Swagelok®

DP Series Diaphragm Valve Directional Handle Replacement Instructions

Manually Actuated with Directional Handle
- High-Pressure
- Low-Pressure

Definitions

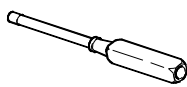Statements and symbols are used in this document to identify safety concerns. Read the definitions below before performing the service instructions.

⚠ This symbol indicates cautionary information.

Caution: Indicates a potentially hazardous situation. It may also be used to alert against unsafe practices.

Tool Requirements

11/32 in. nut driver

Torque Conversions

25 in.·lb. = 2.8 N·m or 29 cm·kg.

Directional Handle Kit

⚠ **Caution**
Before servicing any installed valve, you must:
- depressurize the system
- purge the valve

⚠ **Notice**
If the valve is disassembled, new diaphragms must be installed.

⚠ **Caution**
Do not interchange high- and low-pressure components

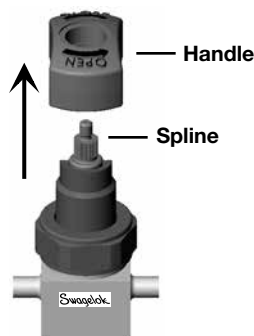## Directional Handle Replacement

1. Turn the handle to the OPEN position.

2. Pry off the **cap insert**, then remove the **nut/lock washer** with an 11/32 in. nut driver. **Do not remove the handle.**

— Cap insert
— Nut/lock washer

3. Turn handle to the CLOSED position, then lift up on the **handle** and remove from valve.

— Handle
— Spline

4. Place the **new directional handle** on the spline, aligning the OPEN label over the front of the valve body. Handle will be perpendicular to the ports.

Front of valve body

⚠ **Caution**
Top of handle insert must be level with the top of the actuator splines. If it is not level, lift up on the handle to clear the spline. Turn handle counterclockwise one spline, and reposition the handle down on the spline.

Actuator splines — — Handle insert

5. Install the **nut/lock washer** and tighten. (Approximately 25 in.·lb of torque)

6. Press the **cap insert** into the top of the handle.

Cap insert
Nut/lock washer

7. Test the **valve** for leaktight integrity and proper operation. See **Testing,** below.

- If the valve passes testing, reinstall the valve into the system.
- If the valve fails any of the tests, reset the handle. See **Resetting the Directional Handle,** below.

Resetting the Directional Handle

1. With the handle in the OPEN position, pry off the **cap insert,** then remove the **nut/lock washer** with an 11/32 in. nut driver.

Cap insert
Nut/lock washer

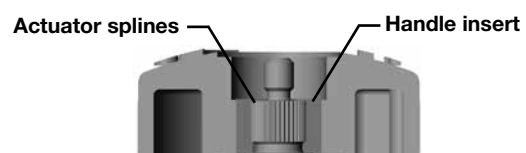2. Lift the **handle** UP approximately 1/8 in. to allow the **handle stop** to clear the **bonnet tab.** Keep the **handle splines** engaged with the **actuator splines**.

Handle stop
Bonnet tab
Handle splines
Actuator splines

3. Turn the **handle** clockwise until the valve is fully CLOSED.

4. With the valve in the CLOSED position, lift up on **handle** and reposition the **handle** on the actuator aligning the OPEN label over the **front** of the valve body. Handle will be perpendicular to the ports.

Outlet port

Front of valve body

⚠ **Caution**
Top of handle insert must be level with the top of the actuator splines. If it is not level, lift up on the handle to clear the spline. Turn handle counterclockwise one spline, and reposition the handle down on the spline.

Actuator splines
Handle insert

5. Install the **nut/lock washer** and tighten. (Approximately 25 in.·lb of torque)

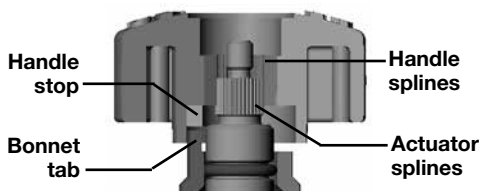6. Press the **cap insert** into the top of the handle.
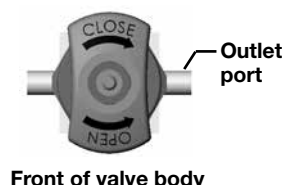

Cap insert
Nut/lock washer

7. Test the **valve** for leaktight integrity and proper operation. See **Testing,** below.

- If the valve passes testing, reinstall the valve into the system.
- If the valve fails any of the tests, repeat steps **1** through **7**.

Testing

- With the valve in the OPEN position, verify that flow passes through the valve.
- With the valve in the CLOSED position, verify that no flow passes through the valve.
- Test the diaphragm seal and seat seal for leakage by performing a standard inboard helium leak test to a rate of 1×10^{-9} std cm^3/s.
- Test the seat seal for leakage at application pressure.
- Turn handle to the OPEN then CLOSED positions to test for proper quarter-turn operation.

⚠ **WARNING**
Do not mix/interchange Swagelok products or components not governed by industrial design standards, including Swagelok tube fitting end connections, with those of other manufacturers.