

Valve
Solutions

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UHV Valve

METAL-SEALED VACUUM ISOLATION VALVE

The MKS UHV Valve is lightweight and has a compact profile, enabling it to fit easily into vacuum systems where space is tight. The UHV Valve has a copper bonnet seal and an elastomer nosepiece seal which limits outgassing and permeation allowing a lower base system pressure. We have optimized the welded stainless steel bellows stroke length to ensure a long cycle life while maintaining high conductance.

Extremely durable and dependable, the UHV Valve's lifetime can extend to 1,000,000 cycles under clean conditions, greatly increasing your system's uptime.

Another standard feature is a TIG fusion-welded body made of high grade, corrosion resistant 304 stainless steel for significantly fewer entrapment areas, resulting in less contaminants. The body is available with a choice of bead blasted or electropolished finishes.

Electro-pneumatic control is available for the UHV Valve with the optional air solenoids. In the event of power or air loss, the pneumatic UHV Valve will automatically close.

Features & Benefits

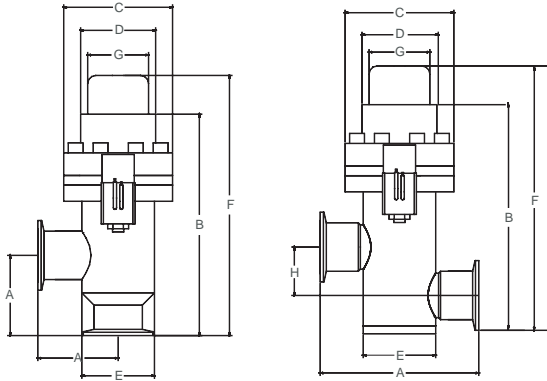
- Metal bonnet seal limits outgassing and permeation, allowing a lower base system pressure
- Surface finish options of electropolish or bead blast
- Compact design
- Welded bellows
- Spring-to-close, air-to-open pneumatic valve (manual version also available)
- High purity, corrosion resistant, 304 stainless steel body
- Angle or offset inline option
- Available in port diameters of 1 and 1½ inches
- Choice of ISO-KF or CF flanges

Applications

The MKS UHV Valve is a compact vacuum valve designed for use in ultra-high vacuum systems, for physical vapor deposition, high energy physics, mass spectrometry and other applications that require an ultraclean environment.

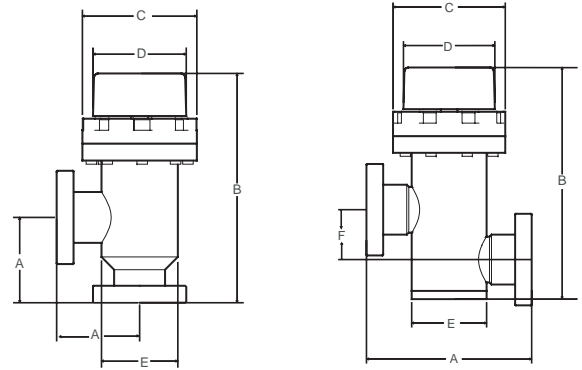


Pneumatic Valves



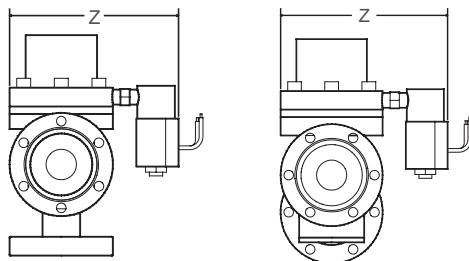
	Angle Valve		Offset Inline Valve	
	NW 25	NW40	NW 25	NW 40
A	2.40 (61)	2.49 (63)	4.84 (123)	4.92 (125)
B	5.87 (149)	6.89 (175)	6.04 (153)	7.29 (185)
C	2.75 (70)	3.38 (86)	2.75 (70)	3.38 (86)
D	1.90 (48)	2.33 (59)	1.90 (48)	2.33 (59)
E	1.75 (44)	2.25 (59)	1.75 (44)	2.25 (59)
F	7.07 (180)	8.09 (205)	7.24 (184)	8.49 (216)
G	1.89 (48)	1.89 (48)	1.89 (48)	1.89 (48)
H	N/A	N/A	1.00 (25)	1.50 (38)

Manual Valves



	Angle Valve	Inline Valve
	NW 40	NW 40
A	2.49 (63)	4.92 (125)
B	6.76 (172)	6.97 (177)
C	3.38 (86)	3.38 (86)
D	2.75 (70)	2.75 (70)
E	2.25 (57)	2.25 (57)
F	N/A	1.50 (38)

Dimensional Drawing



	NW 25	NW 40
Z	4.50 (114)	5.18 (132)

Specifications

Vacuum Range	Atmosphere to below 10^{-9} Torr
Helium Leak Rate	Less than 1.0×10^{-9} std cc/sec
Cylinder Air Pressure	90 ± 30 psig
Maximum Bakeout Temperature	150° C
Typical Life	1,000,000 cycles

Specifications

Port Size in. (NW)	Weight ISO-KF and Solenoid lb. / (kg)		Cylinder Volume in. ³ (cm ³)	Actuation Time at 100 psi msec Opening (Closing)	Blow By Pressure psia	Maximum Internal Spring Closing Pressure psia
	Angle	Offset Inline				
1.0 (25)	3 (1.4)	3 (1.4)	3.7 (61)	40 (90)	60	30
1.5 (40)	5 (2.3)	5 (2.3)	5.9 (97)	60 (90)	50	60



Specifications

NW 25 UHV Valve Ordering Information				
Body Configuration UHV-25-XXX	Finish -X	Actuation X	Seal Type XX	Pneumatic Solenoid Voltage -XXX
Select 1	Select 1	Select 1	Select 1	Select 1
UHV-25-AKK ISO-KF 25, Angle UHV-25-IKK ISO-KF 25, Offset Inline UHV-25-ACC CF 2 3/4", Angle UHV-25-ICC CF 2 3/4", Offset Inline	B Bead Blasted E Electropolish	N Pneumatic, Copper Bonnet Seal L Pneumatic, Copper Bonnet Seal, w/Limit Switch V Pneumatic, Viton® Bonnet Seal W Pneumatic, Viton® Bonnet Seal, w/Limit Switch	VN Viton - Pneumatic	12D 12 VDC 24D 24 VDC 24A 24 VAC 50/60 Hz 100 100 VAC 50 Hz 120 120 VAC 50/60 Hz 208 208 VAC 50/60 Hz 240 220 VAC 50/60 Hz None 1/8" NPT-F

Add the options to the body. Sample part number: UHV-25-ACC-BNVN-120.

NW 40 UHV Valve Ordering Information				
Body Configuration UHV-40-XXX	Finish -X	Actuation X	Seal Type XX	Pneumatic Solenoid Voltage -XXX
Select 1	Select 1	Select 1	Select 1	Select 1
UHV-40-AKK ISO-KF 40, Angle UHV-40-IKK ISO-KF 40, Offset Inline UHV-40-ACC CF 2 3/4", Angle UHV-40-ICC CF 2 3/4", Offset Inline	B Bead Blasted E Electropolish	M Manual N Pneumatic, Copper Bonnet Seal L Pneumatic, Copper Bonnet Seal, w/Limit Switch V Pneumatic, Viton® Bonnet Seal W Pneumatic, Viton® Bonnet Seal, w/Limit Switch	VM Viton - Manual VN Viton - Pneumatic	12D 12 VDC 24D 24 VDC 24A 24 VAC 50/60 Hz 100 100 VAC 50 Hz 120 120 VAC 50/60 Hz 208 208 VAC 50/60 Hz 240 220 VAC 50/60 Hz None 1/8" NPT-F

Add the options to the body. Sample part number: UHV-40-ACC-BNVN-120.



Ordering Information

UHV Valve NW 25 Spare Parts	
Description	Part Number
O-Ring/Metal Seals, Viton® nose, Copper bonnet	100010361
O-Ring Seals, all Viton®	100011771
Internal Assembly, pneumatic, with Viton® nose, Copper bonnet*	100002652
Internal Assembly, pneumatic, with all Viton® seals*	100011774
Retro Fit Kit: Limit Switch, pneumatic	100010913
Solenoid: 24 VAC, 50/60 Hz, 6.0 Watts	100008164
Solenoid: 12 VDC, 50/60 Hz, 7.0 Watts	100008539
Solenoid: 24 VDC, 50/60 Hz, 7.0 Watts	100008163
Solenoid: 120 VAC, 50/60 Hz, 7.5 Watts	100008165
Solenoid: 208 VAC, 50/60 Hz, 7.5 Watts	100008166
Solenoid: 220 VAC, 50/60 Hz, 7.5 Watts	100008167
* Includes Actuator Cap	

UHV Valve NW 40 Spare Parts	
Description	Part Number
O-Ring/Metal Seals, pneumatic, Viton® nose, Copper bonnet	100010362
O-Ring/Metal Seals, manual, Viton® nose, Copper bonnet	100010363
O-Ring Seals, pneumatic, all Viton®	100011772
O-Ring Seals, manual, all Viton®	100011773
Internal Assembly, pneumatic, with Viton® nose, Copper bonnet*	100009978
Internal Assembly, pneumatic, with all Viton® seals*	100011775
Internal Assembly, manual, with Viton® nose, Copper bonnet*	100009979
Internal Assembly, manual, with all Viton® seals*	100011776
Retro Fit Kit: Limit Switch, pneumatic	100010914
Solenoid: 24 VAC, 50/60 Hz, 6.0 Watts	100008164
Solenoid: 12 VDC, 50/60 Hz, 7.0 Watts	100008539
Solenoid: 24 VDC, 50/60 Hz, 7.0 Watts	100008163
Solenoid: 120 VAC, 50/60 Hz, 7.5 Watts	100008165
Solenoid: 208 VAC, 50/60 Hz, 7.5 Watts	100008166
Solenoid: 220 VAC, 50/60 Hz, 7.5 Watts	100008167
* Includes Actuator Cap	



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