

Installation & Maintenance Instructions

3-WAY DIRECT-ACTING SOLENOID VALVES
REVISION "H" & "R"

NORMALLY CLOSED, NORMALLY OPEN AND UNIVERSAL OPERATION
BRASS OR STAINLESS STEEL CONSTRUCTION
1/8" AND 1/4" NPT PIPE THREADS

SERIES

8314

I&M No.V 9599 R1

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

DESCRIPTION

Series 8314 valves are midjet 3-way solenoid valves. Valve bodies are of brass and stainless steel construction. Series 8314 valves may be provided with a general purpose/watertight, open-frame or explosionproof/watertight solenoid.

OPERATION

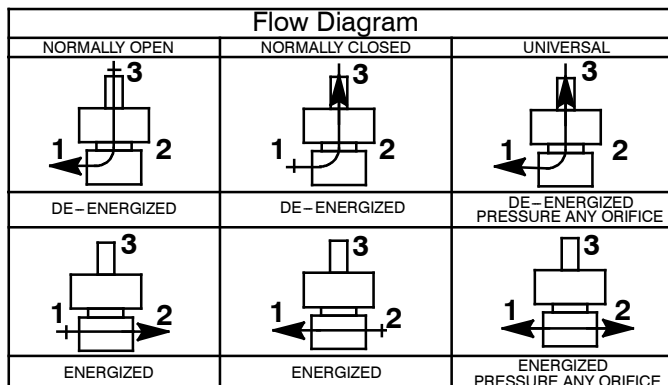
Normally Closed: Applies pressure when solenoid is energized; exhausts pressure when solenoid is de-energized. Flow is Connection "2" to "1" when solenoid is energized. Connection "3" is closed. Flow is from Connection "1" to "3" when solenoid is de-energized. Connection "2" is closed. Pressure is applied at Connection "2".

Normally Open: Applies pressure when solenoid is de-energized; exhausts pressure when solenoid is energized. Flow is Connection "1" to "2" when solenoid is energized. Connection "3" is closed. Flow is from Connection "3" to "1" when solenoid is de-energized. Connection "2" is closed. Pressure is applied at Connection "3".

Universal: For normally closed or normally open operation, selection or diversion of pressure can be applied at Connections "1", "2" or "3". Flow is between Connection "1" to "2" when solenoid is energized. Connection "3" is closed. Flow is between Connection "1" to "3" when solenoid is de-energized. Connection "2" is closed. Pressure may be applied at Connection "1", "2" or "3".

Manual Operation (Valves with Suffix MS): Manual operator allows manual operation when desired or during an electrical power outage. The screw type manual operator is in the "off position" when screwdriver slot is in the horizontal position. To engage manual operator, rotate stem on the side of the body clockwise 90°. Valve will now be in the same position as when the solenoid is energized. To disengage, rotate the stem counterclockwise back to 0° in its original horizontal position.

IMPORTANT: No minimum operating pressure differential 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.

Temperature Limitations

For maximum valve ambient and fluid temperatures, refer to the following table:

Max / Min. Ambient Temperatures					
Suffix	Elastomer	Min AC	Min DC	Max AC	Max DC
None	NBR	-25°C (-13°F)	-25°C (-13°F)	55°C (131°F)	55°C (131°F)
V	FKM	-10°C (14°F)	-10°C (14°F)	55°C (131°F)	55°C (131°F)

Max / Min. Media Temperatures					
Suffix	Elastomer	Min AC	Min DC	Max AC	Max DC
None	NBR	-25°C (-13°F)	-25°C (-13°F)	93°C (200°F)	93°C (200°F)
V	FKM	-10°C (14°F)	-10°C (14°F)	121°C (250°F)	93°C (200°F)

NOTE1: Allowable leakage @ -25°C is 3SCFH. NBR construction is bubble tight at -20°C (-4°F).

NOTE2: Max. Ambient for Class H (AC) and RHNG (AC/DC) constructions is 60°C (140°F). All other values same as in Class F listed above.

NOTE3: All constructions use an FKM elastomer for upper core disc.

NOTE4: Red Hat Next Generation valves (RHNG) are identified by a 'P' or an 'R' in the 5th position of the Catalog No., i.e., 8314P035.

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.

MAINTENANCE

▲ WARNING: To prevent the possibility of death, personal 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 valve strainer or filter when cleaning the valve.

Preventive Maintenance

- Keep 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 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 of parts.
2. Remove solenoid, see separate instructions.
3. Unscrew solenoid base sub-assembly and remove body gasket, core assembly, core spring and core guide (core guide not present on all constructions).
4. All parts are now accessible to clean or replace. Replace worn or damaged parts with a complete ASCO Rebuild Kit.

Valve Reassembly

1. Reassemble valve using exploded views for identification and placement of parts.
2. Lubricate solenoid base gasket with DOW CORNING® 111 Compound lubricant or an equivalent high-grade silicone grease.
3. Replace body gasket and install core assembly, core spring and core guide (if present) into solenoid base sub-assembly.

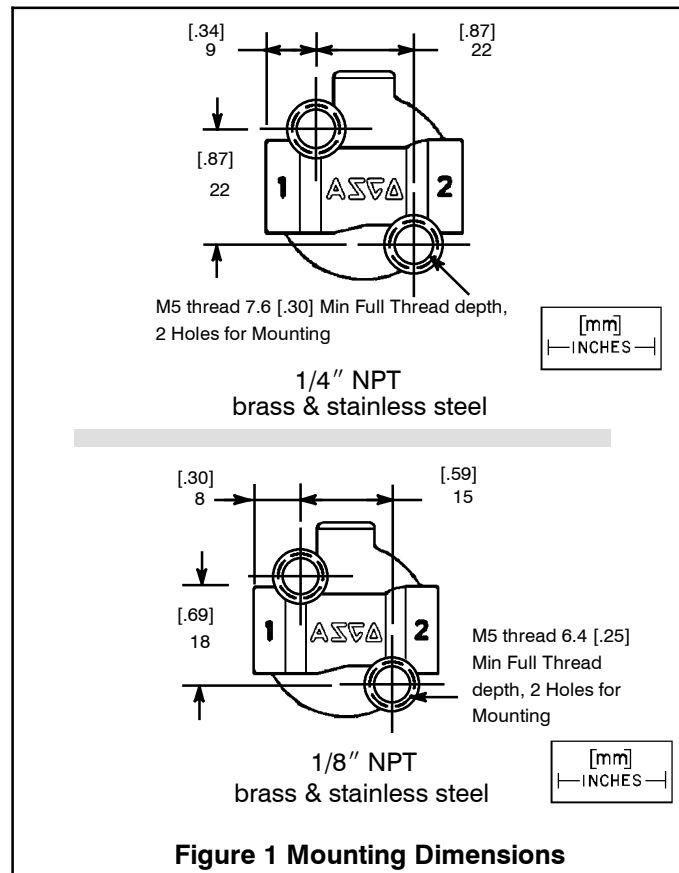
4. Replace solenoid base sub-assembly (with core assembly) into valve body. Torque solenoid base sub-assembly to 175 ± 25 in-lbs. [$19,8 \pm 2,8$ Nm].
5. Install solenoid, see separate instructions and make electrical connections.

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

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

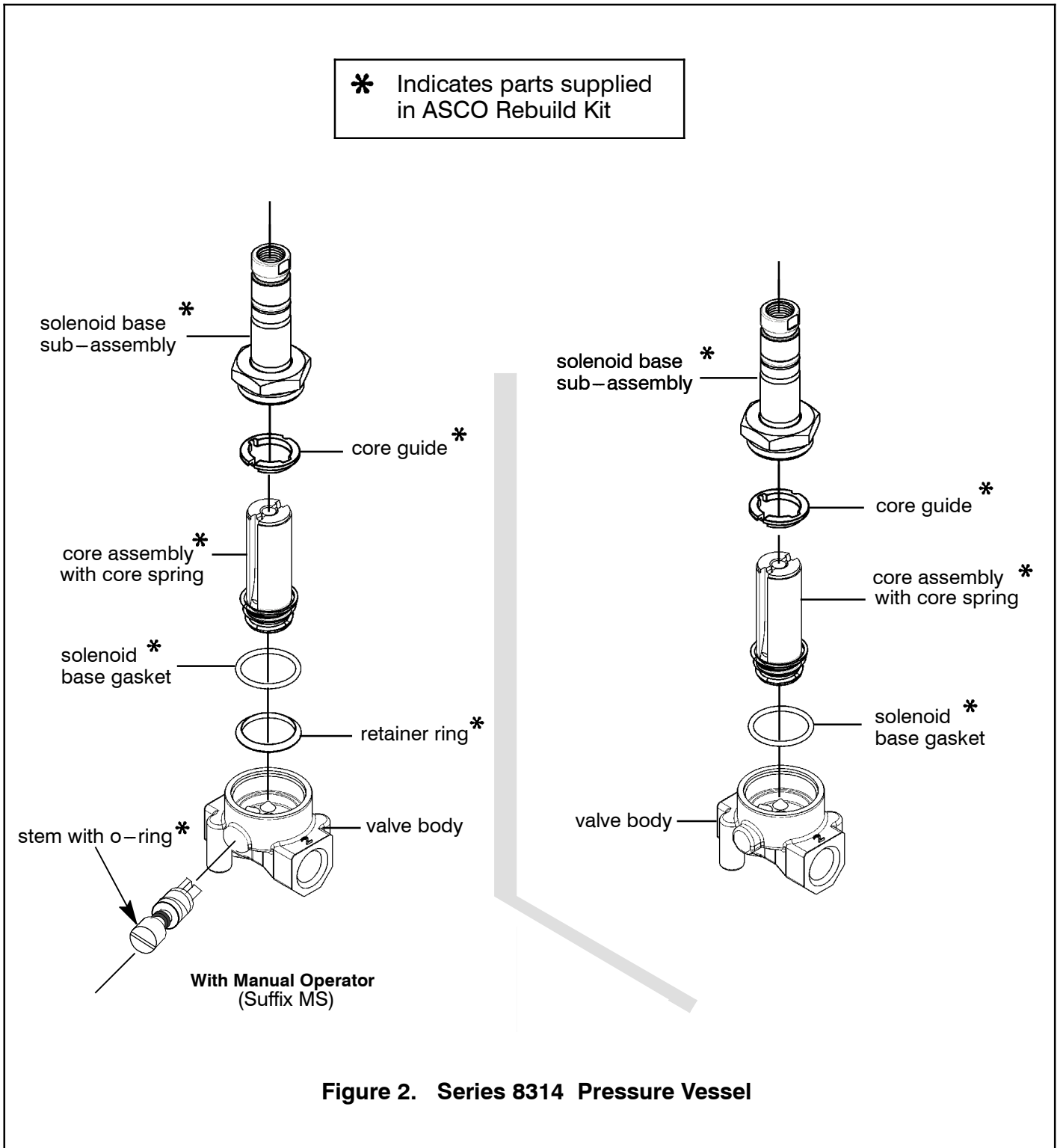
ORDERING INFORMATION FOR ASCO REBUILD KITS

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



Torque Chart

Part Name	Torque Value Inch-Pounds	Torque Value Newton-Meters
solenoid base sub-assembly	175 ± 25	19,8 ± 2,8



REBUILD KIT INSTALLATION FOR VALVES WITH MS SUFFIX (MANUAL OPERATION):

Valve Disassembly

1. Disassemble valve in orderly fashion using exploded views for identification of parts.
2. Remove solenoid, see separate instructions.
3. Unscrew solenoid base sub-assembly and remove body gasket, core assembly, core spring and core guide (core guide not present on all constructions).
4. Pry manual operator stem out of body. Use caution not to damage body orifice seating surface.

Valve Reassembly

5. Install new O-Ring on new manual operator stem.
6. Press new manual operator stem/O-Ring assembly into body until it stops.
7. Position manual operator at 0° (slot in the stem is in horizontal position).

8. Reinstall retainer ring on body and lock retainer into the stem groove for proper engagement.
9. Position core assembly with core spring into base of valve body.
10. Replace solenoid base gasket in valve body. Torque solenoid base sub-assembly to 175 ± 25 in-lbs. [$19,8 \pm 2,8$ Nm]
11. Rotate manual operator stem 90° and back to 0°. Some resistance may be observed during this initial operation.
12. Check manual operator for proper operation. Turn stem clockwise and counterclockwise; stem should turn freely with some resistance without binding.

