

R-Series Gate Valve

Roughing Pump Isolation for Semiconductor SubFab
and General Vacuum Applications



MKS Instruments, a leader in high reliability and high performance vacuum isolation and pressure control valves, introduces the R-Series Gate Valve product line.

The MKS R-Series Gate Valve is optimized for isolation of roughing pumps and roughing lines in both semiconductor and general vacuum applications. The R-Series is available with a range of options, including pneumatic and manual actuators, lockout tagout capability, and position indicators. The R-Series employs an elastomer shaft seal for the actuator seal, which enables high performance in a cost effective, high value package for roughing vacuum applications.



Product Features

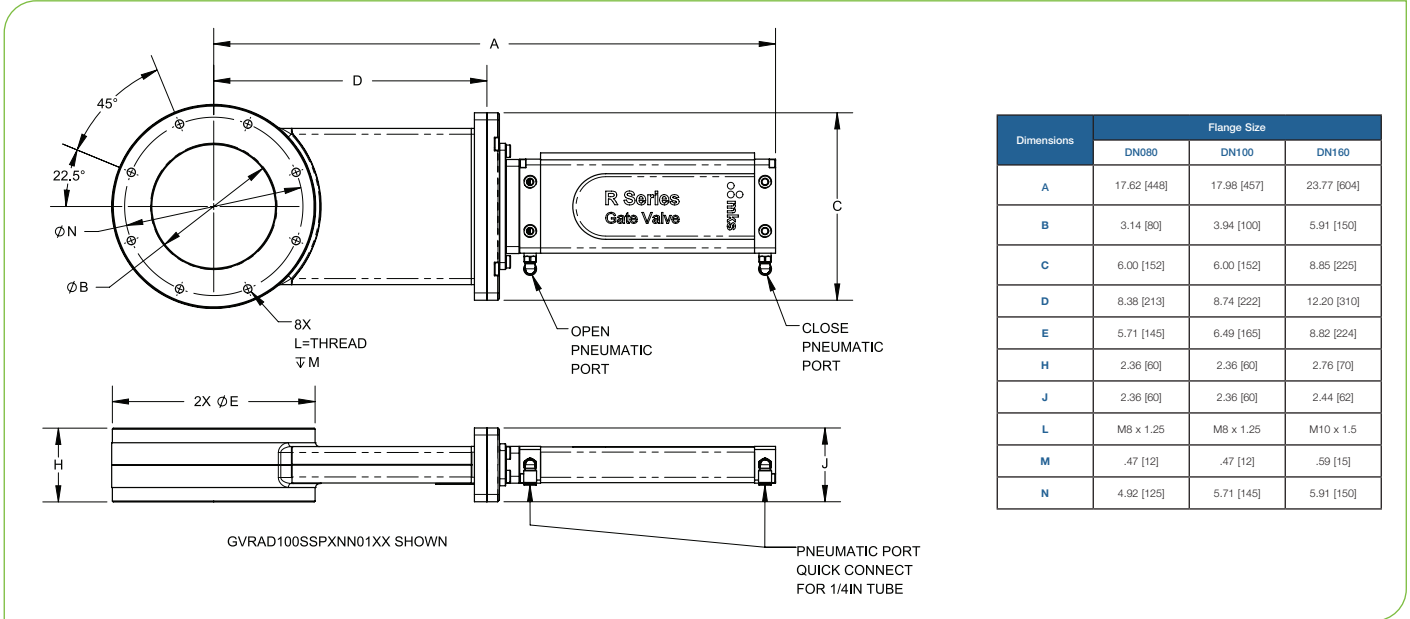
- Excellent temperature uniformity ensures no cold spots on internal surfaces
- Prevents condensation of effluents and corrosive gases
- DN80 and DN100 > 200,000 cycles
- DN160 > 100,000 cycles
- DN80, DN100 and DN160mm sizes available

Key Benefits

- Cost effective
- High value
- Stainless steel and aluminum versions

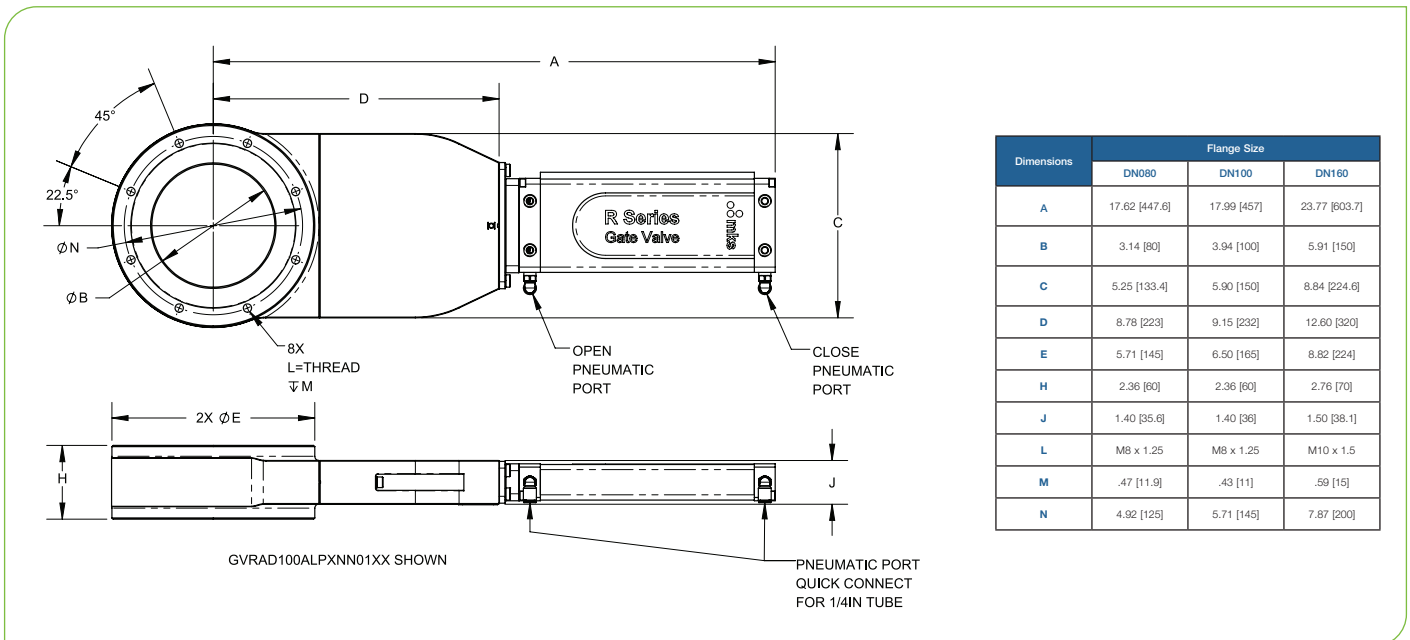
Dimensional Drawings

MKS R-Series Gate Valve is available in both Aluminum and Stainless Steel configurations.



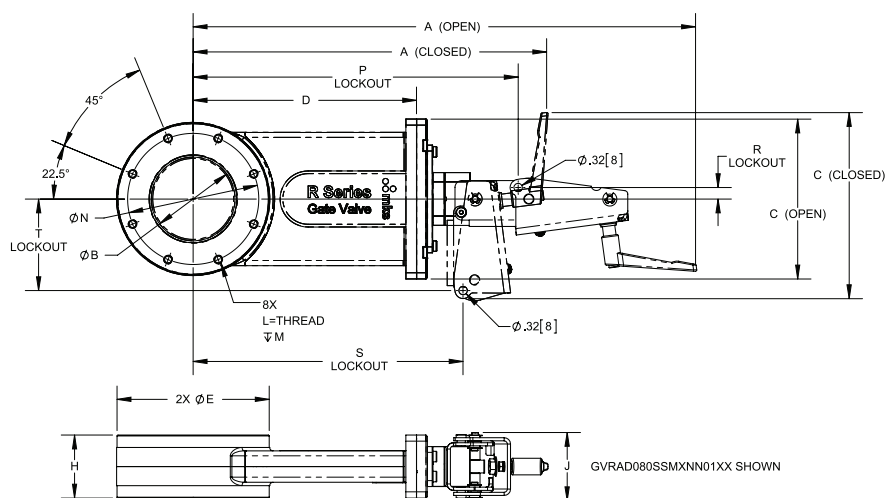
Stainless Steel Gate Valve with Pneumatic Actuator

Note: Unless otherwise specified, dimensions are nominal values in inches (mm referenced).



Aluminum Gate Valve with Pneumatic Actuator

Note: Unless otherwise specified, dimensions are nominal values in inches (mm referenced).



Dimensions	Flange Size		
	DN080	DN100	DN160
A (open)	18.90 [480]	19.21 [488]	25.67 [652]
A (Closed)	13.31 [338]	13.68 [348]	18.52 [470]
B	3.14 [80]	3.96 [100]	5.91 [150]
C (Open)	6.00 [152]	6.00 [152]	8.85 [225]
C (Closed)	6.98 [177]	6.63 [168]	9.43 [240]
D	8.38 [213]	8.74 [222]	12.2 [310]
E	5.72 [145]	6.49 [165]	8.82 [224]
H	2.36 [60]	2.36 [60]	2.76 [70]
J	2.56 [65]	2.56 [65]	2.60 [66]
L	M8 X 1.25	M8 X 1.25	M10 X 1.5
M	.47 [12]	.47 [12]	.59 [15]
N	4.92 [125]	5.71 [145]	7.87 [200]
P Lockout Open	12.20 [310]	12.56 [319]	17.04 [433]
R Lockout Open	.43 [11]	.43 [11]	.66 [17]
S Lockout Open	10.13 [257]	10.49 [266]	13.97 [353]
T Lockout Open	3.44 [87]	3.44 [87]	4.67 [119]

Stainless Steel Gate Valve with Manual Actuator

Note: Unless otherwise specified, dimensions are nominal values in inches (mm referenced).

Specifications

Leak Rate	Side to Side External	1* 10 ⁻⁹ atm*cc/sec 1* 10 ⁻⁹ atm*cc/sec
Pressure Range	Pressure Max Delta P (Closed) Max Delta P (Operating)	1* 10 ⁻⁷ to 1200 Torr (1.3* 10 ⁻¹⁰ - 1.6 bar) 1.6 atm, either direction < 22.5 Torr (30 mbar) chamber side high* < 22.5 Torr (30 mbar) pump side high *Valve is operable up to 760 Torr (1 bar) chamber side high, but cycle life will be reduced with operation > 30 mbar.
Wetted Materials	Stainless Steel Aluminum Seals Standard Optional	304L SS, 316L SS, 440C SS, Krytox LVP 6061 AL, 304L SS, 316L SS, 440C SS, Krytox LVP Viton® (FKM) Chemraz®, Kalrez® compounds
Temperature	Body Temperature Viton Seals Optional Seals Actuator Temperature Solenoid Temperature	10°C to 105°C 10°C to 150°C 10°C to 80°C 10°C to 50°C
Actuation Type		Double acting pneumatic or manual
Actuation Time		< 2 sec
Actuator Seal		Elastomer shaft seal
Maintenance		DN80: 200,000 cycles before maintenance DN100: 200,000 cycles before maintenance DN160: 100,000 cycles before maintenance MTTR: 15 minutes; Can be serviced without removal from vacuum system
Pneumatic Pressure		5.4 ±1.3 atm (80 ±20 psig)
Limit Switch		Magnetic Reed Switch: Current rating < 80mA

Ordering Information

Ordering Code Example: GVRAD100SSPVNN20	Code	Configuration
GVRA	GVRA	GVRA
Valve Bore/Flange Size		
DN80	D80	D100
DN100	D100	
DN160	D160	
Materials		
Stainless Steel	SS	SS
Aluminum ¹	AL	
Actuation		
Pneumatic	P	P
Manual	M	
Pneumatic with Lockout Tagout	L	
Seal Materials²		
Viton/FKM	V	V
Kalrez 9100	M	
Kalrez 9500	N	
Bypass Option		
None	N	N
Limit Switches³		
None	N	N
Limit Switch (Both Switches Normally Open)	L	
Limit Switch (Both Switches Normally Closed)	C	
Limit Switch (Valve Open Continuity) ⁴	D	
Limit Switch (Valve Closed Continuity) ⁵	E	
Solenoids⁶		
None	0	2
24 VDC	2	
12 VDC	1	
Heating Options		
Heatable to 105°C	0	0
Heatable to 150°C	1	

Note 1: Contact MKS Applications – available in limited configurations.

Note 2: Contact MKS Applications for alternate seal materials.

Note 3: Switches have 2m long, unterminated flying leads.

Note 4: Both limit switches have continuity when valve is in Open Position.

Note 5: Both limit switches have continuity when valve is in Closed Position.

Note 6: Contact MKS Applications for alternate solenoid configurations.



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