

Installation & Maintenance Instructions

2-WAY INTERNAL PILOT-OPERATED PROPORTIONAL SOLENOID VALVE
NORMALLY CLOSED OPERATION
3/8 OR 1/2 NPT

SERIES

8203

Form No.V7484

NOTICE: See separate solenoid installation and maintenance instructions for information on: **Wiring, Solenoid Temperature, Causes of Improper Operation and Solenoid Replacement.** If an ASCO *Pulse Width Modulating Proportional Control Unit* is supplied, see separate instructions with unit.

DESCRIPTION

Series 8203 are 2-way normally closed, internal pilot operated proportional solenoid valves designed for general purpose service. Valves are provided with a general purpose solenoid enclosure.

OPERATION

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

IMPORTANT Minimum operating pressure differential is **5 psi; maximum 150 psi.**

By regulating the coil current, the proportional valve will open or close infinitely.

At a greater pressure differential, the valve will operate at a lower current through the solenoid.

For optimum performance the electrical solenoid input is recommended to be a rectangular pulse width modulated voltage with a frequency of 300 Hz. In addition, the current should be kept substantially independent from changes in solenoid winding resistance. Under certain installation circumstances, undesirable vibration might occur. In that case increase frequency and/or ragtime.

A Pulse Width Modulating Proportional Control Unit, Catalog No. 8908A001 is available from ASCO. This unit provides accurate flow control regulation for commonly used control signals as 0–10V DC, 0–20 mA or 4–20 mA.

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 non-hazardous, noncombustible fluid after disassembly and reassembly.

Temperature Limitations

- Maximum Ambient Temperature 104°F (40°C).
- Maximum Fluid Temperature 150°F (65°C).

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 flow marking *IN* on valve body. Apply pipe compound compatible with valve media 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, 8601 and 8602 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, replace the valve.

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, replace the valve.

Valve Disassembly For Cleaning or Inspection

(Refer to Figure 2)

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 from valve bonnet. Then remove core assembly with rider rings and core spring.
4. Remove valve bonnet gasket from valve bonnet.
5. Remove bonnet screws (4), valve bonnet, diaphragm assembly and body gasket from valve body
6. All parts are now accessible for cleaning and inspection. If necessary, order a replacement valve.

Valve Reassembly

1. Reassemble using exploded view for identification and placement of parts.
2. Lubricate body gasket and solenoid base gasket with DOW CORNING® 200 Fluid lubricant or an equivalent high—grade silicone fluid.
3. Replace body gasket and diaphragm assembly. Locate bleed hole in diaphragm assembly approximately 45° from valve inlet.
4. Replace valve bonnet and bonnet screws. Hand thread bonnet screws as far as possible, then torque bonnet screws in a crisscross manner to 25 ± 2 in—lbs [$2,5 \pm 0,2$ Nm]
5. Position bonnet gasket in valve bonnet.

6. Replace core assembly with rider rings (2), core spring, and solenoid base sub—assembly. Torque solenoid base sub—assembly to 175 ± 25 in—lbs [$19,8, \pm 2,8$ Nm].
7. Replace 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.

ORDERING INFORMATION

FOR ASCO REPLACEMENT VALVES

Replacement parts or rebuild kits are not available.

When ordering a replacement valve specify valve catalog number and voltage.

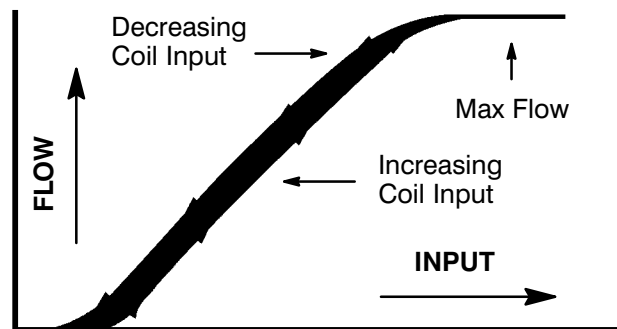


Figure 1. Coil Current / Flow

Torque Chart

Part Name	Torque Value Inch-Pounds	Torque Value Newton-Meters
Solenoid base sub-assembly	175 ± 25	19,8 ± 2,8
Bonnet screw	25 ± 2	2,8 ± 0,2

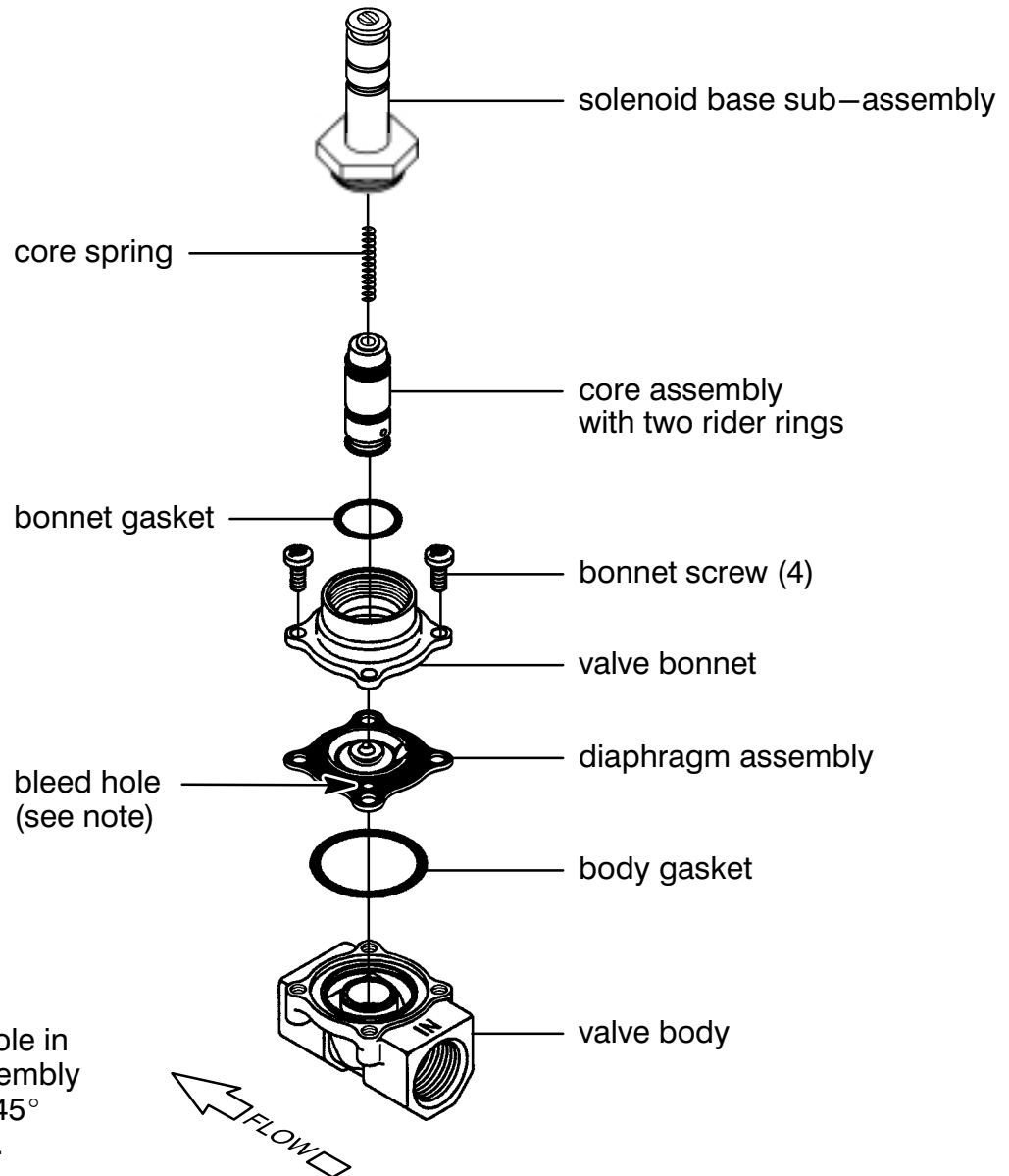


Figure 2. Series 8203 valve without solenoid.