Installation & Maintenance Instructions

2-WAY INTERNAL PILOT-OPERATED SOLENOID VALVES
HUNG DIAPHRAGM — 3/8 ", 1/2" AND 3/4" NPT
NORMALLY CLOSED OPERATION

SERIES
8210
8211

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 closed, internal pilot operated solenoid valves. Valve body and bonnet are of brass construction. Series 8210 valves may be provided with a general purpose/watertight, open-frame or explosionproof/watertight solenoid.

Series 8210 and 8211 valves with suffix "HW" in the catalog number are specifically designed for hot water service.

Notice: Standard valves are not certified as lead-free under the Safe Drinking Water Act SDWA 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.

Notice: Constructions with an "LF" suffix meet the lead free-brass requirement of SDWA 1417 having 0.25% or less lead (Pb) in brass. Due to the variety of operating conditions and applications of these products, the user, through analysis and testing, is solely responsible for making the final selection of the products and assuring that all performance, safety, and warning requirements of the applications are met.

OPERATION

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

Manual Operator (Optional)

Valves with suffix "MO" in catalog number are provided with a manual operator which allows manual operation when desired or during an interruption of electrical power. To operate valve manually, push in knurled cap and rotate 180°. Disengage manual operator by rotating knurled cap counterclockwise 180° before operating electrically.

Manual Operator Location (Refer to Figure 3)

Manual operator (when shipped from factory) will be located over the valve outlet. Manual operator may be relocated at 90° increments by rotating valve bonnet. Remove bonnet screws (4) and rotate valve bonnet with solenoid to desired position. Replace bonnet screws (4) and torque in a crisscross manner to 110±10 inch pounds.

If valve is installed in the system and is operational, proceed in the following manner:

⚠WARNING: To prevent the possibility of death, serious injury or property damage, depressurize valve and vent fluid to a safe area before servicing the valve.

⚠AVERTISSEMENT: Pour éviter tous danger de mort, de blessure grave ou de dommage matériel, avant d'intervenir sur la vanne, purger la vanne dans une zone sécurisée.

1. Remove the solenoid - see separate solenoid instructions.
2. Remove bonnet screws (4) and rotate valve bonnet to desire position.
3. Replace bonnet screws (4) and torque in a crisscross manner to 110±10 inch pounds.
4. Replace all solenoid parts.

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.

Temperature Limitations

For maximum valve ambient and fluid temperatures, refer to chart or as limited by solenoid approvals. See solenoid installation and maintenance instructions. The temperature limitations listed are for UL applications. For non UL applications, higher ambient and fluid temperature limitations are available. Consult factory. Check catalog number on nameplate to determine maximum temperatures.

Construction	Max. Fluid Temp, °F
AC Construction (Alternating Current)	180
DC Construction (Direct Current)	150
Catalog Numbers Suffixed "HW" AC Construction (Alternating Current)	210

Note: For Maximum Ambient Temperature specifications, see separate solenoid instructions.

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.

Mounting

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

Piping

Connect piping to valve according to markings on valve body. Apply pipe compound or PTFE tape 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: Valves with Suffix "HW" in the catalog number have a special diaphragm material which is specifically compounded for hot water service. This material can be attacked by oil and grease. Wipe the pipe threads clean of cutting oils and use PTFE tape to seal pipe joints.

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.

MAINTENANCE

⚠ WARNING: To prevent the possibility of death, serious injury or property damage, depressurize valve and vent fluid to a safe area before servicing the valve.

⚠ AVERTISSEMENT: Pour éviter tous danger de mort, de blessure grave ou de dommage matériel, avant d'intervenir sur la vanne, purger la vanne dans une zone sécurisée.

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.

Coil Replacement (See separate solenoid instructions)

Valve Disassembly (Refer to Figures 2 and 3)

1. Remove the solenoid - see separate solenoid instructions.
2. Unscrew solenoid base sub-assembly and remove bonnet gasket.
3. Remove valve bonnet screws (4) and valve bonnet.
4. For normal maintenance, it is not necessary to disassemble the manual operator (optional feature) unless external leakage is evident. To disassemble, remove stem pin, manual operator stem, stem spring and stem gasket.
5. Remove core spring, core/diaphragm sub-assembly and body gasket. CAUTION: Do not damage or distort hanger spring between core/diaphragm sub-assembly.
6. All parts are now accessible for cleaning or replacement. Replace worn or damaged parts with a complete Spare Parts Kit for best results.

Valve Reassembly

1. Reassemble in reverse order of disassembly paying careful attention to exploded views provided for identification and placement of parts.
2. Lubricate body gasket and solenoid base gasket with Xiameter® PMX 200 Silicone Fluid or an equivalent high-grade silicone fluid. Lubricate manual operator stem gasket with Molykote® 111 Compound or equivalent high-grade silicone grease. On oxygen valves Suffix "N" and special cleaning valves where silicone lubricants are not allowed use FLOROLUBE® GR-362, LG-160 or KRYTOX® GPL -226.

Note: Only the gaskets specified above should be lubricated.

3. Replace body gasket and core/diaphragm sub-assembly. Locate the bleed hole in core/diaphragm sub-assembly approximately 45° from the valve outlet.
4. Replace core spring with wide end in core first; closed end protrudes from top of core.
5. If removed, replace manual operator stem, stem spring, stem gasket and stem pin.
6. Replace valve bonnet and bonnet screws (4). Torque bonnet screws (4) in a crisscross manner to 110±10 inch pounds.
7. Replace bonnet gasket and solenoid base sub-assembly. Put solenoid base sub-assembly to 175±25 inch pounds.
8. Replace solenoid enclosure and retaining cap or clip.
9. After maintenance, operate the valve a few times to be sure of proper opening and closing.

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.

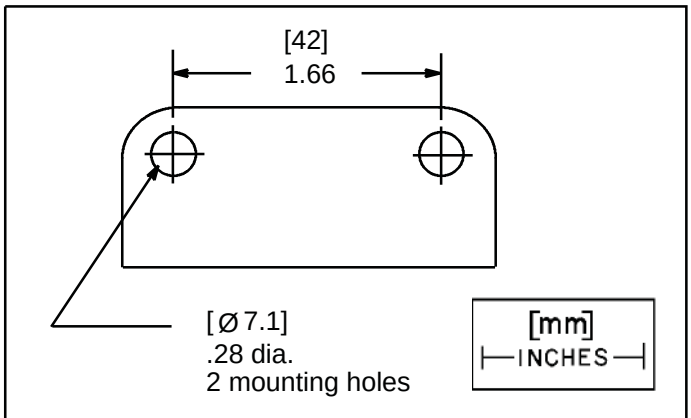
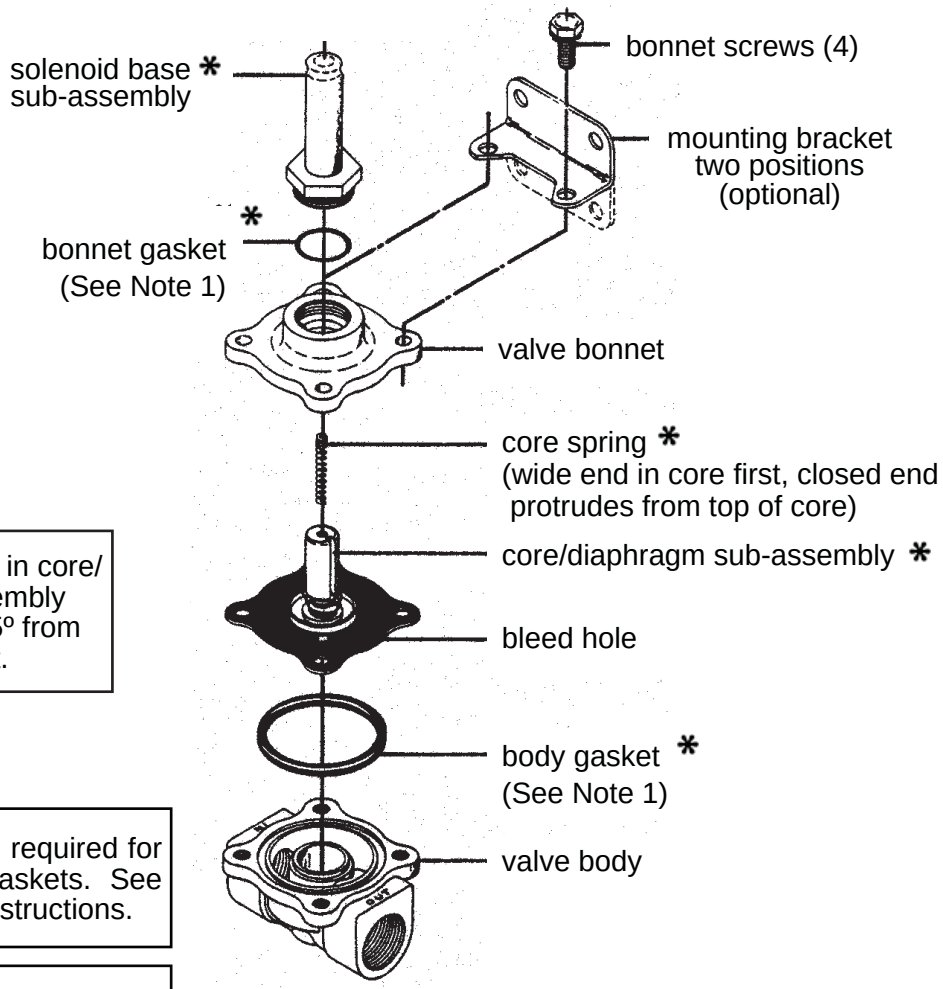


Figure 1. Mounting bracket dimensions

* Indicates parts supplied in ASCO Rebuild Kit

Torque solenoid base sub-assembly to 175±25 inch pounds.

Torque bonnet screws (4) in a crisscross manner to 110±10 inch pounds.



Locate bleed hole in core/ diaphragm assembly approximately 45º from valve outlet.

Note 1: Lubrication required for body and bonnet gaskets. See valve reassembly instructions.

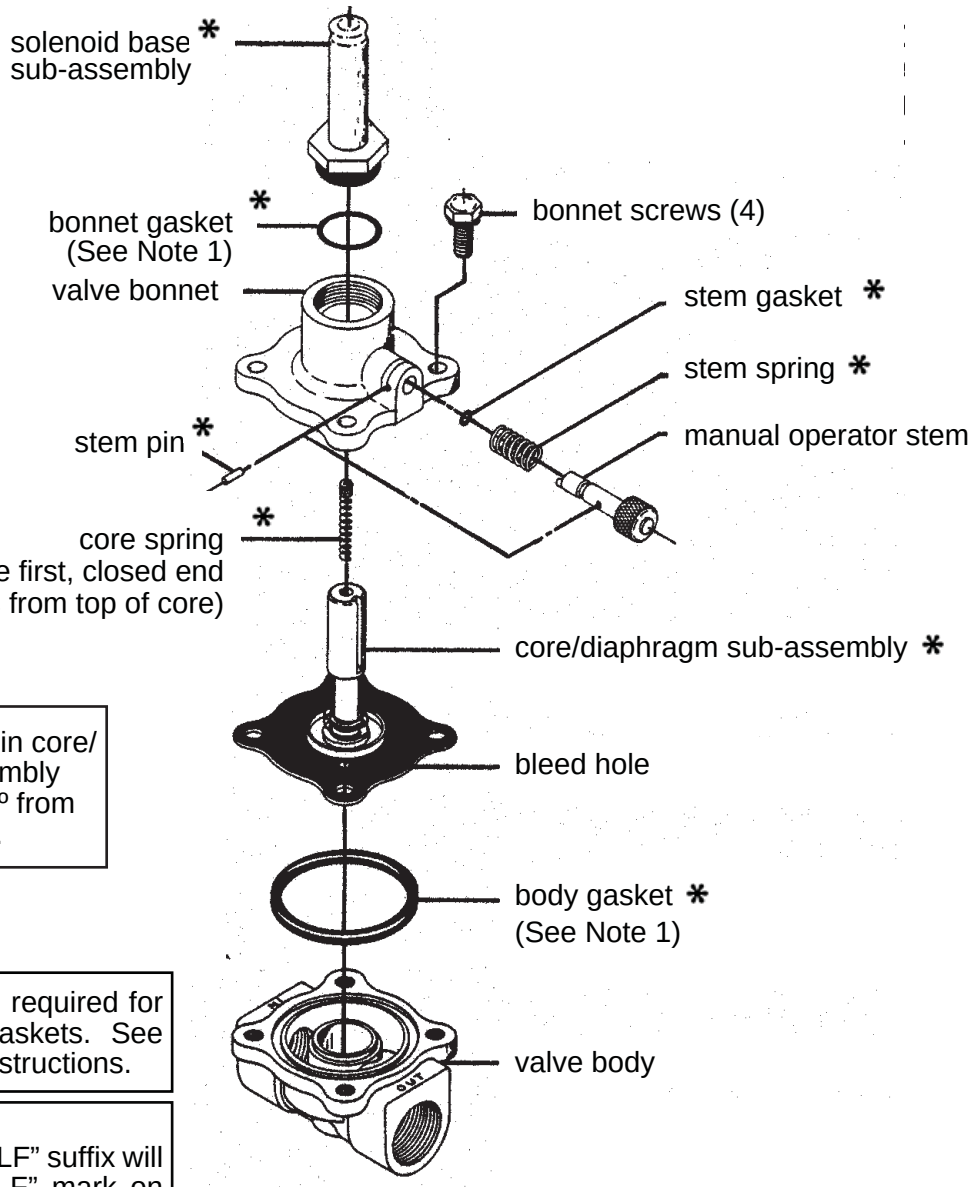
Note 2:
Constructions with "LF" suffix will be identified with "LF" mark on body and bonnet.

Figure 2. Series 8210 - 3/8", 1/2" & 3/4" NPT - AC Construction

* Indicates parts supplied in ASCO Rebuild Kit

Torque solenoid base sub-assembly to 175±25 inch pounds.

Torque bonnet screws (4) in a crisscross manner to 110±10 inch pounds.



Locate bleed hole in core/ diaphragm assembly approximately 45º from valve outlet.

Note 1: Lubrication required for body and bonnet gaskets. See valve reassembly instructions.

Note 2:
Constructions with “LF” suffix will be identified with “LF” mark on body and bonnet.

Figure 3. Series 8210 - Manual Operator