

# R-Series Gate Valve

Roughing Pump Isolation for Semiconductor SubFab  
and General Vacuum Applications



The MKS R-Series Gate Valve is optimized for isolation of roughing pumps and roughing lines in both semiconductor, solar, and other general vacuum applications.

The R-Series Gate Valve is available with a range of options including lockout tagout capability, high temperature variants, and a variety of seal materials.

The R-Series employs a robust 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 cycle life
- DN160 > 100,000 cycle life
- Capable of opening against up to 1 bar pressure differential (chamber side high)
- Optional Lock Out Tag Out devices
- High performance heating options with operating temperatures up to 150°C
- Roughing ports, soft pumping, and other options available



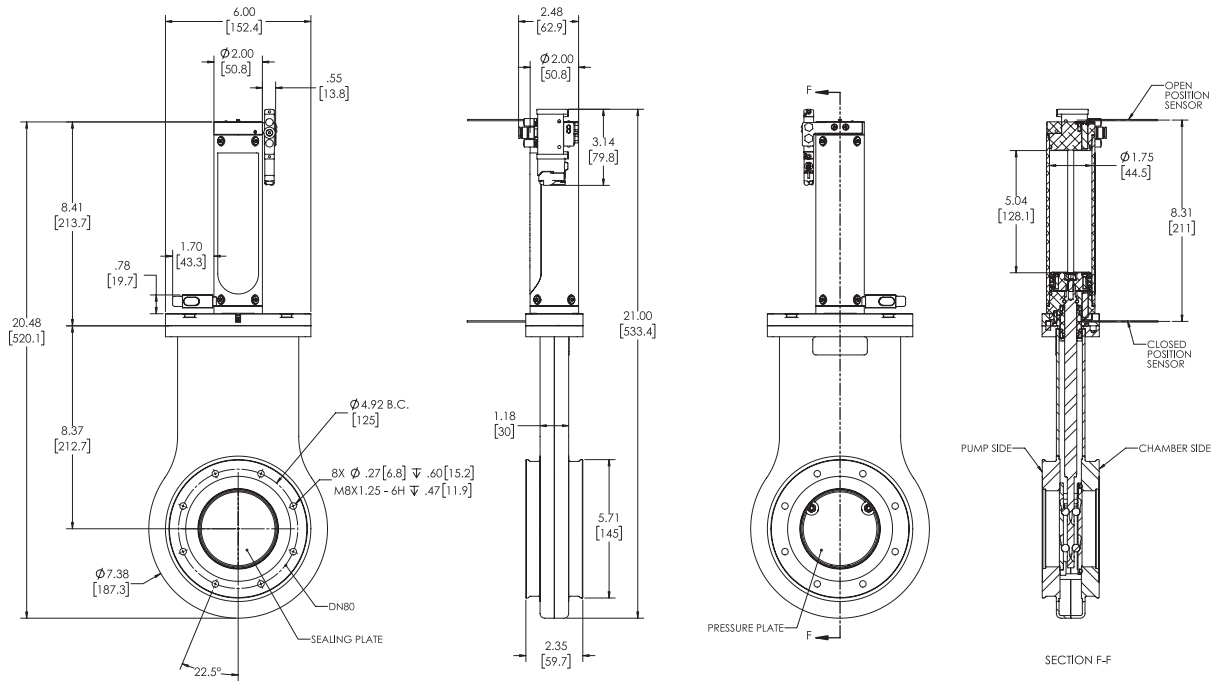
## Key Benefits

- Cost effective
- Long life double shaft seals
- Stainless steel and aluminum versions

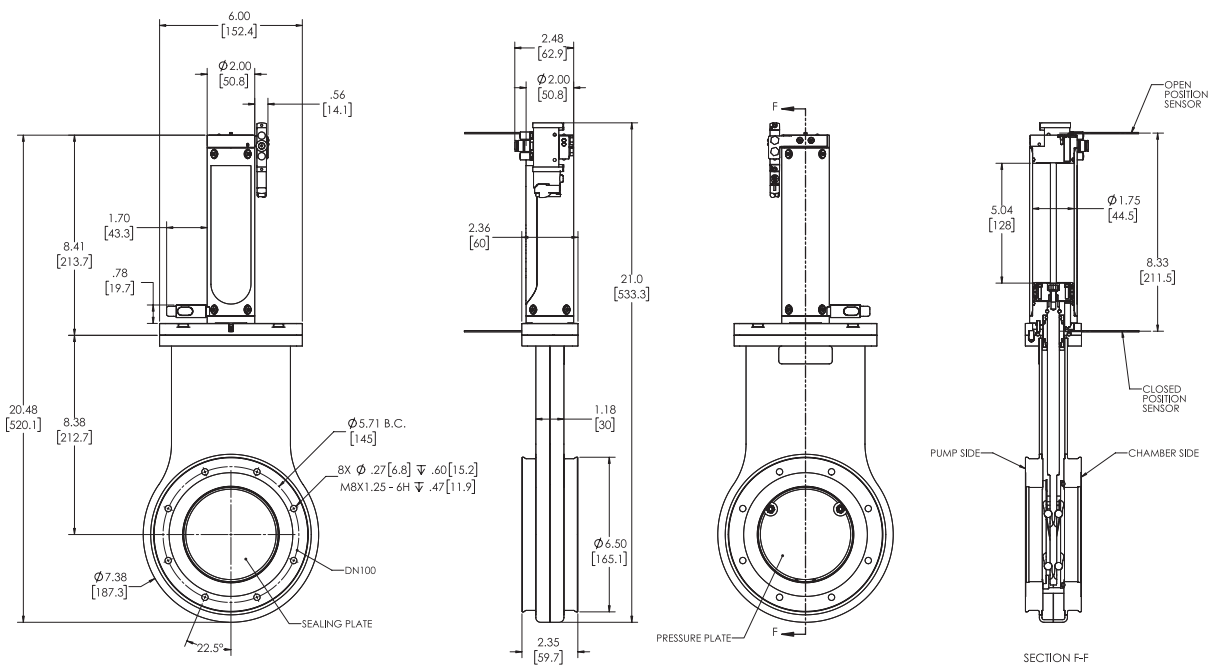
## Dimensional Drawings

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

### GVRBD080SSLVNL2000

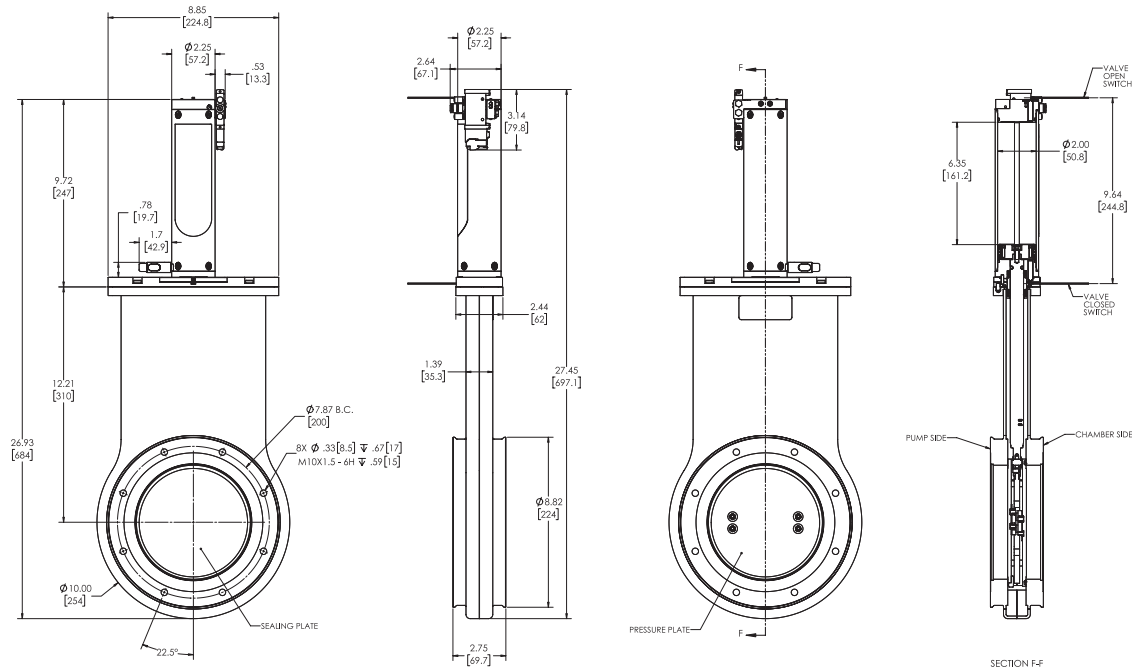


### GVRBD100SSLVNL2000



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

### GVRBD160SSLVNL2000



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

Specifications		
<b>Leak Rate</b>	<b>Side to Side External</b>	<ul style="list-style-type: none"> <li>• <math>1 * 10^{-9}</math> atm*cc/sec</li> <li>• <math>1 * 10^{-9}</math> atm*cc/sec</li> </ul>
<b>Pressure Range</b>	<b>Pressure Max Delta P (Closed) Max Delta P (Operating)</b>	<ul style="list-style-type: none"> <li>• <math>1 * 10^{-7}</math> to 1200 Torr (<math>1.3 * 10^{-10}</math> - 1.6 bar)</li> <li>• 1.6 atm, either direction</li> <li>• &lt; 22.5 Torr (30 mbar) chamber side high*</li> <li>• &lt; 22.5 Torr (30 mbar) pump side high</li> </ul> <p>*Valve is operable up to 760 Torr (1 bar) chamber side high, but cycle life will be reduced with operation &gt; 30 mbar.</p>
<b>Wetted Materials</b>	<b>Internal Mechanism Valve Body Seals</b>	<ul style="list-style-type: none"> <li>• 304L SS, 316L SS, 440C SS, Krytox LVP</li> <li>• 6061 AL or 304L SS</li> <li>• Standard: Viton® (FKM)</li> <li>• Optional: Chemraz®, Kalrez® compounds</li> </ul>
<b>Temperature</b>	<b>Body Temperature  Actuator Temperature Solenoid Temperature</b>	<ul style="list-style-type: none"> <li>• Viton Seals: 10°C to 105°C</li> <li>• Optional Seals: 10°C to 150°C</li> <li>• 10°C to 80°C</li> <li>• 10°C to 50°C</li> </ul>
<b>Actuation Type</b>		Double acting pneumatic
<b>Actuation Time</b>		< 2 sec* *when operated at 80 psig with MKS supplied solenoid.
<b>Actuator Seal</b>		Elastomer shaft seal
<b>Maintenance</b>		<ul style="list-style-type: none"> <li>• DN80: 200,000 cycles before maintenance</li> <li>• DN100: 200,000 cycles before maintenance</li> <li>• DN160: 100,000 cycles before maintenance</li> <li>• MTRR: 15 minutes; Can be serviced without removal from vacuum system</li> </ul>
<b>Pneumatic Pressure</b>		$5.4 \pm 1.3$ atm ( $80 \pm 20$ psig)
<b>Limit Switch</b>		Magnetic Reed Switch: Current rating < 80mA

Ordering Code Example: GVRBD100SSPVNN2000	Code	Configuration
<b>Model</b>		
GVRB	GVRB	GVRB
<b>Valve Bore/Flange Size</b>		
DN80 DN100 DN160	D80 D100 D160	D100
<b>Body Material</b>		
Stainless Steel Aluminum <sup>1</sup>	SS AL	SS
<b>Actuation</b>		
Pneumatic Manual Pneumatic with Lockout Tagout	P M L	P
<b>Seal Materials<sup>2</sup></b>		
Viton/FKM Kalrez 9100 Kalrez 9500	V M N	V
<b>Bypass Option</b>		
None	N	N
<b>Limit Switches<sup>3</sup></b>		
None Limit Switch (Both Switches Normally Open) Limit Switch (Both Switches Normally Closed) Limit Switch (Valve Open Continuity) <sup>4</sup> Limit Switch (Valve Closed Continuity) <sup>5</sup>	N L C D E	N
<b>Solenoids<sup>6</sup></b>		
None 24 VDC 12 VDC	0 2 1	2
<b>Heating Options</b>		
Heatable to 105°C Heatable to 150°C	0 1	0
<b>Other Options</b>		
Contact MKS	00	00

<sup>1</sup> Contact MKS Applications – available in limited configurations.

<sup>2</sup> Contact MKS Applications for alternate seal materials.

<sup>3</sup> Switches have 2m long, unterminated flying leads.

<sup>4</sup> Both limit switches have continuity when valve is in Open Position.

<sup>5</sup> Both limit switches have continuity when valve is in Closed Position.

<sup>6</sup> Contact MKS Applications for alternate solenoid configurations.