

# Installation & Maintenance Instructions



2 - WAY INTERNAL PILOT - OPERATED SOLENOID VALVES  
DIAPHRAGM TYPE-NORMALLY OPEN OPERATION  
3/8", 1/2" OR 3/4" NPT

**SERIES**  
**8210**

**NOTICE:** See separate solenoid installation and maintenance instructions for information on: Wiring, Solenoid Temperature, Cause of Improper Operation, Coil or Solenoid Replacement.

## DESCRIPTION

Series 8210 valves are 2-way normally open, internal pilot operated solenoid valves designed for general service. These valves are made of rugged forged brass. Series 8210 valves may be supplied with general purpose, watertight, open-frame or explosionproof/watertight solenoids.

**NOTICE:** These valves are not certified as lead-free under the Safe Water Drinking Act SWDA 1417 and are not intended for use on drinking water systems. They are intended for control of water in industrial applications. Consult ASCO for valves rated for use in potable water applications.

## OPERATION

**Normally Open:** Valve is open when solenoid is de-energized; closed when energized.

**Important:** No minimum operating pressure differential is required.

## INSTALLATION

Check nameplate for correct catalog number, pressure, voltage, frequency, and service. Never apply incompatible fluids or exceed pressure rating of the valve. Installation and valve maintenance to be performed by qualified personnel.

### Future Service Considerations

Provision should be made for performing seat leakage, external leakage, and operational tests on the valve with a nonhazardous, noncombustible fluid after disassembly and reassembly.

### Temperature Limitations

Valves with design change letter "K" or "P" within the catalog number (example: 8210K033) have a maximum fluid temperature of 180°F. Refer to separate solenoid Installation and Maintenance Instructions for maximum ambient temperature.

### Positioning

This valve is designed to perform properly when mounted in any position. However, for optimum life and performance, the solenoid should be mounted vertically and upright to reduce the possibility of foreign matter accumulating in the solenoid base sub-assembly area.

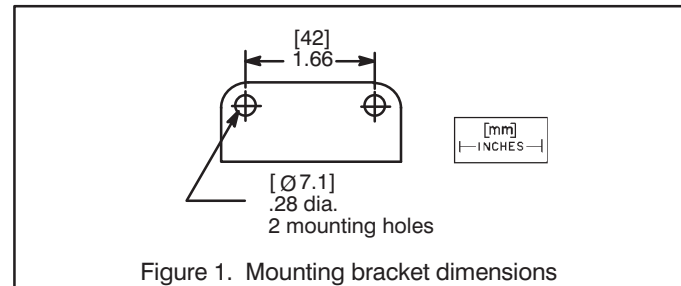
### Piping

Connect piping or tubing to valve according to markings on valve body. Apply pipe compound sparingly to male pipe threads only. If applied to valve threads, the compound may enter the valve and cause operational difficulty. Avoid pipe strain by properly supporting and aligning piping. When tightening the pipe, do not use valve or solenoid as a lever. Locate wrenches applied to valve body or piping as close as possible to connection point.

**IMPORTANT:** To protect the solenoid valve, install a strainer or filter suitable for the service involved in the inlet side as close to the valve as possible. Clean periodically depending on service conditions. See ASCO Series 8600 and 8601 for strainers.

## Mounting

For mounting bracket (optional feature) dimensions, refer to Figure 1.



## MAINTENANCE

**▲ WARNING:** To prevent the possibility of death, serious injury or property damage, turn off electrical power, depressurize valve, and vent fluid to a safe area before servicing the valve.

Note: It is not necessary to remove the valve from the pipeline for repairs.

### Cleaning

All solenoid valves should be cleaned periodically. The time between cleanings will vary depending on the medium and service conditions. In general, if the voltage to the coil is correct, sluggish valve operation, excessive noise or leakage will indicate that cleaning is required. In the extreme case, faulty valve operation will occur and the valve may fail to open or close. Clean strainer or filter when cleaning the valve.

### Preventive Maintenance

- Keep the medium flowing through the valve as free from dirt and foreign material as possible.
- Periodic exercise of the valve should be considered if ambient or fluid conditions are such that corrosion, elastomer degradation, fluid contamination build up, or other conditions that could impede solenoid valve shifting are possible. The actual frequency of exercise necessary will depend on specific operating conditions. A successful operating history is the best indication of a proper interval between exercise cycles.
- Depending on the medium and service conditions, periodic inspection of internal valve parts for damage or excessive wear is recommended. Thoroughly clean all parts. If parts are worn or damaged, install a complete ASCO Rebuild Kit.

## Causes of Improper Operation

- **Incorrect Pressure:** Check valve pressure. Pressure to valve must be within range specified on nameplate.
- **Excessive Leakage:** Disassemble valve and clean all parts. If parts are worn or damaged, install a complete ASCO Rebuild Kit.

## Valve Disassembly

1. Disassemble valve in an orderly fashion using exploded views for identification and placement of parts.
2. Remove solenoid, see separate instructions.
3. Unscrew solenoid base sub-assembly and remove core, plugnut gasket, plugnut assembly and solenoid base gasket.
4. Remove bonnet screws (4), valve bonnet, disc holder sub-assembly, disc holder spring, diaphragm/spring sub-assembly and body gasket
5. All parts are now accessible for cleaning or replacement. If parts are worn or damaged, install a complete ASCO Rebuild Kit.

## Valve Reassembly

1. Reassemble valve using exploded views for identification and placement of parts.
2. Lubricate the solenoid base gasket and body gasket with DOW® 200 Fluid lubricant.
3. Replace body gasket and diaphragm/spring sub-assembly. Locate bleed hole in diaphragm/spring sub-assembly approximately 45° from valve outlet.  
NOTE: Should diaphragm/spring sub-assembly become disassembled, be sure to replace the diaphragm/spring support with lip facing upward toward the valve bonnet.
4. Replace disc holder spring and disc holder sub-assembly.

5. Replace valve bonnet and bonnet screws. Torque bonnet screws in a crisscross manner to  $95 \pm 10$  in-lbs [ $10,7 \pm 1,1$  Nm].
6. Replace solenoid base gasket, core assembly, core spring, and solenoid base sub-assembly. Torque solenoid base sub-assembly to  $175 \pm 25$  in-lbs [ $19,8 \pm 2,8$ ].
7. Install solenoid, see separate instructions and make electrical hookup.

**▲ WARNING: To prevent the possibility of personal injury or property damage, check valve for proper operation before returning to service. Also perform internal seat and external leakage tests with a nonhazardous, noncombustible fluid.**

8. Restore line pressure and electrical power supply to valve.
9. After maintenance is completed, operate the valve a few times to be sure of proper operation. A metallic *click* signifies the solenoid is operating.

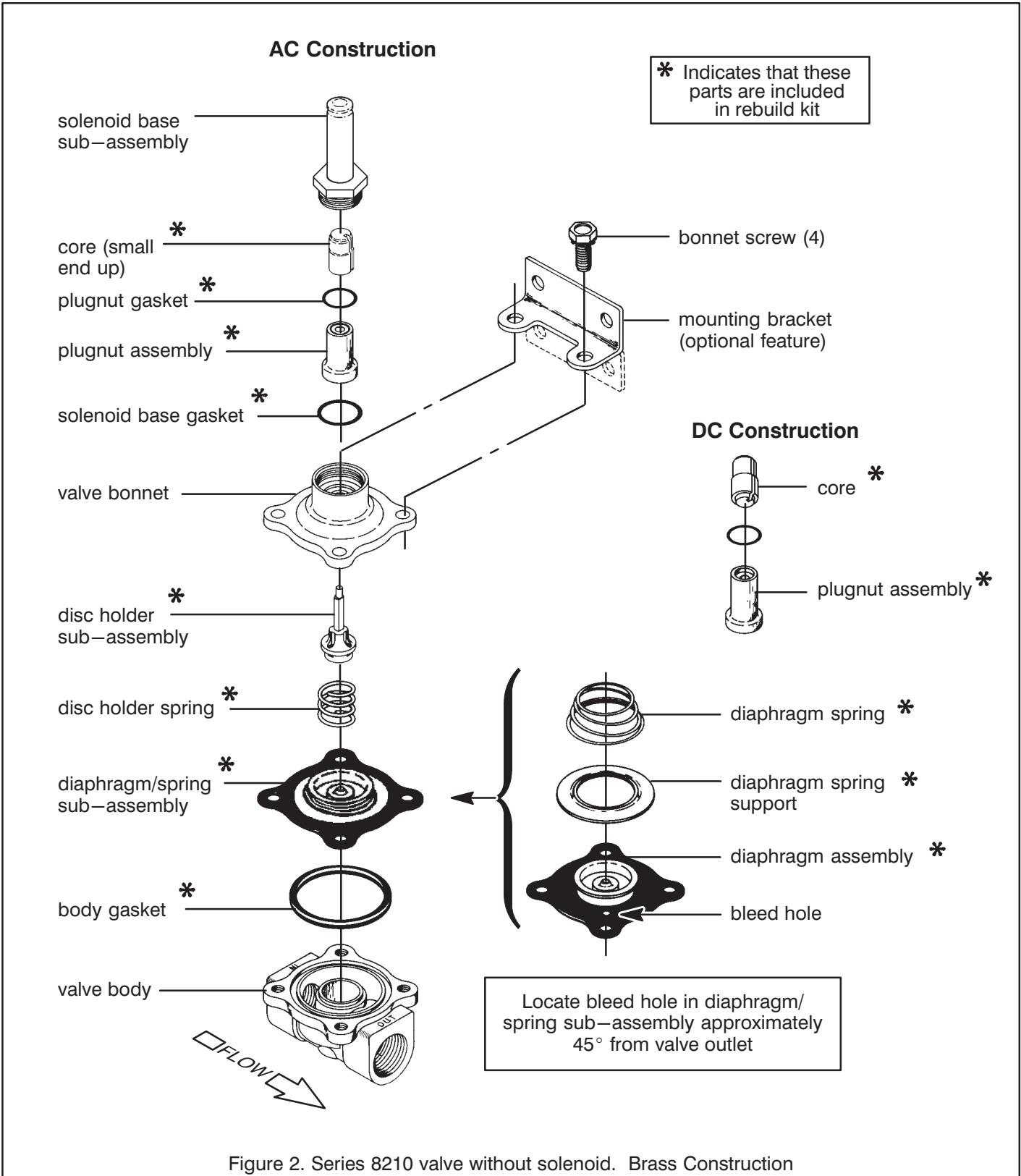
## ORDERING INFORMATION FOR ASCO REBUILD KITS

Parts marked with an asterisk (\*) in the exploded view are supplied in Rebuild Kits.

- When Ordering Rebuild Kits for ASCO Valves, order the Rebuild Kit number stamped on the valve nameplate.
- + If the number of the kit is not visible, order by indicating the number of kits required, and the Catalog Number and Serial Number of the valve(s) for which they are intended.

## Torque Chart

Part Name	Torque Value in Inch-Pounds	Torque Value in Newton-Meters
Solenoid Base Sub-Assembly	175 ± 25	19,8 ± 2,8
Bonnet Screw	95 ± 15	10,3 ± 1,7



## Torque Chart

Part Name	Torque Value in Inch-Pounds	Torque Value in Newton-Meters
Solenoid Base Sub-Assembly	175 ± 25	19,8 ± 2,8
Bonnet Screws	95 ± 10	10,7 ± 1,1
Adapter	175 ± 25	19,8 ± 2,8

