

Installation & Maintenance Instructions

2-WAY AIR OPERATED VALVES
NORMALLY OPEN OR NORMALLY CLOSED OPERATION
GENERAL SERVICE — 3/8", 1/2" OR 3/4" NPT

SERIES

F210

Form No.V6954

DESCRIPTION

Series F210 valves are 2-way normally open or normally closed air operated valves. Valves may be provided with an instrument air operator for a 3–30 psi signal range or with a fluidic/logic interface air operator for a 1.5–5 psi signal range. Series F210 valves are of rugged brass, stainless or steel construction.

OPERATION

Normally Open: Valve is open when operator is de-pressurized; closed when pressurized.

Normally Closed: Valve is closed when operator is de-pressurized; open when pressurized.

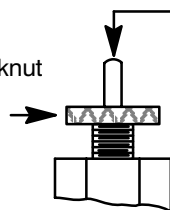
Note: No minimum operating pressure differential required.

Manual Operator Normally Open Construction Only (optional feature)

Manual operator allows manual operation when desired or during a loss of auxiliary pressure. To engage manual operator (close the valve), press stem inward or rotate stem locknut clockwise until it stops. Valve will be in the same position as when the operator is pressurized. To disengage manual operator (open the valve), release stem or rotate stem locknut counterclockwise until it stops.

⚠ CAUTION: For valve to be operated by auxiliary pressure, manual operator stem locknut must be fully rotated counterclockwise.

Turn stem locknut clockwise to close valve. Turn stem locknut counterclockwise to open valve and return to auxiliary pressure operation of the valve.



Push stem inward to close valve. Release of stem returns valve to open position.

Manual operator

INSTALLATION

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

Air Operator Specifications

- Instrument air operator signal pressure range is 3–30 psi.
- Fluidic/Logic interface air operator signal pressure range is 1.5–5 psi.

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

- Normal ambient temperature range is 32°F (0° C) to 125°F (52° C).
- Maximum fluid temperature 180°F (82° C) for instrument air operator (3–30 psi range).
- Maximum fluid temperature 150°F (65° C) for low pressure air operator (1.5 – 5 psi range).

Positioning

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

Mounting

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

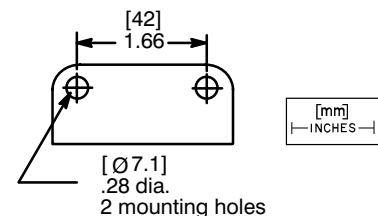


Figure 1. Mounting bracket dimensions

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 operator as a lever. Locate wrenches applied to valve body or piping as close as possible to connection point.

▲ CAUTION: To protect the air operated 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 personal injury or property damage, depressurize valve (main and auxiliary pressure lines), 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. However, piping or tubing must be removed from the auxiliary pressure connection of the air operator.

Cleaning

All air operated valves should be cleaned periodically. The time between cleanings will vary depending on the medium and service conditions. In general, 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 ensure proper operation.
- 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

- **Failure to Open or Close:** Check auxiliary and main line pressure to valve. 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 view for identification and placement of parts.
2. Disconnect tubing or piping from 1/8" NPT auxiliary pressure connection on air operator assembly.
3. Unscrew operator assembly from main valve body. Then remove disc holder assembly, disc holder spring and bonnet gasket.
4. Remove bonnet screws, valve bonnet, diaphragm/spring sub-assembly and body gasket from valve body.
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. Lubricate body gasket and bonnet gasket with DOW CORNING® 200 Fluid lubricant or an equivalent high-grade silicone fluid.
2. Position body gasket and diaphragm/spring sub-assembly in valve body. Locate bleed hole in diaphragm/spring assembly approximately 45° from valve outlet.

Note: Should diaphragm/spring sub-assembly become disassembled, be sure to replace diaphragm spring support with lip facing upward toward valve bonnet. Then position the diaphragm spring on the support and assemble the spring under the cup attached to the diaphragm assembly.

3. When replacing valve bonnet, make certain the diaphragm spring support is centered on diaphragm assembly and fits into groove in bonnet. Hand thread bonnet screws as far as possible into valve body, then torque screws in a crisscross manner to 95 ± 10 in-lbs [$10,7 \pm 1,1$ Nm].
4. Install bonnet gasket, disc holder spring, disc holder assembly and air operator assembly on valve body.
5. Hand thread air operator assembly onto valve body as far as possible. Then torque air operator assembly to 175 ± 25 in-lbs [$19,8 \pm 2,8$ Nm].
6. Make up piping or tubing to 1/8" NPT auxiliary pressure connection on air operator assembly.

▲ 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.

7. Restore main and auxiliary line pressure to valve.
8. After maintenance is completed, operate the valve a few times to be sure of proper operation.

Torque Chart

Part Name	Torque Value Inch-Pounds	Torque Value Newton-Meters
Air operator assembly	175 ± 25	$19,8 \pm 2,8$
Bonnet screw	95 ± 10	$10,7 \pm 1,1$

ORDERING INFORMATION

FOR ASCO REBUILD KITS

Parts marked with an asterisk (*) in the exploded views 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.

* Indicates Parts Supplied In ASCO Rebuild Kits

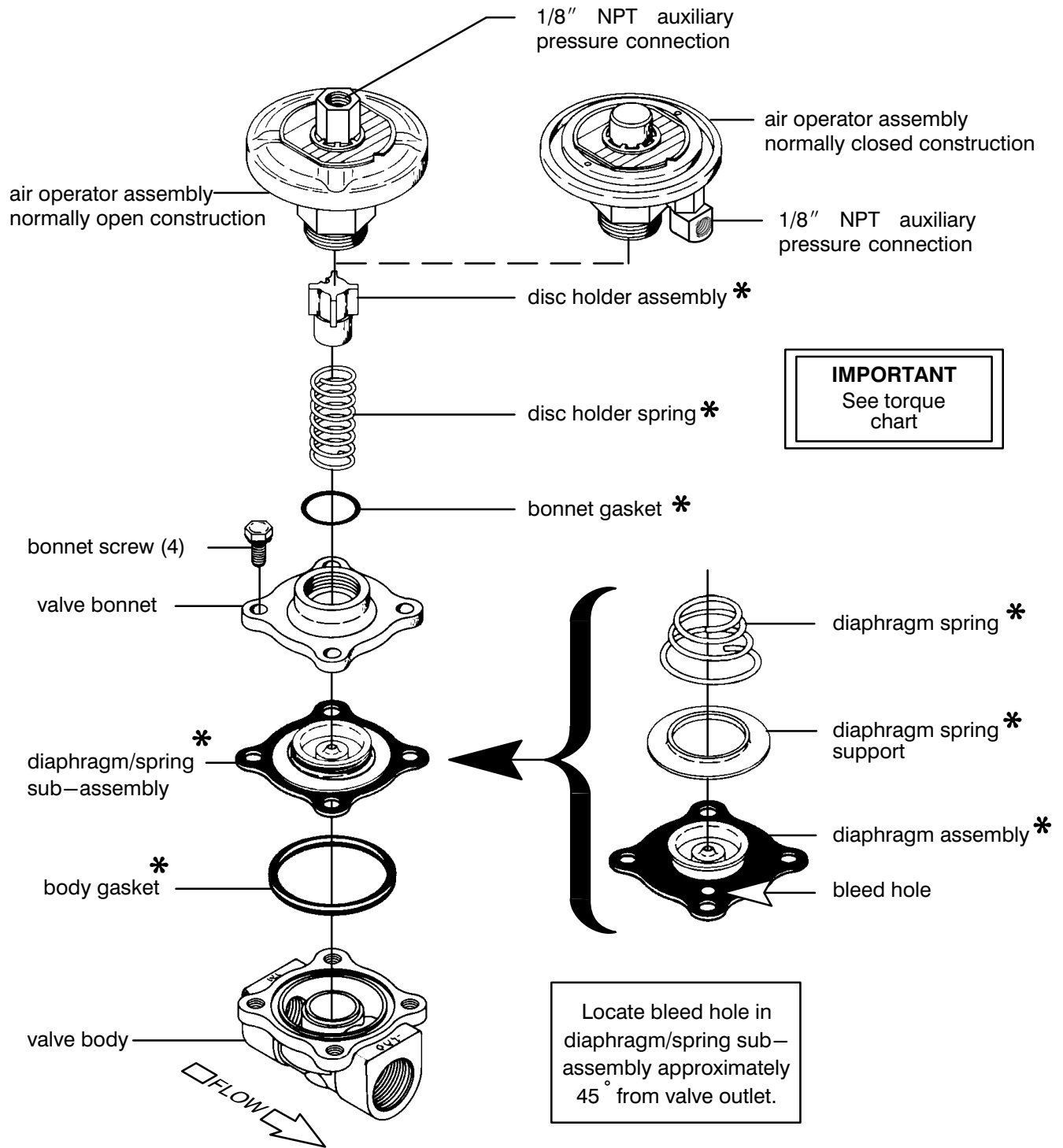


Figure 2. Series F210 normally open or normally closed air operated valve.