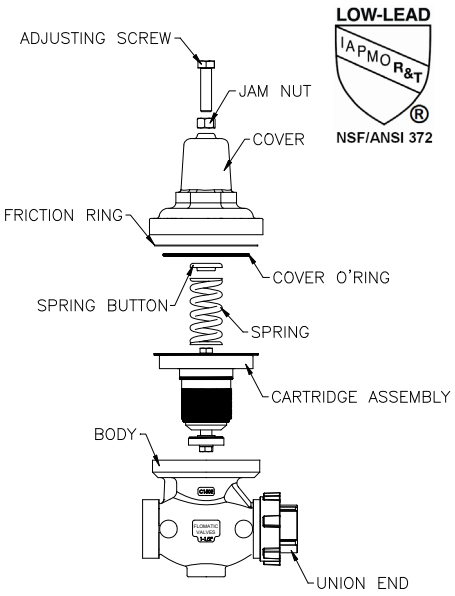
Installation Instructions

Direct Acting Pressure Reducing Valve

Model C150E 1-½" & 2"

Temp Max : 180°F
Pressure Max : 400 PSI



INSTALLATION INSTRUCTIONS :

1. Valve should be installed by a qualified licensed plumber.
2. Before installing the pressure reducing valve, flush out line to remove loose dirt and scale which might damage seal ring and seat.
3. Install valve in line with arrow on valve body pointing in direction of flow. The valve must be installed so it is accessible for repair. May be installed in the horizontal or vertical position.
4. All valves will be furnished with factory settings to reduce to 50 psi. To readjust reduced pressure, loosen outer locknut and turn adjustment screw clockwise (into cover) to raise reduced pressure, or counterclockwise (out of cover) to lower reduced pressure.
5. Tighten the jam nut when the desired pressure is achieved and test valve to confirm proper operation.

NOTICE: Annual inspection and maintenance is required of all plumbing system components. If the end user is not qualified to do so a qualified licensed plumber must complete the annual inspection and perform any required maintenance. To ensure proper performance and maximum life, this product must be subject to regular inspection, testing, and cleaning.

REGULATORS IN SERIES: Where the desired pressure reduction is more than a 4 to 1 ratio (i.e., 200 psi to 50 psi) or if inlet pressure is above 150 psi, multiple regulators in series are recommended to be installed to prolong valve life.

DIAPHRAGM WARNING: Loosen jam nut and adjustment screw slowly. Relieve pressure before removing the cover.

CAUTION: Anytime a reducing valve is adjusted, a pressure gauge must be used downstream to verify correct pressure setting. Do not bottom out adjustment screw on cover. The Flomatic C150E may be installed in any position.

TESTING:

1. If possible, install a gauge on the inlet side of the valve to determine the upstream (inlet) supply pressure. Make note of the incoming pressure.
2. Install a pressure gauge on the downstream (outlet) side of the valve.
3. Open a downstream fixture in the dwelling to start flow through the valve.
4. Record the reading on the pressure gauge, this is the reduced pressure.
5. Close the downstream fixture and quickly record the reduced static pressure on the pressure gauge.
6. Watch the gauge for 10 minutes.
7. If the outlet pressure is maintained for 10 minutes without increasing, the valve is working properly, and no further action is required.
   7.1 If the outlet pressure immediately increases and is about equal to the upstream (inlet) pressure the valve is compromised. It is clogged, damaged or defective and should be repaired or replaced. Follow the repair instructions.
   7.2 If the pressure slowly creeps up within the 10 minutes the valve clogged and should be cleaned per the maintenance / cleaning instructions and retested. If you retesting a clean cartridge and it still is creeping up go to the repair instructions.
   7.3 If there is any external leakage from the body the valve needs to be replaced as soon as possible.
   7.4 If there is any leakage from the cover, the valve should be repaired or replaced as soon as possible.

MAINTENANCE / CLEANING:

1. Close the shutoff valve upstream (inlet) of the C150E valve.
2. Open a downstream (outlet) fixture in the dwelling, this will remove the line pressure. DO NOT skip this step.
3. Note and record the height that the adjusting screw protrudes from the cover. Loosen the jam nut on top of the cover, then turn the adjusting screw (counterclockwise) almost completely out of the cover to relieve the spring tension.
4. Using a wrench to remove the cover by turning it counterclockwise.
5. Remove the spring, spring button, and friction ring.
6. Using plyers, remove the cartridge by gripping onto the hex head cap screw on the top of the cartridge assembly and pulling out of the body. Be careful not to lose the (2) cartridge assembly O-rings.
7. Once the valve is disassembled open the upstream (inlet) shutoff valve slowly and slightly. Just enough to flush out the valve body and service lines of debris.
8. Close the shutoff valve once the valve has been flushed out.
9. Visually inspect the internal machined surfaces in the body where the cartridge assembly O-rings seal, they should be smooth and free of any damage. Look for any dings, cuts, or gouges in the body.
10. Remove the screen from the cartridge assembly and clean off any debris on it.
11. Visually inspect both sides of the diaphragm for any cuts, tears, holes, or material degradation. Clean as needed.
12. Visually inspect the O-rings for any cuts, tears, or debris on them. Clean as needed
13. Visually inspect the disc (seat) for any cuts, tears, nicks, or debris. Clean as needed.
14. If there is no visible damage to the body or cartridge assemble, reinstall the cleaned cartridge in the valve body. See Reassemble instructions and retest the valve.
    - 14.1 If there is any damage to the diaphragm, O-rings or disc the valve should be repaired.
    - 14.2 If there is any damage or corrosion to the body the valve should be replaced.
    - 14.3 If there is any damage for corrosion to the friction ring it should be replaced.

HOW TO MAKE REPAIRS:

1. Discard the old cartridge and / or friction ring.
2. Apply a silicone grease to the cartridge assembly O-rings and push the cartridge into the body making sure the O-rings seal tight against the cartridge and body.
3. Place the friction ring (raised side up) on top of the diaphragm.
4. Place the spring and spring button on top of the diaphragm plate.
5. Screw the cover into the body (clockwise) and tighten.
6. Turn the adjustment screw (clockwise) into the cover to the recorded height.
7. Turn on several downstream (outlet) fixtures.
8. Slowly open the upstream (inlet) shutoff valve to turn the water service back on. Let the water run as long as needed to purge all the air from the system, then turn off the fixtures.
9. Adjust the C150EHF to the desired outlet pressure by turning the adjustment screw clockwise to increase the pressure and counterclockwise to reduce the pressure. If you are reducing the pressure, make sure to open a downstream (outlet) fixture to relieve the higher pressure. Verify using the gauge.
10. Tighten the jam nut when the desired pressure is reached and retest the valve to confirm the valve is functioning properly.

Limited Three Year Warranty: Flomatic® valves are guaranteed against defects of material or workmanship when used for the services recommended. If, in any recommended service a defect develops due to material or workmanship, and the device is returned, freight prepaid, to Flomatic's® Corporation within 36 months from date of purchase, it will be repaired or replaced free of charge. Flomatic® Corporations' liability shall be limited to our agreement to repair or replacement of valve only. DO NOT use standard construction on oil service.
Oil service requires special diaphragm and disc.

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GENERAL TROUBLE SHOOTING:

- Pipelines in a water supply system must be of sufficient carrying capacity to maintain adequate pressure at the most remote or highest fixture. Under the maximum probable fixture use, minimum adequate pressure is generally 8 to 15 lbs., but maybe more, depending on the equipment being supplied.
- Relatively high service pressures which can create high water velocities in pipelines would allow use of smaller pipes to satisfy fixture use. However, high velocities tend to cause whistling and humming. Reductions of pressure by the use of a pressure reducing valve, in an attempt to eliminate the undesirable condition, may reduce pipeline capacities below what is adequate for maximum probable use.
- When high service pressures are in effect, either continuously or periodically, the application of a pressure reducing valve will be successful only when the installed pipeline is of adequate size to satisfy the system demand at the lower pressure. When actual water demands are unknown, the valve size should be no less than the existing pipe size.
- Valves requires laminar flow, must be installed 5 diameters downstream from any obstructions like elbows, pumps etc.

PROBLEM	POSSIBLE CAUSE OR CAUSES
1. Pressure creeps or builds up in a system above setting of pressure reducing valve.	A. Thermal expansion of water as it is being heated. B. Foreign matter on the seating face of sealing ring. C. Cut, worn or chipped seal ring. D. Cut or worn stem O-ring or worn O-ring groove.

SOLUTION:

A. This is a natural consequence. It may happen each time that the heater runs. A pressure relief valve or expansion tank must be installed. It will not prevent pressure rising but should limit it to a safe level.
B. Flush the reducing valve by opening one or two fixture outlets wide. If this does not correct the trouble, remove seal ring for cleaning.
C. Replace with new seal ring. Temporary repairs may be made by turning the seal ring over.
D. Replace with new stem O-ring and/or cartridge.

PROBLEM	POSSIBLE CAUSE OR CAUSES
2. Pressure and fixture flow unsteady.	A. Low water supply pressure in mains caused possible by high area demands during certain periods of the day. B. Heavy periodic demands by appliances in the house.

SOLUTION:

A. This is a water department problem. It is due to the main being inadequate for the demands made on them.
B. House service lines may at times be inadequate for the load. The size of some pipelines may need to be increased. Pressure setting of reducing valve may be too low.
C. Try increasing pressure before changing pipelines.

PROBLEM	POSSIBLE CAUSE OR CAUSES
3. Small inadequate flow from fixtures.	A. Pipelines to fixtures may be too small or house main supply may be inadequate for normal fixture demand. B. Heavy periodic demands by appliances in the house. C. Screen clogged with debris.

SOLUTION:

A. It may be necessary to increase pipe size only in some sections of the system, leading to the offending appliances or fixtures. Increasing the house service mains might be necessary if small supply is general at all fixtures.
B. Raise pressure gradually by readjusting valve until this point is determined.
C. Clean screen.

PROBLEM	POSSIBLE CAUSE OR CAUSES
4. Valve appears to be noisy, hums, whistles, or chatters.	A. Hum or whistle is usually caused by high velocity of flow in pipelines causing vibration. B. Chatter usually originates with worn seat washer or loosely installed seat ring. C. Pressure reduction is greater than 4:1.

SOLUTION:

A. Pipelines could be small or too light. Reducing valves could be too small. Pipes and valves being small would accentuate this condition.
B. Inspect seal ring. If a deep channel appears on seal ring face, replace or use the opposite side.
C. Increase set pressure temporarily, if noise goes away adding a second valve in series may be required to obtain the required pressure without noise.
D. Frequently, noise appears in a faucet or appliance and seems to originate in the reducing valve. There is a general tendency to use streamline piping of a relatively small size. Velocity is naturally high, and noise of the fast-moving-water is not unusual.
E. Make sure there is at least 5 diameters of straight pipe upstream.