

"ISO-Mono" Valve Features

- Compact, one piece, "Mono-Valve" design
- Reliable, low particulate, formed bellows assemblies
- Viton® sealed bonnet and poppets
- Manual and pneumatic operation
- Right angle and inline mounting configurations

Features:

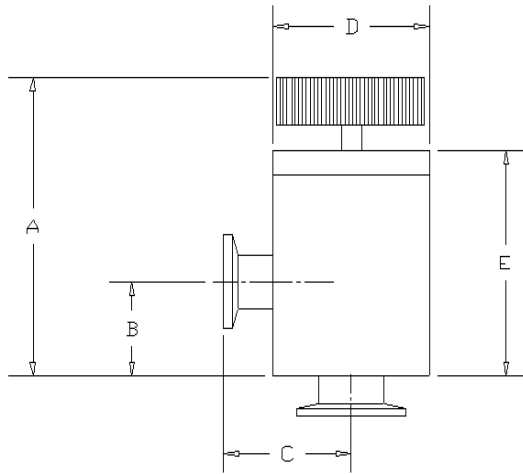
ISO-Mono valves feature valve bodies which are fabricated from a single piece of 6061t6 billet aluminum. This translates to a sleek efficient design, with extremely smooth flow paths. There are no seams, virtual leaks are eliminated, and valve bodies very easy to clean. **ISO-Mono** valve bodies are light, strong, and have a high fluorine resistance. Aluminum also has excellent thermal conductivity. Naturally this thermal conductivity is uniform, allows the body to reach a uniform temperature quickly, thereby minimizing cold spots, making **ISO-Mono** valves a great choice for CVD applications. Furthermore since the valve body is machined completely from one piece of material, flange interfaces are flat, straight, square, and abide by ISO mounting principles.

Key High Vacuum Products, Inc. pneumatic ISO-Mono valves are versatile and reliable shut-off valves. Our pneumatic versions are fail safe, single acting (spring loaded, normally closed), and will function in any position. ISO-Mono valves are provided, (inclusive) with a 120/60 Solenoid. All valve assemblies are leak tested on a helium mass spectrometer @ 3×10^{-9} torr (with a one atmosphere differential). ISO-Mono valves bodies are bakeable to 150° C. See ordering blocks for additional options, and soft goods maintenance kits.

Please call Key High at 631-360-3970 or email us at info@KeyHigh.com for the most up-to-date listing of products and for pricing information.



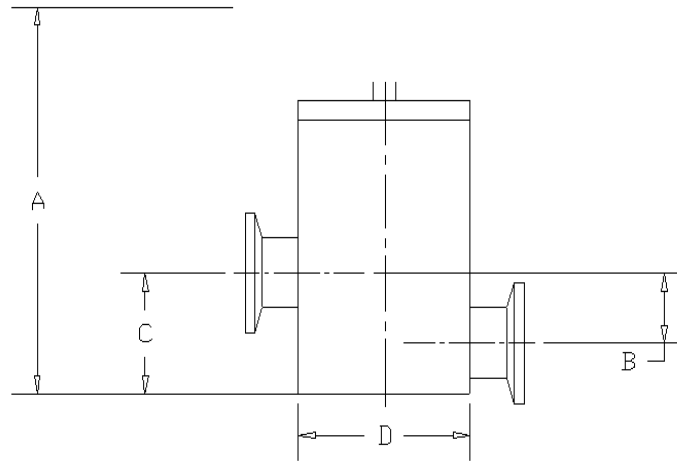
Aluminum ISO-Mono Valves



Manual Right Angle Valves

Part Number	Flange (port) Size	A	B	C	D	E
KAAV-16★	NW 16	3.2	1.57	1.57	2.05	2.50
KAAV-25★	NW 25	3.37	1.97	1.97	2.05	2.45
KAAV-40★	NW 40	4.75	2.57	2.57	3.05	3.49
KAAV-50★	NW 50	5.00	2.80	2.80	3.89	4.36

★ = New Product



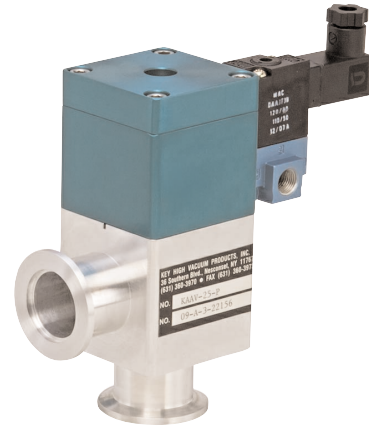
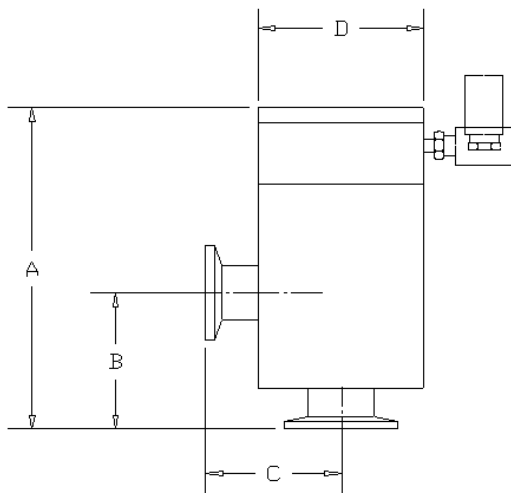
Manual Inline Valves

Part Number	Flange (port) Size	A	B	C	D
KAIV-16★	NW 16	4.35	0.87	1.58	2.00
KAIV-25★	NW 25	4.50	1.25	1.98	2.00
KAIV-40★	NW 40	5.87	1.77	2.57	3.00

★ = New Product



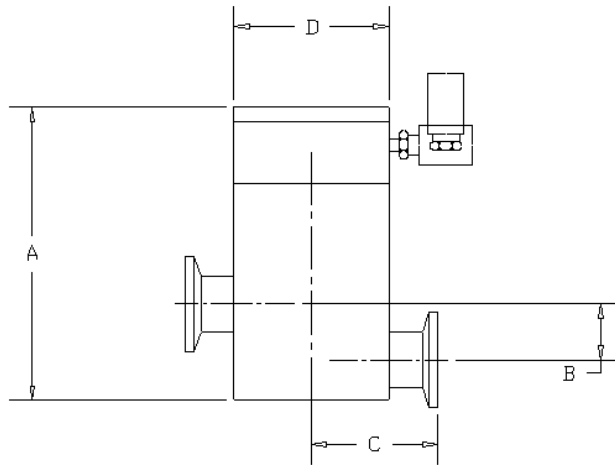
Aluminum ISO-Mono Valves



Pneumatic Right Angle Valves

Part Number	Flange (port) Size	A	B	C	D
KAHV-16-P★	NW 16	4.58	1.57	1.57	2.00
KAHV-25-P★	NW 25	4.94	1.97	1.97	2.00
KAHV-40-P★	NW 40	6.04	2.57	2.57	3.00
KAHV-50-P★	NW 50	7.03	2.80	2.80	3.90

★ = New Product



Pneumatic Inline Valves

Part Number	Flange (port) Size	A	B	C	D
KAIV-16-P★	NW 16	4.89	0.87	1.58	2.00
KAIV-25-P★	NW 25	5.26	1.25	1.98	2.00
KAIV-40-P★	NW 40	6.65	1.77	2.57	3.00

★ = New Product



Aluminum ISO-Mono Valves



Pneumatic valve options (Add option code to suffix of part number)

Description	Option Code	
24 Volt DC solenoid	-24VDC	Add
24 Volt AC solenoid	-24VAC	Add
220 Volt AC solenoid	-220VAC	Add
Mechanical Limit Switches	-LS	Add
No Solenoid	-NS	Deduct

"Soft Goods" (Viton®) manual valves

Part Number	Description
OR-KAAV-16★	Fits NW 16
OR-KAAV-25★	Fits NW 25
OR-KAAV-40★	Fits NW 40
OR-KAAV-50★	Fits NW 50

"Soft Goods" (Viton®) pneumatic valves

Part Number	Description
OR-KAAV-16-P★	Fits NW 16
OR-KAAV-25-P★	Fits NW 25
OR-KAAV-40-P★	Fits NW 40
OR-KAAV-50-P★	Fits NW 50



Replacement bellows assemblies

Part Number	Description
AVB-16★	Fits NW 16
AVB-25★	Fits NW 25
AVB-40★	Fits NW 40
AVB 50★	Fits NW 50

Note: Key High Vacuum Products, Inc. routinely modifies our product line to fit individual requirements. Nickel plating, Kalrez® 4079, Chemrez® seals, etc. are all available upon request.



SA / SL Performance Series Valves

1



3/8 thru 4"
Port Sizes





KEY HIGH VACUUM PRODUCTS, INC.

manufactures a wide range of quality stainless steel valves which are at the forefront of the high vacuum industry, in terms of design, quality, reliability, durability and value. Our attention to details from raw material selection, machining practices, parts handling, part fitup, welding, surface finishing, electropolishing, assembly, testing; all are part of the quality cycle that we excel at.

The commitment to perfection in the quality of our valves, immediate responsive service and very competitive pricing, have led to universal recognition and acceptance of our valves. We also have earned the enviable reputation of manufacturing the highest quality valves to the consistently high level of craftsmanship. **KEY HIGH VACUUM PRODUCTS, INC.** strives to set the standard of excellence in manufacturing a high quality, extremely reliable high vacuum valve which is second to none. If you require quality high vacuum valves, immediate service and competitive pricing contact **KHVP**. You'll be glad you did.

General Features:

- Stainless steel type 304L electropolished valve bodies
- All valve bodies are manufactured using the "Pulled Port" method
- All valve bodies are electropolished for corrosion resistance, minimal surface area and faster pump downs
- Compact physical "footprint" of valve assembly
- Viton® seals standard, upon request other appropriate materials are available
- High conductance design
- Long life stainless steel bellow assembly stem seals
- 3/8" through 3" valves have welded bellows stem seals; 4" valves have formed bellows stem seals
- All weld joints are internal or 100% penetration

Manufacturing:

We manufacture with only the finest in raw materials. All materials arrive at our facility with certifications from the mills listing the chemical composition of the stainless steel materials. All machining is done with only water-soluble cutting oil. Once computer numerical control (CNC) machining cells have completed all sub components; all parts are washed in deionized water before welding.



Welding:

Weld acceptance criteria is today more critical than ever before for vacuum components. We, at **KEY HIGH VACUUM PRODUCTS, INC.** devote an exceptional amount of time and effort into the welding process.

This is one of the most critical areas of valve manufacturing, as welded components have a significant effect on the quality of the product being produced or the experiment being conducted. A uniformly thin, smooth weld bead is desired as it will prevent adherence of moisture and particulate, as well as maximize conductance and decreases the surface area within the vacuum envelope when compared to TIG welds that are generated using conventional non microprocessor based methods.

KEY HIGH VACUUM PRODUCTS, INC. uses a mechanized microprocessor based gas tungsten arc welding system (GTAW) also known as tungsten inert gas (TIG). These welds are preformed autogenously, without the use of filler materials in the weld. The orbital type computer based TIG welding system uses a pulsed arc for welds of unequalled quality. Results of using a microprocessor pulsed-based system are a smoother "Flat" weld that does not project into the tube ID, less heat (maximizing corrosion resistance), and a smaller more uniform bead. The result of the automated weld bead is unequalled quality and repeated consistently from the first weld to the last weld throughout the day.



Mounting styles:

Right angle, inline, straight through and combination.

Standard ports:

Tube End, NW-ISO, MET-SEAL and VCR®

Electropneumatic valve:

- Standard 1/8" female NPT inlet for compressed air supply
- Field proven piston design
- 60 to 100 psi operation
- 3/8" OD through 2" OD valves are spring loaded (fail-safe) normally closed; valves with 2-1/2" OD and larger ports are air to open, air to close.
- 120/60 solenoid supplied standard; other voltages are available, see options data block located on valve specification sheet

Mounting / Testing

Valves can be mounted in any position. However the correct or preferred method is to mount the lower port of the valve (the poppet side) towards the vacuum pump. This helps minimize volume and also helps by "pulling" the poppet closed. All valves guaranteed leak tested on a helium mass spectrometer with a sensitivity of 5 x 10⁻¹⁰ torr.

Bakeability:

Viton® seals bakeable to 205° C with the valve in the open position while under a high vacuum,(150°C with valve in the closed position). Care should be taken on pneumatic valves during a bakeout cycle.

Do not heat the actuator assembly over 70°C as damage can occur to the pneumatic actuator components.

Maintenance:

Removing the bellows assembly on **SA/SL** series valves is as simple as removing the bonnet flange screws for o-ring or bellows service. On spring loaded valves, great care should be taken as the air cylinder is under considerable spring tension. The air cylinder should always be restrained or externally clamped before removing any screws to minimize potential hazards to personnel and equipment. It is not necessary to remove the valve body from the system for maintenance issues. Replacement parts are available for all valves from stock.

Quality:

KEY HIGH VACUUM PRODUCTS, INC. takes great pride in our valves and every effort will be made to accomplish the highest quality vacuum valves that will be delivered on time, to compete in a world class market with zero escaping defects (ZED). Every valve is factory tested prior to shipment.

Custom Fabrication:

SA/SL performance series are available from stock in manual and pneumatic versions. We routinely modify are existing valves to meet individual customer requirements; please feel free to contact us.

Conductance SA valves

Part Number	Liters / Sec
SA / PSA-37	2.0
SA / PSA-50	4.0
SA / PSA-75	13.0
SA / PSA-100	15.0
SA / PSA-150	47.0
SA / PSA-200	85.0
SA / PSA-250	130.0
SA / PSA-300	190.0
PSA-400	400.0

Conductance CSAL valves

Part Number	Liters / Sec
CSAL-75	2.2
CSAL-100	4.2
CSAL-150	13.0
CSAL-200	25.0

Conductance SL valves

Part Number	Liters / Sec
SL-37 / PSL-37	2.0
SL-50 / PSL-50	4.0
SL-75 / PSL-75	12.0
SL-100 / PSL-100	13.0
SL-150 / PSL-150	32.0
SL-200 / PSL-200	58.0
SL-250 / PSL-250	92.0
SL-300 / PSL-300	140.0

Conductance ILV valves

Part Number	Liters / Sec
ILV-75	8.0
ILV-100	14.0
ILV-150	31.0

Note: Conductance calculations are based on air valves at molecular flow.

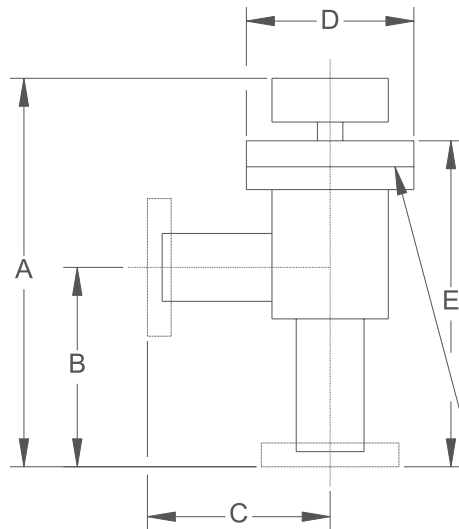


Stainless Steel Valves



Right Angle Valves, Stainless Steel, Manual, Viton® Bonnet and Poppet

Part Number	Tube OD	Port Style	A	B	C	D	E
SA-37-N	3/8"	Tube End	4.37	1.50	1.50	2.00	3.38
SA-37-K-N	3/8"	NW 10	4.50	1.65	1.65	2.00	3.54
SA-37-N-MS	3/8"	Mini MET-SEAL	4.20	1.56	1.56	2.00	3.38
SA-37-N-FVCR	3/8"	1/4" Female VCR®	4.75	1.87	1.87	2.00	3.75
SA-50-N	1/2"	Tube End	4.37	1.50	1.50	2.00	3.38
SA-50-K-N	1/2"	NW 16	4.50	1.65	1.65	2.00	3.54
SA-50-N-MS	1/2"	Mini MET-SEAL	4.20	1.56	1.56	2.00	3.38
SA-75-N	3/4"	Tube End	4.50	2.00	2.00	2.00	3.53
SA-75-K-N	3/4"	NW 16	4.68	2.12	2.12	2.00	3.66
SA-75-N-MS	3/4"	Mini MET-SEAL	5.00	2.50	2.50	2.00	4.03
SA-100-N	1"	Tube End	4.62	2.12	2.12	2.00	3.62
SA-100-K-N	1"	NW 25	4.80	2.25	2.25	2.00	3.78
SA-100-N-MS	1"	2-1/8" MET-SEAL	4.80	2.42	2.42	2.00	3.79
SA-150-N	1-1/2"	Tube End	5.43	2.25	2.25	2.75	4.04
SA-150-K-N	1-1/2"	NW 40	5.60	2.46	2.46	2.75	4.20
SA-150-N-MS	1-1/2"	2-3/4" MET-SEAL	5.64	2.46	2.46	2.75	4.50
SA-200-N	2"	Tube End	7.39	3.25	3.25	3.50	6.16
SA-200-K-N	2"	NW 50	7.55	3.50	3.50	3.50	6.32
SA-200-N-MS	2"	3-3/8" MET-SEAL	7.62	3.47	3.47	3.50	6.39
SA-250-N	2-1/2"	Tube End	10.80	3.25	3.25	4.00	7.75
SA-250-K-N	2-1/2"	NW 63	11.05	3.50	3.50	4.00	8.00
SA-250-N-MS	2-1/2"	4-1/2" MET-SEAL	11.20	3.62	3.62	4.00	8.12
SA-300-N	3"	Tube End	11.70	3.50	3.50	4.50	8.87
SA-300-K-N	3"	NW 80	11.95	3.75	3.75	4.50	9.12
SA-300-N-MS	3"	4-5/8" MET-SEAL	11.98	3.78	3.78	4.50	9.15



Viton® Bonnet

Viton® Gasket Kits

Part Number	Fits Valve Series	Price
OR-SA-100-N	37,50,75,100	\$13.00
OR-SA-150-N	150	\$13.00
OR-SA-200-N	200	\$18.00
OR-SA-250-N	250	\$18.00
OR-SA-300-N	300	\$18.00

Manual Bellows Assemblies

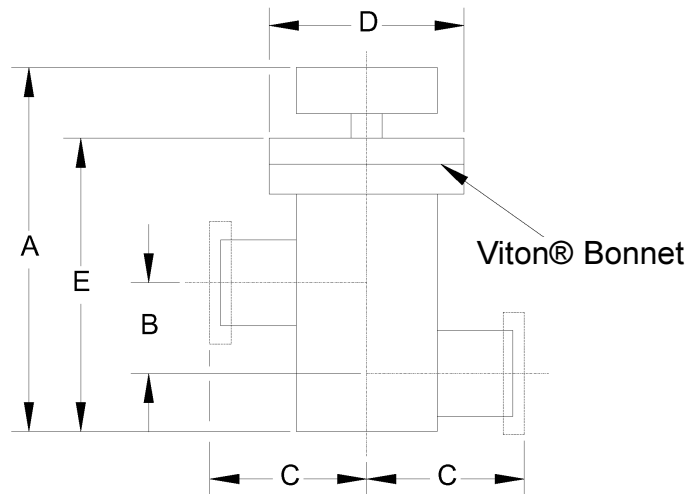
Part Number	Fits Valve Series
RS-B-100-N	37,50,75,100
RS-B-150-N	150
RS-B-200-N	200
RS-B-250-N	250
RS-B-300-N	300



Stainless Steel Valves

Inline Valves, Stainless Steel, Manual, Viton® Bonnet and Poppet

Part Number	Tube OD	Port Style	A	B	C	D	E
SL-37-N	3/8"	Tube End	4.06	.93	1.50	2.00	3.01
SL-37-K-N	3/8"	NW 10	4.06	.93	1.65	2.00	3.01
SL-37-N-MS	3/8"	Mini MET-SEAL	4.06	.93	1.56	2.00	3.01
SL-37-N-FVCR	3/8"	1/4" Female VCR®	4.06	.93	1.87	2.00	3.01
SL-50-N	1/2"	Tube End	4.06	.93	1.50	2.00	3.01
SL-50-K-N	1/2"	NW 16	4.06	.93	1.65	2.00	3.01
SL-50-N-MS	1/2"	Mini MET-SEAL	4.06	.93	1.56	2.00	3.01
SL-75-N	3/4"	Tube End	4.62	1.37	2.12	2.00	3.57
SL-75-K-N	3/4"	NW 16	4.62	1.37	2.12	2.00	3.57
SL-75-N-MS	3/4"	Mini MET-SEAL	4.62	1.37	2.62	2.00	3.57
SL-100-N	1"	Tube End	4.62	1.37	2.12	2.00	3.57
SL-100-K-N	1"	NW 25	4.62	1.37	2.25	2.00	3.57
SL-100-N-MS	1"	2-1/8" MET-SEAL	4.62	1.37	2.30	2.00	3.57
SL-150-N	1-1/2"	Tube End	6.00	1.87	2.25	2.75	4.75
SL-150-K-N	1-1/2"	NW 40	6.00	1.87	2.46	2.75	4.75
SL-150-N-MS	1-1/2"	2-3/4" MET-SEAL	6.00	1.87	2.46	2.75	4.75
SL-200-N	2"	Tube End	7.85	2.37	3.25	3.50	6.60
SL-200-K-N	2"	NW 50	7.85	2.37	3.50	3.50	6.60
SL-200-N-MS	2"	3-3/8" MET-SEAL	7.85	2.37	3.47	3.50	6.60
SL-250-N	2-1/2"	Tube End	10.00	3.12	3.00	4.00	9.31
SL-250-K-N	2-1/2"	NW 63	10.00	3.12	3.25	4.00	9.31
SL-250-N-MS	2-1/2"	4-1/2" MET-SEAL	10.00	3.12	3.47	4.00	9.31
SL-300-N	3"	Tube End	11.00	3.62	3.25	4.50	10.75
SL-300-K-N	3"	NW 80	11.00	3.62	3.50	4.50	10.75
SL-300-N-MS	3"	4-5/8" MET-SEAL	11.00	3.62	3.54	4.50	10.75



Viton® Gasket Kits

Part Number	Fits Valve Series	Price
OR-SA-100-N	37,50,75,100,	\$ 13.00
OR-SA-150-N	150	\$ 13.00
OR-SA-200-N	200	\$ 18.00
OR-SA-250-N	250	\$ 18.00
OR-SA-300-N	300	\$ 18.00

Manual Bellows Assemblies

Part Number	Fits Valve Series
RS-B-100-N	37,50,75,100
RS-B-150-N	150
RS-B-200-N	200
RS-B-250-N	250
RS-B-300-N	300



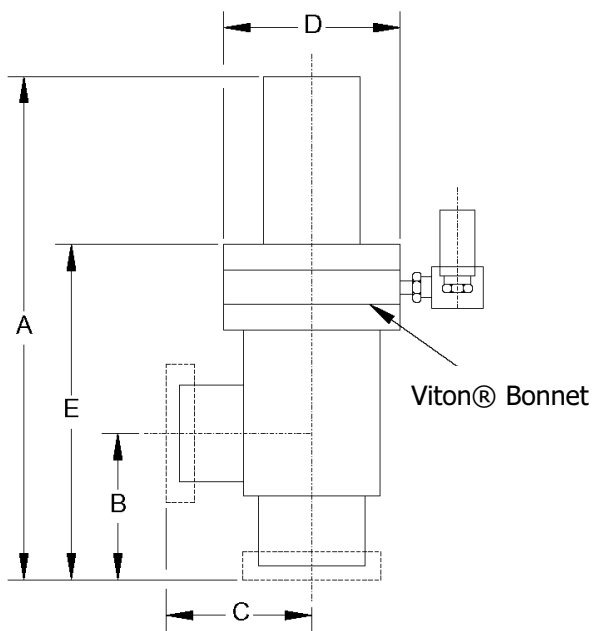
Stainless Steel Valves

Right Angle Valves, Stainless Steel, Electropneumatic, Viton® Bonnet and Poppet

Part Number	Tube OD	Port Style	A	B	C	D	E
PSA-37-N	3/8"	Tube End	5.54	1.50	1.50	2.00	3.64
PSA-37-K-N	3/8"	NW 10	5.70	1.65	1.65	2.00	3.80
PSA-37-N-MS	3/8"	Mini MET-SEAL	5.54	1.65	1.65	2.00	3.64
PSA-37-N-FVCR	3/8"	1/4" Female VCR®	5.91	1.87	1.87	2.00	4.01
PSA-50-N	1/2"	Tube End	5.54	1.50	1.50	2.00	3.64
PSA-50-K-N	1/2"	NW 16	5.70	1.65	1.65	2.00	3.80
PSA-50-N-MS	1/2"	Mini MET-SEAL	5.54	1.56	1.56	2.00	3.64
PSA-75-N	3/4"	Tube End	6.12	2.00	2.00	2.00	4.25
PSA-75-K-N	3/4"	NW 16	6.25	2.12	2.12	2.00	4.37
PSA-75-N-MS	3/4"	Mini MET-SEAL	6.62	2.50	2.50	2.00	4.75
PSA-100-N	1"	Tube End	6.25	2.12	2.12	2.00	4.25
PSA-100-K-N	1"	NW 25	6.37	2.25	2.25	2.00	4.95
PSA-100-N-MS	1"	2-1/8" MET-SEAL	6.42	2.42	2.42	2.00	4.42
PSA-150-N	1-1/2"	Tube End	7.37	2.25	2.25	2.75	4.80
PSA-150-K-N	1-1/2"	NW 40	7.50	2.46	2.46	2.75	4.95
PSA-150-N-MS	1-1/2"	2-3/4" MET-SEAL	7.58	2.46	2.46	2.75	5.01
PSA-200-N	2"	Tube End	10.14	3.25	3.25	3.50	6.77
PSA-200-K-N	2"	NW 50	10.30	3.50	3.50	3.50	6.93
PSA-200-N-MS	2"	3-3/8" MET-SEAL	10.37	3.47	3.47	3.50	7.00
PSA-250-N	2-1/2"	Tube End	10.25	3.25	3.25	4.00	7.25
PSA-250-K-N	2-1/2"	NW 63	11.05	3.50	3.50	4.00	8.00
PSA-250-N-MS	2-1/2"	4-1/2" MET-SEAL	10.63	3.47	3.47	4.00	7.63
PSA-300-N	3"	Tube End	11.25	3.50	3.50	4.50	7.75
PSA-300-K-N	3"	NW 80	11.95	3.75	3.75	4.50	9.12
PSA-300-N-MS	3"	4-5/8" MET-SEAL	11.53	3.78	3.78	4.50	8.03
PSA-400-N	4"	Tube End	13.06	4.25	4.25	6.00	8.83
PSA-400-K-N	4"	NW 100	13.31	4.50	4.50	6.00	9.08
PSA-400-N-MS	4"	6" OD MET-SEAL	13.45	4.69	4.69	6.00	9.27

Options: add code to suffix of part number

Description	Option Code	
24 Volt DC solenoid	-24VDC	Add
24 Volt AC solenoid	-24VAC	Add
220 Volt AC solenoid	-220VAC	Add
Mechanical Limit Switches	-LS	Add
No Solenoid	-NS	Deduct



Viton® Gasket Kits

Part Number	Fits Valve Series
OR-PSA-100-N	37,50,75,100
OR-PSA-150-N	150
OR-PSA-200-N	200
OR-PSA-250-N	250
OR-PSA-300-N	300
OR-PSA-400-N	400

Pneumatic Bellow Assemblies

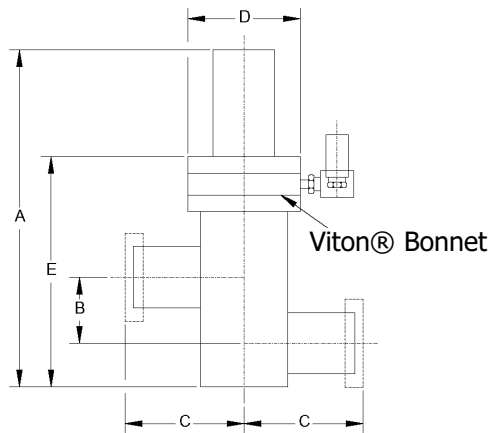
Part Number	Fits Valve Series
PRS-B-100-N	37,50,75,100
PRS-B-150-N	150
PRS-B-200-N	200
PRS-B-250-N	250
PRS-B-300-N	300
PRS-B-400-N	400



Stainless Steel Valves

Inline Valves, Stainless Steel, Electropneumatic, Viton® Bonnet and Poppet

Part Number	Tube OD	Port Style	A	B	C	D	E
PSL-37-N	3/8"	Tube End	5.62	.93	1.50	2.00	3.62
PSL-37-K-N	3/8"	NW 10	5.62	.93	1.65	2.00	3.62
PSL-37-N-FVCR	3/8"	1/4" Female VCR®	5.62	.93	1.87	2.00	3.62
PSL-37-N-MS	3/8"	Mini MET-SEAL	5.62	.93	1.56	2.00	3.62
PSL-50-N	1/2"	Tube End	5.62	.93	1.50	2.00	3.62
PSL-50-K-N	1/2"	NW 16	5.62	.93	1.65	2.00	3.62
PSL-50-N-MS	1/2"	Mini MET-SEAL	5.62	.93	1.56	2.00	3.62
PSL-75-N	3/4"	Tube End	6.20	1.37	2.12	2.00	4.18
PSL-75-K-N	3/4"	NW 16	6.20	1.37	2.25	2.00	4.18
PSL-75-N-MS	3/4"	Mini MET-SEAL	6.20	1.37	2.50	2.00	4.18
PSL-100-N	1"	Tube End	6.20	1.37	2.12	2.00	4.18
PSL-100-K-N	1"	NW 25	6.20	1.37	2.25	2.00	4.18
PSL-100-N-MS	1"	2-1/8" MET-SEAL	6.20	1.37	2.28	2.00	4.18
PSL-150-N	1-1/2"	Tube End	8.30	1.87	2.25	2.75	5.45
PSL-150-K-N	1-1/2"	NW 40	8.30	1.87	2.46	2.75	5.45
PSL-150-N-MS	1-1/2"	2-3/4" MET-SEAL	8.30	1.87	2.46	2.75	5.45
PSL-200-N	2"	Tube End	10.60	2.37	3.25	3.50	7.20
PSL-200-K-N	2"	NW 50	10.60	2.37	3.50	3.50	7.20
PSL-200-N-MS	2"	3-3/8" MET-SEAL	10.60	2.37	3.47	3.50	7.20
PSL-250-N	2-1/2"	Tube End	12.00	3.12	3.00	4.00	9.12
PSL-250-K-N	2-1/2"	NW 63	12.00	3.12	3.25	4.00	9.12
PSL-250-N-MS	2-1/2"	4-1/2" MET-SEAL	12.00	3.12	3.47	4.00	9.12
PSL-300-N	3"	Tube End	13.50	3.62	3.25	4.50	10.25
PSL-300-K-N	3"	NW 80	13.50	3.62	3.50	4.50	10.25
PSL-300-N-MS	3"	4-5/8" MET-SEAL	13.50	3.62	3.54	4.50	10.25



Options: add code to suffix of part number

Description	Option Code	Price	Viton® Gasket Kits	Part Number	Fits Valve Series
24 Volt DC Solenoid	-24VDC	Add \$ 20.00	OR-PSL-100-N	37,50,75,100	
24 Volt AC Solenoid	-24VAC	Add \$ 20.00	OR-PSL-150-N	150	
220 Volt AC Solenoid	-220VAC	Add \$ 20.00	OR-PSL-200-N	200	
Mechanical Limit Switches	-LS	Add \$ 300.00	OR-PSL-250-N	250	
No Solenoid	-NS	Deduct \$ 10.00	OR-PSL-300-N	300	

Pneumatic Bellow Assemblies

Part Number	Fits Valve Series
PRS-B-100-N	37,50,75,100
PRS-B-150-N	150
PRS-B-200-N	200
PRS-B-250-N	250
PRS-B-300-N	300

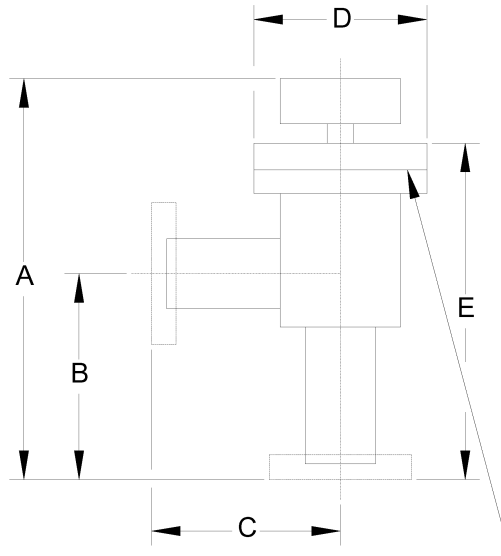


Stainless Steel Valves



Right Angle Valves, Stainless Steel, Manual OFHC® Bonnet, Viton® Poppet

Part Number	Tube OD	Port Style	A	B	C	D	E
SA-37-N-C	3/8"	Tube End	4.37	1.50	1.50	2.00	3.38
SA-37-N-MS-C	3/8"	Mini MET-SEAL	4.37	1.56	1.56	2.00	3.38
SA-37-N-FVCR-C	3/8"	1/4" Female VCR®	5.91	1.87	1.87	2.00	4.01
SA-50-N-C	1/2"	Tube End	4.37	1.50	1.50	2.00	3.38
SA-50-N-MS-C	1/2"	Mini MET-SEAL	4.37	1.56	1.56	2.00	3.38
SA-75-N-C	3/4"	Tube End	4.50	2.00	2.00	2.00	3.53
SA-75-N-MS-C	3/4"	Mini MET-SEAL	5.00	2.50	2.50	2.00	4.03
SA-100-N-C	1"	Tube End	4.62	2.12	2.12	2.00	3.62
SA-100-N-MS-C	1"	2-1/8" MET-SEAL	4.80	2.42	2.42	2.00	3.79
SA-150-N-C	1-1/2"	Tube End	5.43	2.25	2.25	2.75	4.04
SA-150-N-MS-C	1-1/2"	2-3/4" MET-SEAL	5.64	2.46	2.46	2.75	4.50
SA-200-N-C	2"	Tube End	7.39	3.25	3.25	3.50	6.16
SA-200-N-MS-C	2"	3-3/8" MET-SEAL	7.62	3.47	3.47	3.50	6.39
SA-250-N-C	2-1/2"	Tube End	10.80	3.25	3.25	4.00	7.75
SA-250-N-MS-C	2-1/2"	4-1/2" MET-SEAL	11.20	3.62	3.62	4.00	8.12
SA-300-N-C	3"	Tube End	11.70	3.50	3.50	4.50	8.87
SA-300-N-MS-C	3"	Tube End	11.98	3.78	3.78	4.50	9.15



OFHC® Copper Bonnet

Gasket Kits OFHC® Bonnet, Viton® Poppet

Part Number	Fits Valve Series	Price
OR-SA-100-N-C	37,50,75,100	\$ 18.00
OR-SA-150-N-C	150	\$ 22.00
OR-SA-200-N-C	200	\$ 25.00
OR-SA-250-N-C	250	\$ 27.00
OR-SA-300-N-C	300	\$ 28.00

Manual Bellow Assemblies

Part Number	Fits Valve Series
RS-B-100-N	37,50,75,100
RS-B-150-N	150
RS-B-200-N	200
RS-B-250-N	250
RS-B-300-N	300

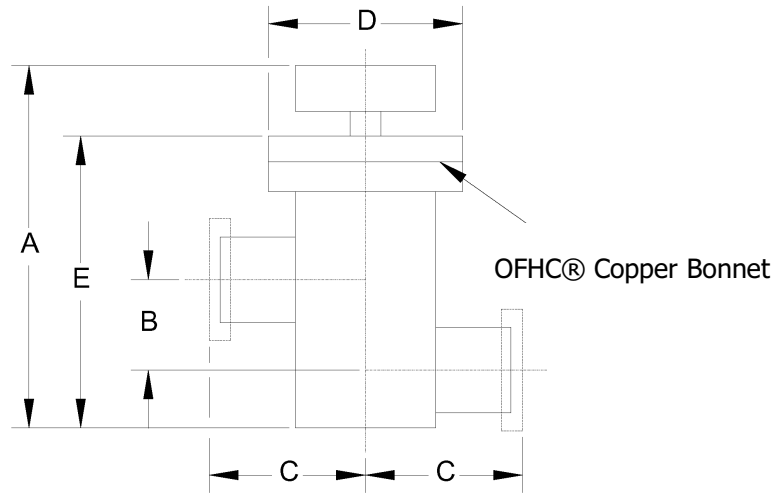


Stainless Steel Valves

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Inline Valves, Stainless Steel, Manual, OFHC® Bonnet, Viton® Poppet

Part Number	Tube OD	Port Style	A	B	C	D	E
SL-37-N-C	3/8"	Tube End	4.06	.93	1.50	2.00	3.01
SL-37-N-MS-C	3/8"	Mini MET-SEAL	4.06	.93	1.56	2.00	3.01
SL-37-N-FVCR-C	3/8"	1/4" Female VCR®	4.06	.93	1.87	2.00	3.01
SL-50-N-C	1/2"	Tube End	4.06	.93	1.50	2.00	3.01
SL-50-N-MS-C	1/2"	Mini MET-SEAL	4.06	.93	1.56	2.00	3.01
SL-75-N-C	3/4"	Tube End	4.62	1.37	2.12	2.00	3.57
SL-75-N-MS-C	3/4"	Mini MET-SEAL	4.62	1.37	2.62	2.00	3.57
SL-100-N-C	1"	Tube End	4.62	1.37	2.12	2.00	3.57
SL-100-N-MS-C	1"	2-1/8" MET-SEAL	4.62	1.37	2.30	2.00	3.57
SL-150-N-C	1-1/2"	Tube End	6.00	1.87	2.25	2.75	4.75
SL-150-N-MS-C	1-1/2"	2-3/4" MET-SEAL	6.00	1.87	2.46	2.75	4.75
SL-200-N-C	2"	Tube End	7.85	2.37	3.25	3.50	6.60
SL-200-N-MS-C	2"	3-3/8" MET-SEAL	7.85	2.37	3.47	3.50	6.60
SL-250-N-C	2-1/2"	Tube End	10.00	3.12	3.00	4.00	9.31
SL-250-N-MS-C	2-1/2"	4-1/2" MET-SEAL	10.00	3.12	3.47	4.00	9.31
SL-300-N-C	3"	Tube End	11.00	3.62	3.25	4.50	10.75
SL-300-N-MS-C	3"	4-5/8" MET-SEAL	11.00	3.62	3.54	4.50	10.75



Gasket Kits OFHC® Bonnet, Viton® Poppet

Part Number	Fits Valve Series	Price
OR-SA-100-N-C	37,50,75,100	\$ 18.00
OR-SA-150-N-C	150	\$ 22.00
OR-SA-200-N-C	200	\$ 25.00
OR-SA-250-N-C	250	\$ 27.00
OR-SA-300-N-C	300	\$ 28.00

Manual Bellows Assemblies

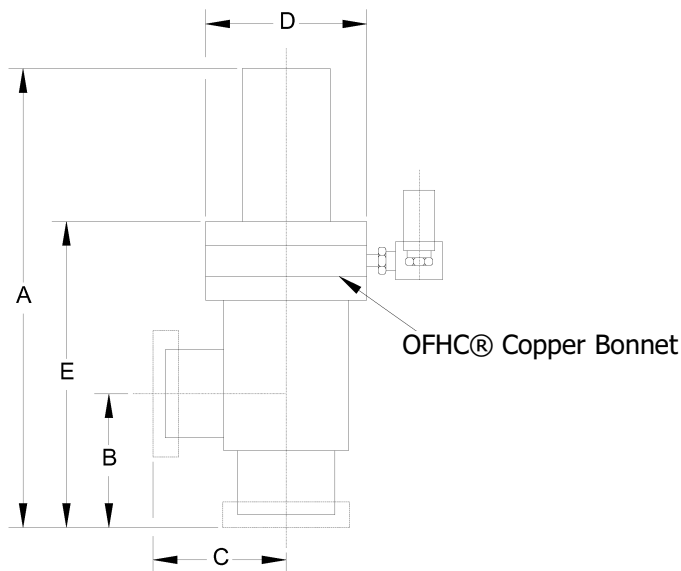
Part Number	Fits Valve Series
RS-B-100-N	37,50,75,100
RS-B-150-N	150
RS-B-200-N	200
RS-B-250-N	250
RS-B-300-N	300



Stainless Steel Valves

Right Angle Valves, Stainless Steel, Electropneumatic, OFHC® Bonnet, Viton® Poppet

Part Number	Tube OD	Port Style	A	B	C	D	E
PSA-37-N-C	3/8"	Tube End	5.54	1.50	1.50	2.00	3.64
PSA-37-N-MS-C	3/8"	Mini MET-SEAL	5.54	1.56	1.56	2.00	3.64
PSA-37-N-FVCR-C	3/8"	1/4" Female VCR®	5.91	1.87	1.87	2.00	4.01
PSA-50-N-C	1/2"	Tube End	5.54	1.50	1.50	2.00	3.64
PSA-50-N-MS-C	1/2"	Mini MET-SEAL	5.54	1.56	1.56	2.00	3.64
PSA-75-N-C	3/4"	Tube End	6.12	2.00	2.00	2.00	4.25
PSA-75-N-MS-C	3/4"	Mini MET-SEAL	6.62	2.50	2.50	2.00	4.75
PSA-100-N-C	1"	Tube End	6.25	2.12	2.12	2.00	4.25
PSA-100-N-MS-C	1"	2-1/8" MET-SEAL	6.42	2.42	2.42	2.00	4.42
PSA-150-N-C	1-1/2"	Tube End	7.37	2.25	2.25	2.75	4.80
PSA-150-N-MS-C	1-1/2"	2-3/4" MET-SEAL	7.58	2.46	2.46	2.75	5.01
PSA-200-N-C	2"	Tube End	10.14	3.25	3.25	3.50	6.77
PSA-200-N-MS-C	2"	3-3/8" MET-SEAL	10.37	3.47	3.47	3.50	7.00
PSA-250-N-C	2-1/2"	Tube End	10.25	3.25	3.25	4.00	7.25
PSA-250-N-MS-C	2-1/2"	4-1/2" MET-SEAL	10.63	3.47	3.47	4.00	7.63
PSA-300-N-C	3"	Tube End	11.25	3.50	3.50	4.50	7.75
PSA-300-N-MS-C	3"	4-5/8" MET-SEAL	11.53	3.78	3.78	4.50	8.03
PSA-400-N-C	4"	Tube End	13.06	4.25	4.25	6.00	8.83
PSA-400-N-MS-C	4"	6" MET-SEAL	13.45	4.69	4.69	6.00	9.27



Options: add code to suffix of part number

Gasket Kits, OFHC® Bonnet, Viton® Poppet

Description	Option Code	Price	Part Number	Fits Valve Series
24 Volt DC Solenoid	-24VDC	Add \$ 20.00	OR-PSA-100-N-C	37,50,75,100
24 Volt AC Solenoid	-24VAC	Add \$ 20.00	OR-PSA-150-N-C	150
220 Volt AC Solenoid	-220VAC	Add \$ 20.00	OR-PSA-200-N-C	200
Mechanical Limit Switches	-LS	Add \$ 300.00	OR-PSA-250-N-C	250
No Solenoid	-NS	Deduct \$ 10.00	OR-PSA-300-N-C	300
			OR-PSA-400-N-C	400

Pneumatic Bellow Assemblies

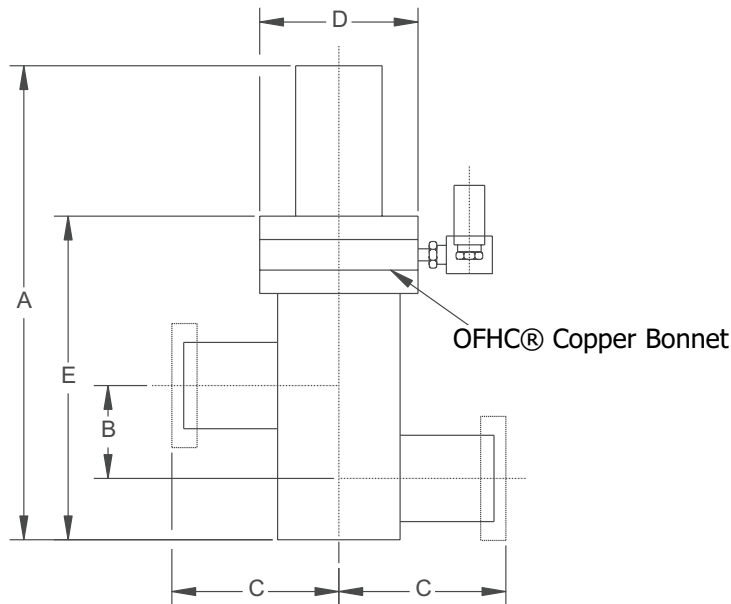
Part Number	Fits Valve Series
PRS-B-100-N	37,50,75,100
PRS-B-150-N	150
PRS-B-200-N	200
PRS-B-250-N	250
PRS-B-300-N	300
PRS-B-400-N	400



Stainless Steel Valves

Inline Valves, Stainless Steel, Electropneumatic, OFHC® Bonnet, Viton® Poppet

Part Number	Tube OD	Port Style	A	B	C	D	E
PSL-37-N-C	3/8"	Tube End	5.62	.93	1.50	2.00	3.62
PSL-37-N-MS-C	3/8"	Mini MET-SEAL	5.62	.93	1.56	2.00	3.62
PSL-37-N-FVCR-C	3/8"	1/4" Female VCR®	5.62	.93	1.87	2.00	3.62
PSL-50-N-C	1/2"	Tube End	5.62	.93	1.50	2.00	3.62
PSL-50-N-MS-C	1/2"	Mini MET-SEAL	5.62	.93	1.56	2.00	3.62
PSL-75-N-C	3/4"	Tube End	6.20	1.37	2.12	2.00	4.18
PSL-75-N-MS-C	3/4"	Mini MET-SEAL	6.20	1.37	2.62	2.00	4.18
PSL-100-N-C	1"	Tube End	6.20	1.37	2.12	2.00	4.18
PSL-100-N-MS-C	1"	2-1/8" MET-SEAL	6.20	1.37	2.30	2.00	4.18
PSL-150-N-C	1-1/2"	Tube End	8.30	1.87	2.25	2.75	5.45
PSL-150-N-MS-C	1-1/2"	2-3/4" MET-SEAL	8.30	1.87	2.46	2.75	5.45
PSL-200-N-C	2"	Tube End	10.60	2.37	3.25	3.50	7.20
PSL-200-N-MS-C	2"	3-3/8" MET-SEAL	10.60	2.37	3.47	3.50	7.20
PSL-250-N-C	2-1/2"	Tube End	12.00	3.12	3.00	4.00	9.12
PSL-250-N-MS-C	2-1/2"	4-1/2" MET-SEAL	12.00	3.12	3.47	4.00	9.12
PSL-300-N-C	3"	Tube End	13.50	3.62	3.25	4.50	10.25
PSL-300-N-MS-C	3"	4-5/8" MET-SEAL	13.50	3.62	3.54	4.50	10.25



Options: add code to suffix of part number

Gasket Kits, OFHC® Bonnet, Viton® Bonnet

Description	Option Code	Price	Part Number	Fits Valve Series
24 Volt DC Solenoid	-24VDC	Add \$ 20.00	OR-PSL-100-N-C	37,50,75,100
24 Volt AC Solenoid	-24VAC	Add \$ 20.00	OR-PSL-150-N-C	150
220 Volt AC Solenoid	-220VAC	Add \$ 20.00	OR-PSL-200-N-C	200
Mechanical Limit Switches	-LS	Add \$ 300.00	OR-PSL-250-N-C	250
No Solenoid	-NS	Deduct \$ 10.00	OR-PSL-300-N-C	300

Pneumatic Bellow Assemblies

Part Number	Fits Valve Series
PRS-B-100-N	37,50,75,100
PRS-B-150-N	150
PRS-B-200-N	200
PRS-B-250-N	250
PRS-B-300-N	300



KEY HIGH VACUUM PRODUCTS, INC.'S SLOW PUMP VALVE SERIES (SPV) are a family of economical, easy to use valves that represent the culmination of over 20 years of experience in the successful design and development of high vacuum valves that increase the production rates at our customers facilities. The **SLOW PUMP VALVE SERIES** reduces turbulence within the vacuum system, therefore reducing disturbance of product and particles. **SLOW PUMP VALVES** feature all the field proven rugged, dependable features found in our Isolation (PSA series) valves. **SPV** valves feature an integral small bypass into the PSA (parent) valve. This is achieved in a compact design to minimize the physical "footprint" of the assembly that is easily adaptable within an existing vacuum system.

Operation method: First, the small **BYPASS VALVE** is opened permitting a reduced precise flow rate between the two sides of the valve body. Once the system reaches a user determined vacuum level, the parent valve is opened to allow full speed pumping. The orifice of the bypass valve is easily removed to allow the user to select an exact match for their application.

This valve series is intended to control a pump down cycle that is virtually turbulence-free for sensitive production vacuum systems. When combining the **SPV SERIES** valves with **DF SERIES DIFFUSERS** for venting, allows equipment to meet stringent requirements for two historically difficult issues.

SPV valves have been successfully installed and used for many applications including (but not limited to) optical and semiconductor fields and allows the user to have precision control over the roughing process.



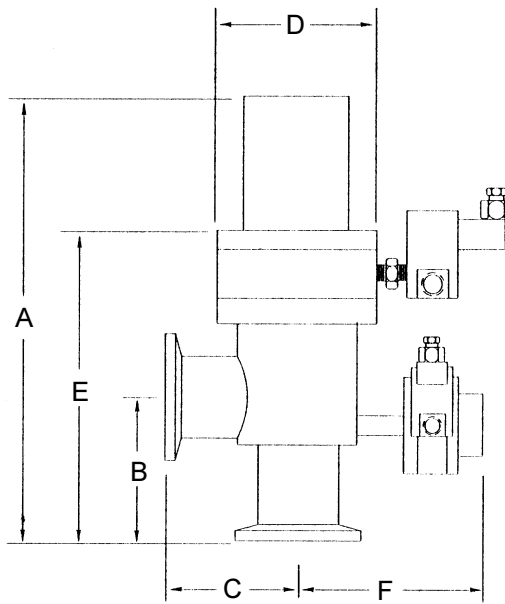
Features:

- Compact footprint
- Bellows sealed, high cycle life
- Available in 1", 1-1/2", 2", 2-1/2", 3" and 4" tube sizes
- Standard flanges include ISO-KF, MET-SEAL, and tube end
- Viton® seals standard
- 304L-valve body. All TIG welds are internal or 100% penetration and are performed on a computerized welding station for unequaled quality.
- Easily interchangeable fixed orifices. Standard sizes included with valve are .187, .125., .093
- All bypass valves are spring-loaded (normally closed, fail-safe)
- 120 volt solenoids are included, 65 to 100 psi operation
- Din connectors with LED displays are also standard issue on the SPV series. This allows the user to visually confirm the open position of the valves.

Slow Pump Pneumatic Stainless Steel Valves

SPV Pneumatic Angle Valve

Part Number	Tube OD	Port Style	A	B	C	D	E	F
SPV-100-N	1"	Tube End	7.05	2.12	2.12	2.00	5.06	3.65
SPV-100-K-N	1"	NW-25	7.17	2.25	2.25	2.00	5.75	3.65
SPV-100-N-MS	1"	2-1/8" OD MET-SEAL	7.22	2.42	2.42	2.00	5.22	3.65
SPV-150-N	1-1/2"	Tube End	8.03	2.25	2.25	2.75	5.46	3.90
SPV-150-K-N	1-1/2"	NW-40	8.16	2.46	2.46	2.75	7.41	3.90
SPV-150-N-MS	1-1/2"	2-3/4" OD MET-SEAL	8.24	2.46	2.46	2.75	7.41	3.90
SPV-200-N	2"	Tube End	10.77	3.25	3.25	3.50	7.40	4.12
SPV-200-K-N	2"	NW-50	10.93	3.50	3.50	3.50	7.55	4.12
SPV-200-N-MS	2"	3-3/8" OD Tube End	10.99	3.47	3.47	3.50	7.62	4.12
SPV-250-N	2-1/2"	Tube End	10.88	3.25	3.25	4.00	7.87	4.40
SPV-250-K-N	2-1/2"	NW-63 Clamp Style	11.68	3.50	3.50	4.00	8.62	4.40
SPV-250-N-MS	2-1/2"	4-1/2" OD MET-SEAL	11.26	3.47	3.47	4.00	8.25	4.40
SPV-300-N	3"	Tube End	11.87	3.50	3.50	4.50	8.37	4.65
SPV-300-K-N	3"	NW-80 Clamp Style	12.58	3.75	3.75	4.50	9.75	4.65
SPV-300-N-MS	3"	4-5/8" OD MET-SEAL	12.16	3.78	3.78	4.50	8.65	4.65
SPV-400-N	4"	Tube End	13.69	4.25	4.25	6.00	9.45	5.40
SPV-400-K-N	4"	NW-100 Clamp Style	13.94	4.50	4.50	6.00	9.71	5.40
SPV-400-N-MS	4"	6" OD MET-SEAL	14.07	4.69	4.69	6.00	9.89	5.40



Optional Accessories / Ordering Info

Optional solenoid voltages:

24vdc - Ordering code - 1

24vac - Ordering code - 2

240 vac - Ordering code - 3

Example: SPV-200-K-N-1 (2" angle, NW-50, pneumatic, 24vdc)

Additional cost - \$30.00

**No solenoids - deduct \$20

Kalrez®, Chemrez®, Parafleur® O-rings are available, contact factory for pricing schedule

Custom bypass orifice sizes are available for most applications, contact factory.

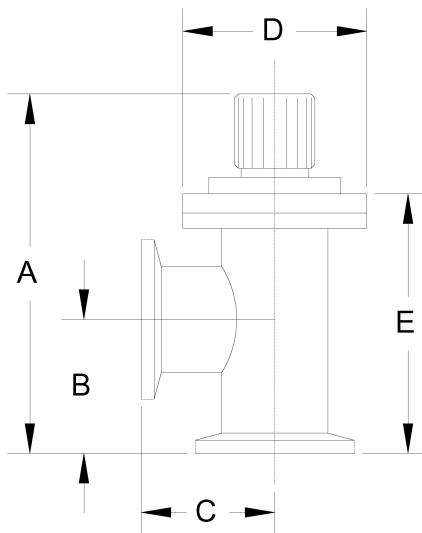


KEY's MIGHTY MINI SERIES VALVES are designed for today's equipment as enclosure space is at an all time premium and the ultra small footprint of the **MIGHTY MINI** specifically addresses this concern, making it the foremost choice when considering space limitations. **KEY MIGHTY MINI** series valves are available with three distinct port configuration standards: tube ends, NW-ISO flanges, and MET-SEAL flanges.

- All stainless steel construction, bellows stem seal
- Visual position indicator for the open position



KMM-40

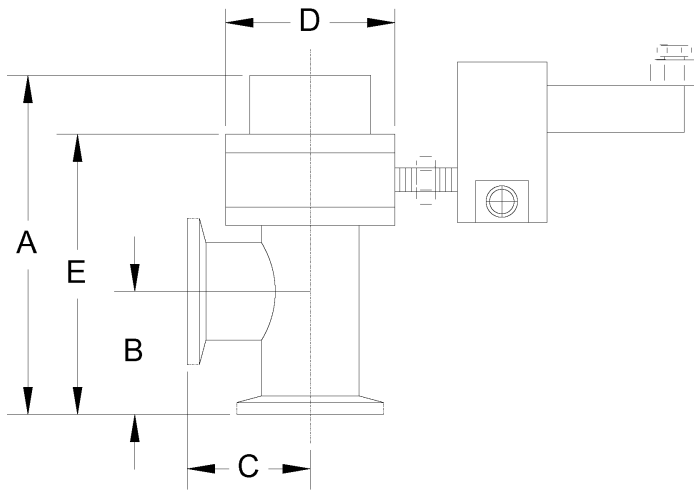


KMM-25

Mighty Mini Valves, Manually Operated, Viton® Bonnet and Poppet

Part Number	Tube OD	Description	A	B	C	D	E
KMM-75	3/4"	3/4" Tube Ends	3.80	1.21	1.21	2.00	2.69
KMM-16	3/4"	NW 16	3.96	1.37	1.37	2.00	2.85
KMM-133	3/4"	Mini MET-SEAL	4.30	1.87	1.87	2.00	3.19
KMM-100	1"	1" Tube Ends	3.80	1.21	1.21	2.00	2.69
KMM-25	1"	NW 25	3.96	1.37	1.37	2.00	2.85
KMM-212	1"	2-1/8" OD MET-SEAL	4.17	1.53	1.53	2.00	2.86
KMM-150	1-1/2"	1-1/2" Tube Ends	4.87	1.59	1.59	2.50	3.56
KMM-40	1-1/2"	NW 40	5.00	1.75	1.75	2.50	3.72
KMM-275	1-1/2"	2-3/4" OD MET-SEAL	5.25	2.00	2.00	2.50	3.97





KMM-275-P

Mighty Mini Valves, Electropneumatic Operation, Viton® Bonnet and Poppet

Part Number	Tube OD	Description	A	B	C	D	E
KMM-75-P	3/4"	Tube ends	3.84	1.21	1.21	2.00	2.96
KMM-16-P	3/4"	NW 16	4.00	1.37	1.37	2.00	3.12
KMM-133-P	3/4"	Mini MET-SEAL	4.50	1.87	1.87	2.00	3.46
KMM-100-P	1"	1" Tube ends	3.84	1.21	1.21	2.00	2.95
KMM-25-P	1"	NW 25	4.00	1.37	1.37	2.00	3.12
KMM-212-P	1"	2-1/8" OD MET-SEAL	4.17	1.53	1.53	2.00	3.12
KMM-150-P	1-1/2"	1-1/2" Tube ends	5.92	1.59	1.59	2.50	4.00
KMM-40-P	1-1/2"	NW 40	6.08	1.75	1.75	2.50	4.17
KMM-275-P	1-1/2"	2-3/4" OD MET-SEAL	6.28	2.00	2.00	2.50	4.25

Note: Pneumatic valves include 120/60 solenoid standard. All pneumatic valves are spring-loaded fail safe

Pneumatic Valve Options: add option code to suffix of part number

Description	Option Code
24 Volt DC solenoid	-24VDC
24 Volt AC solenoid	-24VAC
220 Volt AC solenoid	-220VAC
No Solenoid	-NS

Conductance at molecular flow

3/4" OD tube = 4 liters per second 1" OD tube = 8 liters per second 1-1/2" OD tube = 20 liters per second



Safety Relief Valve

Key High Vacuum Products, Inc.'s Safety Relief Valves are spring loaded, low pressure, direct acting, permanent safety devices.

Key's Safety Relief Valves will virtually eliminate the possibility of dangerous overpressure situations in unstable systems, or in systems, which can experience overpressure issues during gas backfill cycles.

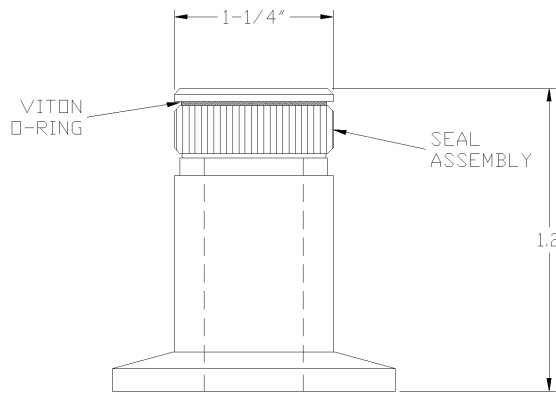
SRV Series are designed as a protection device, which will vent excess (positive) pressure from vacuum systems and chambers. These valves feature highly accurate cracking and reseal pressures.



Construction is from high vacuum grade materials: Stainless steel body, stainless steel spring, with viton seat

Every valve is 100% tested prior to shipment. These relief valves will protect gauges, view ports, etc., in the event of a "reasonable" overpressure situation.

Key High Vacuum Products, Inc., offers the **SRV Series** with two different opening (cracking) pressures to choose from, 0.2 psig or 2.0 psig. **SRV Valves** are mounted on NW25 or NW40 flanges standard.



Part Number	Flange Mount	Cracking Pressure
SRV-25★★	NW25	0.2 PSIG
SRV-40★★	NW40	0.2 PSIG
SRV-25-125★	NW25	2.0 PSIG
SRV-40-125★	NW40	2.0 PSIG

★= New Product

★★=Note: The 0.2 psig "cracking pressure" valves must be installed with the poppet in the vertical position. Other flange mountings are available upon request.



Key High Vacuum Products, Inc. ECV series valves are an Exhaust "Check" type valve, which were developed to safely isolate the vacuum process chamber from down stream materials by isolating the backing pump from the process chamber, eliminating reverse flow situations. The **ECV** series "Check" valves operate simply on the backing pumps exhaust flow; No outside utilities are required for operation such as an external compressed gas source.

Mounting

The **ECV** "Check" valve must be installed vertical orientation on the exhaust port of the backing pump, as the **ECV** "Check" valves are designed for directional flow.

Features / Benefits

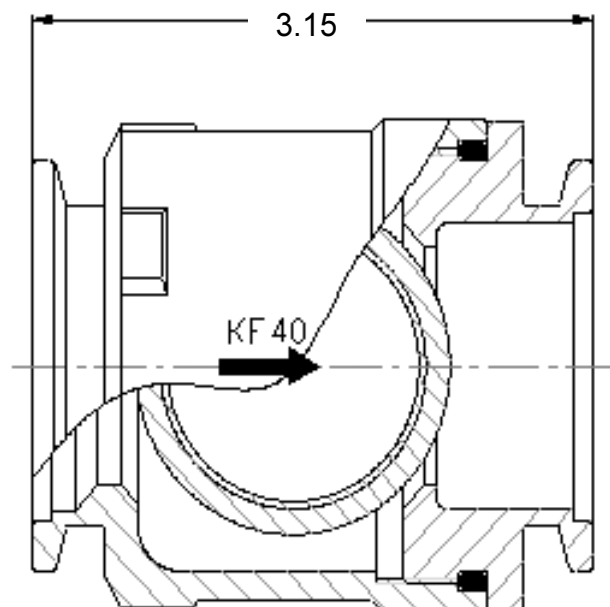
- Simple construction, inline, compact mounting, small envelope, virtually maintenance free.
- Standard NW 40 terminations
- Bakeable to 150 degrees centigrade

Materials of Construction

- Body = 316 stainless steel
- Viton® Bonnet Seal
- Poppet "Check Ball" is Viton®

Pneumatic Bellow Assemblies

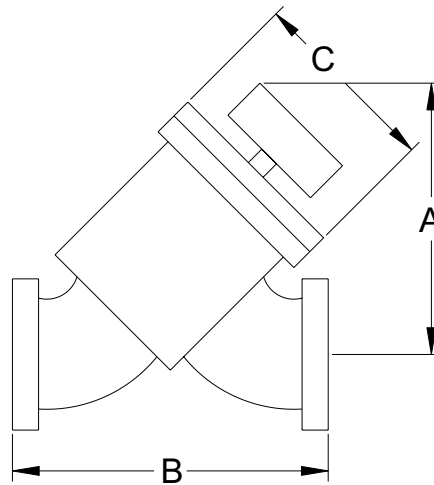
Part Number	Port Style	Length
ECV-40	NW 40	3.15



Stainless Steel Valves

Combination Valves, Stainless Steel, Viton® Bonnet and Poppet

Part Number	Tube OD	Port Style	A	B	C
CSAL-75	3/4"	Tube End	3.15	3.70	2.00
CSAL-75-K	3/4"	NW 16	3.15	4.70	2.00
CSAL-75-MS	3/4"	Mini MET-SEAL	3.15	4.01	2.00
CSAL-100	1"	Tube End	3.25	3.90	2.00
CSAL-100-K	1"	NW 25	3.25	4.23	2.00
CSAL-100-MS	1"	2-1/8" MET-SEAL	3.25	4.20	2.00
CSAL-150	1-1/2"	Tube End	4.29	4.82	2.75
CSAL-150-K	1-1/2"	NW 40	4.29	5.24	2.75
CSAL-150-MS	1-1/2"	2-3/4" MET-SEAL	4.29	5.12	2.75
CSAL-200	2"	Tube End	5.45	6.70	3.50
CSAL-200-K	2"	NW 50	5.45	7.15	3.50
CSAL-200-MS	2"	3-3/8" MET-SEAL	5.45	7.00	3.50



Combination Valves, Stainless Steel, OFHC® Bonnet and Viton® Poppet

Part Number	Tube OD	Port Style	A	B	C
CSAL-75-C	3/4"	Tube End	3.15	3.70	2.00
CSAL-75-MS-C	3/4"	Mini MET-SEAL	3.15	4.01	2.00
CSAL-100-C	1"	Tube End	3.25	3.90	2.00
CSAL-100-MS-C	1"	2-1/8" MET-SEAL	3.25	4.20	2.00
CSAL-150-C	1-1/2"	Tube End	4.29	4.82	2.75
CSAL-150-MS-C	1-1/2"	2-3/4" MET-SEAL	4.29	5.12	2.75
CSAL-200-C	2"	Tube End	5.45	6.70	3.50
CSAL-200-MS-C	2"	3-3/8" MET-SEAL	5.45	7.00	3.50

Gasket Kits for CSAL Valves

Viton® Gasket Kits

Part Number	Fits Valve Series	Price
OR-SA-100-N	75,100	\$ 13.00
OR-SA-150-N	150	\$ 13.00
OR-SA-200-N	200	\$ 18.00

Gasket Kits OFHC® Bonnet, Viton® Poppet

Part Number	Fits Valve Series
OR-SA-100-N-C	75,100
OR-SA-150-N-C	150
OR-SA-200-N-C	200

Manual Bellow Assemblies

Part Number	Fits Valve Series
RS-B-100-N	75,100
RS-B-150-N	150
RS-B-200-N	200

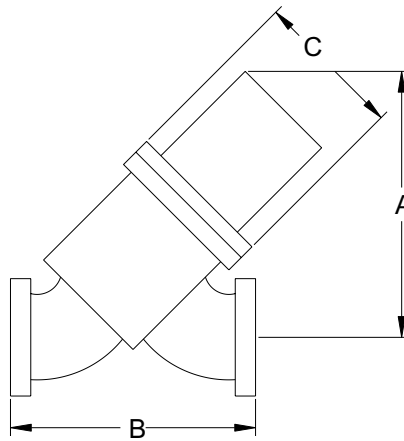


Stainless Steel Valves

1

Combination Valves, Stainless Steel, Electropneumatic, Viton® Bonnet and Poppet

Part Number	Tube OD	Port Style	A	B	C
CSAL-75-P	3/4"	Tube End	5.01	3.70	2.00
CSAL-75-P-K	3/4"	NW 16	5.01	4.70	2.00
CSAL-75-P-MS	3/4"	Mini MET-SEAL	5.01	4.01	2.00
CSAL-100-P	1"	Tube End	5.02	3.90	2.00
CSAL-100-P-K	1"	NW 25	5.02	4.23	2.00
CSAL-100-P-MS	1"	2-1/8" MET-SEAL	5.02	4.20	2.00
CSAL-150-P	1-1/2"	Tube End	5.40	4.82	2.75
CSAL-150-P-K	1-1/2"	NW 40	5.40	5.12	2.75
CSAL-150-P-MS	1-1/2"	2-3/4" MET-SEAL	5.40	5.24	2.75
CSAL-200-P	2"	Tube End	7.40	6.70	3.50
CSAL-200-P-K	2"	NW 50	7.40	7.15	3.50
CSAL-200-P-MS	2"	3-3/8" MET-SEAL	7.40	7.00	3.50



Combination Valves, Stainless Steel, Electropneumatic, OFHC® Bonnet and Viton® Poppet

Part Number	Tube OD	Port Style	A	B	C
CSAL-75-P-C	3/4"	Tube End	5.01	3.70	2.00
CSAL-75-P-MS-C	3/4"	Mini MET-SEAL	5.01	4.01	2.00
CSAL-100-P-C	1"	Tube End	5.02	3.90	2.00
CSAL-100-P-MS-C	1"	2-1/8" MET-SEAL	5.02	4.20	2.00
CSAL-150-P-C	1-1/2"	Tube End	5.40	4.82	2.75
CSAL-150-P-MS-C	1-1/2"	2-3/4" MET-SEAL	5.40	5.12	2.75
CSAL-200-P-C	2"	Tube End	7.40	6.70	3.50
CSAL-200-P-MS-C	2"	3-3/8" MET-SEAL	7.40	7.00	3.50

Gasket Kits for CSAL Valves

Viton® Gasket Kits

Gasket Kits OFHC® Bonnet, Viton® Poppet

Part Number	Fits Valve Series	Price	Part Number	Fits Valve Series
OR-PSA-100-N	75,100	\$ 13.00	OR-PSA-100-N-C	75,100
OR-PSA-150-N	150	\$ 13.00	OR-PSA-150-N-C	150
OR-PSA-200-N	200	\$ 18.00	OR-PSA-200-N-C	200

Options: add code to suffix of part number

Pneumatic Bellows Assemblies

Description	Option Code	Price	Part Number	Fits Valve Series
24 Volt DC solenoid	-24VDC	Add \$ 20.00	PRS-B-100-N	75,100
24 Volt AC solenoid	-24VAC	Add \$ 20.00	PRS-B-150-N	150
220 Volt AC solenoid	-220VAC	Add \$ 20.00	PRS-B-200-N	200
Mechanical limit switches	-LS	Add \$ 300.00		
No solenoid	-NS	Deduct \$ 10.00		



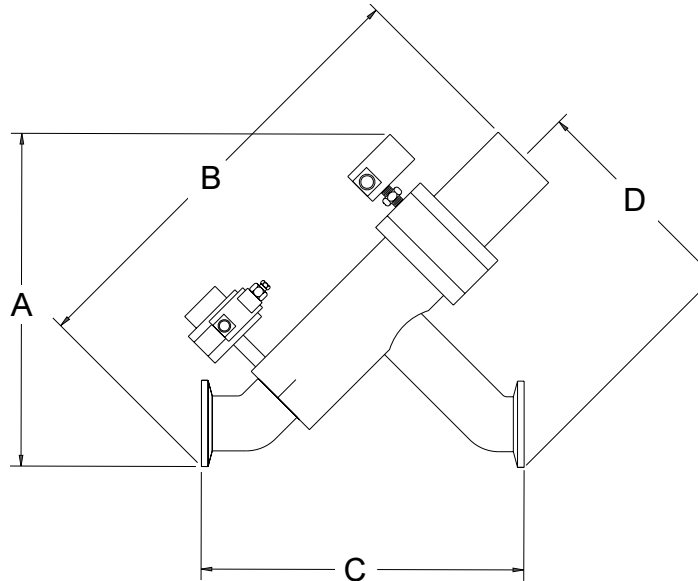
Slow Pump Pneumatic Combination Valves

SPVCSAL Combination Valves, Electropneumatic Operation, Viton® O-Ring on bonnet and poppet seal

Part Number	Tube OD	Port Size	A	B	C	D
SPVCSAL-75-P★	3/4"	Tube End	7.31	7.59	4.93	3.52
SPVCSAL-75-P-K★	3/4"	NW 16	7.50	7.78	5.25	3.75
SPVCSAL-75-P-MS★	3/4"	Mini MET-SEAL	7.42	7.70	5.36	3.82
SPVCSAL-100-P★	1"	Tube End	7.75	8.13	5.08	4.00
SPVCSAL-100-P-K★	1"	NW 25	7.75	8.13	5.40	4.00
SPVCSAL-100-P-MS★	1"	2-1/8" MET-SEAL	7.75	8.13	5.52	4.00
SPVCSAL-150-P★	1-1/2"	Tube End	8.50	10.00	5.70	4.00
SPVCSAL-150-P-K★	1-1/2"	NW 40	8.82	10.20	6.00	4.37
SPVCSAL-150-P-MS★	1-1/2"	2-3/4" MET-SEAL	9.12	10.20	6.00	4.42
SPVCSAL-200-P★	2"	Tube End	11.00	12.52	7.46	5.12
SPVCSAL-200-P-K★	2"	NW 50	11.47	13.00	7.78	5.60
SPVCSAL-200-P-MS★	2"	3-3/8" MET-SEAL	11.69	13.68	8.37	5.80

Note: All Valves are spring loaded, fail safe. Published price includes 120/60 solenoids standard.

★= New Product



Optional Accessories / Ordering Info

Optional solenoid Voltages; add code to suffix of part number

24vdc - Ordering code - 1

24vac - Ordering code - 2

240vac - Ordering code - 3

Example: SPVCSAL-150-P-K-1 (Slow Pump-Combo Valve, 1-1/2", Pneumatic, NW 40, 24vdc)

Additional Cost = \$ 30.00

Kalrez®, Chemrez®, Parafleur® Seals are available upon request, contact factory for price schedule.

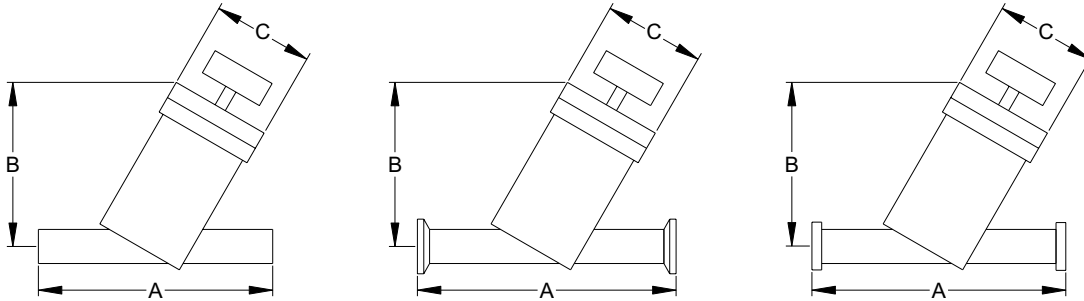
Custom bypass orifices sizes are available, contact factory

Stainless Steel Valves

1

Straight Thru Valves, Stainless Steel, Manual, Viton® Bonnet and Poppet

Part Number	Tube OD	Port Style	A	B	C
ILV-75	3/4"	Tube End	5.00	4.00	3.50
ILV-75-K	3/4"	NW 16	5.32	4.00	3.50
ILV-75-MS	3/4"	Mini MET-SEAL	6.00	4.00	3.50
ILV-100	1"	Tube End	5.50	4.12	3.50
ILV-100-K	1"	NW 25	5.82	4.12	3.50
ILV-100-MS	1"	2-1/8" MET-SEAL	5.92	4.12	3.50
ILV-150	1-1/2"	Tube End	7.01	4.37	3.50
ILV-150-K	1-1/2"	NW 40	7.37	4.37	3.50
ILV-150-MS	1-1/2"	2-3/4" MET-SEAL	7.43	4.37	3.50



Viton® Gasket Kits

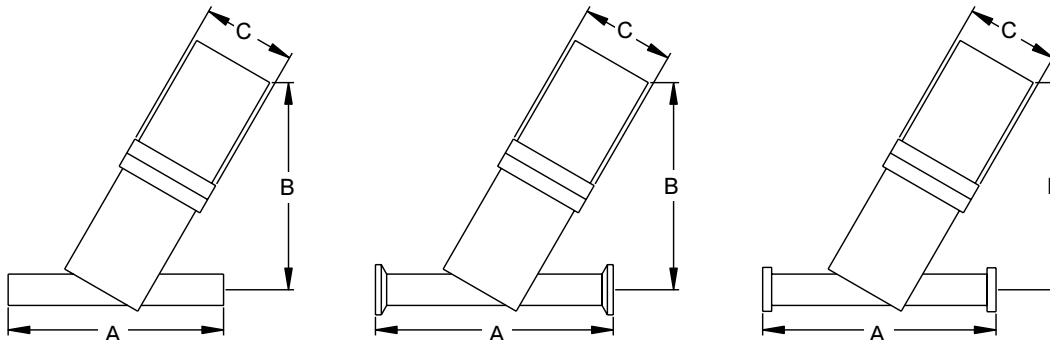
Part Number	Fits Valve Series
OR-SA-200-N	75,100,150

Manual Bellows Assembly

Part Number	Fits Valve Series
RS-B-200-N	75,100,150

Straight Thru Valves, Stainless Steel, Electropneumatic, Viton® Bonnet and Poppet

Part Number	Tube OD	Port Style	A	B	C
ILV-75-P	3/4"	Tube End	5.00	5.75	3.50
ILV-75-P-K	3/4"	NW 16	5.32	5.75	3.50
ILV-75-P-MS	3/4"	Mini MET-SEAL	6.00	5.75	3.50
ILV-100-P	1"	Tube End	5.50	5.87	3.50
ILV-100-P-K	1"	NW 25	5.82	5.87	3.50
ILV-100-P-MS	1"	2-1/8" MET-SEAL	5.92	5.87	3.50
ILV-150-P	1-1/2"	Tube End	7.01	6.12	3.50
ILV-150-P-K	1-1/2"	NW 40	7.37	6.12	3.50
ILV-150-P-MS	1-1/2"	2-3/4" OD MET-SEAL	7.43	6.12	3.50



Viton® Gasket Kit

Part Number	Fits Valve Series
OR-PSA-200-N	75, 100,150

Pneumatic Bellows Assembly

Part Number	Fits Valve Series
PRS-B-200-N	75,100,150

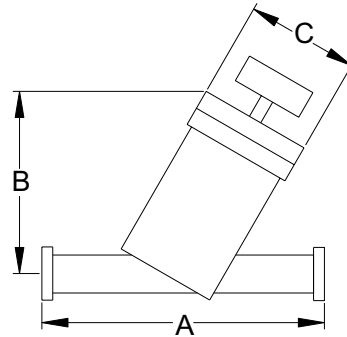
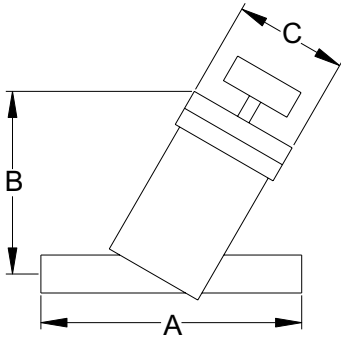


Stainless Steel Valves



Straight Thru Valves, Stainless Steel, Manual, OFHC® Bonnet and Viton® Poppet

Part Number	Tube OD	Port Style	A	B	C
ILV-75-C	3/4"	Tube End	5.00	4.00	3.50
ILV-75-MS-C	3/4"	Mini MET-SEAL	6.00	4.00	3.50
ILV-100-C	1"	Tube End	5.50	4.12	3.50
ILV-100-C-MS	1"	2-1/8" MET-SEAL	5.92	4.12	3.50
ILV-150-C	1-1/2"	Tube End	7.01	4.37	3.50
ILV-150-MS-C	1-1/2"	2-3/4" MET-SEAL	7.43	4.37	3.50



Gasket Kit, OFHC® Bonnet, Viton® Poppet

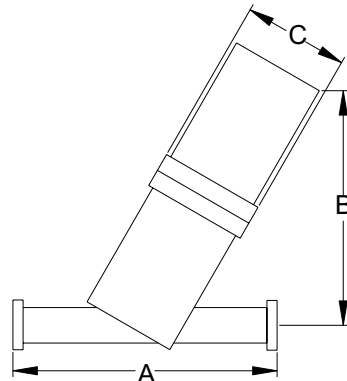
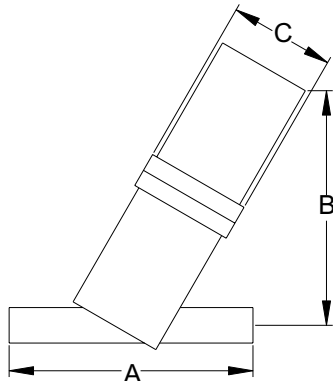
Part Number	Fits Valve Series
OR-SA-200-N-C	75,100,150

Manual Bellows Assembly

Part Number	Fits Valve Series
RS-B-200-N	75,100,150

Straight Thru Valves, Stainless Steel, Electropneumatic, OFHC® Bonnet and Viton® Poppet

Part Number	Tube OD	Port Style	A	B	C
ILV-75-P-C	3/4"	Tube End	5.00	5.75	3.50
ILV-75-P-MS-C	3/4"	Mini MET-SEAL	6.00	5.75	3.50
ILV-100-P-C	1"	Tube End	5.50	5.87	3.50
ILV-100-P-MS-C	1"	2-1/8" MET-SEAL	5.92	5.87	3.50
ILV-150-P-C	1-1/2"	Tube End	7.01	6.12	3.50
ILV-150-P-MS-C	1-1/2"	2-3/4" OD MET-SEAL	7.43	6.12	3.50



Gasket Kit OFHC® Bonnet, Viton® Poppet

Part Number	Fits Valve Series
OR-PSA-200-N-C	75, 100,150

Pneumatic Bellows Assembly

Part Number	Fits Valve Series
PRS-B-200-N	75,100,150

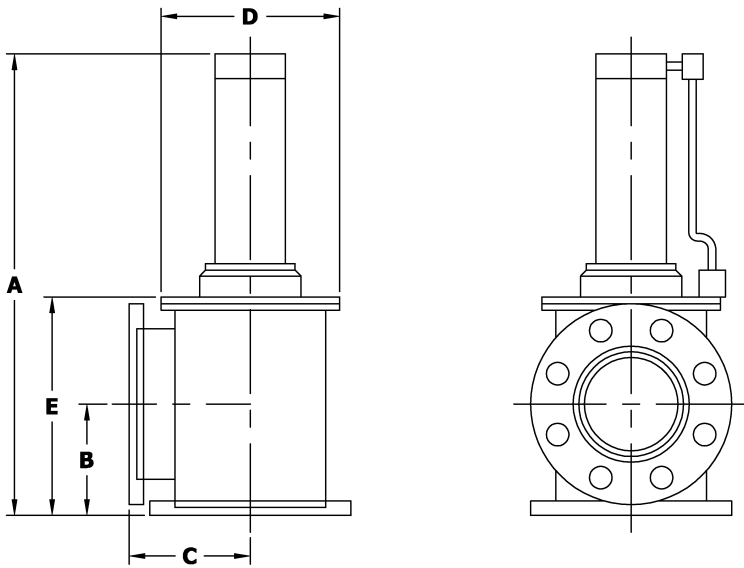
Optional Pneumatic Accessories (Solenoids are optional on ILV series; see chart)

Part Number	Description	Fits Valve Series
35A-AAA-DAAJ1KA	120/60 solenoid	All
35A-AAA-DABA1BA	230 volt solenoid	All
35A-AAA-DDAJ1KA	24 volt DC solenoid	All
35A-AAA-DACJ1KA	24 volt AC solenoid	All
-LS (add to suffix of part number)	Mechanical limit switches	All



Stainless Steel Valves

2



Right Angle Valve O-Ring Shaft Seal

Features:

- Electropolished, 304 stainless steel body
- Viton® O-ring seals
- Normally closed, spring loaded (fail safe) air cylinder
- 120/60 solenoid included
- Rugged, simple proved industrial design intended for large differential pressures and/or high partical environments

Part Number	Tube OD	Port Style	A	B	C	D	E
RAV-37-K★	3/8"	NW 10	5.70	1.65	1.65	2.00	3.80
RAV-50-K★	1/2"	NW 16	5.70	1.65	1.65	2.00	3.80
RAV-75-K★	3/4"	NW 16	6.25	2.12	2.12	2.00	4.37
RAV-100-K★	1"	NW 25	6.37	2.25	2.25	2.00	4.95
RAV-150-K★	1-1/2"	NW 40	7.50	2.46	2.46	2.75	4.95
RAV-200-K★	2"	NW 50	10.30	3.50	3.50	3.50	6.93
RAV-400	4"	Tube End	18.00	4.87	4.87	6.0	9.62
RAV-400-ISO	4"	NW 100	18.50	5.12	5.12	6.0	9.87
RAV-400-ASA	4"	ASA 9	18.62	5.25	5.25	6.0	10.00
RAV-600	6"	Tube End	25.12	6.00	6.00	10.0	12.12
RAV-600-ISO	6"	NW 160	25.37	6.250	6.25	10.0	12.50
RAV-600-ASA	6"	ASA 11	25.50	6.375	6.375	10.0	12.62
RAV-800★	8"	Tube End	29.18	8.00	8.00	12.00	15.01
RAV-800-ISO★	8"	NW 200	29.43	8.25	8.25	12.00	15.26
RAV-800-ASA★	8"	ASA 13	29.56	8.37	8.37	12.00	15.39
RAV-1000-ISO★	10"	NW 250	36	10.50	10.50	14.00	18.50
RAV-1000-ASA★	10"	ASA 13	36.50	10.62	10.62	14.00	18.62

★ = New Product, Note: * Valve shown with optional o-ring groove in mounting flange.

Options for RAV SERIES valves: Add code to suffix of part number

Description	Option Code	
24 Volt DC solenoid	-24VDC	Add
24 Volt AC solenoid	-24VAC	Add
220 Volt AC solenoid	-220VAC	Add
Reed Switches	-LS	Add
No solenoid	-NS	Deduct

Note: Additional options such as roughing ports, gauge ports, sealing materials, etc. are available. Contact factory direct for price schedules.



Heater Blankets

For METAL ETCH and CVD process equipment



In an ETCH/CVD environment one of the major areas of concern is the solidification of process gases that cool as they exit from the heated process chamber to the cooler temperatures found downstream. These gases then sublime on the surfaces of the foreline. Result; solidification of hazardous byproducts in the line causing a loss in conductance, particle migration issues and fouling of the valve seals. By using **KEY HIGH HEATER BLANKETS**, significant enhancements have been proven in reducing or eliminating these vital concerns. By incorporating **HEATER BLANKETS** to heat the foreline to an elevated temperature of 100°C, assures the gases will not condense and solidify on their way to the scrubber. Clean up your downstream concerns with **HEATER BLANKETS** from **KEY HIGH VACUUM PRODUCTS, INC.**

Features:

All **KEY HIGH HEATER BLANKETS** feature a standard internal thermostat to control the high temperature set point, eliminating high temperature run away. Many **HEATER BLANKETS** feature a visual red light alerting personnel of proper operation of the blanket. All **HEATER BLANKETS** have two Hubbell twist plugs (one male, one female) for easy daisy chain installation. The typical ramp up cycle of a **HEATER BLANKET** to the thermal set point, is less than 30 minutes from a cold start. Most **HEATER**

BLANKETS combine ceramic snap action thermostat and fuse to control the high set point and all blankets are manufactured from UL recognized materials and are cleanroom compliant (silicone foam insulation of the blanket and kevlar laces.) All blankets are installed to conserve on radiant heat loss and control excessive particle contamination with a snug intimate fit. The external temperature of the blanket is approximately 75°C and personnel should exercise proper precaution accordingly.

KEY HIGH VACUUM PRODUCTS, INC.'s power cables are specifically designed and engineered for the **HEATER BLANKETS**. All power cables are grounded and fused for safety and must be purchased separately.

BENEFIT OF HEATER BLANKETS:

These silicone rubber heaters are designed and engineered to be simple to use, rugged in construction and are economical. By applying a uniform thermal load to down stream forelines, improves the consistence of process yields as well as adding predictability to the preventive maintenance cycle. By using **KEY HIGH HEATER BLANKETS** results in faster pump down cycles, less water vapor, reduction of particles, elimination of solid buildup, combining to increase machine uptime and thruput of product.



Heater Blankets

1

HOW TO INSTALL COMPONENTS AND HEATER BLANKETS:

Always position valves as close as feasible to the process chamber. Attach if possible. This reduces the chance of particle buildup upstream of the valve, which will migrate into the valve enclosure adversely affecting the performance of the valve. Always install valves in front of traps, as traps by their inherent nature will cool the gas stream generating particles which may condense on the valve surface.

Upon request **HEATER BLANKETS** are available in a wide variety of shapes, sizes and voltages, which can be designed, engineered and fabricated per customer request. Consult factory for details.

Inline Valve Heater Blankets

Part Number	Description	Volts	Watts
HJ-SL-75	3/4" inline valve heater jacket	120ac	30
HJ-SL-100*	1" inline valve heater jacket	120ac	35
HJ-SL-150*	1-1/2" inline valve heater jacket	120ac	80
HJ-SL-200	2" inline valve heater jacket	120ac	100

* = Due to size limits not available with indicator light of thermal cutoff switch

Note: For 220 volt AC heater jackets, add 220 to end of part number, example: HJ-SL75220

Angle Valve Heater Blankets

Part Number	Description	Volts	Watts
HJ-SA-75*	3/4" angle valve heater jacket	120ac	40
HJ-SA-100*	1" angle valve heater jacket	120ac	50
HJ-SA-150*	1-1/2" angle valve heater jacket	120ac	80
HJ-SA-200	2" angle valve heater jacket	120ac	100

* = Due to size limits not available with indicator light or thermal cutoff switch

Note: For 220 volt AC heater jackets, add 220 to end of part number, example: HJ-SA200220

NW Flanged Full Nipple Heater Blankets

Part Number	Description	Volts	Watts
HJ-KSS3940*	1-1/2" OD tube 5.12 OAL NW 40's	120ac	40
HJ-KSS3940-1	1-1/2" OD tube 12.6 OAL NW 40's	120ac	110
HJ-KSS3950	2" OD tube 5.51 OAL NW 50's	120ac	60
HJ-KSS3950-1	2" OD tube 12.6 OAL NW 50's	120ac	160
HJ-KSN7763	2-1/2" OD tube 6.92 OAL NW 63's	120ac	110
HJ-KSN7780	3" OD tube 7.72 OAL NW 80's	120ac	125
HJ-KSN77100	4" OD tube 8.5 OAL NW 100's	120ac	190

* = Due to size limits not available with indicator light or thermal cutoff switch

Note: for 220 volt AC heater jackets, add 220 to end of part number, example: HJ-KSS3940220



Heater Blankets

NW Flanged 45° Radius Elbow Heater Blankets

Part Number	Description	Volts	Watts
HJ-KSE4440*	1-1/2" OD tube NW 40's	120ac	30
HJ-KSE4450	2" OD tube NW 50's	120ac	55
HJ-KSE7463	2-1/2" OD tube NW 63's	120ac	80
HJ-KSE7480	3" OD tube NW 80's	120ac	90
HJ-KSE74100	4" OD tube NW 100's	120ac	100

* = Due to size limits not available with indicator light or thermal cutoff switch

Note: for 220 volt AC heater jackets, add 220 to end of part number, example: HJ-KSE4450220

NW Flanged 90° Radius Elbow Heater Blankets

Part Number	Description	Volts	Watts
HJ-KSE4140*	1-1/2" OD tube NW 40's	120ac	35
HJ-KSE4150	2" OD tube NW 50's	120ac	65
HJ-KSE7363R	2-1/2" OD tube NW 63's	120ac	100
HJ-KSE7280R	3" OD tube NW 80's	120ac	120
HJ-KSE73100R	4" OD tube NW 100's	120ac	200

* = Due to size limits not available with indicator light or thermal cutoff switch

Note: For 220 volt AC heater jackets, add 220 to end of part number, example: HJ-KSE4150220

NW Flanged Tee Heater Blankets

Part Number	Description	Volts	Watts
HJ-KST4540*	1-1/2" OD tube NW 40's	120ac	50
HJ-KST4550	2" OD tube NW 50's	120ac	120
HJ-KST7563	2-1/2" OD tube NW 63's	120ac	130
HJ-KST7580	3" OD tube NW 80's	120ac	135
HJ-KST75100	4" OD tube NW 100's	120ac	200

* = Due to size limits not available with indicator light or thermal cutoff switch

Note: for 220 volt heater jackets, add 220 to end of part number, example: HJ-KST4550220

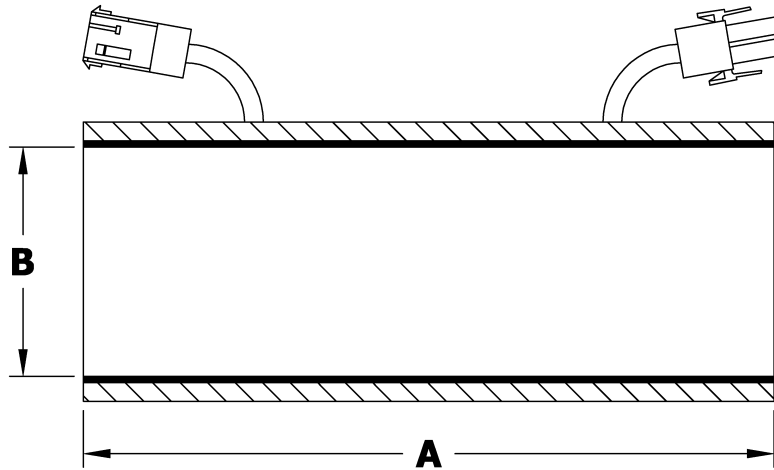
NW Flange Joint Heater Blankets

Part Number	Description	Volts	Watts
HJ-KSCA2740**	NW 40 clamp assembly	120ac	15
HJ-KSCA2750**	NW 50 clamp assembly	120ac	35
HJ-KSCA9463**	ISO-MF NW 63 clamp assembly	120ac	50
HJ-KSCA9480**	ISO-MF NW 80 clamp assembly	120ac	65
HJ-KSCA94100**	ISO-MF NW 100 clamp assembly	120ac	75
HJ-KSF7063**	ISO bolted NW 63 assembly	120ac	50
HJ-KSF7080**	ISO bolted NW 80 assembly	120ac	65
HJ-KSF70100**	ISO bolted NW 100 assembly	120ac	75

** = Due to size limits not available with indicator light, thermal cutoff switch or thermostat

Note: for 220 volt heater jackets, add 220 to end of part number, example: HJ-KSCA2750220



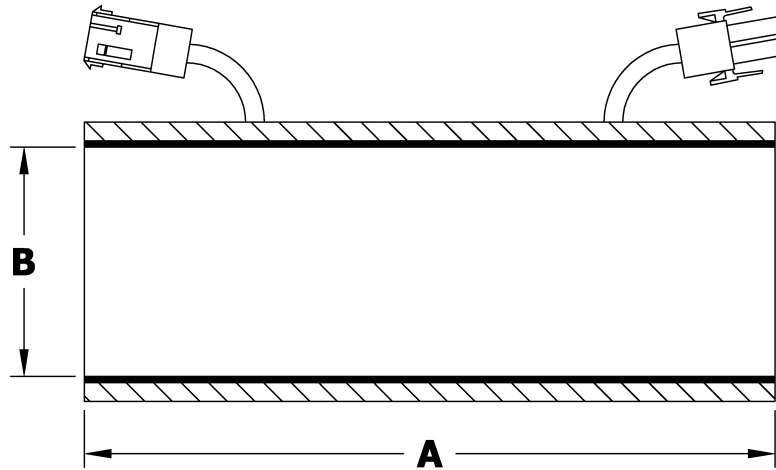


Straight Section Tube Heater Blankets for 1/4" OD tube

- 1/4" I.D. orange extruded silicone sponge with orange jacket, 1/4" wall thickness, snap closures
- 3" leads extend past each end of heater, 2 pin amp connectors
- 2.5 watts per square inch
- Thermocouple leads are Teflon insulated
- Snap closures

Part Number	A	B	Description	Volts	Watts
HJ-SST025-6	6"	1/4"		120 ac	12
HJ-SST025-6TC	6"	1/4"	Type J thermocouple	120 ac	12
HJ-SST025-9	9"	1/4"		120 ac	18
HJ-SST025-9TC	9"	1/4"	Type J thermocouple	120 ac	18
HJ-SST025-12	12"	1/4"		120 ac	24
HJ-SST025-12TC	12"	1/4"	Type J thermocouple	120 ac	24
HJ-SST025-18	18"	1/4"		120 ac	36
HJ-SST025-18TC	18"	1/4"	Type J thermocouple	120 ac	36
HJ-SST025-24	24"	1/4"		120 ac	48
HJ-SST025-24TC	24"	1/4"	Type J thermocouple	120 ac	48
HJ-SST025-36	36"	1/4"		120 ac	72
HJ-SST025-36TC	36"	1/4"	Type J thermocouple	120 ac	72





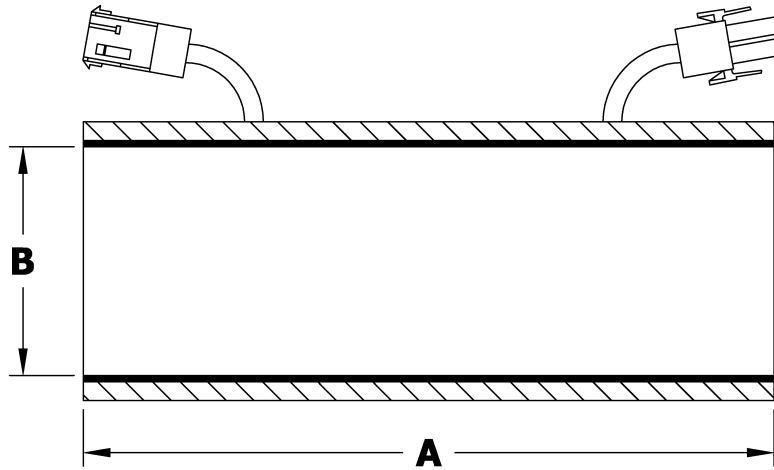
Straight Section Tube Heater Blankets for 1-1/2" OD tube

- 1/4" gray silicone sponge with gray jacket
- 3" leads extend past each end of heater, 2 pin amp connectors
- 1.5 watts per square inch
- Thermocouple pockets on all heaters 3" wide and over
- 1" trimable section on specified heaters
- Snap type closures

Part Number	A	B	Trimable Ends	Volts	Watts
HJ-SST150-2	2"	1-1/2"	No	120 ac	14
HJ-SST150-2T	2"	1-1/2"	Yes	120 ac	7
HJ-SST150-3	3"	1-1/2"	No	120 ac	22
HJ-SST150-3T	3"	1-1/2"	Yes	120 ac	14
HJ-SST150-4	4"	1-1/2"	No	120 ac	29
HJ-SST150-4T	4"	1-1/2"	Yes	120 ac	22
HJ-SST150-5	5"	1-1/2"	No	120 ac	36
HJ-SST150-5T	5"	1-1/2"	Yes	120 ac	29
HJ-SST150-6	6"	1-1/2"	No	120 ac	43
HJ-SST150-6T	6"	1-1/2"	Yes	120 ac	36
HJ-SST150-12	12"	1-1/2"	No	120 ac	85
HJ-SST150-12T	12"	1-1/2"	Yes	120 ac	78
HJ-SST150-18	18"	1-1/2"	No	120 ac	128
HJ-SST150-18T	18"	1-1/2"	Yes	120 ac	115
HJ-SST150-24	24"	1-1/2"	No	120 ac	170
HJ-SST150-24T	24"	1-1/2"	Yes	120 ac	160
HJ-SST150-30	30"	1-1/2"	No	120 ac	213
HJ-SST150-30T	30"	1-1/2"	Yes	120 ac	198
HJ-SST150-36	36"	1-1/2"	No	120 ac	255
HJ-SST150-36T	36"	1-1/2"	Yes	120 ac	240

Heater Blankets

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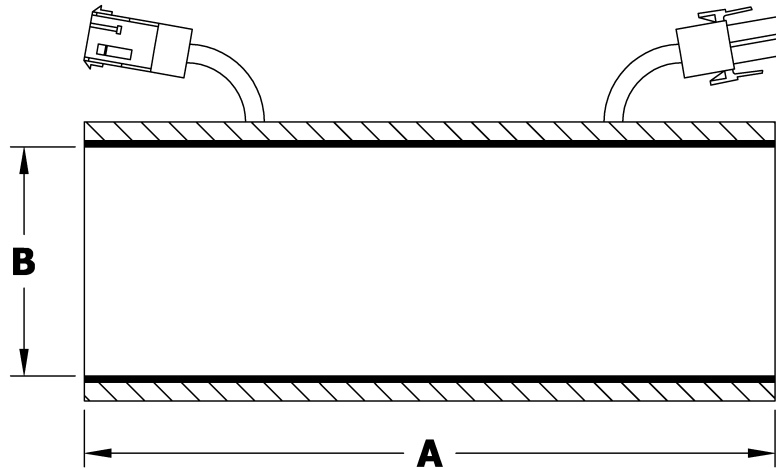


Straight Section Tube Heater Blankets for 2" OD Tube

- 1/4" gray silicone sponge with gray jacket
- 3" leads extend past each end of heater, 2 pin amp connectors
- 1.5 watts per square inch
- Thermocouple pockets on all heaters 3" wide and over
- 1" trimable section on specified heaters
- Snap type closures

Part Number	A	B	Trimable Ends	Volts	Watts
HJ-SST200-3	3"	2"	No	120 ac	19
HJ-SST200-3T	3"	2"	Yes	120 ac	10
HJ-SST200-4	4"	2"	No	120 ac	38
HJ-SST200-4T	4"	2"	Yes	120 ac	29
HJ-SST200-5	5"	2"	No	120 ac	48
HJ-SST200-5T	5"	2"	Yes	120 ac	38
HJ-SST200-6	6"	2"	No	120 ac	57
HJ-SST200-6T	6"	2"	Yes	120 ac	47
HJ-SST200-12	12"	2"	No	120 ac	114
HJ-SST200-12T	12"	2"	Yes	120 ac	104
HJ-SST200-18	18"	2"	No	120 ac	170
HJ-SST200-18T	18"	2"	Yes	120 ac	160
HJ-SST200-24	24"	2"	No	120 ac	225
HJ-SST200-24T	24"	2"	Yes	120 ac	215
HJ-SST200-30	30"	2"	No	120 ac	280
HJ-SST200-30T	30"	2"	Yes	120 ac	270
HJ-SST200-36	36"	2"	No	120 ac	340
HJ-SST200-36T	36"	2"	Yes	120 ac	330





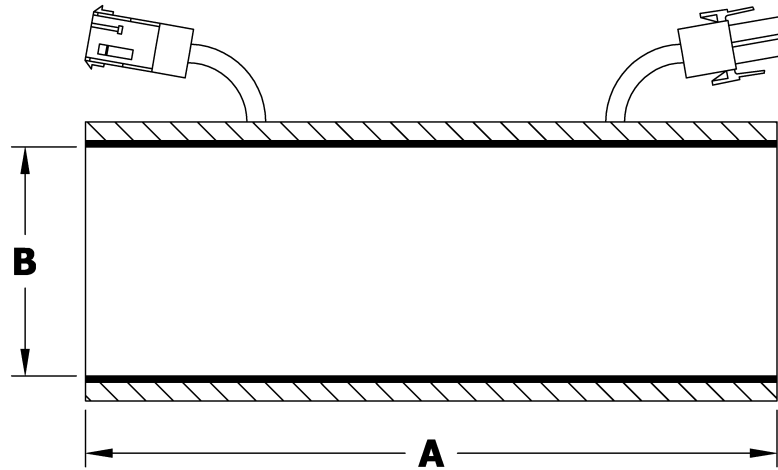
Straight Section Tube Heater Blankets for 3" OD Tube

- 1/4" gray silicone sponge with gray jacket
- 3" leads extend past each end of heater, 2 pin amp connectors
- 1.5 watts per square inch
- Thermocouple pockets on all heaters 3" wide and over
- 1" trimable section on specified heaters
- Snap type closures

Part Number	A	B	Trimable Ends	Volts	Watts
HJ-SST300-2	2"	3"	No	120 ac	24
HJ-SST300-2T	2"	3"	Yes	120 ac	12
HJ-SST300-3	3"	3"	No	120 ac	36
HJ-SST300-3T	3"	3"	Yes	120 ac	24
HJ-SST300-4	4"	3"	No	120 ac	48
HJ-SST300-4T	4"	3"	Yes	120 ac	36
HJ-SST300-5	5"	3"	No	120 ac	59
HJ-SST300-5T	5"	3"	Yes	120 ac	48
HJ-SST300-6	6"	3"	No	120 ac	71
HJ-SST300-6T	6"	3"	Yes	120 ac	59
HJ-SST300-12	12"	3"	No	120 ac	140
HJ-SST300-12T	12"	3"	Yes	120 ac	125
HJ-SST300-18	18"	3"	No	120 ac	213
HJ-SST300-18T	18"	3"	No	120 ac	213
HJ-SST300-24	24"	3"	No	120 ac	283
HJ-SST300-24T	24"	3"	Yes	120 ac	268

Heater Blankets

1



Straight Section Tube Heater Blankets for 4" OD Tube

- 1/4" gray silicone sponge with gray jacket
- 3" leads extend past each end of heater, 2 pin amp connectors
- 1.5 watts per square inch
- Thermocouple pockets on all heaters 3" wide and over
- 1" trimable section on specified heaters
- Snap type closures

Part Number	A	B	Trimable Ends	Volts	Watts
HJ-SST400-2	2"	4"	No	120 ac	32
HJ-SST400-2T	2"	4"	Yes	120 ac	16
HJ-SST400-3	3"	4"	No	120 ac	48
HJ-SST400-3T	3"	4"	Yes	120 ac	32
HJ-SST400-4	4"	4"	No	120 ac	63
HJ-SST400-4T	4"	4"	Yes	120 ac	48
HJ-SST400-5	5"	4"	No	120 ac	79
HJ-SST400-5T	5"	4"	Yes	120 ac	63
HJ-SST400-6	6"	4"	No	120 ac	95
HJ-SST400-6T	6"	4"	Yes	120 ac	79
HJ-SST400-8	8"	4"	No	120 ac	131
HJ-SST400-8T	8"	4"	Yes	120 ac	115
HJ-SST400-10	10"	4"	No	120 ac	158
HJ-SST400-10T	10"	4"	Yes	120 ac	146
HJ-SST400-12	12"	4"	No	120 ac	190
HJ-SST400-12T	12"	4"	Yes	120 ac	178
HJ-SST400-18	18"	4"	No	120 ac	285
HJ-SST400-18T	18"	4"	Yes	120 ac	270
HJ-SST400-24	24"	4"	No	120 ac	375
HJ-SST400-24T	24"	4"	Yes	120 ac	360
HJ-SST400-30	30"	4"	No	120 ac	470
HJ-SST400-30T	30"	4"	Yes	120 ac	455
HJ-SST400-36	36"	4"	No	120 ac	565
HJ-SST400-36T	36"	4"	Yes	120 ac	550



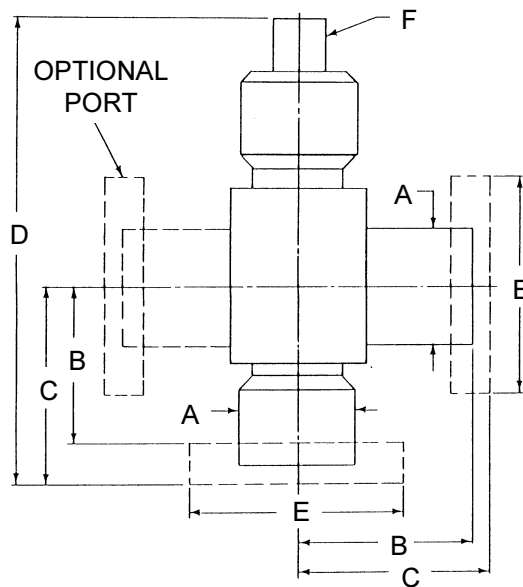
Bakeable All Metal Valves



KEY's All Metal Bakeable Valves, are designed for ultra high vacuum where high temperatures are encountered and the ultimate in low pressure is required. **KEY's** reliable design offers many leak-free cycles without gasket replacement.

Applications range from applied research studies, physics experiments, vacuum furnaces, to semiconductor processing.

- Bakeable to 450° C open or closed
- Replaceable OFHC® copper seal
- High conductance
- Right angle or Tee styles



Part Number	A	B	C	D		E	F
	Tube OD			Open	Closed		
BAV-75	3/4"	1.75	2-1/4	7-1/2"	6-3/4"	1.33"	3/8"
BAV-75-F	3/4"	2.25	2-1/4	8"	7-1/4"	1.33"	3/8"
BAV-75-F-T	3/4"	2.25	2-1/4	8"	7-1/4"	1.33"	3/8"
BAV-75-T	3/4"	1.75	2-1/4	7-1/2"	6-3/4"	1.33"	3/8"
BAV-100	1"	2.04	2-1/4	5-3/4"	4-7/8"	2-3/4"	1/2"
BAV-100-F	1"	2.04	2-1/4	5-3/4"	4-7/8"	2-3/4"	1/2"
BAV-100-F-T	1"	2.04	2-1/4	5-3/4"	4-7/8"	2-3/4"	1/2"
BAV-100-T	1"	2.04	2-1/4	5-3/4"	4-7/8"	2-3/4"	1/2"
BAV-150	1-1/2"	2.26	2-15/32	7"	5-7/8"	2-3/4"	11/16"
BAV-150-F	1-1/2"	2.26	2-15/32	7"	5-7/8"	2-3/4"	11/16"
BAV-150-F-T	1-1/2"	2.26	2-15/32	7"	5-7/8"	2-3/4"	11/16"
BAV-150-T	1-1/2"	2.26	2-15/32	7"	5-7/8"	2-3/4"	11/16"



KES Series 200 and 300 Straight Thru Solenoid Valve

Features:

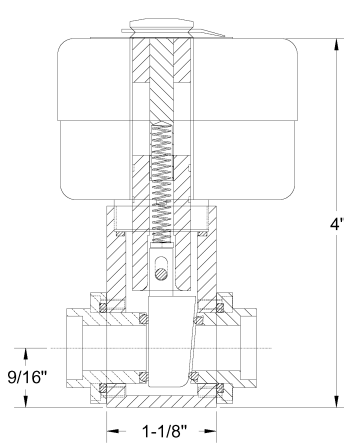
- Available in brass and stainless steel type 304
- High conductance straight thru construction
- Continuous duty rated solenoid
- 115 VAC operation

Description:

KES 200 and 300 Series straight thru solenoid valves are direct acting electromagnetic in operation; they require no compressed air. These valves feature a reliable design and are spring loaded "Fail Safe" (valves will close) for system protection in the event of a loss of power. Do not install **KES** Series more than 45° from vertical position for best results. All valves are leak tested at 3 x 10⁻⁹ torr on a helium leak detector with a one-atmosphere differential.



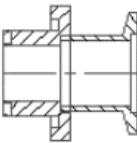
KES 200



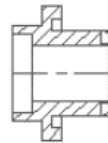
Pipe Tape Flange



Flanged

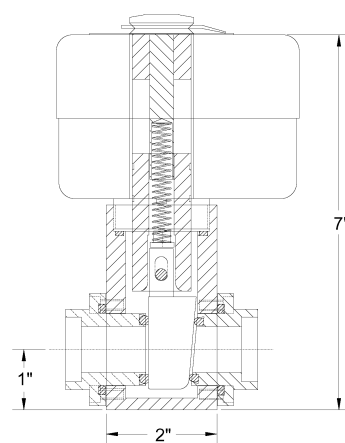


NW Flange



Socket Weld Flange

KES 300



Stainless Steel Construction:

Part Number	Mounting Flanges
KES-200-F-SS	3/8" Flanged Counterbore
KES-201-F-SS	1/2" Flanged Counterbore
KES-200-PT-SS	1/8" Female NPT
KES-201-PT-SS	1/4" Female NPT
KES-200-SW-SS	3/8" Socket Weld
KES-201-SW-SS	1/2" Socket Weld
KES-200-KF-SS	NW 10
KES-201-KF-SS	NW 16
KES-300-F-SS	3/4" Flanged Counterbore
KES-301-F-SS	1" Flanged Counterbore
KES-300-PT-SS	3/8" Female NPT
KES-301-PT-SS	1" Female NPT
KES-300-SW-SS	3/4" Socket Weld
KES-301-SW-SS	1" Socket Weld
KES-300-KF-SS	NW 25
KES-301-KF-SS	NW 40

Brass Construction:

Part Number	Mounting Flanges
KES-200-F-BR	3/8" Flanged Counterbore
KES-201-F-BR	1/2" Flanged Counterbore
KES-200-PT-BR	1/8" Female NPT
KES-201-PT-BR	1/4" Female NPT
KES-200-SW-BR	3/8" Socket Weld
KES-201-SW-BR	1/2" Socket Weld
KES-200-KF-BR	NW 10
KES-201-KF-BR	NW 16
KES-300-F-BR	3/4" Flanged Counterbore
KES-301-F-BR	1" Flanged Counterbore
KES-300-PT-BR	3/8" Female NPT
KES-301-PT-BR	1" Female NPT
KES-300-SW-BR	3/4" Socket Weld
KES-301-SW-BR	1" Socket Weld
KES-300-KF-BR	NW 25
KES-301-KF-BR	NW 40



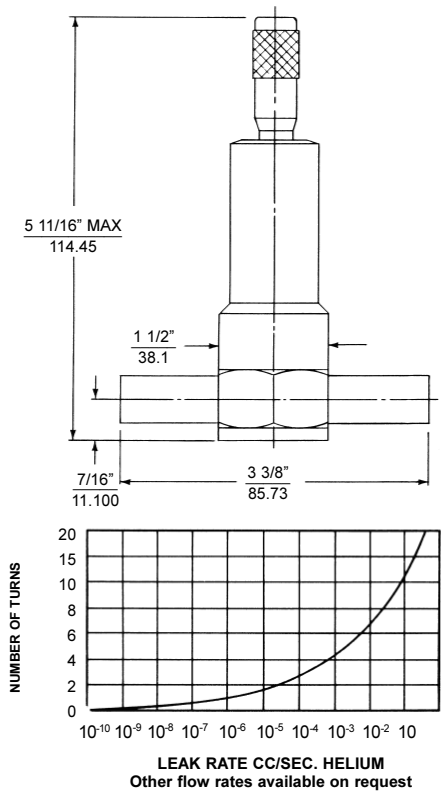
Series 100 Accu-flow Metering Valve

Features:

- Manually operated
- Precise linear flow rates
- Bellows sealed
- Available in 304 stainless steel construction and chrome plated brass

Description:

A micrometer drive that allows predictable and linear flow patterns with a wide control range as well as a positive shut off. The micrometer drive is ideal for precise control of gas accurately at any desired level. All valves are leak tested at 3×10^{-9} torr on a helium leak detector with a one-atmosphere differential.



END FITTINGS

1/8" FEMALE NPT		STYLE-P
1/4" QUICK CONNECT FITTING		STYLE-Q
1 1/3" O.D MIN. CONFLAT		STYLE-C
1 3/8" O.D. O-RING FLANGE		STYLE-O
1/8" - 1/4" SWAGELOK		STYLE-S
1/4" SOCKET WELD		STYLE-SW

Inlet and outlet fittings other than standard available on special request.

Stainless Steel Construction:

Part Number	Mounting Flanges
AF-100-PS	1/8" Female NPT
AF-100-QS	1/4" Quick Connect Fitting
AF-100-CS	1-1/3" OD Mini MET-SEAL
AF-100-SS-1/8	1/8" Swagelok®
AF-100-SS-1/4	1/4" Swagelok®
AF-100-SW-S	1/4" Socket Weld
AF-100-VCR	1/4" Male VCR®
AF-100-VCR-25F	1/4" Female VCR®
AF-100-KF16-SS	NW 16

Chrome Plated Brass Construction:

Part Number	Mounting Flanges
AF-100-PB	1/8" Female NPT
AF-100-PB-1/4	1/4" Female NPT
AF-100-QB	1/4" Quick Connect Fitting
AF-100-CB	1-1/3" OD Mini MET-SEAL
AF-100-SB-1/8	1/8" Swagelok®
AF-100-SB-1/4	1/4" Swagelok®
AF-100-SW-B	1/4" Socket Weld
AF-100-BR-KF16	NW 16



PEV Series Piezoelectric Gas Flow Valve

Features:

- Stainless steel construction
- 0 to 525 sccm
- Precise linear control flow rate
- Suitable for all dry non-corrosive gases compatible with materials

Description:

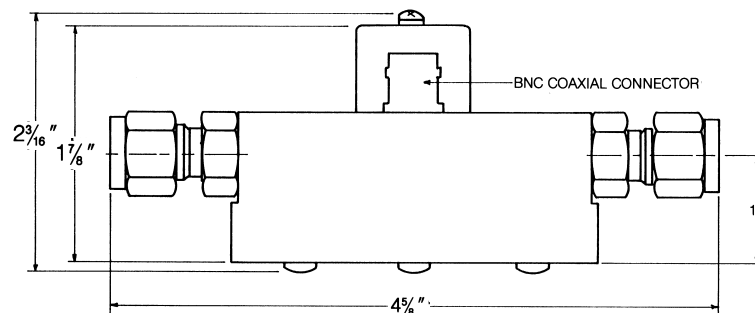
The **Piezoelectric Gas Flow Valve Model PEV-1** is a high precision gas leak valve which uses a piezoelectric bender element that responds directly to a voltage signal, which causes the opening and closing of the valve. The piezoelectric bender element responds within milliseconds to a voltage signal of 0 to 100-Volt DC. All **PEV-1** valves have a two micron filter on the inlet, viton® seals and a coaxial BNC connector(Kings KC-79-117). The threshold voltage of the valve is 20 to 30 volts, maximum voltage is 100 Volt DC and inlet pressure should not exceed 50 PSI.

The **PEV-1** Series valves are designed to be fail-safe. In the event of a power loss, the **PEV-1** will close and remain closed until power is restored to valve. All valves manufactured by **KEY HIGH VACUUM PRODUCTS, INC.** are leak tested on a helium mass spectrometer at 3×10^{-9} torr with a one-atmosphere differential on the inlet and exhibit no leakage.



PEV-1 Ordering Information

Part Number	Description
PEV-1	Piezoelectric Valve 1/4" Swagelok® Fittings
PEV-1-VCR®	Piezoelectric Valve 1/4" Male VCR's®
PEV-1-001	Replacement Viton® Seals
PEV-1-002	Inlet Filter 2 Micron
PEV-1-003	RG-188 Cable 10 Foot With One Mating Connector Only
PEV-1-004	1/4" FNPT Inlet Fitting & 1/2" OD Tube Outlet Fitting

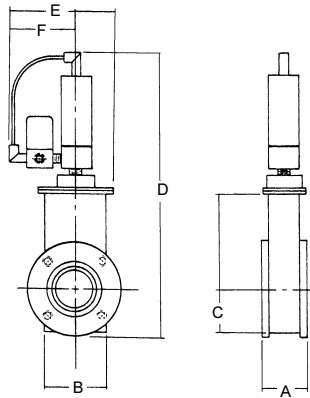


Gate Valves, Stainless Steel

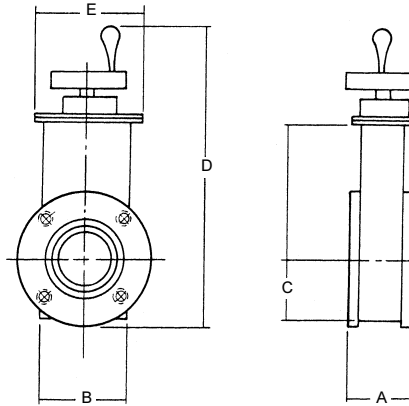
Features:

- 2" - 2-1/2"
- Bellows sealed
- Available pneumatic and manual configurations
- ASA, ISO-KF and Metal Seal flanges

Pneumatic Gate Valve



Manual Gate Valve



Pneumatic Gate Valve

Flange Data								Valve Dimensions						
Part No	Type	Nominal	ID	OD	BC	# of Holes	Thread	A	B	C	D	E	F	G
GV-2-AP	ASA	2	2.00	6.00	4.750	4	3/8-16	2.125	3.875	3.00	15.00	7.00	4.00	5.50
GV-2-CP	Conflat	2	2.00	4.50	3.628	8	5/16-24	2.750	3.875	2.312	15.00	7.00	4.00	5.50
GV-2-ISP	KF	2	2.00	2.95	-	-	-	3.375	3.875	1.500	15.00	7.00	4.00	5.50
GV-25-AP	ASA	2-1/2	2.50	6.00	4.750	4	3/8-16	2.125	3.875	3.00	15.00	7.00	4.00	5.50
GV-25-CP	Conflat	2-1/2	2.50	4.50	3.628	8	5/16-24	2.750	3.875	2.312	15.00	7.00	4.00	5.50

Manual Gate Valve

Flange Data								Valve Dimensions						
Part No	Type	Nominal	ID	OD	BC	# of Holes	Thread	A	B	C	D	E	F	G
GV-2-AM	ASA	2	2.00	6.00	4.750	4	3/8-16	2.125	3.875	3.00	15.00	5.50	-	-
GV-2-CM	Conflat	2	2.00	4.50	3.628	8	5/16-24	2.750	3.875	2.312	14.25	5.50	-	-
GV-2-ISM	KF	2	2.00	2.95	-	-	-	3.375	3.875	1.500	13.50	5.50	-	-
GV-25-AM	ASA	2-1/2	2.50	6.00	4.750	4	3/8-16	2.125	3.875	3.00	15.00	5.50	-	-
GV-25-CM	Conflat	2-1/2	2.50	4.50	3.628	8	5/16-24	2.750	3.875	2.312	14.25	5.50	-	-

Specifications: Air Pressure 65-125 psig
 Electrical 115 Volts, 50/60 Hz
 Vacuum Seals Viton®
 Shaft Seal Bellows

Options: Optional Solenoid Voltages; Add - \$20.00
 12, 14VDC, or 220 VAC

Roughing and ION gauge ports; Contact Factory

Special ports and flanges available upon request

Replacement O-Ring Kits

Part No	Description
OR-GV-2	2" Manual & Pneumatic Valves
OR-GV-25	2-1/2" Manual & Pneumatic Valves

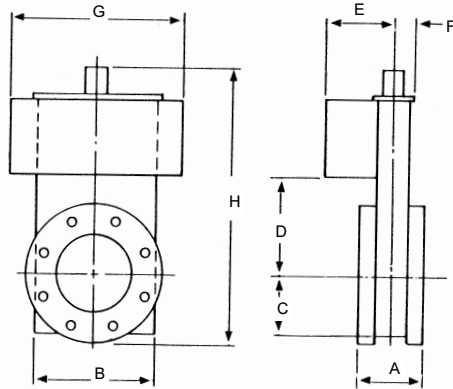


Gate Valves, Stainless Steel

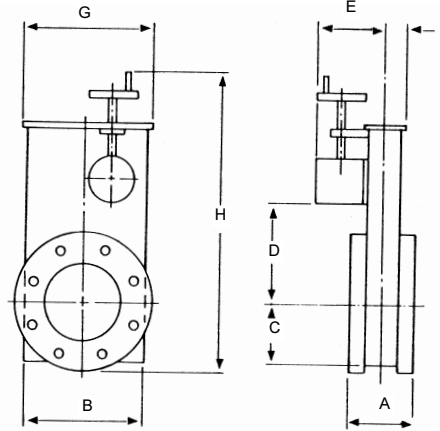
Features:

- 4", 6" & 8"
- Available in pneumatic and manual configurations
- Available with MET-SEAL and ASA flanges

Pneumatic Gate Valve



Manual Gate Valve



Pneumatic Gate Valve

Flange Data								Valve Dimensions							
Part No	Type	Nominal	ID	OD	BC	# of Holes	Thread	A	B	C	D	E	F	G	H
GV-4AP	ASA	4	4.00	9.00	7.500	8	5/8-18	2.625	7.00	3.44	4.75	5.19	1.44	11.0	17.12
GV-4CP	Conflat	4	4.00	5.97	5.128	16	5/16-24	2.375	7.00	3.44	4.75	5.19	1.44	11.0	15.62
GV-6AP	ASA	6	6.00	11.00	9.500	8	3/4-10	4.00	9.88	4.69	7.75	5.75	2.00	14.0	21.75
GV-6CP	Conflat	6	6.00	7.97	7.128	20	5/16-24	4.38	9.88	4.69	7.75	5.75	2.00	14.0	20.25
GV-8AP	ASA	8	7.75	11.00	9.500	8	3/4-10	4.00	9.88	4.69	7.75	5.75	2.00	14.0	21.75
GV-8CP	Conflat	8	7.75	9.97	9.128	24	5/16-24	4.44	9.88	4.69	7.75	5.75	2.00	14.0	21.25

Manual Gate Valve

Flange Data								Valve Dimensions							
Part No	Type	Nominal	ID	OD	BC	# of Holes	Thread	A	B	C	D	E	F	G	H
GV-4AM	ASA	4	4.00	9.00	7.500	8	5/8-18	2.625	7.00	3.44	4.75	5.19	1.44	8.50	18.12
GV-4CM	Conflat	4	4.00	5.97	5.128	16	5/16-24	2.375	7.00	3.44	4.75	5.19	1.44	8.50	16.62
GV-6AM	ASA	6	6.00	11.00	9.500	8	3/4-10	4.00	9.88	4.69	7.75	5.75	2.00	11.12	22.88
GV-6CM	Conflat	6	6.00	7.97	7.128	20	5/16-24	4.38	9.88	4.69	7.75	5.75	2.00	11.12	21.37
GV-8AM	ASA	8	7.75	11.00	9.500	8	3/4-10	4.00	9.88	4.69	7.75	5.75	2.00	14.0	21.75
GV-8CM	Conflat	8	7.75	9.97	9.128	24	5/16-24	4.44	9.88	4.69	7.75	5.75	2.00	14.0	21.25

Specifications: Air Pressure 65-125 psig
 Electrical 115 Volts, 50/60 Hz
 Vacuum Seals Viton®
 Shaft Seal With Double "O" Rings

Options: Position Indicators; Add \$120.00
 Optional Solenoid Voltages; Add \$ 20.00
 12V, 24 VDC, & 12V, 24V, 230VAC
 ISO flange Add \$200.00 per valve to ASA prices
 Metal Seal or ISO roughing port; Add \$200.00
 Special ports and flanges available upon request.

Replacement O-Ring Kits

Part No	Description
OR-GV-4	4" Manual & Pneumatic Valves
OR-GV-6	6" Manual & Pneumatic Valves
OR-GV-8	8" Manual & Pneumatic Valves

