SMART Vacuum Gate Valves



Lock System

Position locked when the valve is open or closed

Product Introduction

Gate valves that operate in a vacuum are primarily utilized to safeguard high vacuum pumps. Gate valves can also be used to isolate two connecting chambers in a vacuum system, allowing for maintenance or repairs to be carried out on one chamber without affecting the other.

The **AdvanTorr**® advancements in sealing mechanisms have led to the development of the S.M.A.R.T. technology to create a superior seal and facilitate smooth, vibration-free operation.

The latest generation of SMART Gate Valves are specifically designed to reduce vibration during operation, resulting in significantly fewer particles being generated. This makes them an excellent choice for vacuum systems that require a clean environment.

These valves come in two different actuator orientation options:

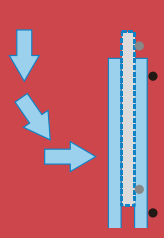
- Side-mounted manual or pneumatic actuator (SGV part codes)
- In-Axis option (AGV part codes), which features a vertically mounted manual or pneumatic actuator and is ideal for applications where a small footprint is necessary

Both come equipped with the SMART lock system as standard that locks positions in open or closed.

Product Features

- **No springs!** Less wear and strain means longer life
- **Shock free 'soft shut' SMART technology.** The lowest vibration of any gate valve on the market
- **Vulcanized seal for repeatable, maintenance free operation**
- **Optional welded bellows feedthrough for cleanliness and improved service life**
- **Fail safe locking mechanism.** Locks in both the open and closed positions

■ **S.M.A.R.T**



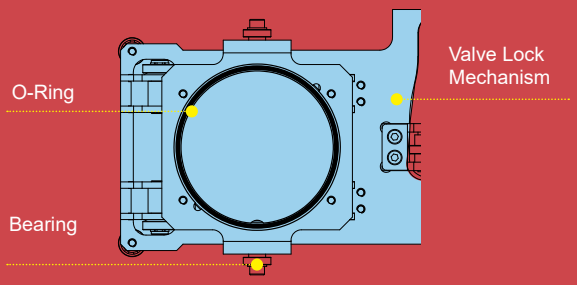
SMART mechanism seal plate operates with no vibration, ensuring particle free operation.



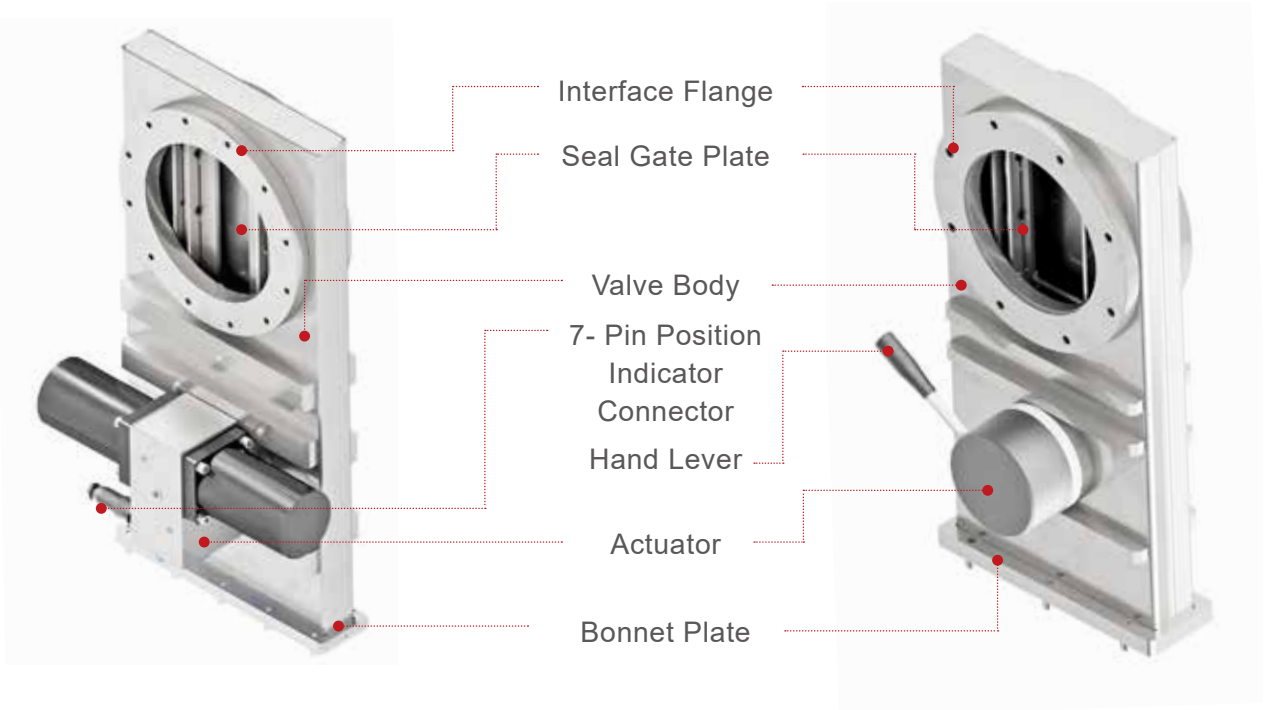
Conventional seal plate designs that use a spring mechanism can be susceptible to vibration during operation.

■ **SMART lock system**

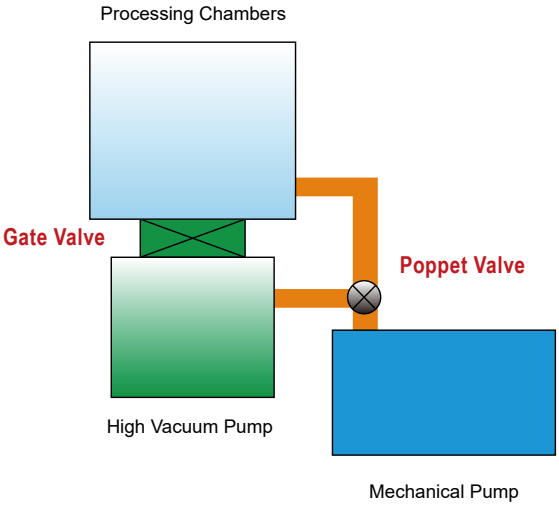
Position locked when the valve is open or closed.



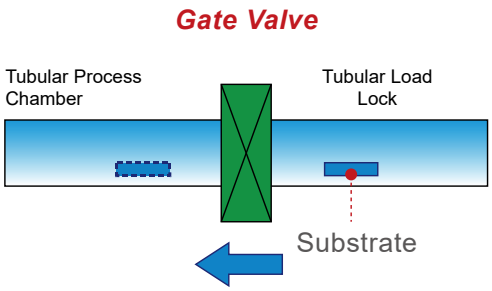
SMART Gate Valves



Product Application

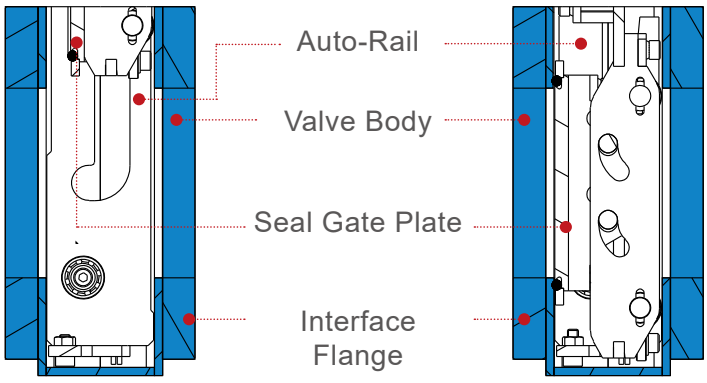


Schematic illustrating the gate valve in position between the two tubular chambers.



Substrate transfer from tubular load lock to tubular process chamber.

Valve's Operation Concept



SMART Gate Valves

Technical Data for SMART Gate Valve

	High Vacuum
Feedthrough	O-ring shaft seal
Gate seal	FKM O-ring (Optional for FFKM)
Bonnet seal	FKM O-ring (Optional for FKM)
Operate pressure range	760 Torr ~ $1x10^{-8}$ Torr 1,013 mbar ~ $1.33X10^{-8}$ mbar 101 kPa ~ $1.33X10^{-9}$ kPa
Leak rate	1×10^{-9} Torr l/s, He 1.33×10^{-9} mbar l/s, He 1.33×10^{-10} kPa l/s, He
Cycle life	>200,000 Cycles
Temperature for valve body	0°C~250°C (32°F~482°F) Open, 0°C~200°C (32°F~392°F) Closed
Temperature for actuator	0°C~100°C (32°F~212°F)
Temperature for solenoid / position indicator	0°C~80°C 32°F~176°F
Bake temperature	100°C (212°F) for FKM gate seal
Valve body material	SS304 (Optional for SS316L)
Mechanism material	SS304
Actuator material	SS304, Aluminum
Mounting position	Any

Valve's Operation Data

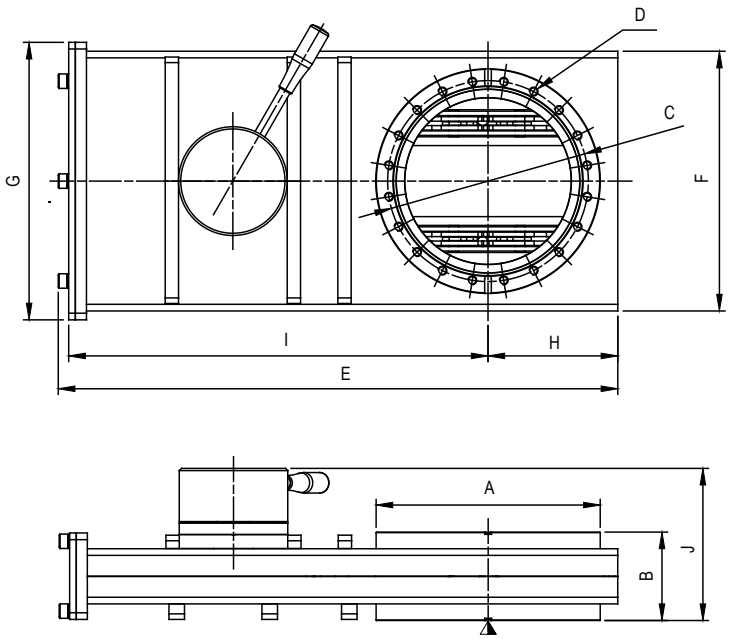
Manual lever	180 degree angle
Pneumatic operating pressure	4 bar~ 8 bar 400 kpa~ 800 kpa 58 psi~ 116 psi
Position indicator (included as standard)	Visual indicator and micro switch with 7-pin connector
Solenoid (included as standard)	24V DC, standard option for 12V DC, 110V AC and 220V AC
Failure protection (included as standard)	SMART lock system (Valve position remains and locked)

Valve's Performance Data

	CF6"/ISO-F100	CF8"/ISO-F160	CF10"/ISO-F200	CF12"/ISO-F250
Maximum differential pressure against gate	<817 Torr <1,090 mbar < 109kpa			
Maximum differential pressure at opening	<22.5 Torr <30 mbar <3 kpa	<18.7 Torr <25 mbar <2.5 kpa	<15 Torr <20 mbar <2 kpa	<11.2 Torr <15 mbar <1.5 kpa
Pneumatic valve open / close time	1.5(s)	2(s)	2.5(s)	3(s)
Valve's conductance (molecular flow)	1,700(l/s)	5,100(l/s)	12,000(l/s)	22,000(l/s)

01. Manual Lever SMART Gate Valves, HV, CF Flange





Material SS304

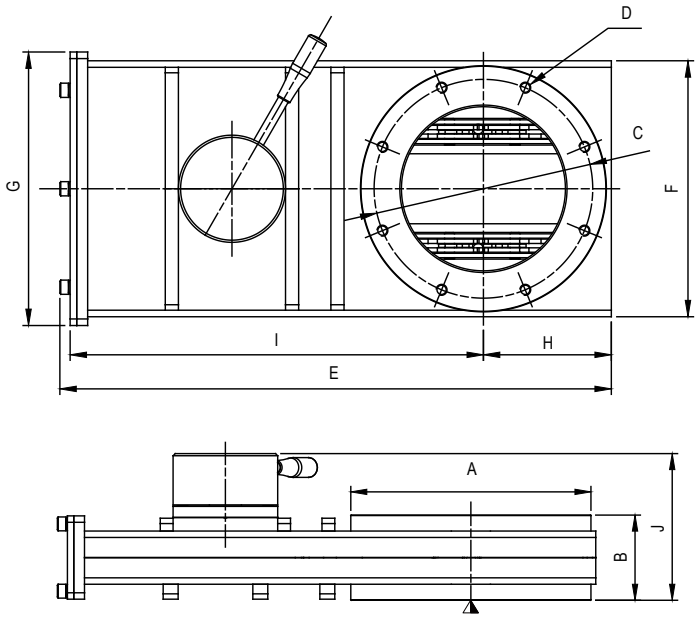
Part Number - Inch	Nominal I.D.	Thread D	A	B	C	E	F	G	H	I	J
SGVM-HV-CF450T	DN63 (2. 5")	8x5/16- 24	114	80	92	300	142	154	71	222	123
SGVM-HV-CF600T	DN100 (4")	16x5/16- 24	152	80	130	366	170	182	85	273	124
SGVM-HV-CF800T	DN160 (6")	20x5/16- 24	202	80	181	504	234	250	117	378	138
SGVM-HV-CF1000T	DN200 (8")	24x5/16- 24	253	90	232	692	316	334	158	525	174
SGVM-HV-CF1200T	DN250 (10")	32x5/16- 24	304	110	284	792	368	390	184	597	191

Part Number - Metric	Nominal I.D.	Thread D	A	B	C	E	F	G	H	I	J
SGVM-HV-CF450M	DN63 (2. 5")	8xM8x17dp	114	80	92	300	142	154	71	222	123
SGVM-HV-CF600M	DN100 (4")	16xM8x12dp	152	80	130	366	170	182	85	273	124
SGVM-HV-CF800M	DN160 (6")	20xM8x15dp	202	80	181	504	234	250	117	378	138
SGVM-HV-CF1000M	DN200 (8")	24xM8x20dp	253	90	232	692	316	334	158	525	174
SGVM-HV-CF1200M	DN250 (10")	32xM8x23dp	304	110	284	792	368	390	184	597	191

- Dimension in mm

02. Manual Lever SMART Gate Valves, HV, ISO-F Flange





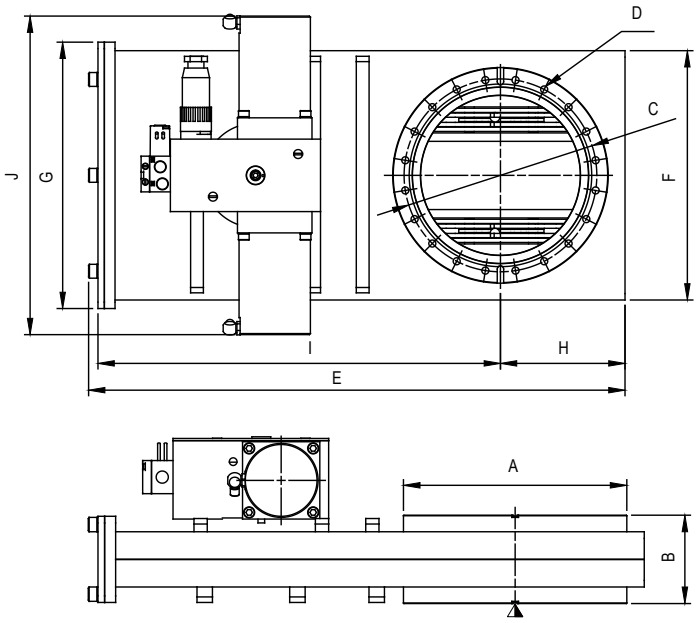
Material SS 304

Part Number- Metric	Nominal I.D.	Thread D	A	B	C	E	F	G	H	I	J
SGVM-HV-ISOF63	DN 63 (2.5")	4xM8x17dp	130	80	110	300	142	154	71	222	123
SGVM-HV-ISOF100	DN 100 (4")	8xM8x17dp	165	80	145	365	170	182	85	273	124
SGVM-HV-ISOF160	DN 160 (6")	8xM10x15dp	225	80	200	504	234	250	117	378	138
SGVM-HV-ISOF200	DN 200 (8")	12xM10x20dp	285	90	260	692	316	334	158	525	174
SGVM-HV-ISOF250	DN 250 (10")	12xM10x23dp	335	110	310	792	368	390	184	597	191

- Dimension in mm

03. Pneumatic SMART Gate Valves, HV, CF Flange





Material SS 304

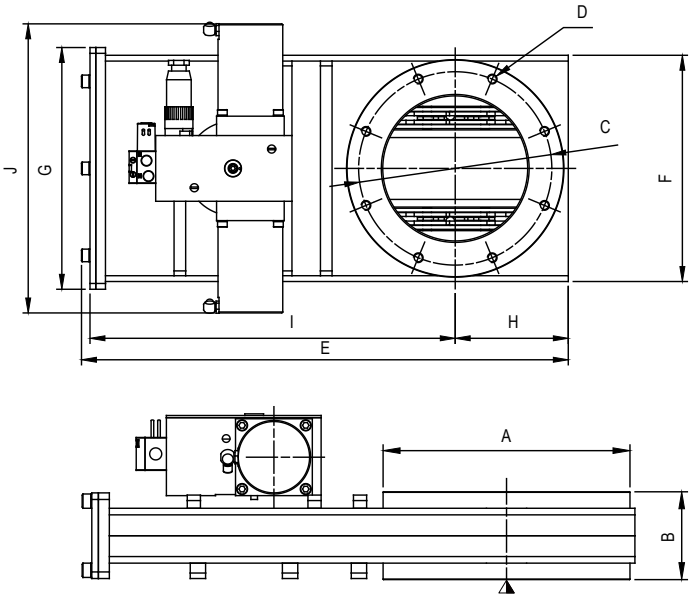
Part Number- Inch	Nominal I.D.	Thread D	A	B	C	E	F	G	H	I	J
SGVP-HV-CF450T	DN 63 (2.5")	8x5/16-24	114	80	92	300	142	154	71	222	230
SGVP-HV-CF600T	DN 100 (4")	16x5/16-24	152	80	130	365	170	182	85	273	253
SGVP-HV-CF800T	DN 160 (6")	20x5/16-24	202	80	181	504	234	250	117	378	299
SGVP-HV-CF1000T	DN 200 (8")	24x5/16-24	253	90	232	692	316	334	158	525	388
SGVP-HV-CF1200T	DN 250 (10")	32x5/16-24	304	110	284	792	368	390	184	597	386

Part Number- Metric	Nominal I.D.	Thread D	A	B	C	E	F	G	H	I	J
SGVP-HV-CF450M	DN 63 (2.5")	8xM8X17dp	114	80	92	300	142	154	71	222	230
SGVP-HV-CF600M	DN 100 (4")	16xM8X17dp	152	80	130	365	170	182	85	273	253
SGVP-HV-CF800M	DN 160 (6")	20xM8X15dp	202	80	181	504	234	250	117	378	299
SGVP-HV-CF1000M	DN 200 (8")	24xM8X20dp	253	90	232	692	316	334	158	525	388
SGVP-HV-CF1200M	DN 250 (10")	32xM8X23dp	304	110	284	792	368	390	184	597	386

- Dimension in mm

04. Pneumatic SMART Gate Valves, HV, ISO-F Flange





Material SS 304

Part Number- Metric	Nominal I.D.	Thread D	A	B	C	E	F	G	H	I	J
SGVP-HV-ISOF63	DN 63 (2.5")	4xM8X17dp	130	80	110	300	142	154	71	222	230
SGVP-HV-ISOF100	DN 100 (4")	8xM8X17dp	165	80	145	365	170	182	85	273	253
SGVP-HV-ISOF160	DN 160 (6")	8xM10X15dp	225	80	200	504	234	250	117	378	299
SGVP-HV-ISOF200	DN 200 (8")	12xM10X20dp	285	90	260	692	316	334	158	525	388
SGVP-HV-ISOF250	DN 250 (10")	12xM10X23dp	335	110	310	792	368	390	184	597	386

- Dimension in mm