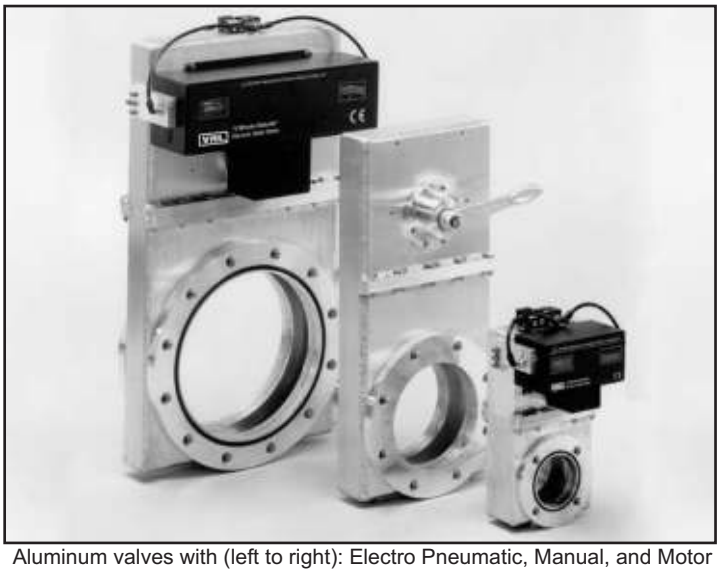
Stainless and Aluminum Gate Valves



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.

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 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) 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

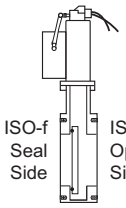
Visual indication of valve position is included on all valves. Limit switches for remote indication are available and are described on the Optional Features pages in the Accessories & Parts section.

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.)

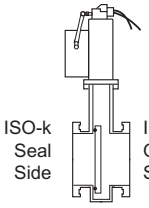
Stainless or Welded Aluminum, ISO Flanges, Bonnet Style

- **Less Outgassing Than Stainless Steel, See Page 39**
- **250,000 Cycle Rotary Shaft Seal; Million Cycle Available**
- **Large Port, ISO Flanges; 6 Roughing Port Options**
- **All Valves (RoHS) 2015/863/EU Compliant**
- **Helium Leak Less Than 5 X 10^{-10} scc/sec**
- **Operate Manually If Air or Power Fail**
- **Vacuum & Pressure; Optional Seal to 3 ATM.**
- **Optional Operation to 10 Bar, 147 PSIG**

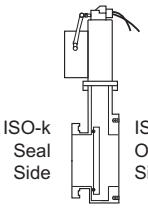
N1 Tapped Holes Both Sides



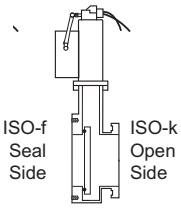
N5 Neck on Both Sides



N6 Neck on Seal Side



N8 Neck Opposite Seal Side



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.

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.

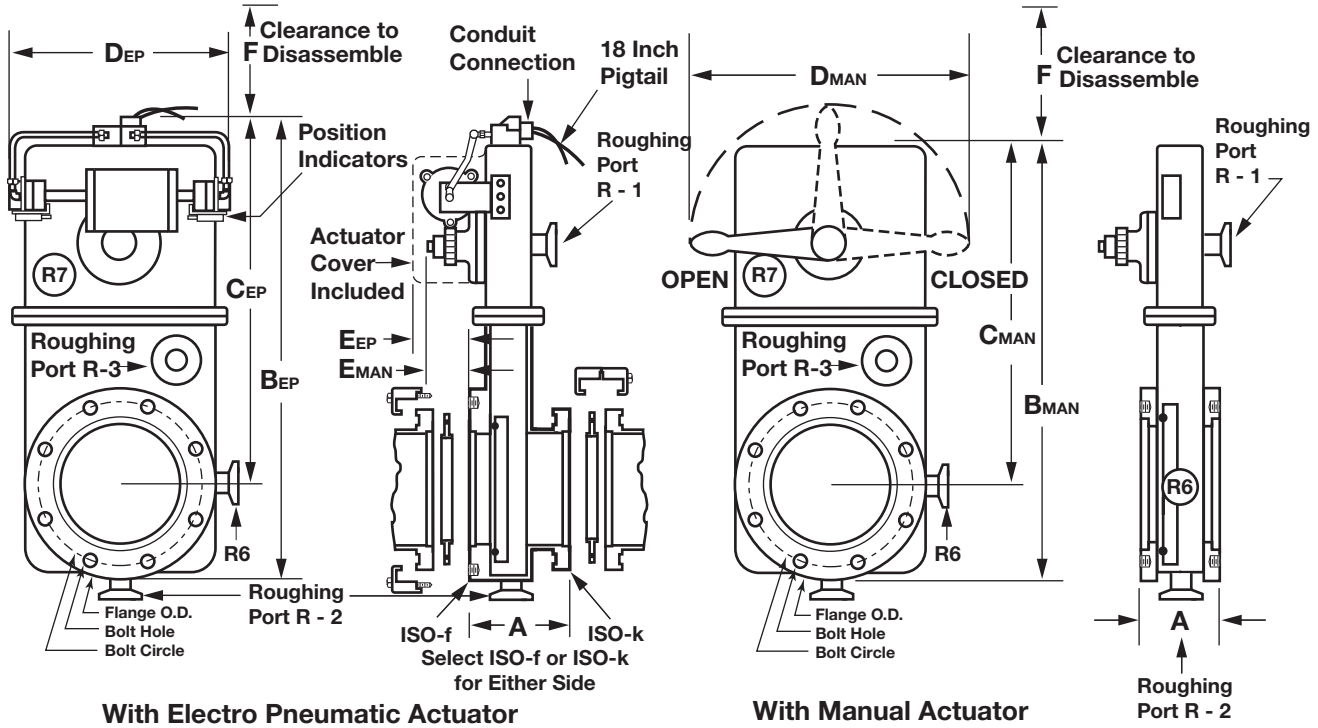
Special Features: Refer to page 40 - 43 for specifications for roughing and gauge ports, position indicators & other special features.

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.	200 mm valves . . . . .$177.
100 mm valves . . . . . .$90.	250 mm valves . . . . .$231.
160 mm valves . . . . .$107.	320 mm valves . . . . .$286.

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
63 mm One piece style	OP-63-ISO-N1-EP	$1728.	OPSS-63-ISO-N1-EP	$4597.	OP-63-ISO-N1-M	$1481.	OPSS-63-ISO-N1-M	$4321.
	OP-63-ISO-N5-EP	$1938.	OPSS-63-ISO-N5-EP	$4813.	OP-63-ISO-N5-M	$1686.	OPSS-63-ISO-N5-M	$4537.
	OP-63-ISO-N6-EP	$1812.	OPSS-63-ISO-N6-EP	$4705.	OP-63-ISO-N6-M	$1537.	OPSS-63-ISO-N6-M	$4429.
	OP-63-ISO-N8-EP	$1812.	OPSS-63-ISO-N8-EP	$4705.	OP-63-ISO-N8-M	$1537.	OPSS-63-ISO-N8-M	$4429.
80 mm	LPWA-80-ISO-N1-EP	$1946.	LPSS-80-ISO-N1-EP	$5289.	LPWA-80-ISO-N1-M	$1695.	LPSS-80-ISO-N1-M	$5338.
	LPWA-80-ISO-N5-EP	$2069.	LPSS-80-ISO-N5-EP	$5559.	LPWA-80-ISO-N5-M	$1872.	LPSS-80-ISO-N5-M	$5284.
	LPWA-80-ISO-N6-EP	$2175.	LPSS-80-ISO-N6-EP	$5500.	LPWA-80-ISO-N6-M	$1909.	LPSS-80-ISO-N6-M	$5224.
	LPWA-80-ISO-N8-EP	$2175.	LPSS-80-ISO-N8-EP	$5500.	LPWA-80-ISO-N8-M	$1909.	LPSS-80-ISO-N8-M	$5224.
100 mm	LPWA-100-ISO-N1-EP	$2073.	LPSS-100-ISO-N1-EP	$5354.	LPWA-100-ISO-N1-M	$1804.	LPSS-100-ISO-N1-M	$5078.
	LPWA-100-ISO-N5-EP	$2287.	LPSS-100-ISO-N5-EP	$5538.	LPWA-100-ISO-N5-M	$2017.	LPSS-100-ISO-N5-M	$5262.
	LPWA-100-ISO-N6-EP	$2175.	LPSS-100-ISO-N6-EP	$5500.	LPWA-100-ISO-N6-M	$1909.	LPSS-100-ISO-N6-M	$5224.
	LPWA-100-ISO-N8-EP	$2175.	LPSS-100-ISO-N8-EP	$5500.	LPWA-100-ISO-N8-M	$1909.	LPSS-100-ISO-N8-M	$5224.
160 mm	LPWA-160-ISO-N1-EP	$2397.	LPSS-160-ISO-N1-EP	$6219.	LPWA-160-ISO-N1-M	$2050.	LPSS-160-ISO-N1-M	$5889.
	LPWA-160-ISO-N5-EP	$2747.	LPSS-160-ISO-N5-EP	$6544.	LPWA-160-ISO-N5-M	$2391.	LPSS-160-ISO-N5-M	$6214.
	LPWA-160-ISO-N6-EP	$2451.	LPSS-160-ISO-N6-EP	$6381.	LPWA-160-ISO-N6-M	$2192.	LPSS-160-ISO-N6-M	$6055.
	LPWA-160-ISO-N8-EP	$2451.	LPSS-160-ISO-N8-EP	$6381.	LPWA-160-ISO-N8-M	$2192.	LPSS-160-ISO-N8-M	$6055.
200 mm	LPWA-200-ISO-N1-EP	$3905.	LPSS-200-ISO-N1-EP	$7517.	LPWA-200-ISO-N1-M	$3494.	LPSS-200-ISO-N1-M	$6976.
	LPWA-200-ISO-N5-EP	$4210.	LPSS-200-ISO-N5-EP	$7863.	LPWA-200-ISO-N5-M	$3791.	LPSS-200-ISO-N5-M	$7533.
	LPWA-200-ISO-N6-EP	$4056.	LPSS-200-ISO-N6-EP	$7690.	LPWA-200-ISO-N6-M	$3642.	LPSS-200-ISO-N6-M	$7360.
	LPWA-200-ISO-N8-EP	$4056.	LPSS-200-ISO-N8-EP	$7690.	LPWA-200-ISO-N8-M	$3642.	LPSS-200-ISO-N8-M	$7360.
250 mm	LPWA-250-ISO-N1-EP	$4777.	LPSS-250-ISO-N1-EP	$11,789.	LPWA-250-ISO-N1-M	$4319.	LPSS-250-ISO-N1-M	$11,124.
	LPWA-250-ISO-N5-EP	$5183.	LPSS-250-ISO-N5-EP	$12,157.	LPWA-250-ISO-N5-M	$4689.	LPSS-250-ISO-N5-M	$11,492.
	LPWA-250-ISO-N6-EP	$4992.	LPSS-250-ISO-N6-EP	$11,973.	LPWA-250-ISO-N6-M	$4504.	LPSS-250-ISO-N6-M	$11,654.
	LPWA-250-ISO-N8-EP	$4992.	LPSS-250-ISO-N8-EP	$11,973.	LPWA-250-ISO-N8-M	$4504.	LPSS-250-ISO-N8-M	$11,654.
320 mm	LPWA-320-ISO-N1-EP	$5965.	LPSS-320-ISO-N1-EP	$13,899.	LPWA-320-ISO-N1-M	$5473.	LPSS-320-ISO-N1-M	$13,558.
	LPWA-320-ISO-N5-EP	$6331.	LPSS-320-ISO-N5-EP	$14,288.	LPWA-320-ISO-N5-M	$5824.	LPSS-320-ISO-N5-M	$13,947.
	LPWA-320-ISO-N6-EP	$6133.	LPSS-320-ISO-N6-EP	$14,288.	LPWA-320-ISO-N6-M	$5635.	LPSS-320-ISO-N6-M	$13,753.
	LPWA-320-ISO-N8-EP	$6133.	LPSS-320-ISO-N8-EP	$14,288.	LPWA-320-ISO-N8-M	$5635.	LPSS-320-ISO-N8-M	$13,753.
400 mm	LPWA-400-ISO-N1-EP	$11,984.	LPSS-400-ISO-N1-EP	Contact Factory	LPWA-400-ISO-N1-M	$10,524	LPSS-400-ISO-N1-M	Contact Factory
	Contact factory for prices of 400 mm aluminum valves with N5, N6, and N8 neck styles, and for all 400 mm stainless steel valves.							

Stainless or Welded Aluminum, ISO Flanges, Bonnet Style



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.

ISO Port Size	Model No. ISO Flange	Port Dia.	Flange O.D.	Bolt Circle	(number of bolts) size - pitch	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	EEP	F	Weight kgs. Aluminum	
						Stainless	Alum.						Manual	EP	Disassy. Clearance	Net	Ship
63mm one piece style	OP 63 N1, both sides ISO-f	70	130	110	(4) M 8 - 1.25	75	70	238	270	205	100	175	45	60	67	8	13
	OP 63 N5, both sides ISO-k	70	95	110	no bolts, ISO-k	120	105	238	270	205	100	175	45	60	67	8	13
	OP 63 N6 & N8, ISO-f & ISO-k	70	130/95	110	(4) M 8 - 1.25	95	90	238	270	205	100	175	45	60	67	8	13
80 mm	LPWA 80 N1, both sides ISO-f	83	145	125	(8) M 8 - 1.25	75	95	353	385	312	254	228	52	60	67	10	15
	LPWA 80 N5, both sides ISO-k	83	110	125	no bolts, ISO-k	120	127	353	385	312	254	228	52	60	67	10	15
	LPWA 80 N6 & N8, ISO-f & ISO-k	83	145/110	125	(8) M 8 - 1.25	95	111	353	385	312	254	228	52	60	67	10	15
100 mm	LPWA 100 N1, both sides ISO-f	102	165	145	(8) M 8 - 1.25	75	95	362	394	312	254	228	52	60	100	10	15
	LPWA 100 N5, both sides ISO-k	102	130	145	no bolts, ISO-k	120	127	362	394	312	254	228	52	60	100	10	15
	LPWA 100 N6 & N8, ISO-f & ISO-k	102	165/130	145	(8) M 8 - 1.25	95	111	362	394	312	254	228	52	60	100	10	15
160 mm	LPWA 160 N1, both sides ISO-f	153	225	200	(8) M 10 - 1.5	91	105	513	544	432	406	257	57	89	114	14	21
	LPWA 160 N5, both sides ISO-k	153	180	200	no bolts, ISO-k	135	143	513	544	432	406	257	57	89	114	14	21
	LPWA 160 N6 & N8, ISO-f & ISO-k	153	225/180	200	(8) M 10 - 1.5	111	127	513	544	432	406	257	57	89	114	14	21
200 mm	LPWA 200 N1, both sides ISO-f	213	285	260	(12) M 10 - 1.5	98	111	629	660	518	406	318	67	86	140	25	30
	LPWA 200 N5, both sides ISO-k	213	240	260	no bolts, ISO-k	143	155	629	660	518	406	318	67	86	140	25	30
	LPWA 200 N6 & N8, ISO-f & ISO-k	213	285/240	260	(12) M 10 - 1.5	124	127	629	660	518	406	318	67	86	140	25	30
250 mm	LPWA 250 N1, both sides ISO-f	261	335	310	(12) M 10 - 1.5	105	117	738	770	602	533	458	50	79	121	50	59
	LPWA 250 N5, both sides ISO-k	261	290	310	no bolts, ISO-k	155	219	738	770	602	533	458	50	79	121	50	59
	LPWA 250 N6 & N8, ISO-f & ISO-k	261	335/290	310	(12) M 10 - 1.5	127	168	738	770	602	533	458	50	79	121	50	59
320 mm	LPWA 320 N1, both sides ISO-f	318	425	395	(12) M 12 - 1.75	105	117	783	815	602	533	458	50	79	121	58	68
	LPWA 320 N5, both sides ISO-k	318	370	395	no bolts, ISO-k	155	219	783	815	602	533	458	50	79	121	58	68
	LPWA 320 N6 & N8, ISO-f & ISO-k	318	425/370	395	(12) M 12 - 1.75	127	168	783	815	602	533	458	50	79	121	58	68
400 mm	LPWA 400 N1, both sides ISO-f	400	510	480	(16) M 12 - 1.75	146	165	1060	1092	792	559	584	140	168	178	91	159
	Contact factory for dimensions of 400 mm valves with N5, N6, and N8 neck styles																

Model Numbering System

VRC Valves are Manufactured in the USA.

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.

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)

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

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

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.

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

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

O-Ring Material

B	Buna-N
V	Viton®
S	Silicone
K	Kalrez®
C	Chemraz®

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

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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