

Aluminum valves with (left to right): Electro Pneumatic, Manual, and Motor Actuators. Stainless Steel valves also available.

### ANSI, ISO, JIS, or Special Flanges

These Vacuum Research 5 minute rebuild valves are available with virtually any flange or combination of flanges at no extra charge. Combinations of ISO on one flange and ANSI on the other are easily accommodated. Even different sizes such as 4 inch on one flange and 6 inch on the other.

### Insertable "Flangeless" Valves

It is sometimes helpful to keep the flange-to-flange dimension ("A" dimension on the dimensions pages) as short as possible. In such cases your valves can be provided with no port flanges at all and with either O-Ring grooves machined into the valve body or with a precision machined surface on the body to seal against the O-rings on your pump or chamber. Contact the factory for prices.

### Aluminum or Stainless Steel

Vacuum Research Bonnet Style valves are available in stainless steel or 6061 aluminum. Smooth surface finish gives low outgassing and fast pump down.

### High Conductance

In addition to the oversize ports used in the LPWA Series for the last 40 years, we now offer the X-LPWA Series where a 4 inch valve has a 6 inch port, an 8 inch valve has a 10 inch port, etc. Conductance values are shown on page 39.

### Fail Safe

All Vacuum Research Bonnet Style Valves can be installed for fast close on power failure and air operated valves can be manually positioned without air or electricity.

### Long Life

More than 250,000 cycles for aluminum valves. That's one cycle every 2 minutes, 24 hours/day for a year.

### SolidWorks \*.STEP Files

Contact us to obtain SolidWorks 3D \*.STEP format modeling files that plug formatted VRC valve 3-D models into your computer-aided design projects.



### 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 out-gassing compiled by Dr. M. Wong at Fermi Labs can be found at [http://home.fnal.gov/~ml-wong/outgas\\_rev.htm](http://home.fnal.gov/~ml-wong/outgas_rev.htm). See page 40 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<sup>-10</sup> 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 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.

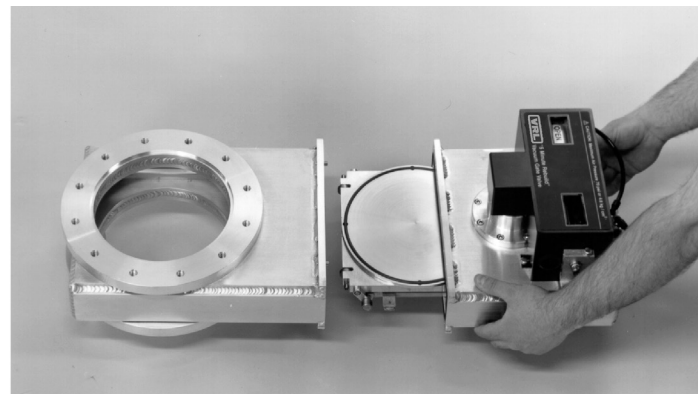
### Roughing and Gauge Ports

There are six locations for optional gauge and roughing ports described on page 43.

### 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.)

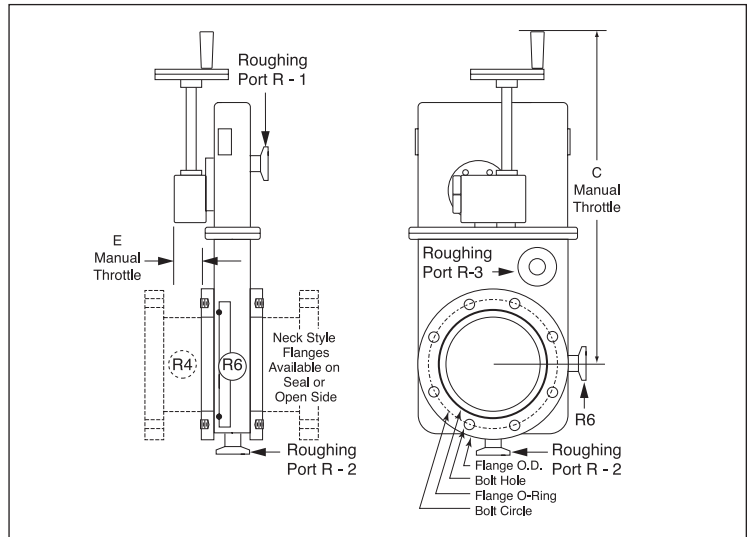


- Less Outgassing Than Stainless Steel, See Page 40
- Throttle & Leak Tight Shut Off in One Valve
- Aluminum or Stainless Steel Valves
- Seals Up To 3 Atmospheres Differential
- Vacuum or Atmosphere on Either Side
- ANSI Flange Sizes From 2 Inch To 20 Inch
- Tapped Hole or Neck Style ANSI Flanges
- ISO-k or f style Flanges From 63 To 500 mm
- Locks in Open and Closed Positions
- All Valves (RoHS) 2015/863/EU Compliant

Actuator handle can be easily repositioned to anywhere from left to center to right to provide the most convenient access. Valve on the left is shown with guard removed.

The Vacuum Research Manual Throttle Valves serve the dual purposes of high vacuum isolation valve with leak tight shutoff plus precision pump capacity control for sputtering or plasma. They are suitable for use with turbo, diffusion or cryo pumps, and are always leak tight during regeneration.

Both f and k style ISO flanges are available, as are neck style ANSI flanges. Optional ports for roughing and gauges can be located anywhere on the valve body; sizes from NW-16 to NW-50 are available.



## ANSI Flanges

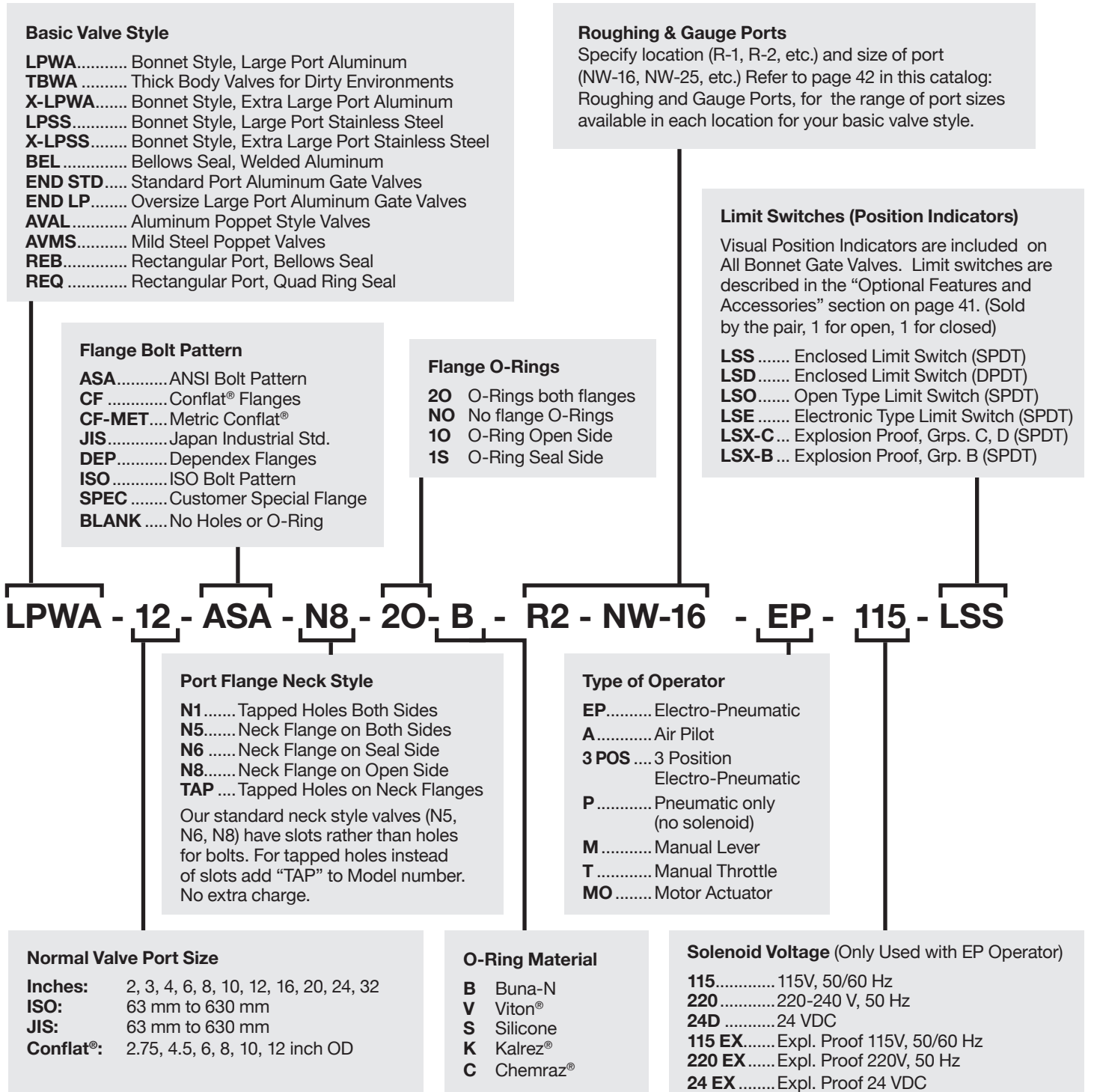
Nominal ANSI Size	Model NO. ANSI Flange	Port Diameter	Flange O.D.	Flange O-Rings	Bolt Circle	(no of bolts) x bolt size	A Flange to Flange	C Manual Throttle	E Manual Throttle	F Disassy. Clearance	Weight lbs.		Price
											Net	Ship	
2 inch	LPWA 2 N1	3.375	6.00	3.625 ID X .139	4.75	(4) 5/8-11	3.75	15.00	2.50	2.625	13	20	\$2,535
3 inch	LPWA 3 N1	3.375	7.50	4.00 ID X .139	6.00	(4) 5/8-11	3.75	15.00	2.50	2.625	15	22	\$2,718
4 inch	LPWA 4 N1	5.375	9.00	5.75 ID X .139	7.50	(8) 5/8-11	4.125	21.00	2.563	4.50	31	45	\$2,926
6 inch	LPWA 6 N1	7.125	11.00	7.50 ID X .119	9.50	(8) 3/4-10	4.375	24.00	2.563	5.50	49	60	\$3,406
8 inch	LPWA 8 N1	8.00	13.50	9.00 ID X .275	11.75	(8) 3/4-10	4.375	24.00	2.563	5.50	55	66	\$5,106
10 inch	LPWA 10 N1	11.625	16.00	12.00 ID X .275	14.25	(12) 7/8-9	4.625	27.188	1.50	4.75	109	130	\$6,278
12 inch	LPWA 12 N1	12.00	19.00	13.00 ID X .275	17.00	(12) 7/8-9	4.625	27.188	1.50	4.75	129	150	\$7,769
16 inch	LPWA 16 N1	16.00	23.50	17.00 ID X .275	21.25	(16) 1-8	6.50	37.00	1.50	7.00	200	350	Contact

## ISO Flanges

Nominal ANSI Size	Model NO. ANSI Flange	Port Diameter	Flange O.D.	Flange O-Rings	Bolt Circle	(no of bolts) x bolt size	A Flange to Flange	C Manual Throttle	E Manual Throttle	F Disassy. Clearance	Weight lbs.		Price
											Net	Ship	
63 mm	LPWA 63 N1	70	130	Use standard ISO centering rings. These are not included with the valve and should be purchased separately.	110	(4) M8-1.25	70	381	64	67	13	20	\$2,384
80 mm	LPWA 80 N1	83	145		125	(8) M8-1.25	95	381	64	67	15	22	\$2,614
100 mm	LPWA 100 N1	102	165		145	(8) M8-1.25	95	381	64	114	31	45	\$2,993
160 mm	LPWA 160 N1	153	225		200	(8) M10-1.25	105	533	65	140	49	60	\$3,171
200 mm	LPWA 200 N1	213	285		260	(12) M10-1.25	111	610	65	140	55	66	\$5,186
250 mm	LPWA 250 N1	261	335		310	(12) M10-1.75	117	690	38	120	109	130	\$6,831
320 mm	LPWA 320 N1	318	425		395	(12) M10-1.75	117	690	38	120	129	150	\$7,636
400 mm	LPWA 400 N1	400	510		480	(16) M12-1.75	165	940	38	178	200	350	Contact



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.



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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