

Pressure Reducing Valve

Description

The Model 720 Pressure Reducing Valve maintains a constant downstream pressure regardless of demand or changing upstream pressure. The pressure reducing pilot senses downstream pressure and modulates the main valve to maintain the set point.

When downstream pressure falls below the setting of the pressure reducing pilot, the pilot opens allowing the main valve to open to increase pressure to the set point. When downstream pressure rises above the setting of the pressure reducing pilot, the pilot closes causing the main valve to throttle toward a closed position to maintain the set point.

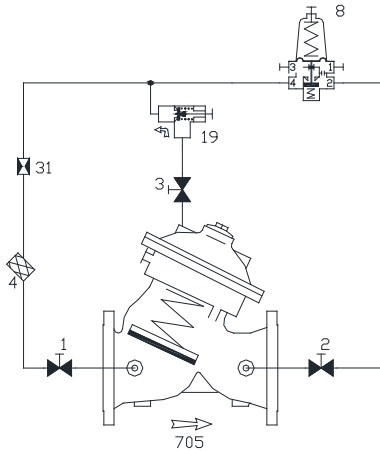
Installation

1. Allow enough room around the valve assembly for making adjustments and for future maintenance and disassembly work.
2. Thoroughly flush the pipeline to remove dirt, scale, and debris. Failure to perform this operation may render the valve inoperable.
3. It is recommended that isolation valves be installed upstream and downstream of the Bermad pressure reducing system to allow for future maintenance operations.
4. Install the valve in the pipeline with the valve flow arrow on the body casting in the proper direction. Install the valve horizontally with the cover up for best performance. Make certain the valve is positioned so the cover assembly can be easily removed for future maintenance requirements.
5. It is recommended to install a pressure gauge at downstream side.
6. After installation carefully inspect/correct any damaged accessories, piping, tubing, or fittings.

Commissioning & Calibration

1. Confirm that cock valves [1], [2] & [3] are open (handle parallel to cock-valve body).
2. Open fully the upstream isolating valve and partially the downstream isolating valve, to fill-up, in a slow and controlled manner, the consumers line downstream from the pressure reducing system.
3. Confirm that the supply pressure and the flow through the system are typical. If necessary, create flow by opening a hydrant, or reduce the flow/pressure by adjusting the downstream/upstream isolating valves.
4. Vent air from the valve's control loop by loosening cover tube fitting at the highest point, allowing all air to bleed. Retighten the tube fitting eyebolt.
5. The Model 720 is factory set according to the design pressure request. The set pressure is marked on the pilot's label. Allow the pressure that appears in the downstream pressure gauge to stabilize, meeting the marked set pressure.
6. If the set pressure is either different from the design or the requirements have been changed, unlock the pilots locking nut and slowly turn the pilot adjusting screw Clock-Wise to increase set pressure and Counter -Clock-Wise to decrease it. Allow the 720 to react and the pressure to stabilize.
7. After the pressure is stabilized, lock the pilots locking nut and open fully the downstream isolating valve.
8. The Restriction [31] enables the 2-Way control & reduces valve closing speed.
9. The One Way Flow Control [19] is factory set fully open. To decrease opening speed or to stabilize the valve reaction, turn the needle valve CW.
10. Calibrating Pressure Reducing Systems that include parallel By-Pass PR Valves, require calibrating each of the PR Valves separately, while the parallel PR Valve/s is closed. Calibration should refer to a shared pressure gauge, installed downstream from the system. For best & long term performance, set larger PRV to 8 psi lower than smaller PRV.
11. Relief Valves should be set 15 psi above system highest set-pressure.

Control Loop Diagram



PART LIST

1, 2, 3
4
8
31
19
705

Ball Valves
Control Filter
Pressure Reducing Pilot
Restriction Orifice (Red Marking)
Needle Valve, Opening speed control
Main Valve

Troubleshooting

Symptom

Valve Fails to Open

Cause

- Insufficient inlet pressure.
- No downstream demand.
- Insufficient spring compression on pressure reducing pilot 8.
- Ball valve 2 or 3 is closed.
- Needle valve 19 open too wide.

Remedy

- Check/create inlet pressure.
- Create demand/flow
- Turn adjusting screw on the pressure reducing pilot 8 clockwise.
- Open ball valve 2 & 3.
- Adjust needle valve 19 in CW and/or clean main valve port holes in casting-flush

Valve Fails to Close or Regulate

- Filter 4 plugged/clogged.
- Ball valve 1 or 3 is closed.
- Needle valve 19 closed or plugged.
- Regulated pressure pulsates or huts.
- Debris trapped in main valve.
- *Diaphragm in main valve leaking.

- Remove filter 4 and clean screen.
- Open ball valves 1 & 3.
- Adjust needle valve 19 in CCW and/or clean main valve port holes in casting-flush
- Bleed air from valve cover. Ensure flow rate is above recommended minimum.
- De-pressurize system. Remove valve actuator from valve body to inspect seat area/remove debris.
- *Check / tighten or replace diaphragm

*CAUTION: Valve will be fully open. Close downstream pipeline gate valve or omit this test if this condition may cause system damage.