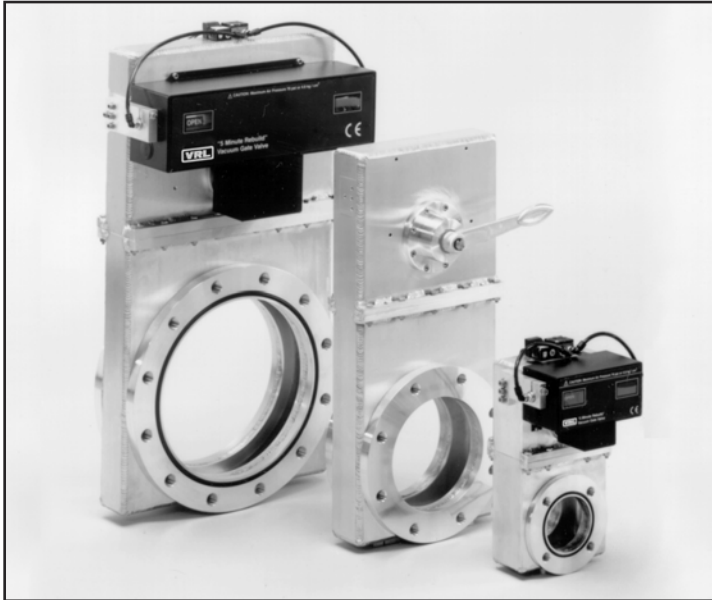




Stainless and Aluminum Gate Valves



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 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. An optional million cycle design is available.

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 5×10^{-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) 2002/95/EC Compliant.

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

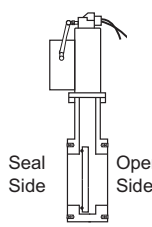
Visual position indication of valve position is included on all valves. Limit switches for remote indication are described on the Optional Features pages in the Accessories & Parts section.

Complete Rebuild

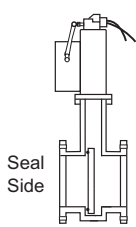
in 5 Minutes!

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.)

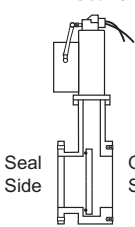
N1 Tapped Holes Both Sides



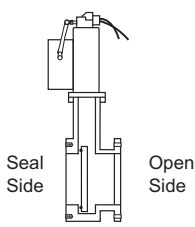
N5 Neck on Both Sides



N6 Neck on Seal Side



N8 Neck Opposite Seal Side



Seal Side Open Side

Seal Side Open Side

Seal Side Open Side

Seal Side Open Side

On **stainless steel valves** the gate seal is on the side opposite the actuator for 2, 10, and 12 inch valves. On **aluminum valves** the gate seal O-ring is on the actuator side (to left) in sizes through 8 inch and the gate seal is on the side opposite the actuator on 10, 12, & 16 inch valves.

Slots or 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 "tapped" to Model number. No extra charge.

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" page in this catalog for pricing information.

ORDERING INFORMATION

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

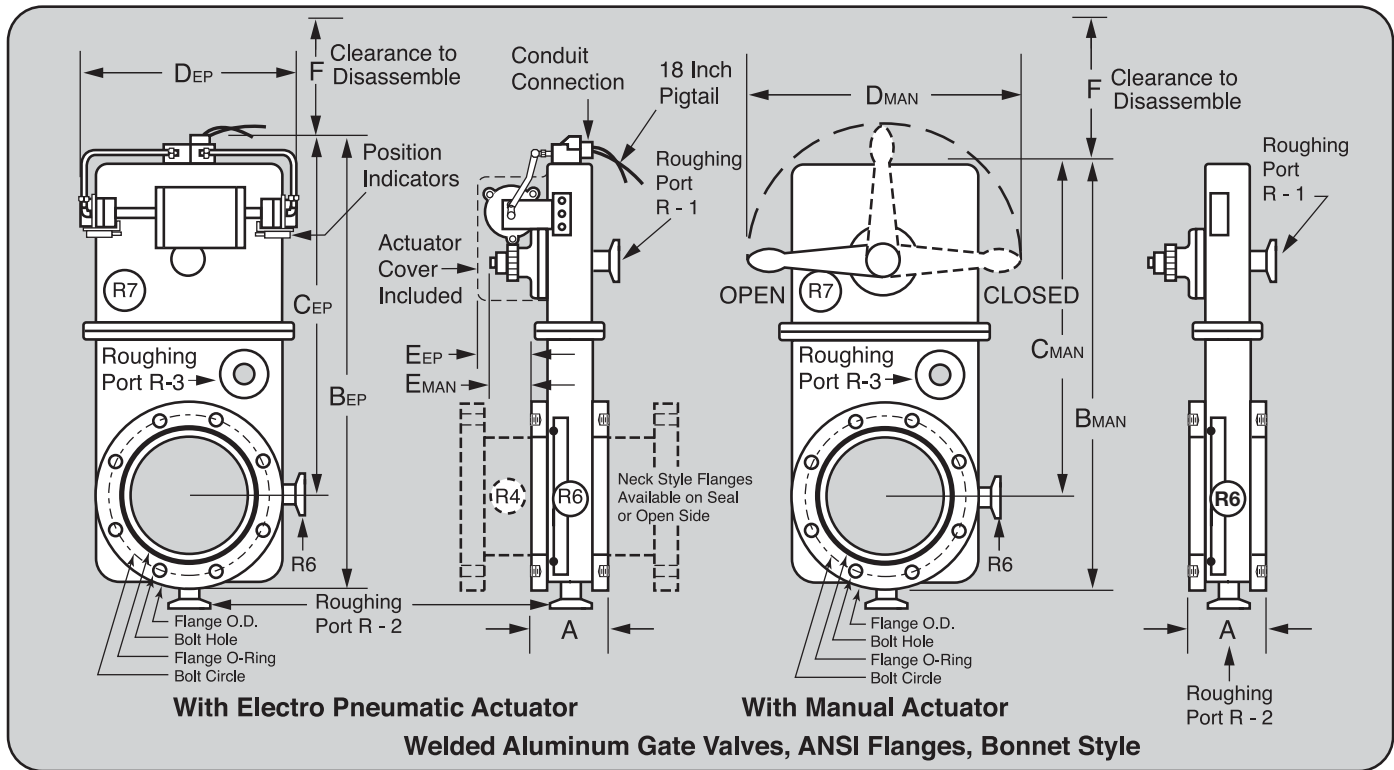
Electric Motor Actuators: Any Vacuum Research valve can be supplied with a high torque electric motor actuator. Refer to Electric Motor Actuator page in the Accessories & Parts section.

Special Features: Refer to pages 40 - 42 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.)

2 or 3 in. valves	\$55.	8 inch valves	\$164.
4 inch valves	\$83.	10 inch valves	\$214.
6 inch valves	\$103.	12 inch valves	\$275.

Nominal Size	Electro-Pneumatic Operator "EP" Suffix				Manual Operator "M" Suffix			
	Aluminum Model & Neck Style	Price	Stainless Steel Model & Neck Style	Price	Aluminum Model & Neck Style	Price	Stainless Steel Model & Neck Style	Price
2 inch ANSI (ASA) (3.375" Port)	LPWA-2-ANSI-N1-EP	\$1598.	LPSS-2-ANSI-N1-EP	\$4890.	LPWA-2-ANSI-N1-M	\$1369.	LPSS-2-ANSI-N1-M	\$4635.
	LPWA-2-ANSI-N5-EP	\$1792.	LPSS-2-ANSI-N5-EP	\$5290.	LPWA-2-ANSI-N5-M	\$1559.	LPSS-2-ANSI-N5-M	\$5035.
	LPWA-2-ANSI-N6-EP	\$1651.	LPSS-2-ANSI-N6-EP	\$5090.	LPWA-2-ANSI-N6-M	\$1421.	LPSS-2-ANSI-N6-M	\$4835.
	LPWA-2-ANSI-N8-EP	\$1651.	LPSS-2-ANSI-N8-EP	\$5090.	LPWA-2-ANSI-N8-M	\$1421.	LPSS-2-ANSI-N8-M	\$4835.
(4" Port)	X-LPWA same price as LPWA		X-LPSS same price as LPSS		X-LPWA same price as LPWA		X-LPSS same price as LPSS	
3 inch ANSI (ASA) (3.375" Port)	LPWA-3-ANSI-N1-EP	\$1799.	LPSS-3-ANSI-N1-EP	\$5150.	LPWA-3-ANSI-N1-M	\$1567.	LPSS-3-ANSI-N1-M	\$4895.
	LPWA-3-ANSI-N5-EP	\$1913.	LPSS-3-ANSI-N5-EP	\$5600.	LPWA-3-ANSI-N5-M	\$1731.	LPSS-3-ANSI-N5-M	\$5345.
	LPWA-3-ANSI-N6-EP	\$1868.	LPSS-3-ANSI-N6-EP	\$5375.	LPWA-3-ANSI-N6-M	\$1636.	LPSS-3-ANSI-N6-M	\$5120.
	LPWA-3-ANSI-N8-EP	\$1868.	LPSS-3-ANSI-N8-EP	\$5375.	LPWA-3-ANSI-N8-M	\$1636.	LPSS-3-ANSI-N8-M	\$5120.
(4" Port)	X-LPWA same price as LPWA		X-LPSS same price as LPSS		X-LPWA same price as LPWA		X-LPSS same price as LPSS	
4 inch ANSI (ASA) (5 3/8" Port)	LPWA-4-ANSI-N1-EP	\$1923.	LPSS-4-ANSI-N1-EP	\$5700.	LPWA-4-ANSI-N1-M	\$1668.	LPSS-4-ANSI-N1-M	\$5395.
	LPWA-4-ANSI-N5-EP	\$2188.	LPSS-4-ANSI-N5-EP	\$6250.	LPWA-4-ANSI-N5-M	\$1930.	LPSS-4-ANSI-N5-M	\$5945.
	LPWA-4-ANSI-N6-EP	\$2081.	LPSS-4-ANSI-N6-EP	\$5975.	LPWA-4-ANSI-N6-M	\$1827.	LPSS-4-ANSI-N6-M	\$5120.
	LPWA-4-ANSI-N8-EP	\$2081.	LPSS-4-ANSI-N8-EP	\$5975.	LPWA-4-ANSI-N8-M	\$1827.	LPSS-4-ANSI-N8-M	\$5120.
(6" Port)	X-LPWA same price as LPWA		X-LPSS same price as LPSS		X-LPWA same price as LPWA		X-LPSS same price as LPSS	
6 inch ANSI (ASA) (7.125" Port)	LPWA-6-ANSI-N1-EP	\$2216.	LPSS-6-ANSI-N1-EP	\$6800.	LPWA-6-ANSI-N1-M	\$1895.	LPSS-6-ANSI-N1-M	\$6495.
	LPWA-6-ANSI-N5-EP	\$2540.	LPSS-6-ANSI-N5-EP	\$7550.	LPWA-6-ANSI-N5-M	\$2211.	LPSS-6-ANSI-N5-M	\$7245.
	LPWA-6-ANSI-N6-EP	\$2349.	LPSS-6-ANSI-N6-EP	\$7175.	LPWA-6-ANSI-N6-M	\$2027.	LPSS-6-ANSI-N6-M	\$6870.
	LPWA-6-ANSI-N8-EP	\$2349.	LPSS-6-ANSI-N8-EP	\$7175.	LPWA-6-ANSI-N8-M	\$2027.	LPSS-6-ANSI-N8-M	\$6870.
(8" Port)	X-LPWA same price as LPWA		X-LPSS same price as LPSS		X-LPWA same price as LPWA		X-LPSS same price as LPSS	
8 inch ANSI (ASA) (8" Port)	LPWA-8-ANSI-N1-EP	\$3610.	LPSS-8-ANSI-N1-EP	\$7150.	LPWA-8-ANSI-N1-M	\$3230.	LPSS-8-ANSI-N1-M	\$6845.
	LPWA-8-ANSI-N5-EP	\$3892.	LPSS-8-ANSI-N5-EP	\$7950.	LPWA-8-ANSI-N5-M	\$3505.	LPSS-8-ANSI-N5-M	\$7645.
	LPWA-8-ANSI-N6-EP	\$3750.	LPSS-8-ANSI-N6-EP	\$7550.	LPWA-8-ANSI-N6-M	\$3367.	LPSS-8-ANSI-N6-M	\$7245.
	LPWA-8-ANSI-N8-EP	\$3750.	LPSS-8-ANSI-N8-EP	\$7550.	LPWA-8-ANSI-N8-M	\$3367.	LPSS-8-ANSI-N8-M	\$7245.
(10" Port)	X-LPWA same price as LPWA		X-LPSS same price as LPSS		X-LPWA same price as LPWA		X-LPSS same price as LPSS	
10 inch ANSI (ASA) (11.625" Port)	LPWA-10-ANSI-N1-EP	\$4438.	LPSS-10-ANSI-N1-EP	\$11,500.	LPWA-10-ANSI-N1-M	\$3993.	LPSS-10-ANSI-N1-M	\$10,885.
	LPWA-10-ANSI-N5-EP	\$4792.	LPSS-10-ANSI-N5-EP	\$12,600.	LPWA-10-ANSI-N5-M	\$4335.	LPSS-10-ANSI-N5-M	\$11,985.
	LPWA-10-ANSI-N6-EP	\$4615.	LPSS-10-ANSI-N6-EP	\$12,050.	LPWA-10-ANSI-N6-M	\$4164.	LPSS-10-ANSI-N6-M	\$11,435.
	LPWA-10-ANSI-N8-EP	\$4615.	LPSS-10-ANSI-N8-EP	\$12,050.	LPWA-10-ANSI-N8-M	\$4164.	LPSS-10-ANSI-N8-M	\$11,435.
(12" Port)	X-LPWA same price as LPWA		X-LPSS same price as LPSS		X-LPWA same price as LPWA		X-LPSS same price as LPSS	
12 inch ANSI (ASA) (12" Port)	LPWA-12-ANSI-N1-EP	\$5515.	LPSS-12-ANSI-N1-EP	\$12,800.	LPWA-12-ANSI-N1-M	\$5038.	LPSS-12-ANSI-N1-M	\$12,185.
	LPWA-12-ANSI-N5-EP	\$5853.	LPSS-12-ANSI-N5-EP	\$14,000.	LPWA-12-ANSI-N5-M	\$5366.	LPSS-12-ANSI-N5-M	\$13,385.
	LPWA-12-ANSI-N6-EP	\$5670.	LPSS-12-ANSI-N6-EP	\$13,400.	LPWA-12-ANSI-N6-M	\$5188.	LPSS-12-ANSI-N6-M	\$12,785.
	LPWA-12-ANSI-N8-EP	\$5670.	LPSS-12-ANSI-N8-EP	\$13,400.	LPWA-12-ANSI-N8-M	\$5188.	LPSS-12-ANSI-N8-M	\$12,785.
16 inch ANSI (ASA) (16" Port)	LPWA-16-ANSI-N1-EP	\$11,075	LPSS-16-ANSI-N1-EP	Contact Factory	LPWA-16-ANSI-N1-M	\$10,035	LPSS-16-ANSI-N1-M	Contact Factory
	Contact factory for prices of 16 inch aluminum valves with N5, N6, and N8 neck styles, and for all 16 inch stainless steel valves							

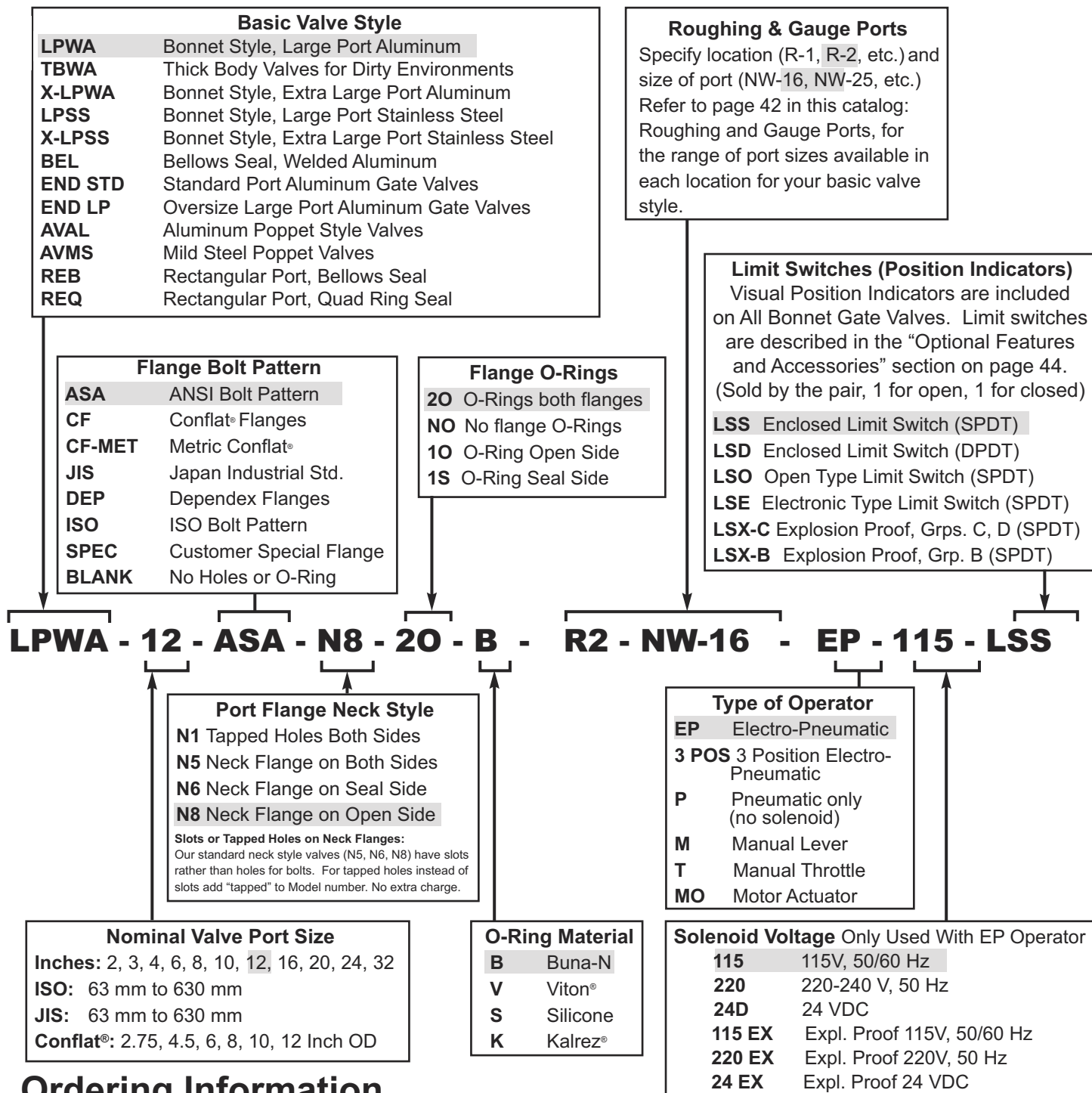


All dimensions in inches. Roughing ports and position indicator limit switches optional. Flanges available without O-rings. The gate seal O-ring is on the actuator side (to left) in sizes through 8 inch. The gate seal is on the side opposite the actuator on 10, 12, & 16 inch valves.

Nominal ANSI Size	Model No. ANSI Flange	Port Diam. Choose LPWA or X-LPWA	ANSI Flange Out. Diam.	LPWA Flange O-Rings Contact factory for X-LPWA O-Rings	Bolt Circle	(no. of bolts) x bolt size	A Flange to Flange	BMAN Manual Overall Height	BEP EP Overall Height	CEP Port CL to Top of Valve	DMAN Manual Overall Width	DEP EP Overall Width	EMAN Manual	EEP EP	F Disassy. Clearance	Net Wt. lbs.	Ship Wt. lbs.
2 inch	LPWA 2 N1	LPWA 3.375 in.	6.00	3.625 ID X .139	4.75	(4) 5/8-11	3.75	12.875	14.25	11.25	10.00	8.50	2.063	2.375	2.625	13	20
2 inch	LPWA 2 N5	X-LPWA 4 inch	6.00	3.625 ID X .139	4.75	(4) Slotted	6.50	12.875	14.25	11.25	10.00	8.50	2.063	2.375	2.625	13	20
2 inch	LPWA 2 N6 & 8	X-LPWA 4 inch	6.00	3.625 ID X .139	4.75	Neck Side Slotted	5.125	12.875	14.25	11.25	10.00	8.50	2.063	2.375	2.625	13	20
3 inch	LPWA 3 N1	LPWA 3.375 in.	7.50	4.00 ID x .139	6.00	(4) 5/8-11	3.75	13.625	15.00	11.25	10.00	8.50	2.063	2.375	2.625	15	22
3 inch	LPWA 3 N5	X-LPWA 4 inch	7.50	4.00 ID x .139	6.00	(4) Slotted	6.50	13.625	15.00	11.25	10.00	8.50	2.063	2.375	2.625	15	22
3 inch	LPWA 3 N6 & 8	X-LPWA 4 inch	7.50	4.00 ID x .139	6.00	Neck Side Slotted	5.125	13.625	15.00	11.25	10.00	8.50	2.063	2.375	2.625	15	22
4 inch	LPWA 4 N1	LPWA 5.375 in.	9.00	5.75 ID x .139	7.50	(8) 5/8-11	4.125	20.25	21.50	17.00	16.00	10.125	2.25	3.50	4.50	31	45
4 inch	LPWA 4 N5	X-LPWA 6 inch	9.00	5.75 ID x .139	7.50	(8) Slotted	7.125	20.25	21.50	17.00	16.00	10.125	2.25	3.50	4.50	31	45
4 inch	LPWA 4 N6 & 8	X-LPWA 6 inch	9.00	5.75 ID x .139	7.50	Neck Side Slotted	5.625	20.25	21.50	17.00	16.00	10.125	2.25	3.50	4.50	31	45
6 inch	LPWA 6 N1	LPWA 7.125 in.	11.00	7.50 ID x .139	9.50	(8) 3/4-10	4.375	24.875	26.00	20.375	16.00	12.50	2.625	3.375	5.50	49	60
6 inch	LPWA 6 N5	X-LPWA 8 inch	11.00	7.50 ID x .139	9.50	(8) Slotted	7.875	24.875	26.00	20.375	16.00	12.50	2.625	3.375	5.50	49	60
6 inch	LPWA 6 N6 & 8	X-LPWA 8 inch	11.00	7.50 ID x .139	9.50	Neck Side Slotted	6.125	24.875	26.00	20.375	16.00	12.50	2.625	3.375	5.50	49	60
8 inch	LPWA 8 N1	LPWA 8 inch	13.50	9.00 ID x .275	11.75	(8) 3/4-10	4.375	26.125	27.25	20.375	16.00	12.50	2.625	3.125	5.50	55	66
8 inch	LPWA 8 N5	X-LPWA 10 inch	13.50	9.00 ID x .275	11.75	(8) Slotted	7.875	26.125	27.25	20.375	16.00	12.50	2.625	3.125	5.50	55	66
8 inch	LPWA 8 N6 & 8	X-LPWA 10 inch	13.50	9.00 ID x .275	11.75	Neck Side Slotted	6.125	26.125	27.25	20.375	16.00	12.50	2.625	3.125	5.50	55	66
10 inch	LPWA 10 N1	LPWA 11.625 in.	16.00	12.00 ID x .275	14.25	(12) 7/8-9	4.625	30.438	31.688	23.688	21.00	18.00	2.938	3.125	4.75	109	130
10 inch	LPWA 10 N5	X-LPWA 12 inch	16.00	12.00 ID x .275	14.25	(12) Slotted	8.125	30.438	31.688	23.688	21.00	18.00	2.938	3.125	4.75	109	130
10 inch	LPWA 10 N6 & 8	X-LPWA 12 inch	16.00	12.00 ID x .275	14.25	Neck Side Slotted	6.375	30.438	31.688	23.688	21.00	18.00	2.938	3.125	4.75	109	130
12 inch	LPWA 12 N1	12.00	19.00	13.00 ID X .275	17.00	(12) 7/8-9	4.625	32.00	33.25	23.688	21.00	18.00	2.938	3.125	4.75	129	150
12 inch	LPWA 12 N5	12.00	19.00	13.00 ID X .275	17.00	(12) Slotted	8.125	32.00	33.25	23.688	21.00	18.00	2.938	3.125	4.75	129	150
12 inch	LPWA 12 N6 & 8	12.00	19.00	13.00 ID X .275	17.00	Neck Side Slotted	6.375	32.00	33.25	23.688	21.00	18.00	2.938	3.125	4.75	129	150
16 inch	LPWA 16 N1	16.00	23.50	17.00 ID X .275	21.25	(16) 1-8	6.50	41.75	43.00	31.188	22.00	23.00	5.50	6.625	7.00	200	350
20 inch	LPWA 20 N1	20.00	27.50	22.00 ID X .275	25.00	(20) 1 1/8-7	7.31	51.06	52.31	38.56	42.00	25.56	5.50	6.63	10.00	250	400



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.



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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