

Isolation Valves

Gate Valve General Information & Options



Nor-Cal stainless steel gate valves share with our poppet valves the innovative design, highest grade materials and superior workmanship that has made us a major supplier of valves to the vacuum industry. The estimated service interval on these valves is 100,000 cycles, depending on the application.

Our gate valves have an ultra-slim profile which makes them perfect for applications where space is limited, and their smaller volume results in lower outgassing and faster pumpdown. Larger sizes have a unique feature in the actuator which dampens the vibration which can arise when the gate is opened. This makes these valves ideal for semiconductor and other vibration sensitive processes. The carriage assembly and actuator can be removed without disassembling the body from the system for easy maintenance. The 304 stainless steel bodies are vacuum furnace brazed to 1100°C at 10⁻⁶ Torr before being electropolished inside and out. The welded AM-350 bellows have a short stroke for a longer cycle life.

Nor-Cal gate valves are available with NW (ISO-KF), ISO (clamp and bolt type), CF and ASA flanges in port sizes from 1.5 to 12 inches. Larger sizes are available upon request. Choose from manual or pneumatic actuation and Viton or copper seal bonnet.

Nor-Cal gate valves with Viton seal bonnet and gate and standard Reed-switch position indicators are bakeable to 150°C, as long as the actuator is not baked above 60°C. A gate valve with copper seal bonnet, Viton gate and micro-switch option can be baked to 200°C, except for the actuator. With the air solenoid and position indicators removed, a copper seal bonnet valve with high temperature Kalrez gate O-ring can be baked to 250°C with the gate in the open position. Silicone heater jackets for bakeouts up to 200°C can be provided. Please call for pricing.



SPECIFICATIONS

General

Nominal IDs: 1/2 to 12 inch
Helium leak rate: $\leq 2 \times 10^{-9}$ std. cc./sec.

Materials

Body: 304 SS vacuum furnace brazed body
Bellows: Welded AM-350
O-ring: Viton standard.
Other compounds available.

Finish: Electropolished inside and out

Maximum pressure differential

At Opening
4 inch ID or smaller:
760 Torr on gate side,
20 Torr on carriage side
Greater than 4 inch ID:
20 Torr either direction
Closed: 760 Torr in either direction

Vacuum range

Viton Seal Bonnet: $\geq 10^{-9}$ Torr
Copper Seal Bonnet: $\geq 10^{-10}$ Torr

Temperature range

Viton Seal Bonnet: $\leq 150^\circ\text{C}$
Copper Seal Bonnet: $\leq 200^\circ\text{C}$ with CF flanges
and gate in open position

Pneumatically actuated: Normally closed
120V, 50/60Hz air solenoid, standard,
Maximum 80 psig operating air pressure,
standard. (Higher operating pressures
available upon request)
Reed-switch position indicator, standard

Manually actuated

Acme threads for fewer turns

Thermal: Heater jackets and controllers
available. Call for information and pricing

Options

- Micro-switch
- O-rings
- Air Solenoids

Gate Valve Options

One or more options can be ordered by adding the option suffix to the basic valve model number. Please add the option suffixes in the following order:



Example: GVMP-4002-CF-KT-S22

O-rings

OPTION	COMPOUND	TEMPERATURE MIN.	TEMPERATURE MAX.	DESCRIPTION	ADD TO PRICE
Standard	Viton	-29°C	204°C	Industry standard	N/C
-KT	Kalrez 4079	-50°C	316°C	High temperatures	Call
-KC	Kalrez 2037	-54°C	220°C	Chemical resistant.	Call
-CR	Chemraz 513	-30°C	210°C	Chemical resistant	Call
-S	Silicone	-55°C	232°C	Extreme temperatures	Call

Air Solenoids

OPTION	DESCRIPTION	PRICE
-S12	4-way, 120V AC, 60 Hz (standard)	N/C
-S22	4-way, 24V DC	N/C
-S32	4-way, 240V AC, 50/60 Hz	N/C
-S42	4-way, 24V AC, 50/60 Hz	N/C

All pneumatic gate valves come standard with a 4-way, 120V, 50/60Hz air solenoid. Air solenoids require 4 watts of power to actuate. Solenoids are mounted on all Viton seal bonnet gate valves with 4 inch ID and larger. Solenoids for Viton seal bonnet gate valves with under four inch ID and all sizes of copper seal gate valves are shipped unmounted with the valve.

Micro-Switch

OPTION	ADD TO PRICE
-M	CALL

Micro-switches are available on all pneumatically actuated Nor-Cal valves. One switch closes when the valve is fully open and the other when it is fully closed. These can be connected to control panels with alarms or lights for positive position indication.

Silicone heater jackets for bakeouts up to 200°C can be provided for all gate valves. Ask your Nor-Cal representative for pricing.

