

Installation & Maintenance Instructions

2-WAY INTERNAL PILOTED-OPERATED SOLENOID VALVES
BRASS AND STAINLESS STEEL CONSTRUCTION
NORMALLY CLOSED OPERATION — 1", 1 1/4" & 1 1/2" NPT

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 designed for general service. Valves are made of rugged forged brass or stainless steel. Series 8210 valves are provided with a general purpose solenoid enclosure.

Series EF8210 and 8211 are the same as Series 8210 except they are provided with an explosionproof or explosionproof/watertight solenoid enclosure.

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

NOTE: No minimum operating pressure differential required.

Manual Operator (optional feature)

Manual operator allows manual operation when desired or during an electrical power outage. To engage manual operator (open the valve), remove operator cap and gasket base of valve. Turn manual operator stem clockwise as far as possible. Do not force operator stem. Valve will then be in the same position as when the solenoid is energized. To disengage manual operator, turn stem counterclockwise as far as possible.

▲ CAUTION: Stem must be fully retracted counterclockwise before operating valve electrically.

Replace manual operator cap gasket and cap.

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

For maximum valve ambient and fluid temperatures, refer to chart below. Check catalog number prefix and watt rating on nameplate.

Watt Rating AC/DC	Catalog Number Prefix	Coil Class	Max. Ambient Temp.	Max. Fluid Temp.
15.1 & 16.1 AC	None, KF, SF or SC	F	125 °F (51.7 °C)	180 °F (82 °C)
	HT, KH, ST or SU	H	140 °F (60 °C)	180 °F (82 °C)
30.6 DC	HT	H	104 °F (40 °C)	77 °F (25 °C)
30.8 DC	None	F	104 °F (40 °C)	180 °F (82 °C)
	HB	H		

Positioning

AC Construction (Alternating Current): Valve is designed to perform properly when mounted in any position. However, for optimum life and performance, the solenoid should be mounted vertical and upright so as to reduce the possibility of foreign matter accumulating in the solenoid base sub-assembly area.

DC Construction (Direct Current): Valve must be mounted with solenoid vertical and upright.

Piping

Connect piping 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.

▲ CAUTION: 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, 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.
- While in service, the valve should be operated at least once a month to insure proper opening and closing.
- 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. Refer to Figure 2 for AC and DC Rev. G constructions; Figure 3 for DC Rev. B and D constructions.
2. Remove solenoid enclosure. See separate instructions.
3. Unscrew solenoid base sub-assembly. For DC Rev. B and D constructions, a special wrench is supplied in ASCO Rebuild Kit. For wrench only, Order ASCO Wrench Kit No. K168146-001.
4. Remove bonnet screws, valve bonnet, bonnet gasket, spring retainer (AC and DC Rev. G constructions) core spring, core/diaphragm sub-assembly and body gasket.
5. For valves equipped with a manual operator, remove cap, cap gasket, bonnet and bonnet gasket. Remove stem assembly with stem gasket from bonnet.
6. All parts are now accessible for cleaning or replacement. If parts are worn or damaged, install a complete ASCO Rebuild Kit.

Valve Reassembly

1. Lubricate all gaskets and the disc at the base of the core /diaphragm sub-assembly with DOW CORNING 111® Compound lubricant or an equivalent high-grade silicone grease.
2. Replace body gasket and core/diaphragm sub-assembly. Locate bleed hole in core/diaphragm sub-assembly directly over valve outlet. For 1 1/2" NPT construction, locate bleed hole in core/diaphragm sub-assembly approximately 30° from valve outlet.
3. Replace core spring and spring retainer (AC and DC Rev. G constructions). Install small end of core spring in core first, wide end protruding from top of core. For DC Rev. B and D constructions, install core spring, small end down toward valve body.
4. Replace valve bonnet and bonnet screws. Hand tighten bonnet screws as far as possible.

IMPORTANT: Press firmly down on core/diaphragm sub-assembly to seat diaphragm assembly against valve seat. While holding this position, torque bonnet screws in a crisscross manner to 144 ± 15 in-lbs [16,3±1,7 Nm].

5. Replace bonnet gasket and solenoid base sub-assembly. Torque solenoid base sub-assembly to 175 ± 25 in-lbs [19,8 ± 2,8 Nm]. For DC Rev. B and D constructions, the solenoid base sub-assembly must be placed inside the housing before assembling into the valve body. Before doing this, read separate lubrication instructions in *Solenoid Installation & Maintenance Instructions*.
6. For valves provided with a manual operator, replace stem assembly and bonnet (with gaskets). Torque bonnet to 75 ± 10 in-lbs [8,5 ± 1,1 Nm]. Replace cap gasket and cap.
7. Install solenoid. See separate instructions.

⚠ WARNING: To prevent the possibility of death, serious 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 *clicks* 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 Inch-Pounds	Torque Value Newton-Meters
Manual operator bonnet	75 ± 10	8,5 ± 1,1

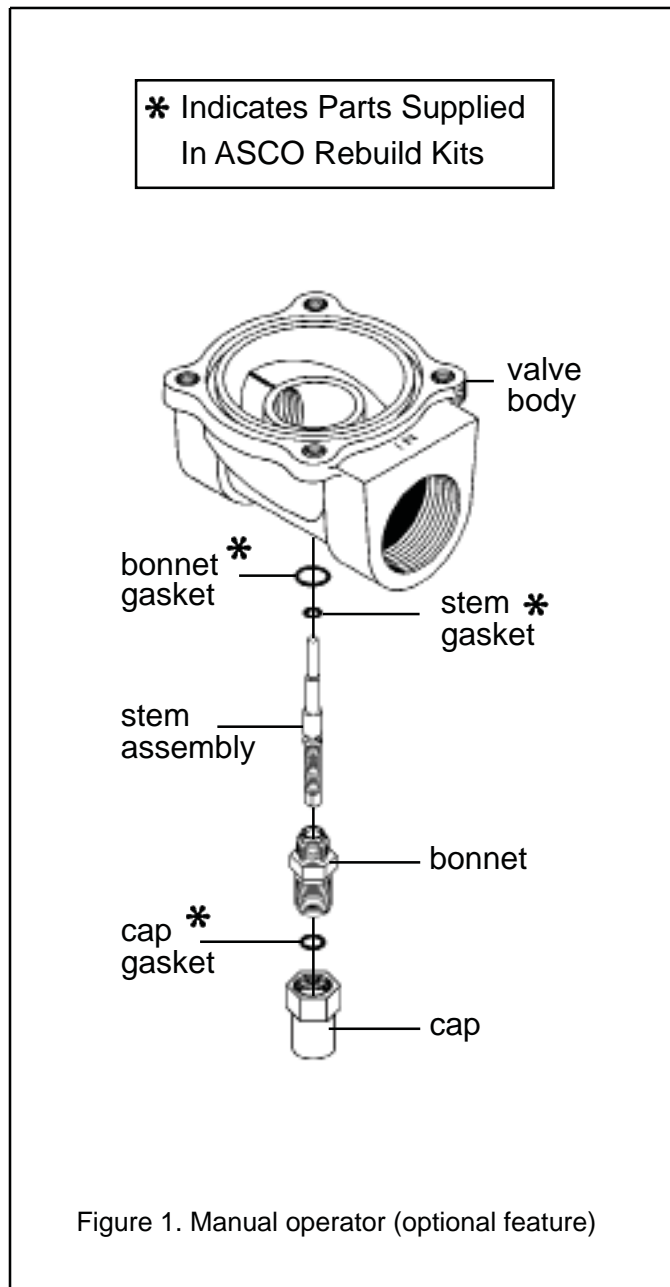


Figure 1. Manual operator (optional feature)

Torque Chart

Part Name	Torque Value Inch-Pounds	Torque Value Newton-Meters
Solenoid base sub-assembly	175 ± 25	19,8 ± 2,8
Bonnet screw	144 ± 15	16,3 ± 1,7

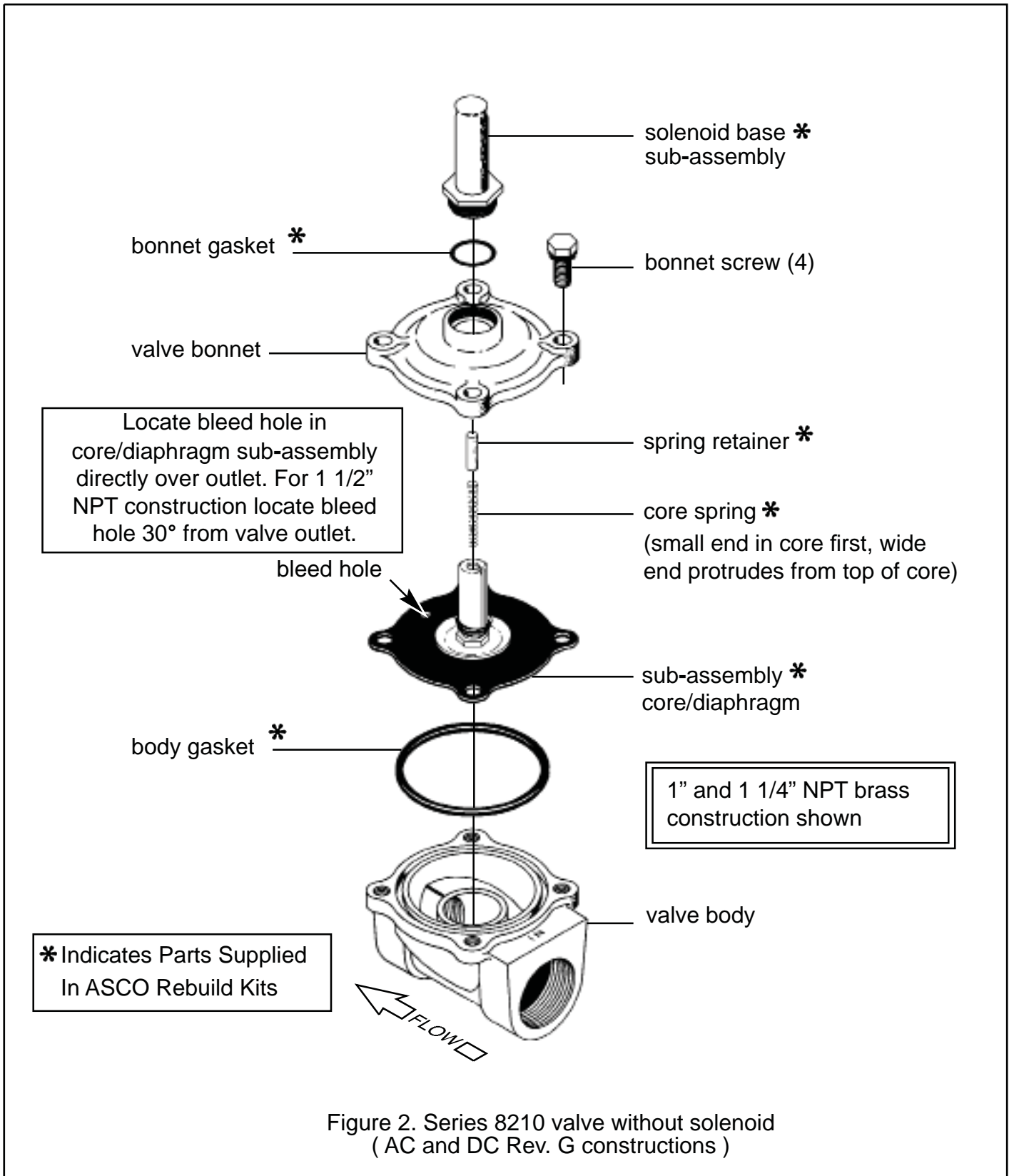
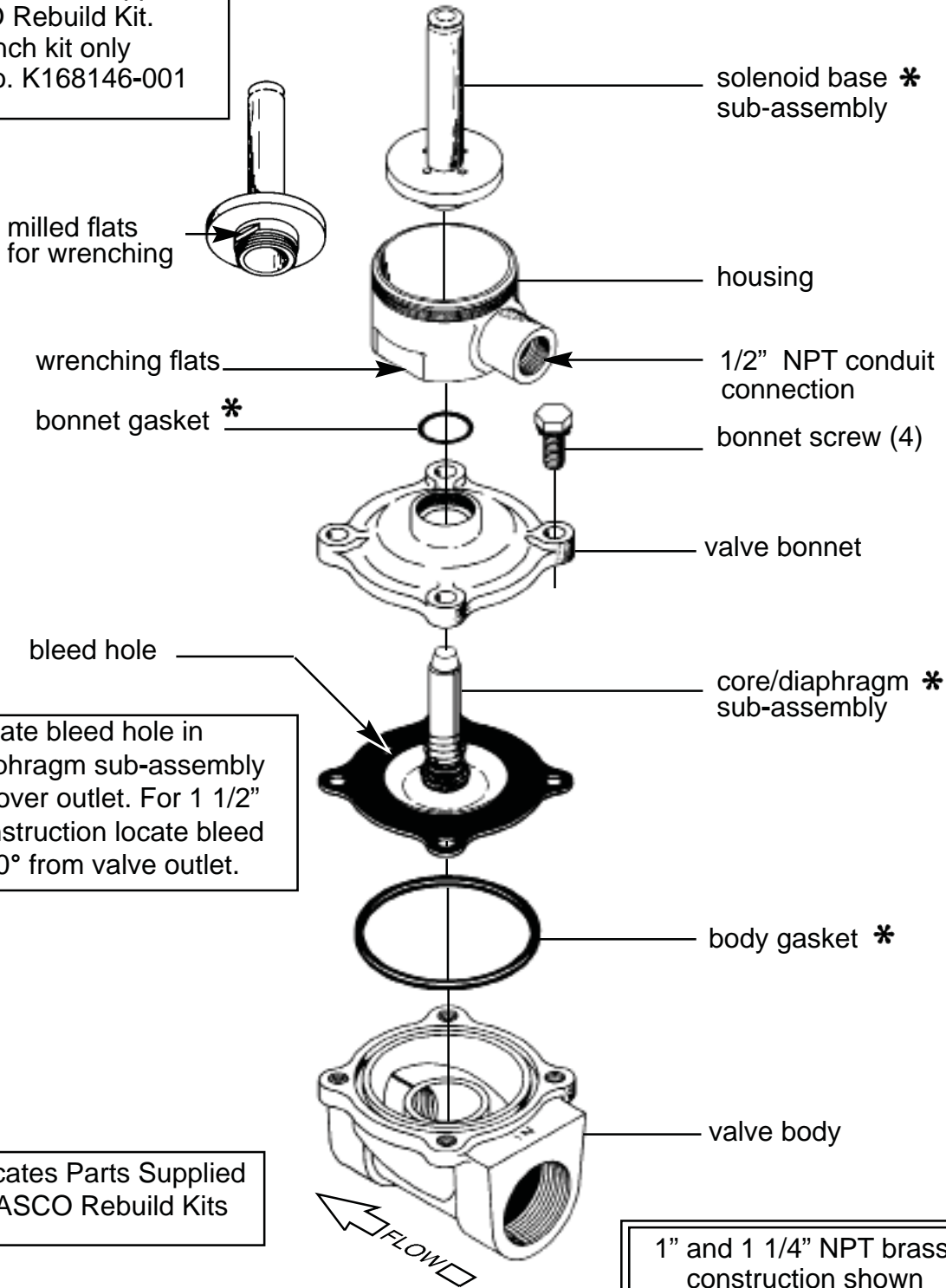


Figure 2. Series 8210 valve without solenoid
(AC and DC Rev. G constructions)

Torque Chart

Part Name	Torque Value Inch-Pounds	Torque Value Newton-Meters
Solenoid base sub-assembly	175 ± 25	19,8 ± 2,8
Bonnet screw	144 ± 15	16,3 ± 1,7

* Special wrench supplied in ASCO Rebuild Kit. For wrench kit only order No. K168146-001



Locate bleed hole in core/diaphragm sub-assembly directly over outlet. For 1 1/2" NPT construction locate bleed hole 30° from valve outlet.

* Indicates Parts Supplied In ASCO Rebuild Kits

1" and 1 1/4" NPT brass construction shown

Figure 3. Series 8210 valve without solenoid (DC Rev. B and D constructions)