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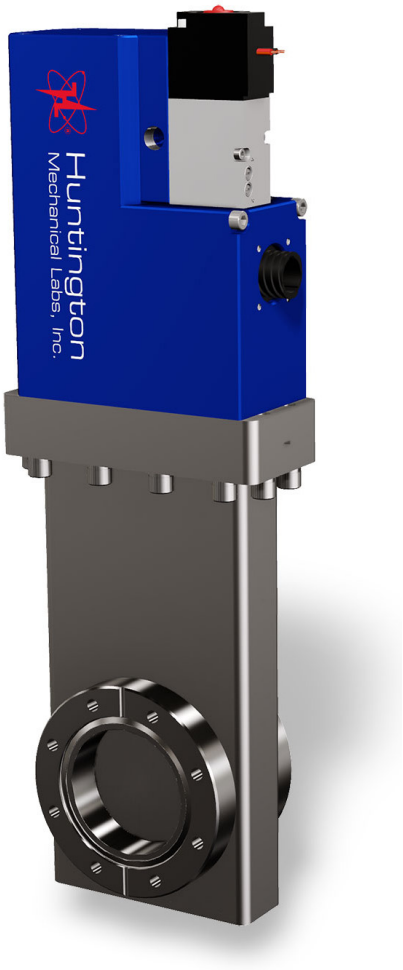
Technical Manual



GVA(P) SERIES GATE VALVES

Use and Maintenance of Gate Valves

UNPACKAGING:

NOTE: Inspect packaging for signs of carrier mishandling upon receipt. If significant damage is present, document the details and contact the carrier before opening.

1. Open package and remove valve from box, keeping sealed bag closed.
2. Wearing clean powder free latex gloves in a clean environment, open sealed bag and remove protective covers from valve flanges.
3. Verify flange faces are free of damage, including knicks and scratches on sealing surfaces.
4. Verify actuator, solenoid (where applicable) and electrical connections (where applicable) are free of damage.
5. For pneumatic solenoid operated valves (GVAP), verify customer side electrical connector and pins are included for installation of valve.

OPERATIONAL TEST:

NOTE: All valves are shipped in the closed position to avoid damage to the gate assembly and actuator. Please contact technical support at (800)227-8059 if your valve is not locked in the closed position when received.

1. **Manually Operated Valves (GVA):**
    a. Rotate actuator knob in the counter-clockwise direction until the gate stops in the fully retracted position.
    b. Rotate actuator knob in the clockwise direction until the gate stops in the sealed position.
    c. Verify smooth operation in both directions.

2. **Pneumatic Solenoid Operated Valves (GVAP):**
    a. Reference valve outline drawing to locate solenoid air connection and solenoid override button.
    b. Connect clean and dry air supply to solenoid air inlet port using appropriate air fitting and pressure between 55-100 psig.
    c. With valve secure and **all objects clear of flange openings**, depress solenoid override button until gate stops in the fully retracted position.
    d. With valve secure and **all objects clear of flange openings**, release solenoid override button until gate returns to the fully sealed position.
    e. Verify smooth operation in both directions.

NOTE: If you experience any problems with setup or operation of the valve, please contact technical support at (800)227-8059 before proceeding with installation.

INSTALLATION:

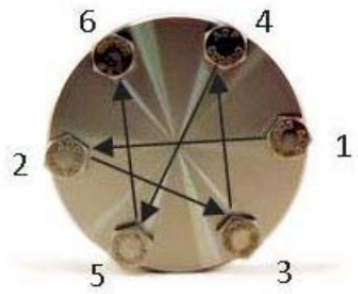
NOTE: Improper installation including but not limited to use of incorrect hardware, torque, air pressure can cause severe injury and void product warranty. Please contact technical support at (800)227-8059 if you have any questions.

1. Locate the outline drawing applicable to the model gate valve being installed.
2. Verify flange/gasket type, flange/gasket size and bolt specifications on outline drawing.
3. For pneumatic solenoid operated valves (GVAP), locate wiring diagram and electrical specifications for installation.

4. **FLANGE CONNECTION:**
   a. Wearing clean powder free latex gloves, verify valve is clean and free of any contamination.
   b. Apply appropriate gasket(s) to sealing flange(s).
   c. Position valve accurately on flange(s) and install correct screws with a light coat of anti-seize lubricant. Valves can be mounted in any orientation with vacuum applied on either side.
   d. Tighten screws by hand until flanges are seated accurately on the gasket(s).
   e. Using a torque wrench, torque all screws to half of the applicable torque shown in the table below, using a star pattern. Then torque all screws to the applicable torque shown in the table below, again using a star pattern.
   f. Verify that flanges are parallel with even spacing all around.

Common Torque Specs:

8-32:	7 lb.-ft.
1/4-28:	12 lb.-ft.
5/16-24:	15 lb.-ft.
3/8-24:	26 lb.-ft.



5. **AIR SUPPLY CONNECTION (GVAP ONLY):**
   a. Reference valve outline drawing to locate solenoid air connection and fitting specifications.
   b. Connect clean and dry air supply to solenoid air inlet port using appropriate air fitting and sealant.
   c. Apply air pressure between 55-100 psig to the attached line.
   d. Verify secure and leak free connection.

INSTALLATION (CONTINUED):

6. **ELECTRICAL CONNECTION (GVAP ONLY):**
    a. Reference valve outline drawing to locate electrical pin-out diagram, solenoid power specifications and included customer-side connector type.
    b. Valves equipped with mechanical position indicators can be wired normally open or normally closed within the customer-side connector. Refer to the pin-out diagram for connection locations.
    c. Crimp supplied pins to appropriate signal wires using manufacturer recommended crimping tool. Verify secure connection.
    d. Insert into connector body per connector manufacturer's instructions.
    e. Check that male and female pin locations align on valve and customer-side connector.
    f. Install connector securely onto valve.

NOTE: The solenoid remains in the normally closed position without power applied. When specified power is applied, the gate valve will actuate to the open position. This feature allows the valve to close automatically in the event of power loss if air pressure is maintained momentarily. The valve will remain closed until power and air pressure are applied to open the valve.

NOTE: The chassis ground pin is not required to be connected. It is only made available for use when wanted.

OPERATION:

1. **Manually Operated Valves (GVA):**
    a. Verify valve is installed correctly and **all objects are clear of flange openings**.
    b. Rotate actuator knob in the counter-clockwise direction until the gate stops in the fully retracted position.
    c. Rotate actuator knob in the clockwise direction until the gate stops in the sealed position.

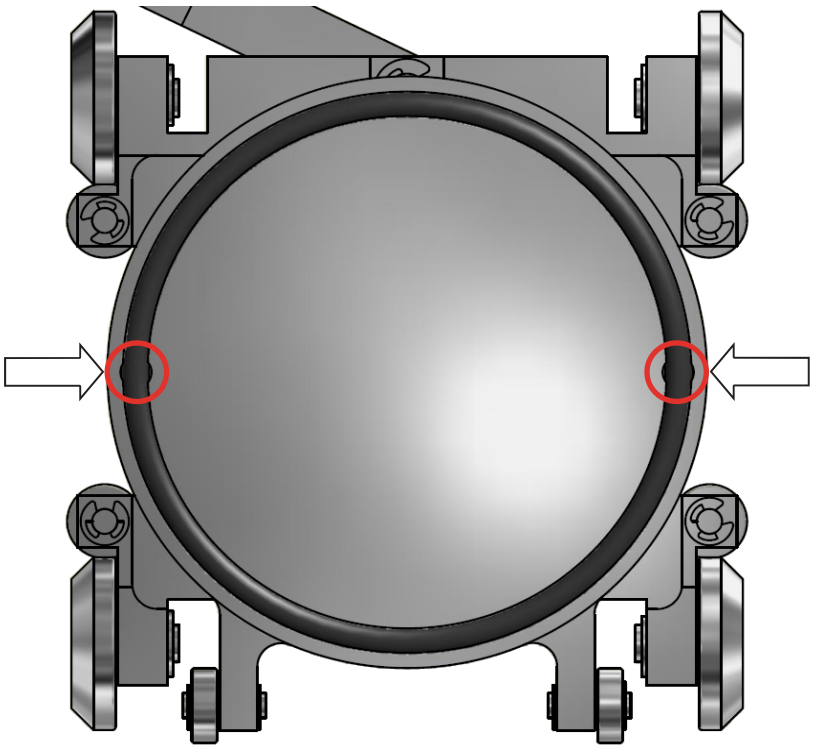
2. **Pneumatic Solenoid Operated Valves (GVAP):**
    a. Verify valve is installed correctly and **all objects are clear of flange openings**.
    b. To open, apply specified power to solenoid, or depress solenoid override button, until gate stops in the fully retracted position.
    c. To close, remove power to solenoid, or release solenoid override button, until gate returns to the fully sealed position.
    d. To modify the open or closing speed of the valve, refer to the valve outline drawing to locate the two throttling screws located on the solenoid valve. Turn screws clockwise to reduce speed.
    e. The minimum cycle time has been set internally allowing any adjustment necessary via the solenoid throttling screws without risking damage to the gate valve.
    f. Mechanical position indicator signal can be verified in either position via electrical connection.

SERVICE:

NOTE: Please contact technical support at (800)227-8059 before performing service or repairs beyond cleaning and/or o-ring replacement while within the warranty coverage period. Be prepared to supply valve part number and serial number. Refer to warranty statement for coverage details.

1. **CLEANING:**
    a. Gate valves can be cleaned with isopropyl alcohol, lint free cloth and compressed air as needed, inside and out
    b. DO NOT SUBMERGE VALVE. Surface application only.

2. **O-RING REPLACEMENT:**
    a. Actuate valve to open position.
    b. Remove air supply (GVAP Only).
    c. Wearing clean powder free latex gloves in a clean environment, loosen the bonnet flange screws and remove from flange. Refer to valve outline drawing for location, size and quantity.
    d. Remove actuator assembly and place on clean protective surface.
    e. Using a plastic pick, remove o-ring from gate assembly by gently prying it out of the groove through the two groove plunge holes shown below.



SERVICE (CONTINUED):

NOTE: Please contact technical support at (800)227-8059 before performing service or repairs beyond cleaning and/or o-ring replacement while within the warranty coverage period. Be prepared to supply valve part number and serial number. Refer to warranty statement for coverage details.

2. **O-RING REPLACEMENT (CONTINUED):**
    f. Clean o-ring groove thoroughly with isopropyl alcohol and lint free cloth.
    g. Verify no scratches or damage to bottom surface of o-ring groove.
    h. Clean new o-ring with isopropyl alcohol and let dry. Lightly coat new o-ring with an appropriate vacuum grade grease such as Krytox® LVP.
    i. Gently and evenly depress new o-ring into groove, being careful not to create a twist.
    j. Remove old bonnet gasket from bonnet flange. Clean both mating flange surfaces with isopropyl alcohol.
    k. Valves equipped with copper gaskets must be serviced using a new gasket to avoid leaks.
    l. Valves equipped with Viton® gaskets can be cleaned with isopropyl alcohol, lightly re-greased per step “h.” above and re-used.
    m. Insert new gasket into clean bonnet flange.
    n. Re-install actuator assembly into gate valve case.
    o. Lightly coat bonnet flange screws with anti-seize grease and thread evenly into flange by hand.
    p. Torque all screws per guidelines defined in the installation instructions section (Page 3, Section 4.e) and refer to the valve outline drawing for screw size.

3. **GATE VALVE PARTS:**
    a. Please contact technical support at (800)227-8059 for applicable parts diagrams, instructions and to place an order. Be prepared to supply valve part number and serial number. Refer to warranty statement for coverage details.