

INSTALLATION INSTRUCTIONS
3-POSITION GATE VALVES—SIZES 1.5" - 21"
Read All Instructions Prior To Installation

MODEL NUMBER: _____ SERIAL NUMBER: _____

UNPACKING

Inspect shipping container before unpacking for damages sustained during transit. Any visible damage should be reported to the Transportation company immediately. Remove the valve and make sure that the flange faces are free of knicks or scratches and there is no obvious damage to the actuator assembly and body.

Write the model number and serial number in space provided above for future reference. Model numbers and serial numbers are required when purchasing spare parts and when returning valve for maintenance.

PRE-INSTALLATION

WARNING: NEVER PUT HANDS OR ANY OTHER OBJECT IN THE GATE VALVE—SERIOUS INJURIES WILL OCCUR AND VALVE WILL BE DAMAGED.

Determine that the valve and adjacent plumbing in the vacuum system will be adequately supported when installed. To minimize straining of valve body, make sure the mating flanges are in line, flat, parallel and the correct distance apart.

Remove the flange cover and wipe the flange and gaskets with a lint-free, dry wipe. If installing an O-Ring seal flange, apply a light film of vacuum grease (Apiezon L Grease or an equivalent is recommended) to the O-Ring and install in the flange O-Ring groove.

Confirm the valve actuates properly by carefully checking the operation of the valve using the minimum air pressure required to achieve full closure. When first actuating the valve, make sure it is actuated into the open position. Slowly close the valve using the minimum amount of air required until you visually see the gate O-Ring make contact. Increase pressure by five (5) additional pound increments, opening and closing the valve with each increment, until valve operating pressure has been achieved (see operating tag on valve).

INSTALLATION

It is preferable to install the valve with vacuum on the backside of the Gate so the valve body remains under vacuum at all times and the pump down of the valve body is eliminated.

Valve Orientation: any for sizes 1.5" (38 mm) - 21" (533 mm), for sizes 24" (610 mm) - 50" (1270 mm) and greater, contact factory.

Making sure that no foreign particles enter the valve, proceed with installation. When installing a valve, it is imperative that proper length bolts be used. *Bolts longer than the thickness of both mating flanges will damage the body panels and destroy the seal surface area for the gate O-Ring. For best results, always use bolts that are at least 1/4—inch (6.4 mm) shorter than the thickness of both mating flanges.*

Lightly grease the flange bolts with high-temperature, non-galling type grease (Anti-Gall C-100, #51032 or an equivalent is recommended).

Carefully tighten the bolts around the flange using the proper torque and torque sequence on valves, until flanges are metal to metal and bolts are at proper torque (see chart on back page for proper torque and torque sequence).

INSTALLATION INSTRUCTIONS

STANDARD GATE VALVE—SIZES 1.5" - 21"

INSTALLATION CONTINUED

Air Operated: Connect the compressed air supply to the Valve using Teflon tape, or an equivalent, on the threads to ensure leak-proof joints. For continued trouble-free operation, it is recommended that an air filter/lubricator be used in the air line system. Refer to the solenoid nameplate for the correct voltage when connecting to the electric service. Check the valve opening for any obstruction.

WARNING: NEVER PUT HANDS OR ANY OTHER OBJECT IN THE GATE VALVE—SERIOUS INJURIES WILL OCCUR AND VALVE WILL BE DAMAGED. Because of possible damage to the valve body due to the installation of improper length bolts or over torquing of the bolts. Carefully check the operation of the valve using 20 PSIG air pressure (required to achieve full closure). The valve is now set and ready for operation. **Position Indicators:** Position indicator switches are preset and indicate when the valve is fully opened or fully closed. Wires are marked for open/closed indicators.

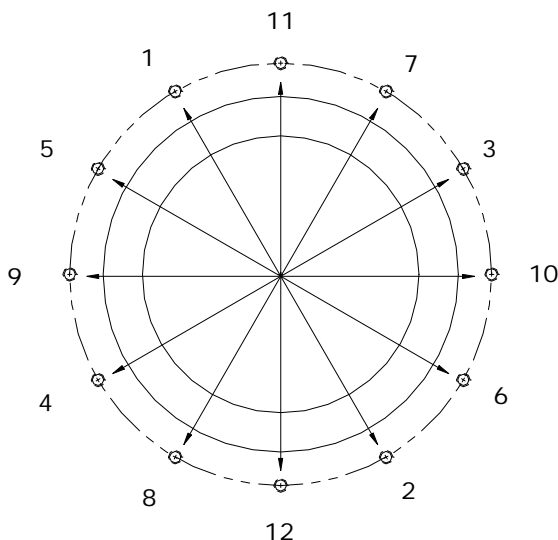
For continued trouble free operation, keep the valve clean and free of contaminants. Valves are designed to run at 80 PSIG. Do not operate pneumatic valves above 80 PSIG. Higher PSIG will shorten the life span of the valve. For higher actuator pressure requirements, contact the factory.

VITON O-RINGS

VALVE SIZE		FLANGE TYPE	TORQUE FT.LBS.	TORQUE N•m
inch	mm			
5/8"	16	KF, ISO ANSI, JIS, OTHERS	2 - 3	2.7 - 4.1
1 1/2"	38	KF, ISO ANSI, JIS, OTHERS	3 - 4	4.1 - 5.4
2" - 21"	51 - 533	KF, ISO ANSI, JIS, OTHERS	3 - 6	4.1 - 8.2

COPPER GASKETS

VALVE SIZE		FLANGE TYPE	TORQUE FT.LBS.	TORQUE N•m
inch	mm			
5/8"	16	CFF	6 - 8	8.2 - 10.9
1 1/2"	38	CFF	12 - 13	16.3 - 17.7
2" - 21"	51 - 533	CFF	12 - 15	16.3 - 20.4



Proper Torque Sequence:

180° bolt sequence
 Always follow the proper bolt sequence for each step of tightening.
 Finger tighten first
 Tighten snugly
 Tighten to recommended torque range.

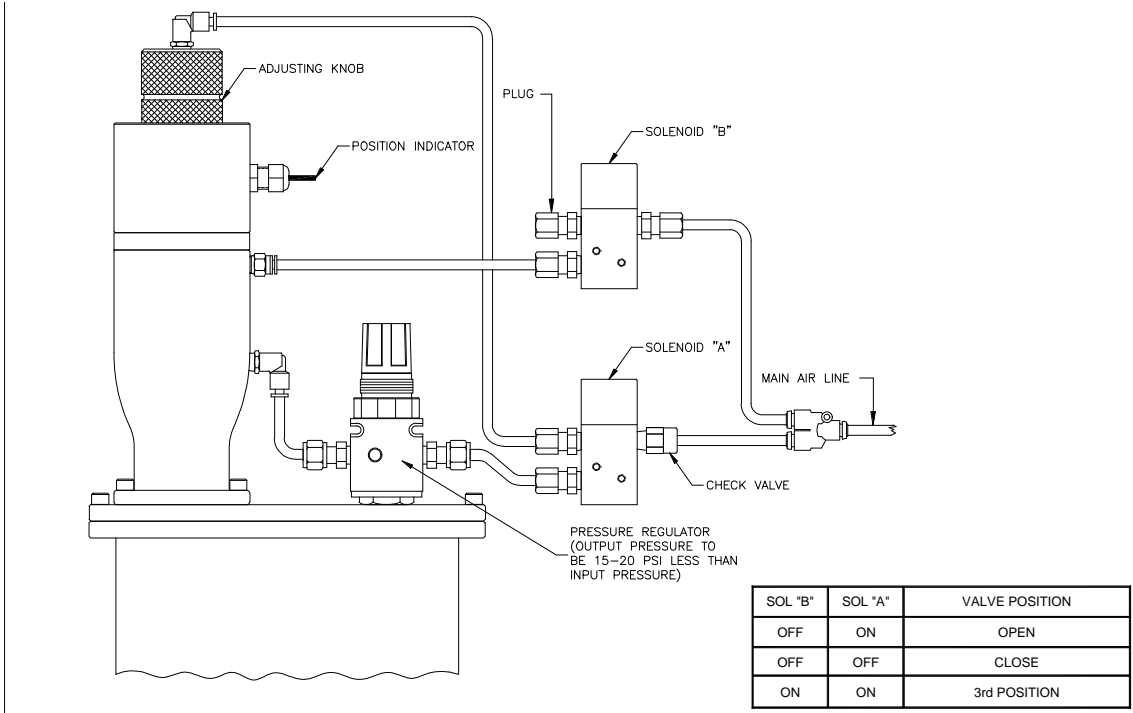
Example Torque Sequence for illustration purposes only. Number of bolt holes will vary depending on flange type and size.

INSTALLATION INSTRUCTIONS

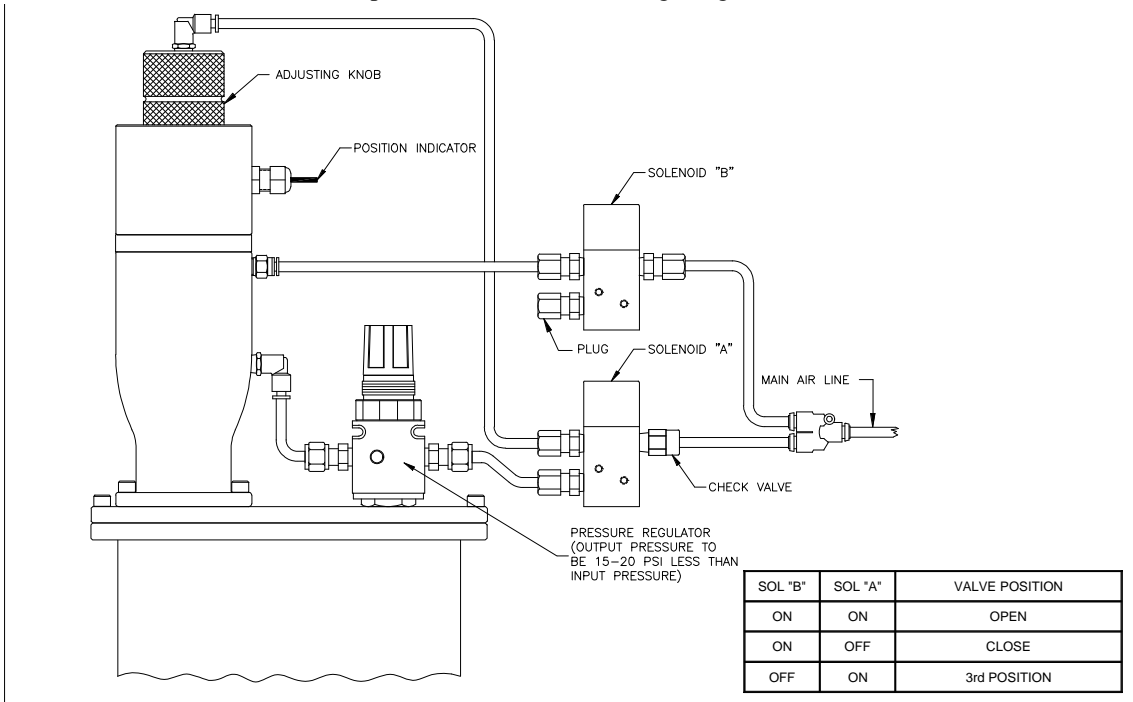
3-POSITION GATE VALVES—SIZES 1.5" - 21"

PLUMBING DIAGRAM

Standard 3-Position Plumbing Diagram



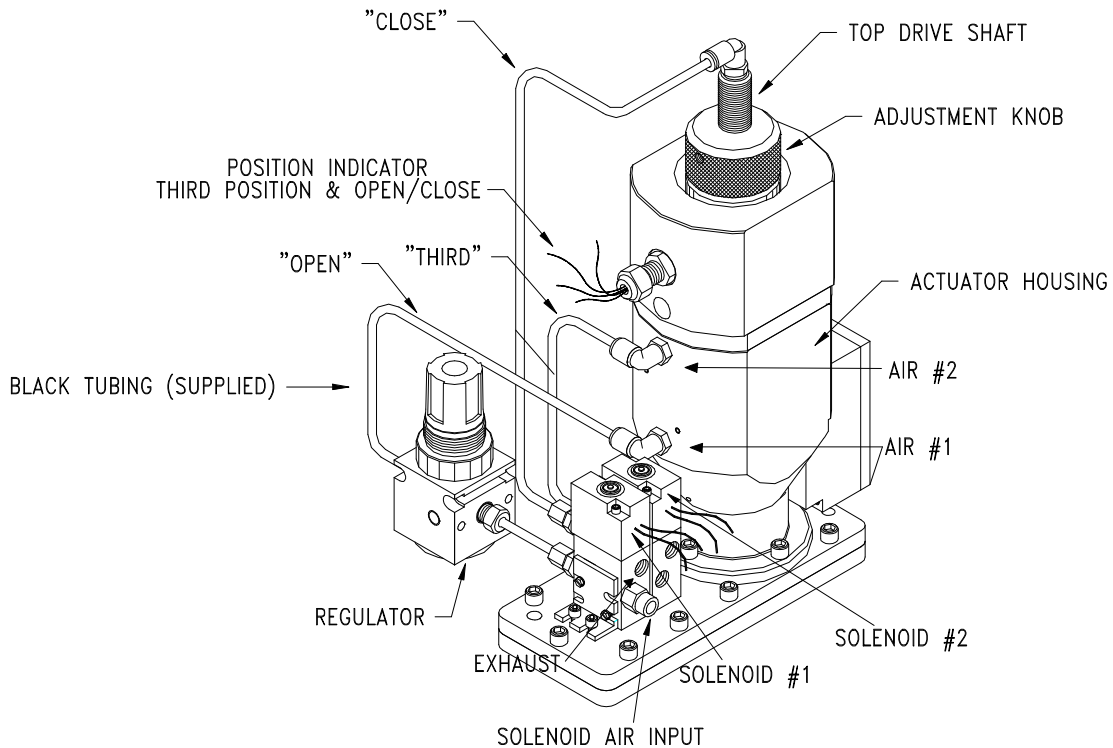
Optional 3-Position Plumbing Diagram



INSTALLATION INSTRUCTIONS

3-POSITION GATE VALVES—SIZES 1.5" - 21"

PLUMBING DIAGRAM



- 1) Connect Black Airline to the regulator and Air #1
- 2) Connect Black Airline to Solenoid #1 (inlet #1) and Air #3
- 3) Connect Black Airline to Solenoid #2 (inlet #2) and Air #2

Solenoid #1 controls 100% open and 100% closed. Solenoid #2 controls the Third Position.

STANDARD OPENING AND CLOSING OF THE VALVE

When air is supplied to Solenoid #1 (air input) the valve is closed. When air is supplied to Solenoid #1 (air input) and the Solenoid is electrically activated the valve is open.

STANDARD OPERATION OF THE THIRD POSITION

The Third Position is operating when air is supplied to Solenoid #1 and Solenoid #1 and Solenoid #2 are electrically activated. *It is recommended to bench test this valve to evaluate the true position of the Third Position setting and mark the threaded drive shaft.*

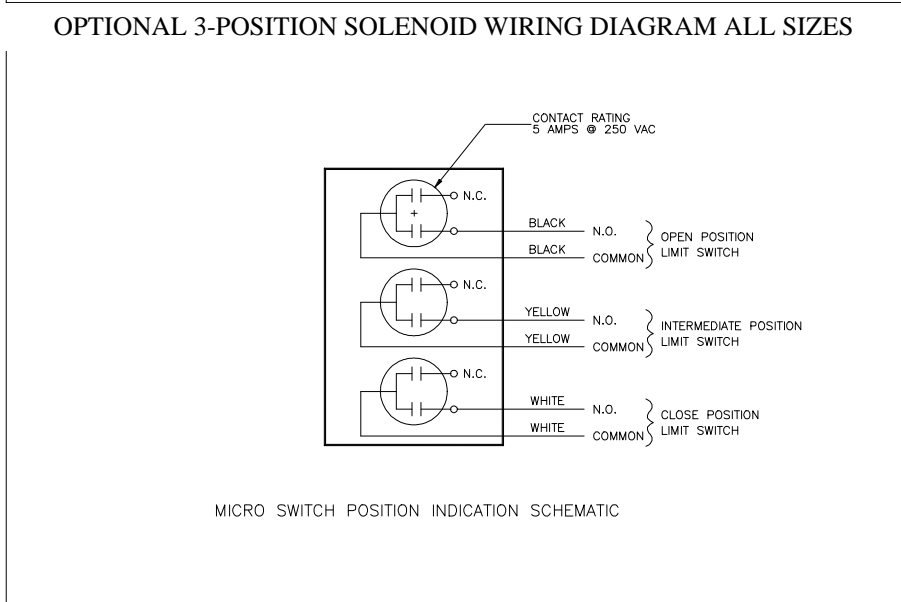
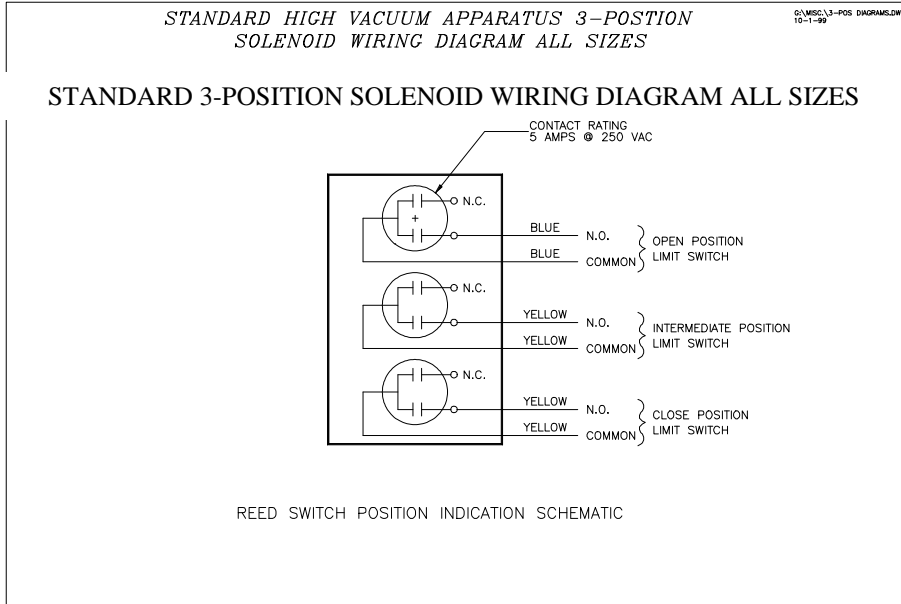
ADJUSTING THE THIRD POSITION

De-activate Solenoid #2. Turn the adjustment knob in either direction until desired 3rd position is achieved. Activate Solenoid #2.

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3-POSITION GATE VALVES—SIZES 1.5" - 21"

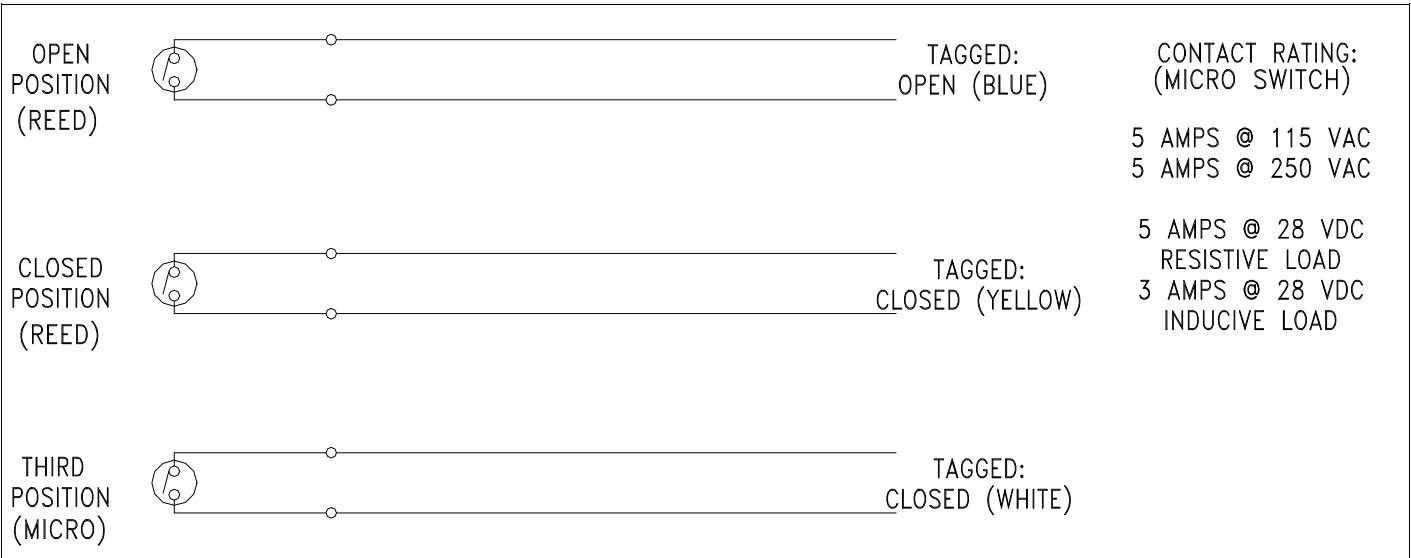
PLUMBING DIAGRAMS—continued



INSTALLATION INSTRUCTIONS

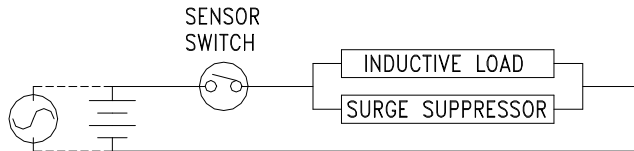
3-POSITION GATE VALVES—SIZES 1.5" - 21"

WIRING DIAGRAM AND REED AND MICRO SWITCH RATINGS



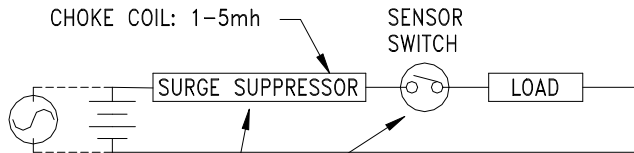
RECOMMENDED PROTECTION FOR REED SWITCH SENSORS

USE IN THE PRESENCE OF INDUCTIVE LOADS (MAGNETIC RELAYS, ETC.):



DC: DIODE
AC: VARISTOR

USE WHEN LONG LEAD WIRES (>39 ft or 10 m) ARE NECESSARY BETWEEN SENSOR AND LOAD:



MOUNT AS CLOSE AS POSSIBLE

SENSOR TYPE: TWO WIRE MAGNETIC SENSING

MAX: ELECTRICAL RATINGS

CONTACT RATING:	3 WATT-MAX.
CURRENT SWITCHING:	.25 A MAX.
CARRY:	.5 A MAX.
RESISTANCE CONTACT:	.15 Ohms-MAX.
CAPACITANCE CONTACT:	.2 pF-TYP.
VOLTAGE SWITCHING:	100 Vdc-MAX
BREACKDOWN:	170 Vdc-MAX

SHOCK RESISTANCE: 11ms 1/2 SINE WAVE 150 G MAX.

VIBRATION RESISTANCE: 30G 50-2000 HTZ

ENVIRONMENTAL

PROTECTION:	IP66 (IEC STANDARD)
LEAD WIRE:	PVC INSULATED 2 X 24 AWG
CYCLE LIFE:	5 MILLION MIN.
TEMP. RANGE:	-40 TO 212°F (-40 TO +100°C)
STORAGE TEMP:	-85° to 257°F (-65 to +125°C)

OPERATIONAL CHARACTERISTICS

OPERATE TIME:	.35 MS MAX.
RELEASE TIME:	.1 MS MAX.