AVAL</b>	Aluminum Poppet Style Valves
<b>AVMS</b>	Mild Steel Poppet Valves
<b>REB</b>	Rectangular Port, Bellows Seal
<b>REQ</b>	Rectangular Port, Quad Ring Seal

### Roughing & Gauge Ports

Specify location (R-1, R-2, etc.) and size of port (NW-16, NW-25, etc.) Refer to page 42 in this catalog: Roughing and Gauge Ports, for the range of port sizes available in each location for your basic valve style.

### Limit Switches (Position Indicators)

Visual Position Indicators are included on All Bonnet Gate Valves. Limit switches are described in the "Optional Features and Accessories" section on page 41. (Sold by the pair, 1 for open, 1 for closed)

<b>LSS</b>	Enclosed Limit Switch (SPDT)
<b>LSD</b>	Enclosed Limit Switch (DPDT)
<b>LSO</b>	Open Type Limit Switch (SPDT)
<b>LSE</b>	Electronic Type Limit Switch (SPDT)
<b>LSX-C</b>	Explosion Proof, Grps. C, D (SPDT)
<b>LSX-B</b>	Explosion Proof, Grp. B (SPDT)

### Flange Bolt Pattern

<b>ASA</b>	ANSI Bolt Pattern
<b>CF</b>	Conflat® Flanges
<b>CF-MET</b>	Metric Conflat®
<b>JIS</b>	Japan Industrial Std.
<b>DEP</b>	Dependex Flanges
<b>ISO</b>	ISO Bolt Pattern
<b>SPEC</b>	Customer Special Flange
<b>BLANK</b>	No Holes or O-Ring

### Flange O-Rings

<b>2O</b>	O-Rings both flanges
<b>NO</b>	No flange O-Rings
<b>1O</b>	O-Ring Open Side
<b>1S</b>	O-Ring Seal Side

**LPWA - 12 - ASA - N8 - 2O - B - R2 - NW-16 - EP - 115 - LSS**

### Port Flange Neck Style

<b>N1</b>	Tapped Holes Both Sides
<b>N5</b>	Neck Flange on Both Sides
<b>N6</b>	Neck Flange on Seal Side
<b>N8</b>	Neck Flange on Open Side
<b>TAP</b>	Tapped Holes on Neck Flanges

Our standard neck style valves (N5, N6, N8) have slots rather than holes for bolts. For tapped holes instead of slots add "TAP" to Model number. No extra charge.

### Type of Operator

<b>EP</b>	Electro-Pneumatic
<b>A</b>	Air Pilot
<b>3 POS</b>	3 Position Electro-Pneumatic
<b>P</b>	Pneumatic only (no solenoid)
<b>M</b>	Manual Lever
<b>T</b>	Manual Throttle
<b>MO</b>	Motor Actuator

### Nominal Valve Port Size

<b>Inches:</b>	2, 3, 4, 6, 8, 10, 12, 16, 20, 24, 32
<b>ISO:</b>	63 mm to 630 mm
<b>JIS:</b>	63 mm to 630 mm
<b>Conflat®:</b>	2.75, 4.5, 6, 8, 10, 12 Inch OD

### O-Ring Material

<b>B</b>	Buna-N
<b>V</b>	Viton®
<b>S</b>	Silicone
<b>K</b>	Kalrez®
<b>C</b>	Chemraz®

### Solenoid Voltage Only Used With EP Operator

<b>115</b>	115V, 50/60 Hz
<b>220</b>	220-240 V, 50 Hz
<b>24D</b>	24 VDC
<b>115 EX</b>	Expl. Proof 115V, 50/60 Hz
<b>220 EX</b>	Expl. Proof 220V, 50 Hz
<b>24 EX</b>	Expl. Proof 24 VDC

## Ordering Information



Call our toll free number (800) 426-9340, or (412) 261-7630 to place orders, or for customer service.



Our FAX number is (412) 261-7220. Address orders by mail to Vacuum Research Corporation, 100 Chapel Harbor Drive, #4, Pittsburgh, PA 15238 USA. Prices in this catalog are FOB factory. CIF or C&F prices available. Contact factory for pro forma invoice or price quotation. Terms are Net 30 Days.



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