



## Agilent Valves

- 2-3 Introduction
- 4-21 Rough to High Vacuum
- 22-25 High Vacuum
- 26-27 Ultra High Vacuum
- 28-29 Special Purpose Valves

# Agilent Vacuum Valve Solutions

Agilent's extensive line of vacuum valves are engineered for reliability, performance, and value. These valves are also engineered to optimize conductance, to operate in a wide variety of applications, and to operate with a minimum of moving parts. This reduces wear and particle generation which contributes to their performance and reliability.

Agilent valves are manufactured using the highest quality vacuum materials and provide a choice of actuation, and a variety of mounting flanges. All Agilent valves are leak checked with the Agilent mass spectrometer leak detector and tested prior to shipment to ensure proper operation.



## Valve Types by Vacuum Range



### **Rough to High Vacuum** (Pages 4-21)

- Electromagnetic block valves - Direct acting.
- Aluminum block valves.
- Stainless steel block valves.
- Stainless steel metal bonnet sealed tube valves.



### **Ultra High Vacuum** (Pages 26-27)

- UHV all-metal valves.



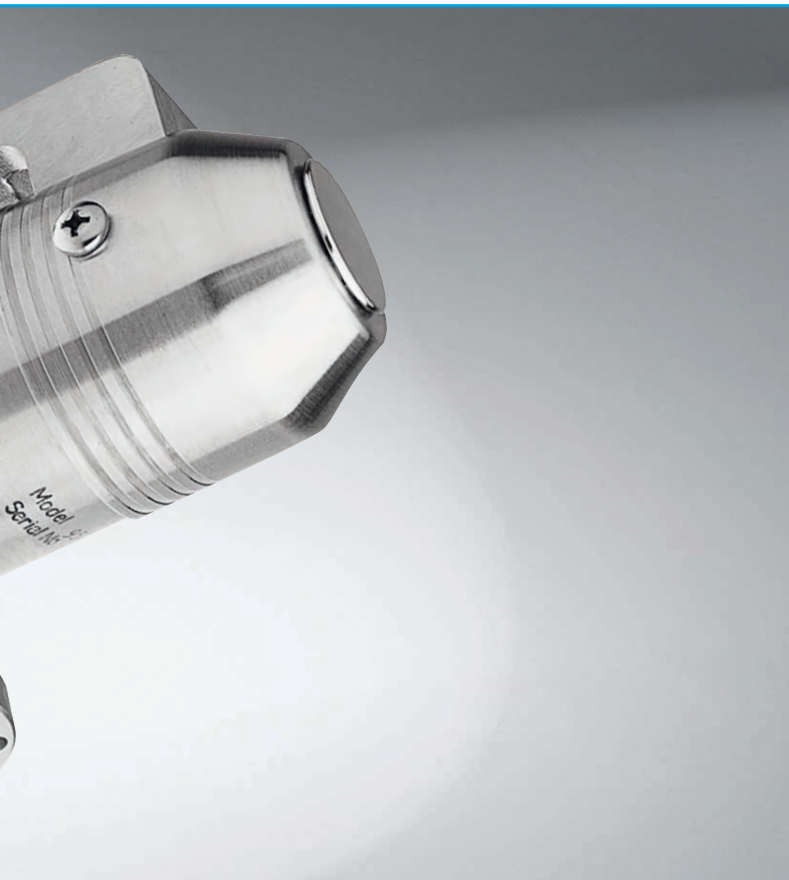
### **High Vacuum** (Pages 22-25)

- GateKeeper aluminum gate valves.



### **Special Purpose Valves** (Pages 28-29)

- Variable leak valve.
- Vacuum pump isolation valve (VPI).



## Common Applications

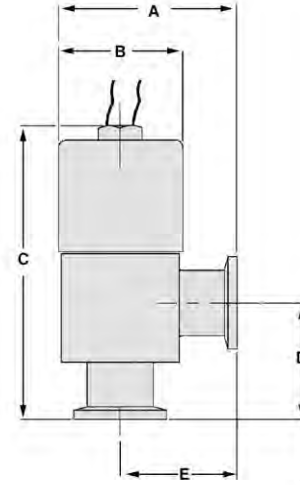
- **Rough Vacuum**
  - Freeze drying
  - Food processing
  - Metal ore refining
  - Steam plant condensers
  - Vacuum distillation
- **Medium Vacuum**
  - Decorative coatings
  - Functional coatings
  - Chemical processes
  - Electron microscopes
  - Microscopy sample processing
- **High/Ultrahigh Vacuum**
  - Physics research
    - Optics
    - High energy
  - Semiconductor manufacturing
  - Electron tube manufacturing
  - Surface analysis (Auger Spectroscopy)
  - Molecular beam epitaxy
  - Outer space simulation

## Valve Selection Guide

Vacuum Range	Valve Type	Housing Material		Size Range	Feedthrough (I.D.)	Flange Options Type	Actuation Options	Ref. Page
		Al	SS					
<b>Rough to High Vacuum</b>								
Atm 10 <sup>-6</sup> Torr	Block	Right Angle	•	0.75 in. to 1.0 in.	Shaft	ISO-KF	Electromagnetic	4
Atm 10 <sup>-9</sup> Torr	Block	Right Angle	•	0.75 in. to 3 in.	Bellows	ISO-KF	Manual/Air	6
Atm 10 <sup>-9</sup> Torr	Block	In-Line	•	0.75 in. to 1.5 in.	Bellows	ISO-KF	Manual/Air	8
Atm 10 <sup>-9</sup> Torr	Block	Right Angle	•	0.75 in. to 1.5 in.	Bellows	CF, ISO-KF, Weld	Manual/Air	12
Atm 10 <sup>-9</sup> Torr	Block	In-Line	•	0.75 in. to 1.0 in.	Bellows	CF, ISO-KF, Weld	Manual/Air	12
Atm 10 <sup>-9</sup> Torr	Tube MBS*	Right Angle	•	0.75 in. to 1.5 in.	Bellows	CF	Manual/Air	18
Atm 10 <sup>-9</sup> Torr	Tube MBS*	In-Line	•	0.75 in. to 1.5 in.	Bellows	CF	Manual/Air	18
Atm 10 <sup>-9</sup> Torr	Gate	<i>GateKeeper</i>	•	2.5 in. to 10 in.	Shaft	ISO, ASA	Manual/Air	22
<b>Ultra High Vacuum</b>								
Atm 10 <sup>-11</sup> Torr	UHV, All-Metal	Right Angle	•	0.75 in. to 2.5 in.	Bellows	CF	Manual	26
Atm 10 <sup>-11</sup> Torr	UHV, All-Metal	In-Line	•	1.5 in.	Bellows	CF	Manual	26
Atm 10 <sup>-11</sup> Torr	UHV, All-Metal	Tee	•	1.5 in.	Bellows	CF	Manual	26
<b>Special Purpose</b>								
Atm 10 <sup>-4</sup> Torr	Variable Leak		•		Bellows	CF	Manual	28
Atm 10 <sup>-4</sup> Torr	Vacuum Pump Isolation (VPI)		•	NW25-NW40	Shaft	ISO-KF	ATM Air	29

\*MBS – Metal Bonnet Seal

## Agilent Electromagnetic Block Valves – Direct Acting



Models	A	B	C	D	E
NW16	2.50	2.28	4.43	1.58	1.58
	(64)	(58)	(113)	(40)	(40)
NW25	2.98	2.28	4.83	1.98	1.98
	(76)	(58)	(123)	(50)	(50)

*Dimensions: inches (millimeters)*

### Features

- Reliable design
- Low cost
- Rapid spring-closed actuator
- KF Flange connections
- Single coil

### Benefits

- Service-free operation
- Economical
- System protection on loss of power
- Ease of Installation
- Compact construction
- Rapid cycling

## Technical Specifications

### Vacuum range

Cleaned aluminum: atm to  $10^{-6}$  Torr  
 Nickel-plated: atm to  $10^{-9}$  Torr

### Leak rate

$<1 \times 10^{-9}$  std cc/sec. (helium)

### Operating temperature

15 °C min to 40 °C maximum

### Bakeable to –

Non-operating (closed) 125 °C

### Pulse voltage/Hold voltage

23 Watts

### Service life

250,000 cycles

### Conductance

NW16 – 2.2 l/s  
 NW25 – 3.5 l/s

### Speed to Open/Close

Open – 50 ms  
 Close – 25 ms

### Loss of power

Valve closes (in  $< 25$  m/sec)

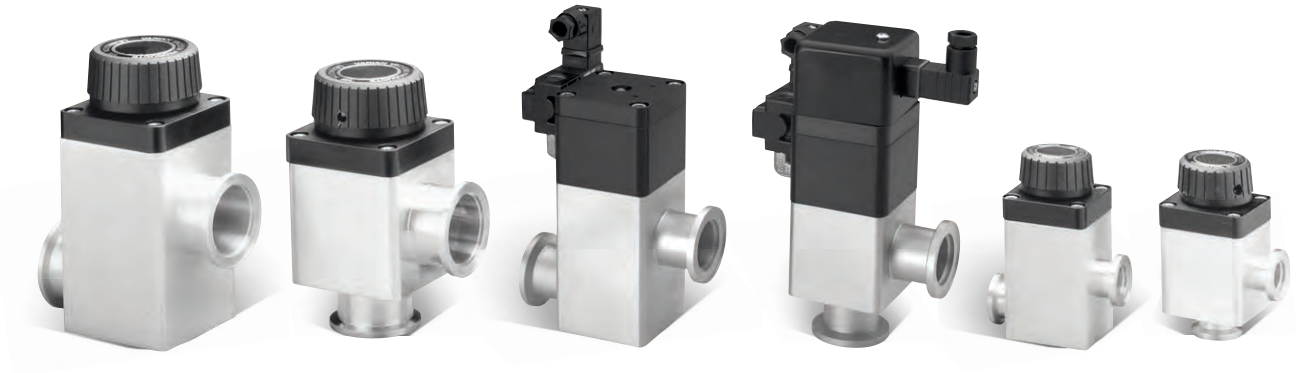
## Ordering Information

Size	Voltage Option	Part Number		Shipping Weight lbs. (kg)
		Aluminum Body	Nickel-Plated	
NW16	100 V; 60 Hz	L9940301	L9940601	1.5 (0.7)
	115 V; 50/60 Hz	L9940302	L9940602	1.5 (0.7)
	200 V; 60 Hz	L9940303	L9940603	1.5 (0.7)
	220 V; 50/60 Hz	L9940304	L9940604	1.5 (0.7)
	12 VDC	L9940305	L9940605	1.5 (0.7)
	24 VDC	L9940306	L9940606	1.5 (0.7)
	100 V; 50 Hz	L9940307	L9940607	1.5 (0.7)
	240 V; 50 Hz	L9940308	L9940608	1.5 (0.7)
NW25	100 V; 60 Hz	L9942301	L9942601	2.0 (0.9)
	115 V; 50/60 Hz	L9942302	L9942602	2.0 (0.9)
	200 V; 60 Hz	L9942303	L9942603	2.0 (0.9)
	220 V; 50/60 Hz	L9942304	L9942604	2.0 (0.9)
	12 VDC	L9942305	L9942605	2.0 (0.9)
	24 VDC	L9942306	L9942606	2.0 (0.9)
	100 V; 50 Hz	L9942307	L9942607	2.0 (0.9)
	240 V; 50 Hz	L9942308	L9942608	2.0 (0.9)

Description	Part Number	Shipping Weight lbs. (kg)
<b>Spare Parts</b>		
Plunger Assembly – includes shaft, spring, and seal	L9987008	1.0 (0.5)
Operator, EMB, 100 V, 50 Hz	L9987007	1.0 (0.5)
Operator, EMB, 100 V, 60 Hz	L9987001	1.0 (0.5)
Operator, EMB, 115 V, 50/60 Hz	L9987002	1.0 (0.5)
Operator, EMB, 200 V, 60 Hz	L9987003	1.0 (0.5)
Operator, EMB, 220 V, 50/60 Hz	L9987004	1.0 (0.5)
Operator, EMB, 240 V, 50 Hz	L9987009	2.0 (1.0)
Operator, EMB, 12 VDC	L9987005	1.0 (0.5)
Operator, EMB, 24 VDC	L9987006	1.0 (0.5)
Manual	699912065	1.0 (0.5)

# Rough to High Vacuum

## Agilent Aluminum Block Valves



Agilent's aluminum block valves are the valves of choice for medium- and high-vacuum requirements. These low-cost, compact, and reliable valves are used for applications in semiconductor manufacturing, R&D, and industrial vacuum systems. Agilent's block valves will reliably achieve 1 million cycles (NW16/25) in most applications.

Now available in right-angle (NW16-80) or offset in-line (NW16 – 40), these valves may be ordered in either hand- or air-operated versions. Our nickel-plated version offers lower outgassing and higher resistance to corrosive gases. Air-operated valves may be ordered with a solenoid valve and/or a remote position indicator.

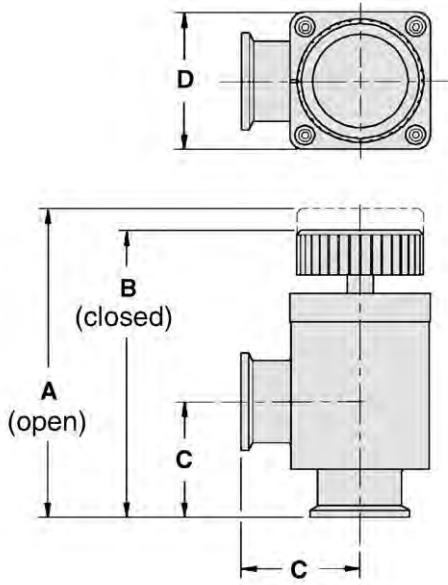
### Features

- Convenient NW/ISO flange dimensions
- Low-profile, lightweight construction
- Reliable design
- 1 million cycles (NW16/25); 250,000 cycles (NW40-NW80)
- Auto-close on loss of air or power
- Low cost
- Visual position indicator
- Optional remote position indicator
- High conductance
- Nickel-plated option

### Benefits

- Easy installation and service
- Service-free performance
- Cost effective
- Fail-safe operation
- Economical to use
- Minimizes operator error
- Maximizes pumping efficiency
- Low outgassing
- Higher resistance to corrosive gasses

## Right-Angle H/O Block Valve

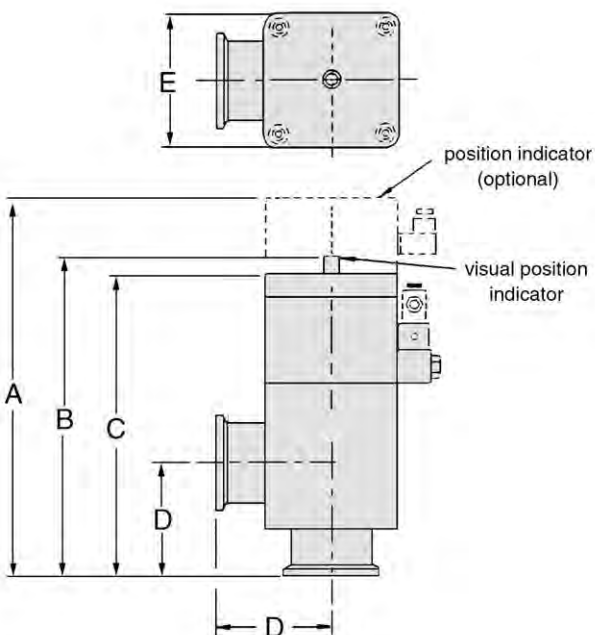


Dimensions are seal face-to-face,  
protective lip not included.

Models	A	B	C	D	
<b>NW16</b>	4.45 (113)	4.09 (104)	1.58 (40)	2.05 (52)	
<b>NW25</b>	4.85 (123)	4.49 (114)	1.98 (50)	2.05 (52)	NW/KF
<b>NW40</b>	6.45 (164)	6.00 (152)	2.57 (65)	3.05 (77)	
<b>NW50</b>	7.19 (183)	6.79 (172)	2.80 (71)	3.89 (99)	
<b>NW63</b>	7.71 (196)	7.31 (186)	3.32 (84)	3.89 (99)	ISO-K
<b>NW80</b>	8.25 (210)	7.69 (195)	3.72 (94)	4.40 (112)	

Dimensions: inches (millimeters)

## Right-Angle H/O Block Valve



Dimensions are seal face-to-face,  
protective lip not included.

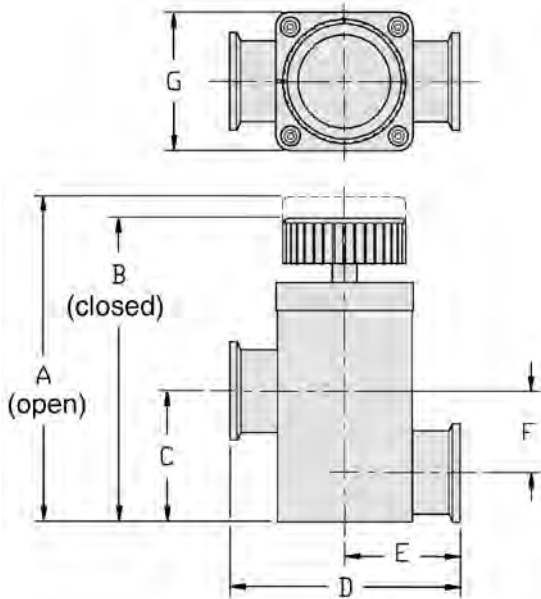
Models	A	B	C	D	E	
<b>NW16</b>	6.01 (153)	4.83 (123)	4.49 (114)	1.58 (40)	2.05 (52)	
<b>NW25</b>	6.41 (163)	5.23 (133)	4.89 (124)	1.98 (50)	2.05 (52)	NW/KF
<b>NW40</b>	7.56 (192)	6.38 (162)	6.04 (153)	2.57 (65)	3.05 (77)	
<b>NW50</b>	7.59 (193)	7.47 (190)	7.07 (180)	2.80 (71)	3.89 (99)	
<b>NW63</b>	8.11 (206)	7.99 (203)	7.59 (193)	3.32 (84)	3.89 (99)	ISO-K
<b>NW80</b>	8.51 (216)	8.39 (213)	7.99 (203)	3.72 (94)	4.40 (112)	

Dimensions: inches (millimeters)

# Rough to High Vacuum

## Agilent Aluminum Block Valves *(Cont'd)*

### In-Line H/O Block Valve

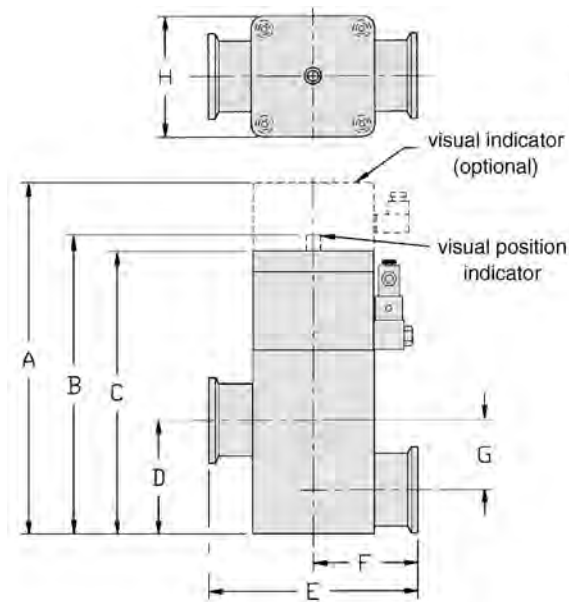


Dimensions are seal face-to-face, protective lip not included.

Models	A	B	C	D	E	F	G
<b>NW16</b>	4.71 (120)	4.35 (111)	1.47 (37)	3.16 (80)	1.58 (40)	0.88 (22)	2.05 (52)
<b>NW25</b>	5.11 (130)	4.75 (121)	2.04 (52)	3.96 (100)	1.98 (50)	1.25 (32)	2.05 (52)
<b>NW40</b>	7.06 (179)	6.61 (168)	2.85 (72)	5.14 (130)	2.57 (65)	1.77 (45)	3.05 (77)

*Dimensions: inches (millimeters)*

### In-Line A/O Block Valve



Dimensions are seal face-to-face, protective lip not included.

Models	A	B	C	D	E	F	G	H
<b>NW16</b>	6.27 (160)	5.09 (129)	4.75 (121)	1.47 (37)	3.16 (80)	1.58 (40)	0.88 (22)	2.05 (52)
<b>NW25</b>	6.67 (170)	5.49 (139)	5.15 (131)	2.04 (52)	3.96 (100)	1.98 (50)	1.25 (32)	2.05 (52)
<b>NW40</b>	8.17 (208)	6.99 (178)	6.65 (169)	2.85 (72)	5.14 (130)	2.57 (65)	1.77 (45)	3.05 (77)

*Dimensions: inches (millimeters)*



## Technical Specifications

<b>Pressure range</b>						
Atmosphere to 10 <sup>-9</sup> Torr (mbar)						
<b>Main seal leak rate</b>						
< 1 x 10 <sup>-9</sup> std cc/sec He						
<b>Body leak rate</b>						
< 1 x 10 <sup>-10</sup> std cc/sec He						
<b>Rated cycle life</b>						
1 million (NW16/25)						
250,000 (NW40-NW80)						
<b>Conductance (molecular flow)</b>						
	NW16	NW25	NW40	NW50	NW63	NW80
Right Angle	4 l/s	12 l/s	35 l/s	60 l/s	95 l/s	155 l/s
Offset In-Line	4 l/s	12 l/s	35 l/s	-	-	-
<b>Materials</b>						
• Valve body – aluminum 6061 T6						
• Bellows – stainless steel T321						
• O-rings, vacuum – viton V747-75						
<b>Bakeable to –</b>						
Hand-operated valve 150 °C						
Air-operated valve 150 °C without solenoid, 60 °C with solenoid						
Position indicator 60 °C						
<b>Air connection</b>						
1/8 in. NPT						
<b>Actuation</b>						
Spring closed, air open						
Air pressure, 80 psig (min) 100 psig (maximum)						
<b>Time to Close/Open</b>						
< 300 mseconds						
<b>Power loss</b>						
Valve closes						
<b>Optional remote position indicator</b>						
Actuator – Microswitch						
Electrical rating – 125/250 VAC, 5 amp maximum						
Signal hookup – NO or NC						

## Ordering Information

Size	Voltage Option	Part Number		Shipping Weight lbs. (kg)
Right-Angle Block Valves		Aluminum	Nickel-Plated Aluminum	
Hand-operated				
NW16		L6280301	L6280601	0.8 (0.4)
NW25		L6280302	L6280602	0.8 (0.4)
NW40		L6280303	L6280603	1.7 (0.8)
Air-operated				
NW16	without solenoid	L6281301	L6281601	1.5 (0.7)
	110/115 VAC; 50/60 Hz	L6281311	L6281611	1.7 (0.8)
	220/240 VAC; 50/60 Hz	L6281321	L6281621	1.7 (0.8)
	24 VDC	L6281331	L6281631	1.7 (0.8)
NW25	without solenoid	L6281302	L6281602	1.6 (0.7)
	110/115 VAC; 50/60 Hz	L6281312	L6281612	1.8 (0.8)
	220/240 VAC; 50/60 Hz	L6281322	L6281622	1.8 (0.8)
	24 VDC	L6281332	L6281632	1.8 (0.8)
NW40	without solenoid	L6281303	L6281603	3.3 (1.5)
	110/115 VAC; 50/60 Hz	L6281313	L6281613	3.7 (1.7)
	220/240 VAC; 50/60 Hz	L6281323	L6281623	3.7 (1.7)
	24 VDC	L6281333	L6281633	3.7 (1.7)
<b>Right-Angle Block Valves (with remote position indicator)</b>				
		Aluminum	Nickel-Plated Aluminum	
Air-operated				
NW16	without solenoid	L6282301	L6282601	1.8 (0.8)
	110/115 VAC; 50/60 Hz	L6282311	L6282611	2.0 (0.9)
	220/240 VAC; 50/60 Hz	L6282321	L6282621	2.0 (0.9)
	24 VDC	L6282331	L6282631	2.0 (0.9)
NW25	without solenoid	L6282302	L6282602	1.9 (0.8)
	110/115 VAC; 50/60 Hz	L6282312	L6282612	2.1 (0.9)
	220/240 VAC; 50/60 Hz	L6282322	L6282622	2.1 (0.9)
	24 VDC	L6282332	L6282632	2.1 (0.9)
NW40	without solenoid	L6282303	L6282603	3.6 (1.6)
	110/115 VAC; 50/60 Hz	L6282313	L6282613	3.8 (1.7)
	220/240 VAC; 50/60 Hz	L6282323	L6282623	3.8 (1.7)
	24 VDC	L6282333	L6282633	3.8 (1.7)

# Rough to High Vacuum

## Agilent Aluminum Block Valves *(Cont'd)*

### Ordering Information – NW16, NW25, NW40

Size	Voltage Option	Part Number		Shipping Weight lbs. (kg)
		Aluminum	Nickel-Plated Aluminum	
<b>Offset In-line Block Valves</b>				
Hand-operated				
NW16		L9180301	L9180601	1.2 (0.5)
NW25		L9180302	L9180602	1.3 (0.6)
NW40		L9180303	L9180603	3.6 (1.6)
Air-operated				
NW16	without solenoid	L9181301	L9181601	1.6 (0.7)
	110/115 VAC; 50/60 Hz	L9181311	L9181611	1.8 (0.8)
	220/240 VAC; 50/60 Hz	L9181321	L9181621	1.8 (0.8)
	24 VDC	L9181331	L9181631	1.8 (0.8)
NW25	without solenoid	L9181302	L9181602	1.8 (0.8)
	110/115 VAC; 50/60 Hz	L9181312	L9181612	2.0 (0.9)
	220/240 VAC; 50/60 Hz	L9181322	L9181622	2.0 (0.9)
	24 VDC	L9181332	L9181632	2.0 (0.9)
NW40	without solenoid	L9181303	L9181603	4.6 (2.0)
	110/115 VAC; 50/60 Hz	L9181313	L9181613	4.8 (2.1)
	220/240 VAC; 50/60 Hz	L9181323	L9181623	4.8 (2.1)
	24 VDC	L9181333	L9181633	4.8 (2.1)
<b>Offset In-Line Block Valves (with remote position indicator)</b>				
Air-operated				
NW16	without solenoid	L9182301	L9182601	1.7 (0.8)
	110/115 VAC; 50/60 Hz	L9182311	L9182611	1.9 (0.8)
	220/240 VAC; 50/60 Hz	L9182321	L9182621	1.9 (0.8)
	24 VDC	L9182331	L9182631	1.9 (0.8)
NW25	without solenoid	L9182302	L9182602	2.1 (0.9)
	110/115 VAC; 50/60 Hz	L9182312	L9182612	2.3 (1.0)
	220/240 VAC; 50/60 Hz	L9182322	L9182622	2.3 (1.0)
	24 VDC	L9182332	L9182632	2.3 (1.0)
NW40	without solenoid	L9182303	L9182603	4.9 (2.2)
	110/115 VAC; 50/60 Hz	L9182313	L9182613	5.1 (2.3)
	220/240 VAC; 50/60 Hz	L9182323	L9182623	5.1 (2.3)
	24 VDC	L9182333	L9182633	5.1 (2.3)
<b>Description</b>				
<b>Spare Parts</b>		<b>Part Number</b>	<b>Shipping Weight lbs. (kg)</b>	
Replacement solenoids (fit all air-operated valves)				
110/115 VAC; 50/60 Hz		626771150	0.5 (0.2)	
220/240 VAC; 50/60 Hz		626771151	0.5 (0.2)	
24 VDC		626771152	0.5 (0.2)	
Hand-operated spare parts kits (includes bellows and o-rings)				
NW16 or 25		L6125301	0.5 (0.2)	
NW40		L6126301	0.5 (0.2)	
Air-operated spare parts kits (includes bellows, quad ring, and o-rings)				
NW16 or 25		L6127301	0.5 (0.2)	
NW40		L6128301	0.5 (0.2)	
Optional remote position indicator (fits all Aluminum Block Valves)				
Single microswitch		L6597302	0.5 (0.2)	
Dual microswitch		L6597301	0.5 (0.2)	
Manual		699912040	0.5 (0.2)	

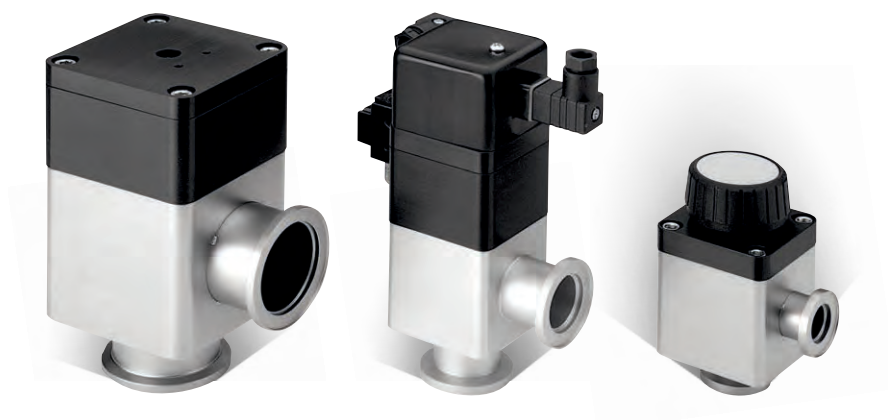
## Ordering Information - NW50, NW63, NW80

Size	Voltage Option	Part Number		Shipping Weight lbs. (kg)
		Aluminum	Nickel-Plated Aluminum	
<b>Right-Angle Block Valves</b>				
Hand-operated				
NW50		L7280301	L7280601	2.0 (0.9)
NW63		L7280302	L7280602	3.0 (1.4)
NW80		L7280303	L7280603	5.0 (2.3)
Air-operated				
NW50	without solenoid	L7281301	L7281601	3.0 (1.4)
	110/115 VAC; 50/60 Hz	L7281311	L7281611	3.0 (1.4)
	220/240 VAC; 50/60 Hz	L7281321	L7281621	3.0 (1.4)
	24 VDC	L7281331	L7281631	3.0 (1.4)
NW63	without solenoid	L7281302	L7281602	4.0 (1.8)
	110/115 VAC; 50/60 Hz	L7281312	L7281612	4.0 (1.8)
	220/240 VAC; 50/60 Hz	L7281322	L7281622	4.0 (1.8)
	24 VDC	L7281332	L7281632	4.0 (1.8)
NW80	without solenoid	L7281303	L7281603	6.5 (3.0)
	110/115 VAC; 50/60 Hz	L7281313	L7281613	6.5 (3.0)
	220/240 VAC; 50/60 Hz	L7281323	L7281623	6.5 (3.0)
	24 VDC	L7281333	L7281633	6.5 (3.0)

<b>Right-Angle Block Valves (with remote position indicator)</b>		Aluminum	Nickel-Plated Aluminum	
Air-operated				
NW50	without solenoid	L7282301	L7282601	4.0 (1.8)
	110/115 VAC; 50/60 Hz	L7282311	L7282611	4.0 (1.8)
	220/240 VAC; 50/60 Hz	L7282321	L7282621	4.0 (1.8)
	24 VDC	L7282331	L7282631	4.0 (1.8)
NW63	without solenoid	L7282302	L7282602	5.0 (2.3)
	110/115 VAC; 50/60 Hz	L7282312	L7282612	5.0 (2.3)
	220/240 VAC; 50/60 Hz	L7282322	L7282622	5.0 (2.3)
	24 VDC	L7282332	L7282632	5.0 (2.3)
NW80	without solenoid	L7282303	L7282603	7.5 (3.5)
	110/115 VAC; 50/60 Hz	L7282313	L7282613	7.5 (3.5)
	220/240 VAC; 50/60 Hz	L7282323	L7282623	7.5 (3.5)
	24 VDC	L7282333	L7282633	7.5 (3.5)

Description	Part Number	Shipping Weight lbs. (kg)
<b>Spare Parts</b>		
Replacement solenoids (fit all air-operated valves)		
110/115 VAC; 50/60 Hz	626771150	0.5 (0.2)
220/240 VAC; 50/60 Hz	626771151	0.5 (0.2)
24 VDC	626771152	0.5 (0.2)
Hand-operated spare parts kits (includes bellows and o-rings)		
NW50	L6625301	0.5 (0.2)
NW63	L7276301	0.5 (0.2)
NW80	L7278301	0.5 (0.2)
Air-operated spare parts kits (includes bellows, quad ring, and o-rings)		
NW50	L6613301	0.5 (0.2)
NW63	L7277301	0.5 (0.2)
NW80	L7279301	0.5 (0.2)
Optional remote position indicator (fits all Aluminum Block Valves)		
Single microswitch	L6597302	0.5 (0.2)
Dual microswitch	L6597301	0.5 (0.2)
Manual	699912043	0.5 (0.2)

## Agilent Stainless Steel Block Valves



Agilent's stainless steel block valves are the valves of choice for medium- and high-vacuum requirements. These low-cost, compact, and reliable valves are used for applications in semiconductor manufacturing, R&D, and industrial vacuum systems. Now available in right-angle or offset in-line,

with CF, KF or tube ends, these valves may be ordered in either hand- or air-operated versions. Agilent's stainless block valves will reliably achieve 1 million (NW16/25) cycles in most applications.

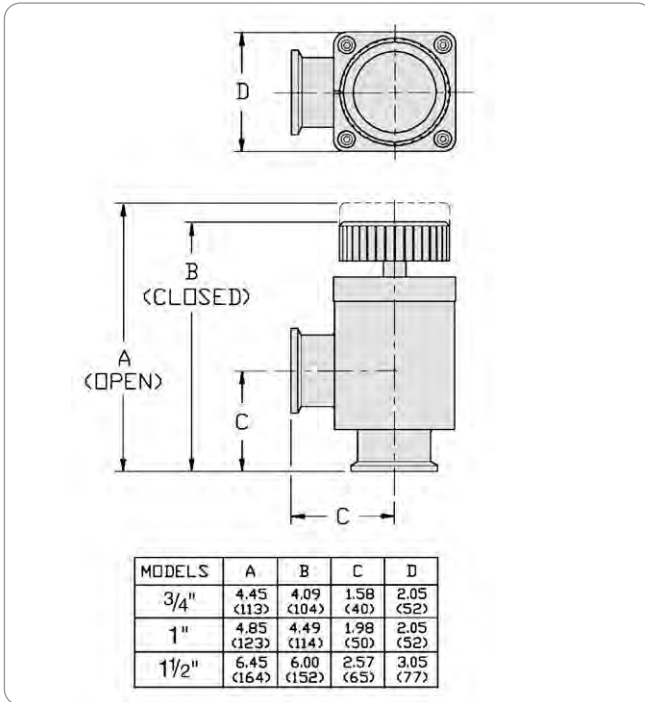
### Features

- Low-profile, choice of flanges (CF, KF, tube ends)
- Reliable design
- 1 million cycles (NW16/25); 250,000 cycles (NW40)
- Auto-close on loss of air or power
- Low cost
- Visual position indicator
- Optional remote position indicator
- High conductance
- Stainless steel body

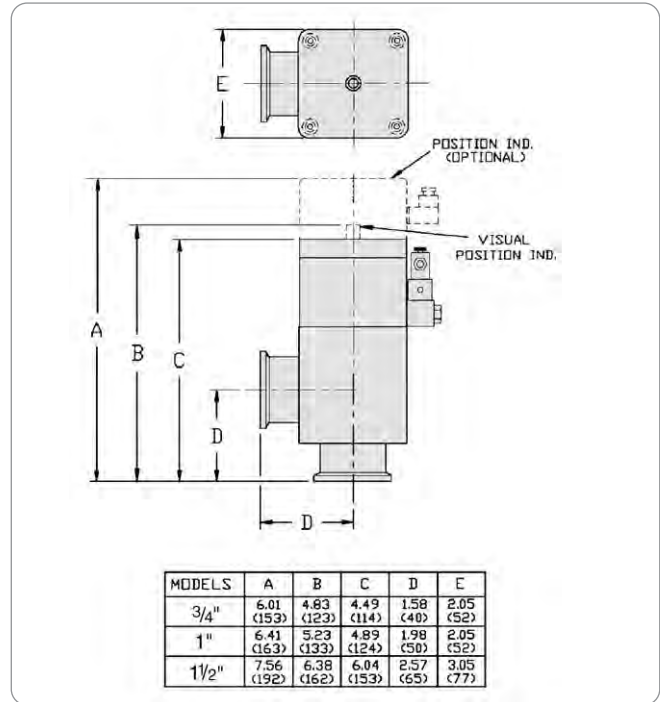
### Benefits

- Easy installation and service
- Service-free performance
- Cost effective
- Fail-safe operation
- Economical to use
- Minimizes operator error
- Maximizes pumping efficiency
- High-vacuum and ultra-high vacuum compatible

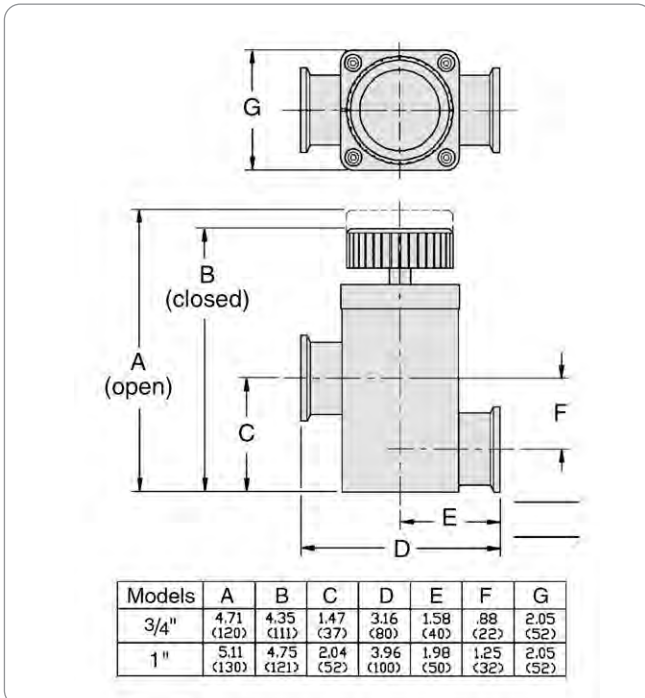
## Right-Angle H/O Stainless Steel Block Valve with Klamp Flange



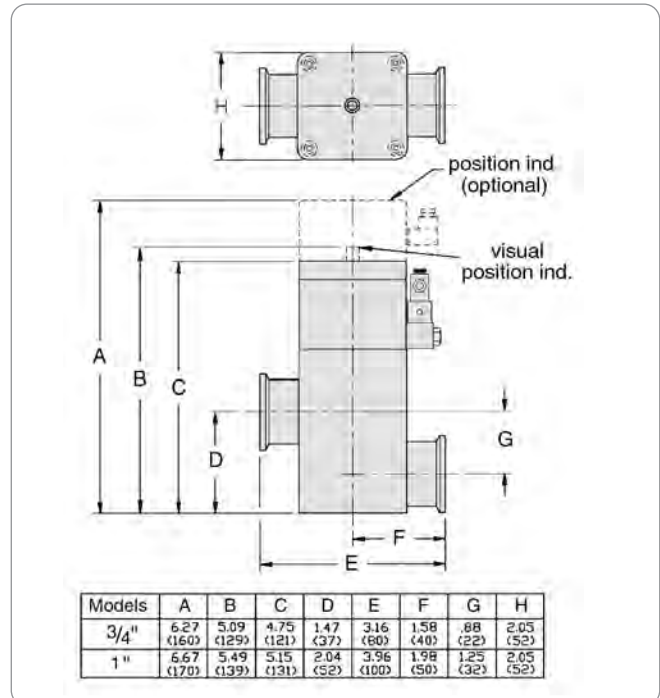
## Right-Angle A/O Stainless Steel Block Valve with Klamp Flange



## In-Line H/O Stainless Steel Block Valve with Klamp Flange



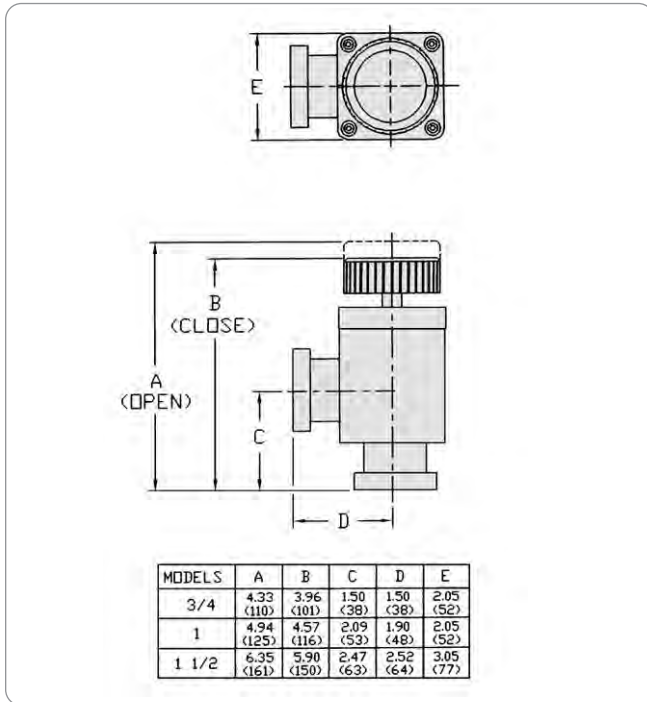
## In-Line A/O Stainless Steel Block Valve with Klamp Flange



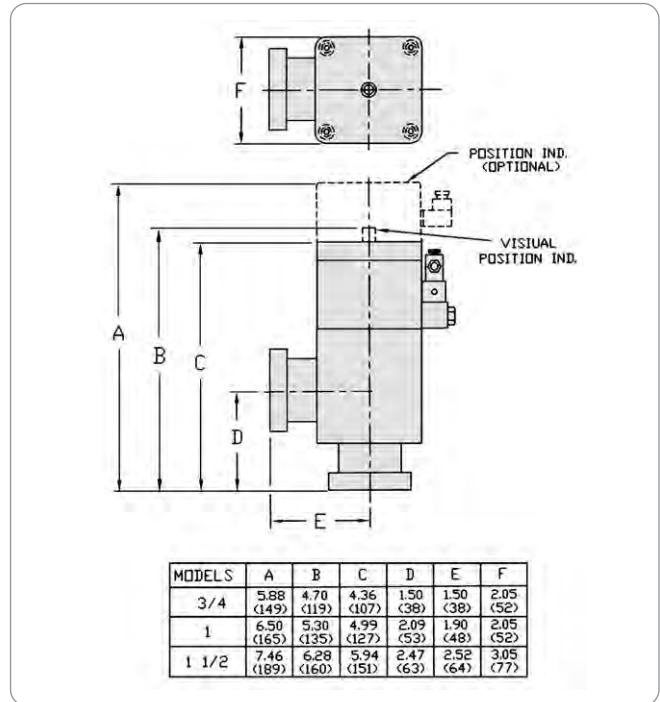
Dimensions: inches (millimeters)

## Agilent Stainless Steel Block Valves (Cont'd)

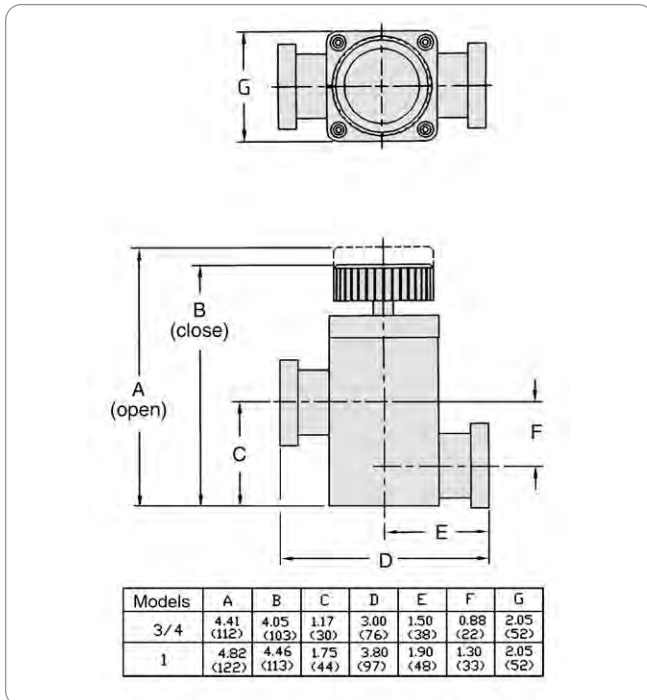
### Right-Angle H/O Stainless Steel Block Valve with Conflat Flange



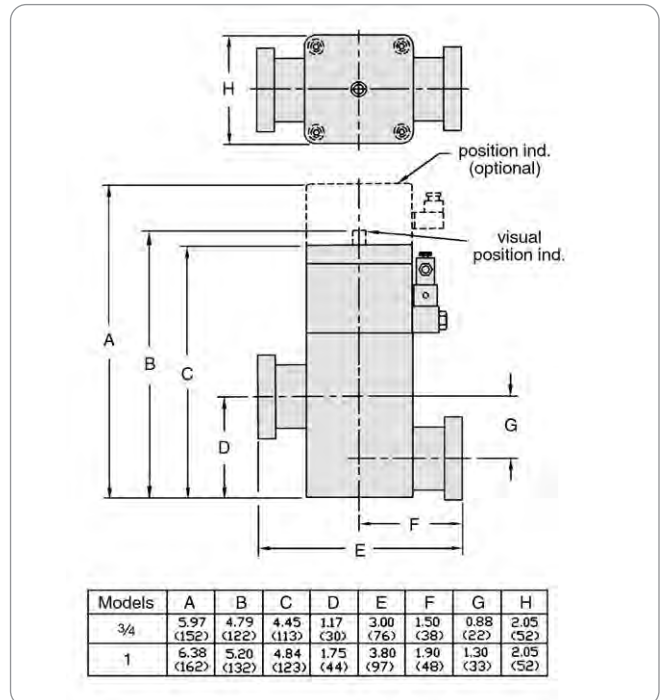
### Right-Angle A/O Stainless Steel Block Valve with Conflat Flange



### In-Line H/O Stainless Steel Block Valve with Conflat Flange

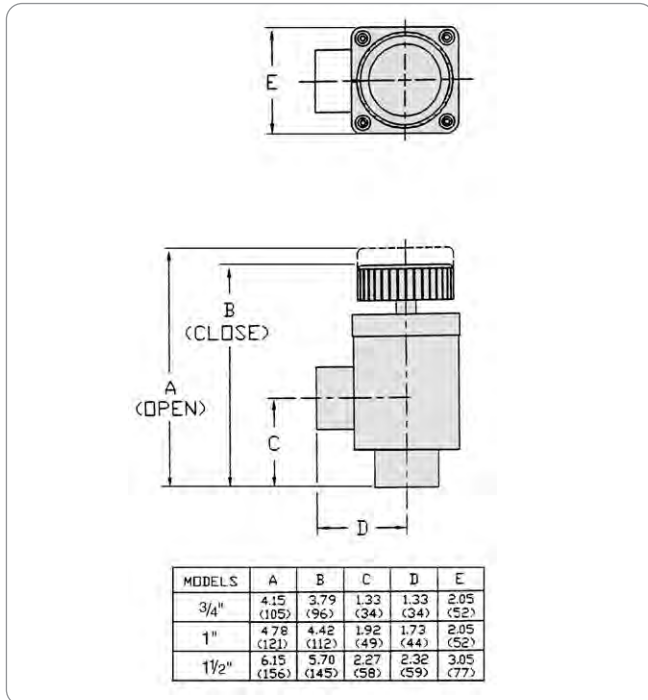


### In-Line A/O Stainless Steel Block Valve with Conflat Flange

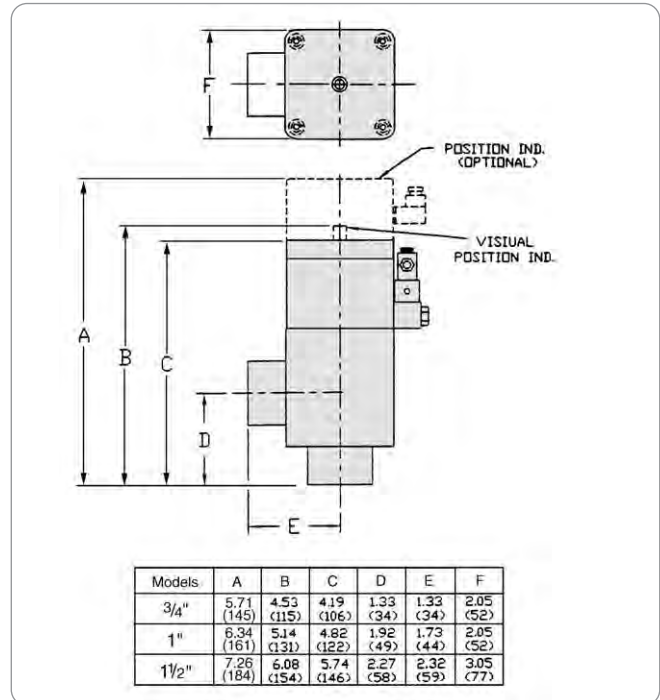


Dimensions: inches (millimeters)

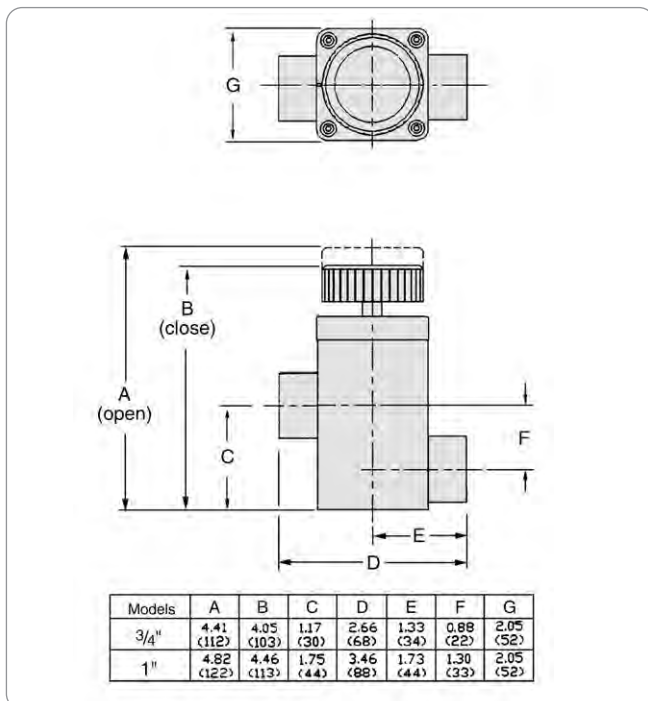
## Right-Angle H/O Stainless Steel Block Valve with Tube Ends



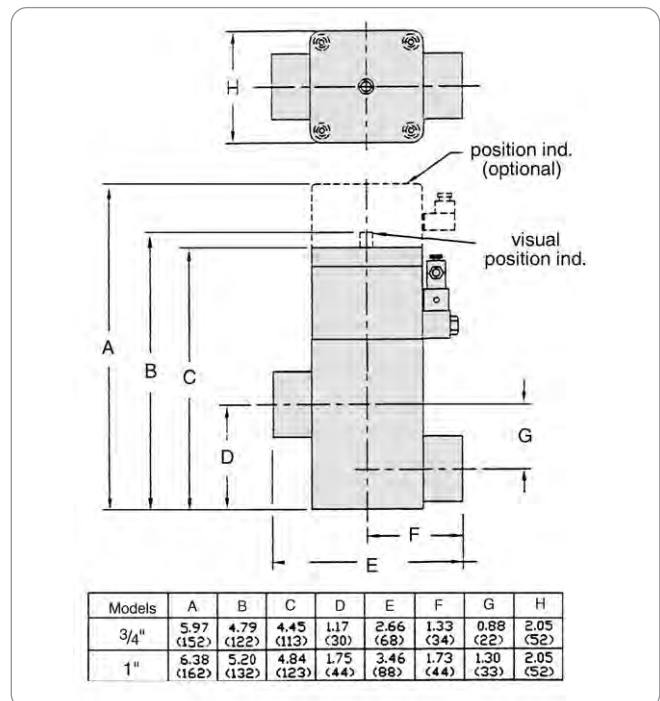
## Right-Angle A/O Stainless Steel Block Valve with Tube Ends



## In-Line H/O Stainless Steel Block Valve with Tube Ends



## In-Line A/O Stainless Steel Block Valve with Tube Ends



Dimensions: inches (millimeters)

# Rough to High Vacuum

## Agilent Stainless Steel Block Valves *(Cont'd)*

### Technical Specifications

<b>Pressure range</b>			
Atmosphere to 10 <sup>-9</sup> Torr (mbar)			
<b>Main seal leak rate</b>			
< 1 x 10 <sup>-9</sup> std cc/sec He			
<b>Body leak rate</b>			
< 1 x 10 <sup>-10</sup> std cc/sec He			
<b>Rated cycle life</b>			
1 million (NW16/25)			
250,000 (NW40)			
<b>Conductance</b> (molecular flow)			
	NW16	NW25	NW40
Right Angle	4 l/s	12 l/s	35 l/s
Offset In-Line	4 l/s	12 l/s	35 l/s
<b>Materials</b>			
• Valve body – stainless steel 304			
• Bellows – stainless steel T321			
• O-rings, vacuum – viton V747-75			
<b>Time to Close/Open</b>			
< 300 milliseconds			

<b>Bakeable to –</b>	
Hand-operated valve	200 °C (with valve open) 150 °C (with valve closed)
Air-operated valve	200 °C without solenoid 150 °C (with valve closed) 60 °C with solenoid
<b>Air connection</b>	
1/8 in. NPT	
<b>Vacuum connection</b>	
KF, ConFlat (rotatable) or tube end options	
<b>Actuation</b>	
Spring closed, air open	
Air pressure, 80 psig (min) 100 psig (maximum)	
<b>Power loss</b>	
Valve closes	
<b>Optional remote position indicator</b>	
Actuator – Microswitch	
Electrical rating – 125/250 VAC, 5 amp maximum	
Signal hookup – NO or NC	

### Ordering Information – NW16, NW25, NW40

Size	Voltage Option	Part Number	Shipping Weight lbs. (kg)
<b>Right Angle Block Valves</b>			
<b>Hand-operated</b>			
0.75 in.		L9480301      L9480501      L9480701	0.8 (0.4)
1.0 in.		L9480302      L9480502      L9480702	0.8 (0.4)
1.5 in.		L9480303      L9480503      L9480703	1.7 (0.8)
<b>Air-operated</b>			
0.75 in.	without solenoid	L9481301      L9481501      L9481701	1.5 (0.7)
	110/115 VAC; 50/60 Hz	L9481311      L9481511      L9481711	1.7 (0.8)
	220/240 VAC; 50/60 Hz	L9481321      L9481521      L9481721	1.7 (0.8)
	24 VDC	L9481331      L9481531      L9481731	1.7 (0.8)
1.0 in.	without solenoid	L9481302      L9481502      L9481702	1.6 (0.7)
	110/115 VAC; 50/60 Hz	L9481312      L9481512      L9481712	1.8 (0.8)
	220/240 VAC; 50/60 Hz	L9481322      L9481522      L9481722	1.8 (0.8)
	24 VDC	L9481332      L9481532      L9481732	1.8 (0.8)
1.5 in.	without solenoid	L9481303      L9481503      L9481703	3.3 (1.5)
	110/115 VAC; 50/60 Hz	L9481313      L9481513      L9481713	3.7 (1.7)
	220/240 VAC; 50/60 Hz	L9481323      L9481523      L9481723	3.7 (1.7)
	24 VDC	L9481333      L9481533      L9481733	3.7 (1.7)
<b>Right Angle Block Valves (with remote position indicator)</b>			
<b>Air-operated</b>			
0.75 in.	without solenoid	L9482301      L9482501      L9482701	1.8 (0.8)
	110/115 VAC; 50/60 Hz	L9482311      L9482511      L9482711	2.0 (0.9)
	220/240 VAC; 50/60 Hz	L9482321      L9482521      L9482721	2.0 (0.9)
	24 VDC	L9482331      L9482531      L9482731	2.0 (0.9)
1.0 in.	without solenoid	L9482302      L9482502      L9482702	1.9 (0.8)
	110/115 VAC; 50/60 Hz	L9482312      L9482512      L9482712	2.1 (0.9)
	220/240 VAC; 50/60 Hz	L9482322      L9482522      L9482722	2.1 (0.9)
	24 VDC	L9482332      L9482532      L9482732	2.1 (0.9)
1.5 in.	without solenoid	L9482303      L9482503      L9482703	3.6 (1.6)
	110/115 VAC; 50/60 Hz	L9482313      L9482513      L9482713	3.8 (1.7)
	220/240 VAC; 50/60 Hz	L9482323      L9482523      L9482723	3.8 (1.7)
	24 VDC	L9482333      L9482533      L9482733	3.8 (1.7)



## Ordering Information – NW16, NW25, NW40

Size	Voltage Option	Part Number	Shipping Weight lbs. (kg)	
<b>Offset In-Line Block Valves</b>				
		<b>KF Flange</b>	<b>ConFlat Flange</b>	<b>Tube End</b>
Hand-operated				
0.75 in.		L9580301	L9580501	L9580701
1.0 in.		L9580302	L9580502	L9580702
Air-operated				
0.75 in.	without solenoid	L9581301	L9581501	L9581701
	110/115 VAC; 50/60 Hz	L9581311	L9581511	L9581711
	220/240 VAC; 50/60 Hz	L9581321	L9581521	L9581721
	24 VDC	L9581331	L9581531	L9581731
1.0 in.	without solenoid	L9581302	L9581502	L9581702
	110/115 VAC; 50/60 Hz	L9581312	L9581512	L9581712
	220/240 VAC; 50/60 Hz	L9581322	L9581522	L9581722
	24 VDC	L9581332	L9581532	L9581732
1.5 in.	110 VAC		L9581503	L9581703
<b>Offset In-Line Block Valves (with remote position indicator)</b>				
		<b>KF Flange</b>	<b>ConFlat Flange</b>	<b>Tube End</b>
Air-operated				
0.75 in.	without solenoid	L9582301	L9582501	L9582701
	110/115 VAC; 50/60 Hz	L9582311	L9582511	L9582711
	220/240 VAC; 50/60 Hz	L9582321	L9582521	L9582721
	24 VDC	L9582331	L9582531	L9582731
1.0 in.	without solenoid	L9582302	L9582502	L9582702
	110/115 VAC; 50/60 Hz	L9582312	L9582512	L9582712
	220/240 VAC; 50/60 Hz	L9582322	L9582522	L9582722
	24 VDC	L9582332	L9582532	L9582732

Description	Part Number	Shipping Weight lbs. (kg)
<b>Spare Parts</b>		
Replacement solenoids (fit all air-operated valves)		
110/115 VAC; 50/60 Hz	626771150	0.5 (0.2)
220/240 VAC; 50/60 Hz	626771151	0.5 (0.2)
24 VDC	626771152	0.5 (0.2)
Hand-operated spare parts kits (includes bellows and o-rings)		
¾ in. or 1 in.	L6125301	0.5 (0.2)
1½ in.	L6126301	0.5 (0.2)
Air-operated spare parts kits (includes bellows, quad ring, and o-rings)		
¾ in. or 1 in.	L6127301	0.5 (0.2)
1½ in.	L6128301	0.5 (0.2)
Optional remote position indicator (fits all Aluminum Block Valves)		
Single microswitch	L6597302	0.5 (0.2)
Dual microswitch	L6597301	0.5 (0.2)
Manual	699912040	0.5 (0.2)

## Agilent Stainless Steel Metal Bonnet Sealed Tube Valves



Wherever reliable elastomer seals are required for ultrahigh vacuum systems, the stainless steel right angle and in-line valves fit the need.

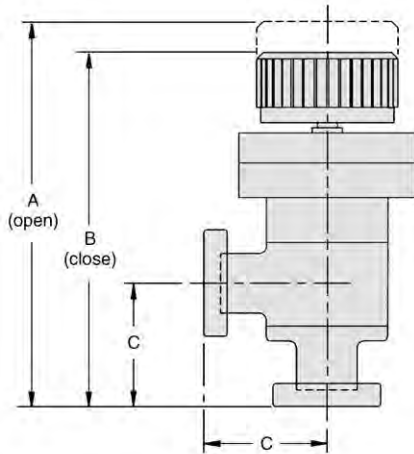
### Features

- High conductance
- 1 million cycles
- Metal bonnet gasket
- Fail safe air-operated version
- Double-lead thread stem (manual actuator)
- Kalrez o-ring option (on request)
- Visual position indicator (standard)
- Remote position indicator (optional)

### Benefits

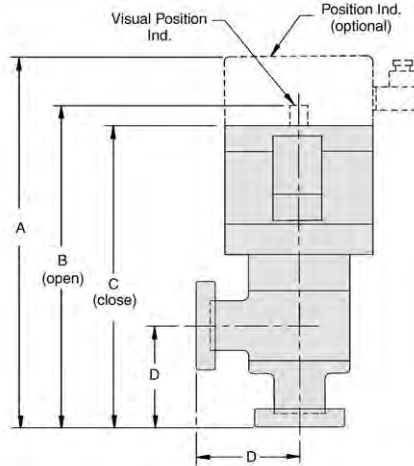
- Increased productivity
- Less down time
- Reduced outgassing, to achieve lower base pressure
- System protection
- Fewer turns to open valve
- Increased bakeability (to 300 °C)
- Minimizes operator error
- System automation

## Right-Angle H/O Stainless Steel Valve



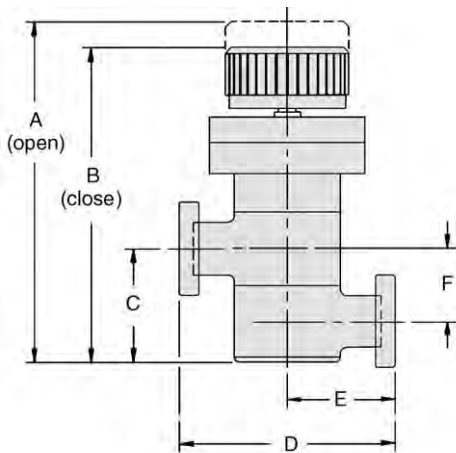
Valve Size	Size	ConFlat Flange Dimensions		
		A	B	C
$\frac{3}{4}$	$1\frac{1}{3}$	5.08	4.38	1.50
		(129)	(111)	(38)
1	$2\frac{1}{8}$	5.50	4.80	2.04
		(140)	(122)	(52)
$1\frac{1}{2}$	$2\frac{3}{4}$	7.22	6.10	2.47
		(183)	(155)	(63)

## Right-Angle A/O Stainless Steel Valve



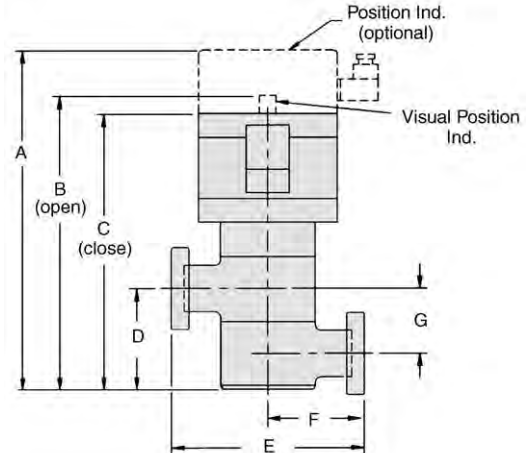
Valve Size	Size	ConFlat Flange Dimensions			
		A	B	C	D
$\frac{3}{4}$	$1\frac{1}{3}$	6.56	5.66	5.06	1.50
		(167)	(144)	(129)	(38)
1	$2\frac{1}{8}$	6.98	6.08	5.48	2.04
		(177)	(154)	(139)	(52)
$1\frac{1}{2}$	$2\frac{3}{4}$	8.29	7.07	6.79	2.47
		(211)	(180)	(173)	(63)

## In-Line H/O Stainless Steel Valve



Valve Size	Size	ConFlat Flange Dimensions					
		A	B	C	D	E	F
$\frac{3}{4}$	$1\frac{1}{3}$	5.21	4.51	1.63	3.00	1.50	1.06
		(132)	(115)	(41)	(76)	(38)	(27)
1	$2\frac{1}{8}$	5.46	4.76	2.01	4.08	2.04	1.31
		(139)	(121)	(51)	(104)	(52)	(33)
$1\frac{1}{2}$	$2\frac{3}{4}$	7.97	6.75	3.32	4.94	2.47	2.00
		(202)	(171)	(84)	(126)	(63)	(51)

## In-Line A/O Stainless Steel Valve



Valve Size	Size	ConFlat Flange Dimensions						
		A	B	C	D	E	F	G
$\frac{3}{4}$	$1\frac{1}{3}$	6.70	5.80	5.20	1.63	3.00	1.50	1.06
		(170)	(147)	(132)	(41)	(76)	(38)	(27)
1	$2\frac{1}{8}$	6.94	6.04	5.44	2.01	4.08	2.04	1.31
		(176)	(153)	(138)	(51)	(104)	(52)	(33)
$1\frac{1}{2}$	$2\frac{3}{4}$	9.04	7.82	7.54	3.32	4.94	2.47	2.00
		(230)	(199)	(192)	(84)	(126)	(63)	(51)

Dimensions: inches (millimeters)

# Rough to High Vacuum

## Agilent Stainless Steel Metal Bonnet Sealed Tube Valves *(Cont'd)*

### Technical Specifications

<b>Vacuum range</b>			
Atmosphere to below $1 \times 10^{-10}$ Torr (mbar) range			
<b>Leak rate</b>			
No leak detectable with a helium mass spectrometer leak detector with a sensitivity of $< 1 \times 10^{-9}$ std cc/sec			
<b>Conductance</b>			
	¼ in.	1 in.	1½ in.
Right Angle	8 l/s	13 l/s	46 l/s
In-Line	7 l/s	12 l/s	37 l/s
<b>Bakeable to</b> (with valve open)			
Hand-operated valve: 225 °C			
Air-operated valve: 225 °C – solenoid removed			

<b>Rated cycle life</b>	
1 million (¼ in., 1 in.)	
250,000 (1½ in.)	
<b>Mounting positions</b>	
Valve can be mounted in any orientation and sealed against atmospheric pressure at either port	
<b>Air pressure</b>	
¼ in., 1 in.	50 to 100 PSIG
1½ in.	60 to 100 PSIG
<b>Temperature limit, continuous operation</b> (Kalrez seal)	
Hand-operated valve: 225 °C	
Air-operated valve: 180 °C – solenoid removed or used remotely	

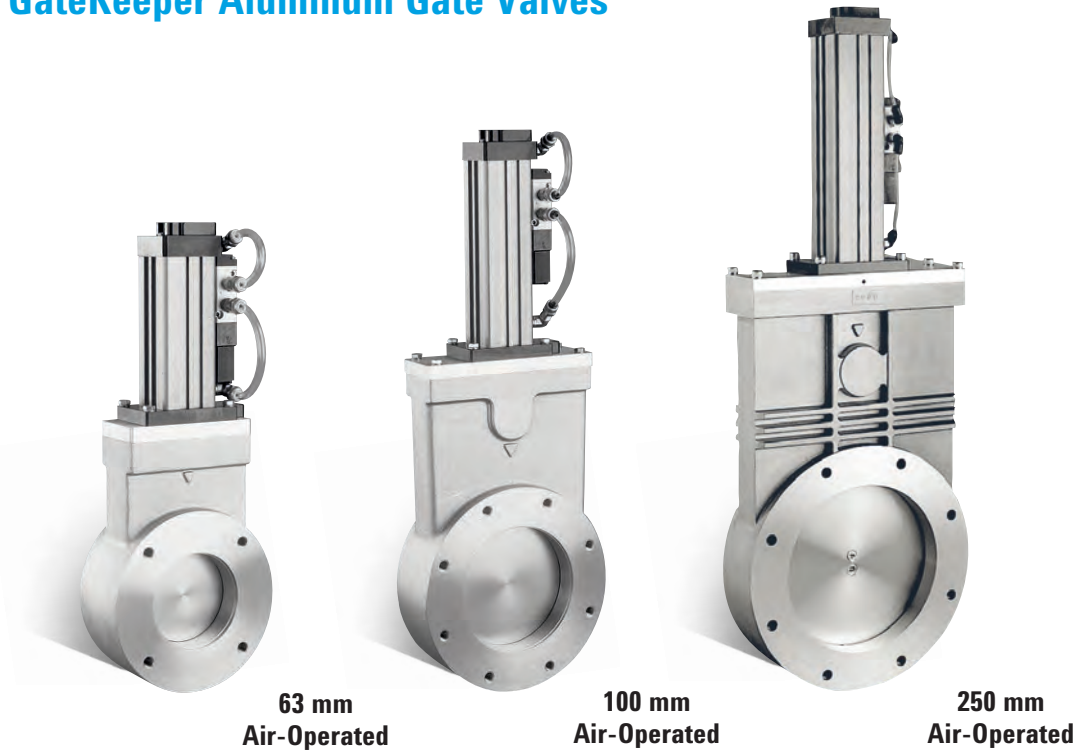
### Ordering Information

Description	Solenoid	Part Number	Shipping Weight lbs. (kg)
<b>¼ in. Right-Angle SST valves</b>			
Hand-operated			
1.33 in. CFF		L9240305	2.0 (0.9)
Air-operated			
1.33 in. CFF	NONE	L9240315	2.0 (1.4)
Air-operated with solenoid			
1.33 in. CFF	110 V	L9240325	3.0 (1.4)
	220 V	L9240330	3.0 (1.4)
	24 VDC	L9240335	3.0 (1.4)
Air-operated with solenoid & position indicator			
1.33 in. CFF	110 V	L9240345	3.0 (1.4)
	220 V	L9240350	3.0 (1.4)
	24 VDC	L9240355	3.0 (1.4)
<b>1 in. Right-Angle SST Valves</b>			
Hand-operated			
2.12 in. CFF		L9260305	2.0 (0.9)
Air-operated			
2.12 in. CFF	NONE	L9260315	3.0 (1.4)
Air-operated with solenoid			
2.12 in. CFF	110 V	L9260325	3.0 (1.4)
	220 V	L9260330	3.0 (1.4)
	24 VDC	L9260335	3.0 (1.4)
Air-operated with solenoid & position indicator			
2.12 in. CFF	110 V	L9260345	3.0 (1.4)
	220 V	L9260350	3.0 (1.4)
	24 VDC	L9260355	3.0 (1.4)
<b>1½ in. Right-Angle SST Valves</b>			
Hand-operated			
2.75 in. CFF		L6591301	6.0 (2.7)
Air-operated			
2.75 in. CFF	NONE	L6591303	7.0 (3.2)
Air-operated with solenoid			
2.75 in. CFF	110 V	L6591320	7.0 (3.2)
	220 V	L6591325	7.0 (3.2)
	24 VDC	L6591330	7.0 (3.2)
Air-operated with solenoid & position indicator			
2.75 in. CFF	110 V	L6591305	8.0 (3.6)
	220 V	L6591343	8.0 (3.6)
	24 VDC	L6591348	8.0 (3.6)

## Ordering Information

Description	Solenoid	Part Number	Shipping Weight lbs. (kg)
<b>¼ in. In-Line SST Valves</b>			
Hand-operated			
1.33 in. CFF	–	L9250305	2.0 (0.9)
Air-operated			
1.33 in. CFF	NONE	L9250315	3.0 (1.4)
Air-operated with solenoid			
1.33 in. CFF	110 V	L9250325	3.0 (1.4)
	220 V	L9250330	3.0 (1.4)
	24 VDC	L9250335	3.0 (1.4)
Air-operated with solenoid & position indicator			
1.33 in. CFF	110 V	L9250345	3.0 (1.4)
	220 V	L9250350	3.0 (1.4)
	24 VDC	L9250355	3.0 (1.4)
<b>1 in. In-Line SST Valves</b>			
Hand-operated			
2.12 in. CFF	–	L9270305	2.0 (0.9)
Air-operated			
2.12 in. CFF	NONE	L9270315	3.0 (1.4)
Air-operated with solenoid			
2.12 in. CFF	110 V	L9270325	3.0 (1.4)
	220 V	L9270330	3.0 (1.4)
	24 VDC	L9270335	3.0 (1.4)
Air-operated with solenoid & position indicator			
2.12 in. CFF	110 V	L9270345	4.0 (1.8)
	220 V	L9270350	4.0 (1.8)
	24 VDC	L9270355	4.0 (1.8)
<b>1½ in. In-Line SST Valves</b>			
Hand-operated			
2.75 in. CFF	–	L8679301	7.0 (1.8)
Air-operated			
2.75 in. CFF	NONE	L8679303	7.0 (1.8)
Air-operated with solenoid			
2.75 in. CFF	110 V	L8679320	7.0 (1.8)
	220 V	L8679325	7.0 (1.8)
	24 VDC	L8679330	7.0 (1.8)
Air-operated with solenoid & position indicator			
2.75 in. CFF	110 V	L8679305	8.0 (1.8)
	220 V	L8679343	7.0 (1.8)
	24 VDC	L8679348	7.0 (1.8)
<b>Accessories</b>			
Solenoids for ¼ in., 1 in. and 1½ in. Valve	110/120 V, 50/60 Hz	626771173	0.5 (0.2)
	220/240 V, 50/60 Hz	626771174	0.5 (0.2)
	24 VDC	626771175	0.5 (0.2)
Optional position indicator micro switch	Standard 125 VAC	L6597301	1.0 (0.5)
<b>Spare Parts</b>			
¼ in. and 1 in. valves			
Metal Bonnet and Viton main seal		L6680302	0.3 (0.1)
Viton Bonnet and Viton main seal		L6681302	0.3 (0.1)
Replacement bellows		L9252001	1.0 (0.5)
1½ in. Valves			
Metal Bonnet and Viton main seal		L6680301	0.3 (0.1)
Viton Bonnet and Viton main seal		L6681301	0.3 (0.1)
Replacement bellows		L6577001	1.0 (0.5)
Reed switch P/I		L9996301	1.0 (0.5)
Reed switch P/I with trim assembly		L9976301	2.0 (1.0)
Manual		699912042	0.5 (0.2)

## Agilent GateKeeper Aluminum Gate Valves



The GateKeeper Series Aluminum Gate Valves are economical, reliable vacuum shut-off devices designed and manufactured by Agilent. The valves provide a low-cost, low-particle, low profile means of isolating a high vacuum pump, and are a less expensive alternative to stainless steel valves.

The GateKeeper Series valve design employs a cast aluminum body, a linear drive mechanism, a counter-plate sealing mechanism, and an elastomer shaft seal. The result is a clean, economical, smoothly actuated valve. The body is cast using the VaPore process which tightly controls each material input and process step to deliver a casting that is free of porosity. A reliable high vacuum shaft seal eliminates the need for a bellows.

The linear drive and counter-plate sealing mechanism have been designed to minimize metal-on-metal contact. The assembly is an elegant mechanism that uses a small number of precision-machined components. The required sealing forces are generated with a minimum of moving parts, and without adjustment screws. As a result, very few particles are generated within the valve.

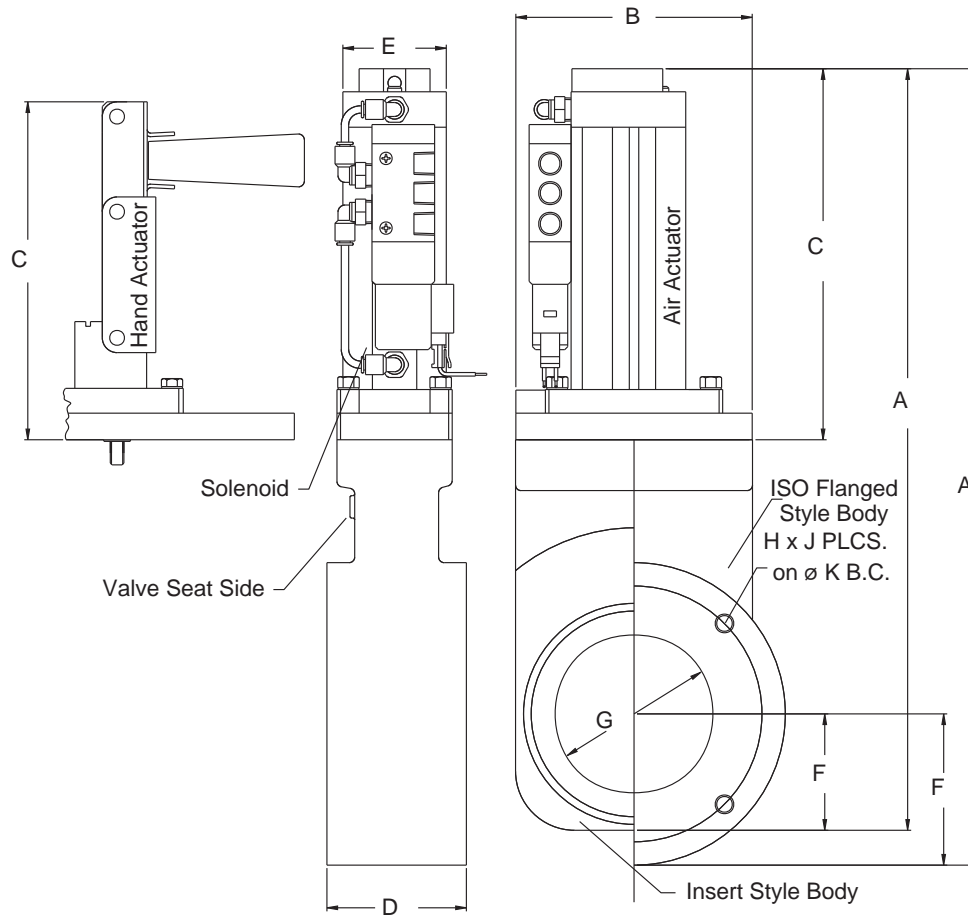
The Agilent aluminum gate valve has a small flange face-to-face profile. ISO/F flange details are machined into the cast body to provide the convenience of standard ISO claw clamp connections.

### Features

- Cast aluminum body using VaPore process for vacuum integrity
- High vacuum shaft seal – no bellows
- Extruded aluminum air cylinder with internal dampening to reduce shock
- Precision ball bearings guided in contoured ramps
- Seal plate assembly traveling on guide rails – no rollers contacting aluminum casting
- No seal plate adjusting screws that wear into the aluminum casting
- No adjustments required to provide the necessary sealing force
- Small flange face-to-face dimension
- Remote and visual position indication switches

### Benefits

- Low-cost, lightweight, high vacuum compatible valve
- Trouble-free operation
- High cycle life
- Quiet, low vibration valve actuation
- Very low particle generation
- Highly repeatable, long-lasting seal
- Convenience for system design and installation
- Ease of operation



Valve Style	Overall Length A	Overall Width B	Actuator Height C	Flange Width D	Actuator Width E	Opening to End F	Opening Dia. G	Thread Size H	Number of Holes J	Bolt Circle Dia. K
63mm ISO flange A/O	13.48	4.00	6.28	2.36	1.75	2.56	2.67	M8x1	4	4.33
63mm ISO flange H/O	13.50	4.00	6.30	2.36	1.75	2.56	2.67	M8x1	4	4.33
63mm Insert body A/O	12.89	4.00	6.28	1.26	1.75	1.97	2.67	N/A	N/A	N/A
63mm Insert body H/O	12.91	4.00	6.30	1.26	1.75	1.97	2.67	N/A	N/A	N/A
100mm ISO flange A/O	18.00	6.00	7.82	2.36	1.75	3.25	3.94	M8x1	8	5.71
100mm ISO flange H/O	17.34	6.00	7.16	2.36	1.75	3.25	3.94	M8x1	8	5.71
100mm Insert body A/O	17.55	6.00	7.82	1.26	1.75	2.78	3.94	N/A	N/A	N/A
100mm Insert body H/O	16.89	6.00	7.16	1.26	1.75	2.78	3.94	N/A	N/A	N/A
160mm ISO flange A/O	24.29	8.46	9.73	2.36	2.05	4.43	6.02	M10x1.5	8	7.87
160mm ISO flange H/O	24.10	8.46	9.54	2.36	2.05	4.43	6.02	M10x1.5	8	7.87
250mm ISO flange A/O	39.92	13.50	16.23	3.15	3.02	6.46	10.25	M10x1.5	12	12.20
4 in. ASA flange A/O	24.29	8.46	9.73	2.36	2.05	4.43	6.02	5/8-11	8	7.50
4 in. ASA flange H/O	24.10	8.46	9.54	2.36	2.05	4.43	6.02	5/8-11	12	12.20

Dimensions: inches (millimeters)

# High Vacuum

## Agilent GateKeeper Aluminum Gate Valves *(Cont'd)*

### Technical Specifications

	63 mm	100 mm	160 mm/4 in. ASA	250 mm
<b>Vacuum range</b>		Atmosphere to below $1 \times 10^{-7}$ Torr		
<b>Sealing mechanism type</b>		Linear drive with seal plate and backing plate		
<b>Feedthrough type</b>		Viton shaft seal		
<b>Leak rates</b>		Valve Body: $< 1 \times 10^{-9}$ std cc/sec helium Main Seal: $< 1 \times 10^{-9}$ std cc/sec helium		
<b>Seal materials</b>		Gate: Viton Bonnet: Viton		
<b>Pneumatic operation</b>		Actuation: Compressed Air (80 to 120 psi) Normally closed; valve closes on power loss		
<b>Open/close</b>		<2 seconds		
<b>Conductance @ molecular flow</b>	550 l/s	2,000 l/s	7,000 l/s	26,000 l/s
<b>Flanges (ISO/F bolted tapped)</b>	NW63	NW100	NW160	NW250
<b>Mounting position</b>		Any		
<b>Bakeable to –</b>		Valve body: 150 °C		
<b>Pneumatic actuator and solenoid</b>		80 °C		
<b>Cycles before first service</b>		100,000		
<b>Position indication</b>		Remote standard		
<b>Maximum pressure differential</b>		30 mbar (22.5 Torr)		



## Ordering Information

Size	Solenoid	Part Number	Shipping Weight lbs. (kg)
<b>ISO flanged versions</b>			
63 mm (2.5 in.)		VGA063IM	7.0 (2.9)
100 mm (4 in.)		VGA100IM	10.0 (4.2)
160 mm (6 in.)		VGA160IM	16.0 (6.7)
Pneumatically operated without solenoid			
63 mm (2.5 in.)		VGA063IEP	7.0 (2.9)
100 mm (4 in.)		VGA100IEP	10.0 (4.2)
160 mm (6 in.)		VGA160IEP	16.0 (6.7)
250 mm (10 in.)		VGA250IEP	48.0 (20.0)
Pneumatically operated with solenoid (see below for ordering information)*			
63 mm (2.5 in.)		VGA063IExxxP*	7.0 (2.9)
100 mm (4 in.)		VGA100IExxxP*	10.0 (4.2)
160 mm (6 in.)		VGA160IExxxP*	16.0 (6.7)
250 mm (10 in.)		VGA250IExxxP*	48.0 (20.0)
<b>ASA flanged versions</b>			
Manually operated			
4 in. ASA		VGA4AM	10.0 (4.2)
Pneumatically operated without solenoid			
4 in. ASA		VGA4AEP	10.0 (4.2)
Pneumatically operated with solenoid (see below for ordering information)*			
4 in. ASA		VGA4AExxxP*	10.0 (4.2)
<b>Insertable versions</b>			
Manually operated			
63 mm (2.5 in.)		VGA063NM	4.8 (2.0)
100 mm (4 in.)		VGA100NM	7.3 (3.0)
Pneumatically operated without solenoid			
63 mm (2.5 in.)		VGA063NEP	4.8 (2.0)
100 mm (4 in.)		VGA100NEP	7.3 (3.0)
Pneumatically operated with solenoid (see below for ordering information)*			
63 mm (2.5 in.)		VGA063NExxxP*	4.8 (2.0)
100 mm (4 in.)		VGA100NExxxP*	7.3 (3.0)

\* Replace xxx in Part Number with Solenoid Voltage Rating

Example: VGA063IE115P

115 V AC	xxx=115
220 V AC	xxx=220
24 V DC	xxx=24D

Description	Part Number	Shipping Weight lbs. (kg)
<b>Spare Seals Kits</b> (includes gate, stem (shaft) and bonnet seals)		
63 mm (2.5 in.)	VGA063SEALS	1.0 (0.5)
100 mm (4 in.)	VGA100SEALS	1.0 (0.5)
160 mm (6 in.)	VGA160SEALS	1.0 (0.5)
250 mm (10 in.)	VGA250SEALS	1.0 (0.5)

# Ultra High Vacuum

## Agilent UHV All-Metal Valves



Agilent all-metal bakeable valves are designed for use in ultra-high vacuum systems where bake-out temperatures up to 450 °C preclude the use of elastomers and low melting temperature metals. The simplicity of the all-metal design, which employs the Agilent ConFlat flange sealing principle,

assures a low maintenance unit giving maximum reliability and vacuum sealing from atmospheric pressure to below 10<sup>-11</sup> Torr (mbar).

### Technical Specifications

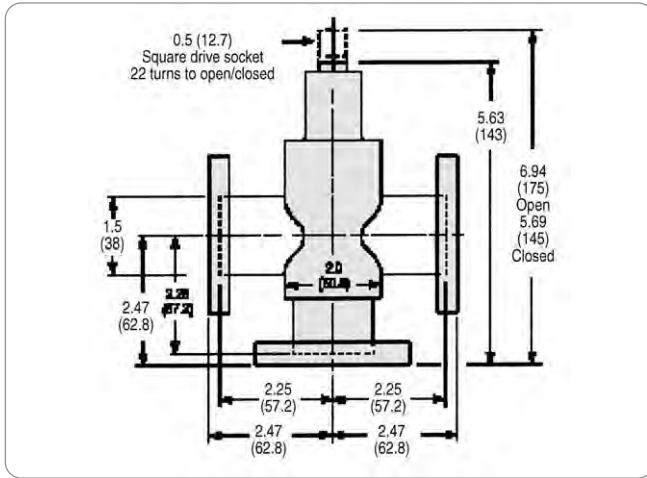
<b>Vacuum range</b>
Atmosphere to 10 <sup>-11</sup> Torr (mbar)
<b>Total leak rate</b>
<1 x 10 <sup>-10</sup> standard cc/sec (helium)
<b>Bakeable to –</b>
400 °C (¾ in. mini (NW16 CF) valve)
450 °C (all others)

<b>Conductance</b>	
¾ in.	5 l/s
1½ in. T	40 l/s
1½ in. R/A	36 l/s
1½ in. Straight through	22 l/s
2½ in.	118 l/s
<b>Gasket cycle life</b>	
400, 450 °C	30 cycles
Room temperature	300 cycles

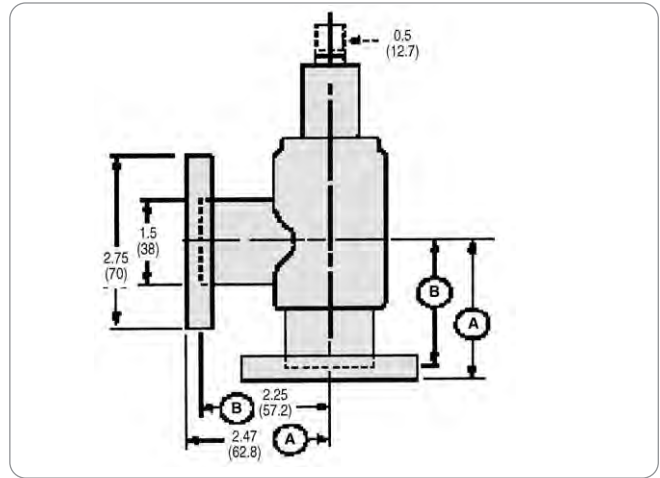
### Ordering Information

Description	Part Number	Shipping Weight lbs. (kg)
1½ in. Straight-through valve with 2¾ in. (NW35) CFF, 0.9 in. minimum optical path	9515052	9.0 (4.0)
¾ in. Right angle valve with mini (NW16) CFF	9515014	2.0 (0.9)
1½ in. Valve with 2¾ in. (NW35) CFF		
Right angle valve	9515027	7.0 (3.2)
Tee valve	9515017	8.0 (3.6)
2½ in. Valve with 4½ in. (NW63) CFF right angle valve	9515032	17.0 (7.7)
<b>Spare Parts</b>		
Replacement main seal gasket		
For ¾ in. valve (2/pkg)	9530079	0.5 (0.2)
For 1½ in. valve (3/pkg)	9535033	0.5 (0.2)
For 2½ in. valve (1/pkg)	9535039	1.0 (0.5)
Replacement bonnet gasket for ¾ in. valve	9530080	0.5 (0.2)
<b>Repair Kits</b>		
For ¾ in. valve with screw & nut, lubricant, main seal, and bonnet gasket	9620013	5.0 (2.3)
For 1½ in. valve with main seal gasket, washers, special screw, screw socket, retractor screw, and lubricant	9620012	5.0 (2.3)
For 2½ in. valve with main gasket and lubricant	Q2721301	5.0 (2.3)

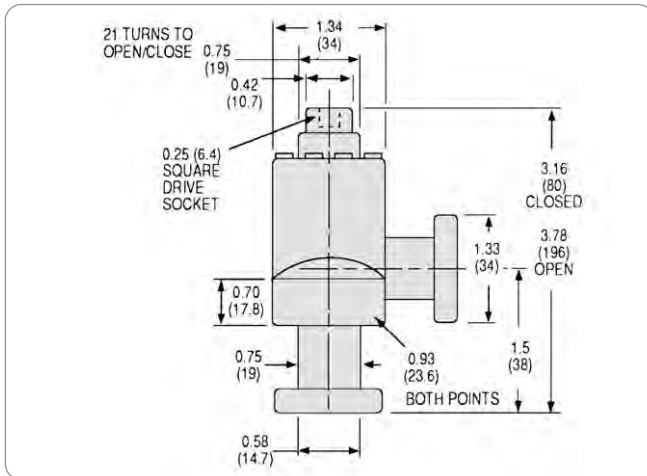
**1½ in. (2.75 CFF) Valve/Rotatable Flange on all Ports  
9515017**



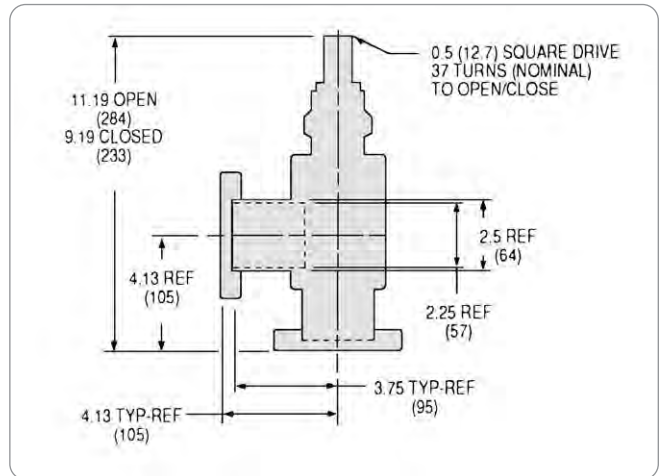
**1½ in. (2.75 CFF) Valve/Rotatable Flange on all Ports  
9515027**



**¾ in. (1.33 CFF) Valve/Rotatable Flange on all Ports  
9515014**

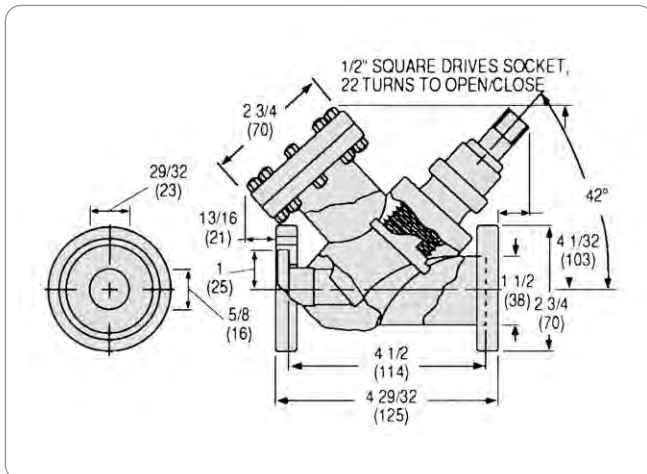


**2½ in. Valve/Rotatable Flange on all Ports  
9515032**



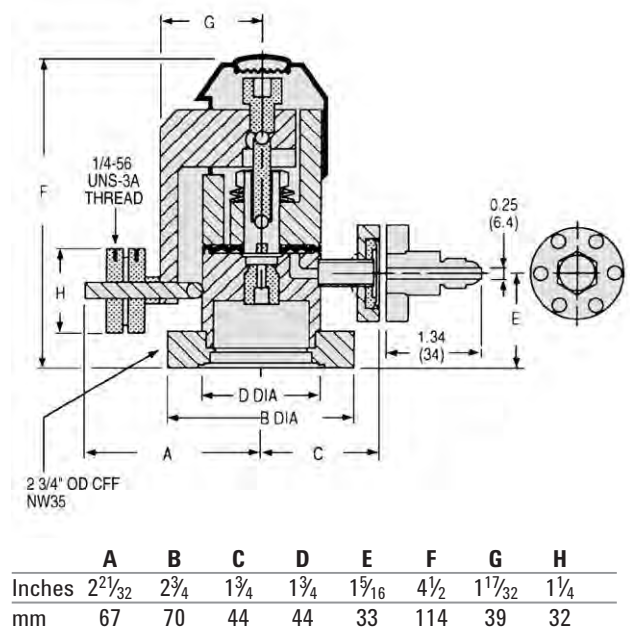
Dimensions: inches (millimeters)

**1½ in. (2.75 CFF) Valve, 0.9 in. Minimum Optical Path  
9515052**



# Special Purpose

## Agilent Variable Leak Valve



The variable leak valve includes a movable piston with an optically flat sapphire that meets a captured metal gasket. This forms a seal completely free from friction, seizing, and shear. The sapphire's movement is controlled through a threaded shaft-and-lever mechanism which provides a mechanical advantage of 13,000 to 1.

### Technical Specifications

**Controlled leak rate**

10<sup>-10</sup> Torr-l/sec (minimum)

**Vacuum range**

Atmosphere to below 10<sup>-11</sup> Torr (mbar)

**Leak rate**

No leak detectable on a helium mass spectrometer leak detector with sensitivity of 1 x 10<sup>-10</sup> std cc/sec

**Max flow conductance**

6 l/m

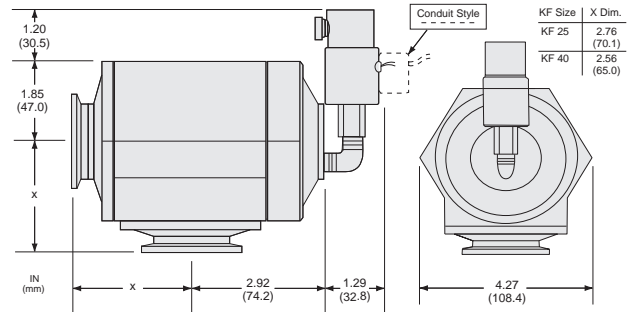
**Bakeable to –**

450 °C

### Ordering Information

Description	Part Number	Shipping Weight lbs. (kg)
Sapphire-sealed variable leak valve and valve adjustment tools		
With 1 1/3 in. (NW16) CFF gas inlet	9515106	4.0 (1.8)
Adapter kit, 1 1/3 in. (NW16) CFF-to-flare-fitting adapter kit	9515117	1.0 (0.5)
Replacement gasket assembly	9535050	0.3 (0.1)
Replacement sapphire assembly	9530072	1.0 (0.5)
Sapphire removal tool	SR0061417400	0.5 (0.2)
Repair and tool kit includes fine screw assembly, handle, and collar adjusting knobs and spring driver assembly springs, sapphire assembly and gasket removal tool, brush, lubricant, 1/4 and 5/16 hex key wrenches and instruction manual	9620014	5.0 (2.3)

## Agilent Vacuum Pump Isolation Valve (VPI)



Dimensions: inches (millimeters)

### Protection for Your Vacuum System

The VPI is electrically connected in parallel with your mechanical pump, and closes rapidly when power is interrupted to prevent oil backstreaming or particle migration into your vacuum system. The valves also vent the pump from the inlet side to push any debris towards the outlet, thereby preventing it from being swept into the system when pumping is restarted. The body design and right-angle configuration provide maximum conductance.

### Features

- Lock-over-center mechanism
- Fast-acting: valve closes in less than 30 milliseconds
- Provides venting of the pump at the pump inlet
- Remains closed until pump inlet pressure returns to system pressure
- Operates with atmospheric pressure and is activated upon loss of electrical power
- Provides maximum conductance

### Technical Specifications

<b>Materials</b>	Body: 6061-T6 aluminum Piston: 2024 aluminum Seals: viton
<b>Leak rate</b>	Body and seal: $<1 \times 10^{-9}$ std cc/sec He
<b>Closing time</b>	<30 milliseconds
<b>Power</b>	7 watts @ 115 VAC
<b>Conductance</b>	NW25 - 13 l/s    NW40 - 33 l/s
<b>Temperature range</b>	Valve: 0 ° to 100 ° C, Solenoid 0 ° to 50 ° C

### Benefits

- Reliable, repeatable seals
- Immediate protection of your vacuum system from oil or contaminant migration in the event of power failure
- Flow direction is maintained; oil/debris are not swept into the system
- Continued protection and easy restart
- No compressed air required for operation
- No reduction of pumping speed

### Ordering Information

Description	Voltage	Part Number	Shipping Weight lbs. (kg)
NW25	120 VAC	VPI251205060	5 (2.3)
	133 VAC	VPI251335060	5.0 2.3
	220 VAC	VPI252205060	5.0 2.3
	266 VAC	VPI252665060	5.0 2.3
NW40	120 VAC	VPI401205060	5.0 2.3
	133 VAC	VPI401335060	5.0 2.3
	220 VAC	VPI402205060	5.0 2.3
	266 VAC	VPI402665060	5.0 2.3
<b>Accessories</b>			
Piston Kit, NW25		VPI25PSTNKIT	1.0 (0.5)
Rebuild Kit, NW25		VPI25RBLDKIT	1.0 (0.5)
Piston Kit, NW40		VPI40PSTNKIT	1.0 (0.5)
Rebuild Kit, NW40		VPI40RBLDKIT	1.0 (0.5)
Replacement Solenoid	120 VAC	VPISOL1205060	1.0 (0.5)
	133 VAC	VPISOL1335060	1.0 (0.5)
	220 VAC	VPISOL2205060	1.0 (0.5)
	266 VAC	VPISOL2665060	1.0 (0.5)
Seals Kit, NW25/40		VPISEALSKIT	1.0 (0.5)