Stainless and Aluminum Gate Valves

Less Outgassing Than Stainless Steel
Dozens of papers show the 6000 Series aluminum used in VRC valves outgasses up to 2 orders of magnitude less than 300 Series stainless steel and of course no hydrogen. A bibliography of 70 peer reviewed papers about outgassing compiled by Dr. M. Wong at Fermi Labs can be found at http://home.fnal.gov/~mlwong/outgas_rev.htm. See page 39 for more information.

Vacuum & Pressure
Vacuum Research valves stay sealed with vacuum or atmosphere on either side.

Satisfaction Guaranteed
Vacuum Research has been building high vacuum valves for almost 50 years and has earned a reputation for world class product quality and customer service. If you are not satisfied with our valve just send it back.

No Leaks
All Vacuum Research valves have total leak rates of less than 5 X 10^{-10} std cc/sec. By total leak we mean that each completed valve is tested in a He filled bag.

RoHS Compliant
All Valves are (RoHS) 2015/863/EU Compliant and carry the CE mark.

Electric Motor, Air or Manual Actuators
All Vacuum Research gate valves are available with 3 types of actuators. Manual actuators are the least expensive. Electro-pneumatic actuators use 70 psi (4.9 kg/cm) compressed air and include the solenoid (specify the solenoid voltage that is most convenient for you). Electric motor actuators use high torque servo motors and operate from 115V or 230V, 1Ø 50 or 60 Hz. CE Mark included.

Roughing and Gauge Ports
There are six locations for optional gauge and roughing ports described on page 42.

Position Indicators, Limit Switches
Visual indication of valve position is included on all valves. Limit switches for remote indication are available and are described on the Optional Features pages in the Accessories & Parts section.

Complete Rebuild
in 5 Minutes!

With no special tools or training you can replace every moving part in your Vacuum Research Bonnet Style Valve in 5 minutes. (Our best guys can do it in less time, but they practice.)
For valves with ports up to 200 mm the actuator is on the same side as the gate seal, valves with ports 250 mm and larger have the actuator opposite the gate seal side.

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”. Refer to the “Optional Features and Accessories” section for pricing information.

### Electro-Pneumatic Operator “EP” Suffix

<table>
<thead>
<tr>
<th>Nominal Size</th>
<th>Aluminum Model &amp; Neck Style</th>
<th>Price</th>
<th>Stainless Steel Model &amp; Neck Style</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 mm</td>
<td>LPWA-100-ISO-N1-EP</td>
<td>$2073</td>
<td>LPSS-100-ISO-N1-EP</td>
<td>$5354</td>
</tr>
</tbody>
</table>

**ORDERING INFORMATION**

**Model Number:** Refer to page 2 for instructions on how to specify the features you need.

**Electric Motor Actuators:** Any Vacuum Research valve can be supplied with a high torque electric motor actuator. Refer to “Electric Motor Actuator” Page in the Accessories and Parts section.

**Special Features:** Refer to page 40 - 43 for specifications for roughing and gauge ports, position indicators & other special features.

**Viton© or Kalrez® or Silicone O-Rings:** Our standard Valves use a Viton© O-Ring for the gate seal and Buna-N O-Rings for all other locations. You may specify Viton© or other materials throughout the valve with a “V”, “S”, or “K” in the model number. For Viton© add the following to the price. (For Silicone or Kalrez© contact the factory for prices.)

- 63 or 80 mm valves . . . . . $57.
- 100 mm valves . . . . . . . . . . . . . . . $90.
- 160 mm valves . . . . . . . . . . . . . . $107.
- 320 mm valves . . . . . . . . . . . . . . $286.

**Stainless Steel Gate:** To specify a stainless steel gate in an aluminum valve add a suffix “SS Gate” to the model number. Refer to the “Optional Features and Accessories” section for pricing information.

**Factory LPWA-400-ISO-N1-M**

<table>
<thead>
<tr>
<th>Model &amp; Neck Style</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPSS-400-ISO-N1-EP</td>
<td>$10,524</td>
</tr>
</tbody>
</table>

For 400 mm aluminum valves with N5, N6, and N8 neck styles, and for all 400 mm stainless steel valves.

Contact factory for prices.
### Stainless or Welded Aluminum, ISO Flanges, Bonnet Style

**With Electro Pneumatic Actuator**

**Welded Aluminum & Stainless Steel Gate Valves, ISO Flanges, Bonnet Style**

All dimensions in millimeters. Roughing ports and position indicator limit switches optional. Centering rings not included. For valves with ports up to 200 mm the actuator is on the same side as the gate seal, valves with ports 250 mm and larger have the actuator opposite the gate seal side.

<table>
<thead>
<tr>
<th>ISO Port Size</th>
<th>Model No.</th>
<th>Flange O.D.</th>
<th>Bolt Hole</th>
<th>Flange to Flange</th>
<th>Overall</th>
<th>Overall</th>
<th>Overall</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>63 or 80 mm</td>
<td>OP 63 N1</td>
<td>130/110</td>
<td>no bolts</td>
<td>0.8</td>
<td>82</td>
<td>94</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>100 mm</td>
<td>LPWA 100 N1</td>
<td>165/145</td>
<td>0.8</td>
<td>1.25</td>
<td>97</td>
<td>109</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>160 mm</td>
<td>LPWA 160 N1</td>
<td>225/200</td>
<td>0.8</td>
<td>1.5</td>
<td>121</td>
<td>139</td>
<td>165</td>
<td>165</td>
</tr>
<tr>
<td>200 mm</td>
<td>LPWA 200 N1</td>
<td>285/260</td>
<td>1.2</td>
<td>1.5</td>
<td>155</td>
<td>173</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>250 mm</td>
<td>LPWA 250 N1</td>
<td>335/310</td>
<td>1.2</td>
<td>1.5</td>
<td>189</td>
<td>210</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>300 mm</td>
<td>LPWA 300 N1</td>
<td>425/395</td>
<td>1.2</td>
<td>1.5</td>
<td>233</td>
<td>260</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>400 mm</td>
<td>LPWA 400 N1</td>
<td>510/480</td>
<td>1.6</td>
<td>1.5</td>
<td>318</td>
<td>355</td>
<td>400</td>
<td>400</td>
</tr>
</tbody>
</table>

Contact factory for dimensions of 400 mm valves with N5, N6, and N8 neck styles.

**Vacuum Research Corp. • 100 Chapel Harbor Drive, #4 • Pittsburgh, PA 15238 USA • www.vacuumresearch.com**

Phone: 800-426-9340 • 412-261-7630 • FAX: 412-261-7220 • e-mail: VRC@vacuumresearch.com
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) 2015/863/EU Compliant.

**Basic Valve Style**
- LPWA: Bonnet Style, Large Port Aluminum
- TBWA: Thick Body Valves for Dirty Environments
- X-LPWA: Bonnet Style, Extra Large Port Aluminum
- LPSS: Bonnet Style, Large Port Stainless Steel
- X-LPSS: Bonnet Style, Extra Large Port Stainless Steel
- BEL: Bellows Seal, Welded Aluminum
- END STD: Standard Port Aluminum Gate Valves
- END LP: Oversize Large Port Aluminum Gate Valves
- AVAL: Aluminum Poppet Style Valves
- AVMS: Mild Steel Poppet Valves
- REB: Rectangular Port, Bellows Seal
- REQ: 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.

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

**Flange O-Rings**
- 2O: O-Rings both flanges
- NO: No flange O-Rings
- 1O: O-Ring Open Side
- 1S: O-Ring Seal Side

**Nominal Valve Port Size**
- Inches: 2, 3, 4, 6, 8, 10, 12, 16, 20, 24, 32
- ISO: 63 mm to 630 mm
- JIS: 63 mm to 630 mm
- Conflat: 2.75, 4.5, 6, 8, 10, 12 Inch OD

**Port Flange Neck Style**
- N1: Tapped Holes Both Sides
- N5: Neck Flange on Both Sides
- N6: Neck Flange on Seal Side
- N8: Neck Flange on Open Side
- TAP: 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.

**O-Ring Material**
- B: Buna-N
- V: Viton®
- S: Silicone
- K: Kalrez®
- C: Chemraz®

**Type of Operator**
- EP: Electro-Pneumatic
  - A: Air Pilot
  - 3 POS: 3 Position Electro-Pneumatic
  - P: Pneumatic only (no solenoid)
  - M: Manual Lever
  - T: Manual Throttle
  - MO: Motor Actuator

**Solenoid Voltage**
Only Used With EP Operator
- 115: 115V, 50/60 Hz
- 220: 220-240 V, 50 Hz
- 24D: 24 VDC
- 115 EX: Expl. Proof 115V, 50/60 Hz
- 220 EX: Expl. Proof 220V, 50 Hz
- 24 EX: Expl. Proof 24 VDC

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

**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.