

## Solenoid Controlled Valve

(Sizes 1½-24"; DN40-600)

### **Description**

The Model 710 solenoid Controlled Valve is a hydraulically operated, diaphragm actuated, that either opens fully or shuts off in response to electric signals.

For very low pressure applications use Full Powered Opening and Closing Model 710-B.

### **Installation**

1. Ensure enough space around the valve assembly for future maintenance and adjustments.
2. Prior to valve installation, flush the pipeline to insure flow of clean fluid through the valve.
3. For future maintenance, install Isolation gate valves upstream and downstream from Solenoid Control valve.
4. Install the valve in the pipeline with the valve flow direction arrow in the actual flow direction. Use the lifting ring provided on the main valve cover for installing the valve.
5. For best performance, it is recommended to install the valve horizontally and upright. For different valve positions – consult Bermad.
6. After installation carefully inspect/correct any damaged accessories, piping, tubing, or fittings.
7. System power connections, control cabinet, controller, sensors & wiring must be carried out by authorized electrical engineer / electrician and comply with Electrical and Instrumentation Codes.
8. Cross-Check solenoid's specifications with design requirements and solenoids/coils label.
9. Pull and connect 3-wired cables, to the solenoid, according to electric diagram. Ensure approved cables protection. Confirm that the wires data meet specifications.

**Note:** Energizing the solenoid coil when it is not fixed in its place, is dangerous and might burn the coil.

10. It is highly recommended to install a strainer Bermad model 70F upstream from the Solenoid Control Valve, to prevent debris from damaging valve operation.

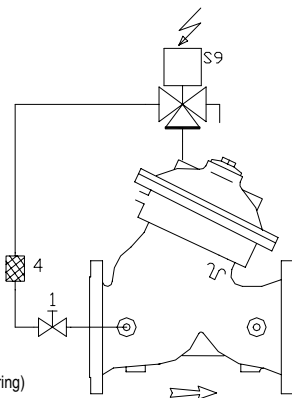
### **Commissioning**

1. Confirm that cock valve [1] is open (handle parallel to cock-valve body).
2. Confirm that the supply pressure is typical.
3. Open upstream and downstream isolating valves. Allow the Solenoid Control Valve to open.
4. Vent air from the valve control loop:  
During opening, use solenoid manual override to manually switch position, forcing the valve to close and then to open. At each position, vent air from the valve control loop by loosening tube fitting at the highest point, allowing the air to bleed. For 10" valves & larger, air venting is required also from port [2] of the 3W hydraulic Relay valves [54]. Retighten the fittings eyebolts.
5. The 3W hydraulic relay valves [54] quicken valve response.
6. The Model 710 has three modes of operation:
  - 6.1. Normally Closed Valve, with a Normally Open Solenoid. Energizing the solenoid will cause the valve to open.
  - 6.2. Normally Open Valve, with a Normally Closed Solenoid. Energizing the solenoid will cause the valve to Close.
  - 6.3. Last Position Valve, with a Latch Solenoid. Each electric command will cause the valve to alternate between fully open and closed.

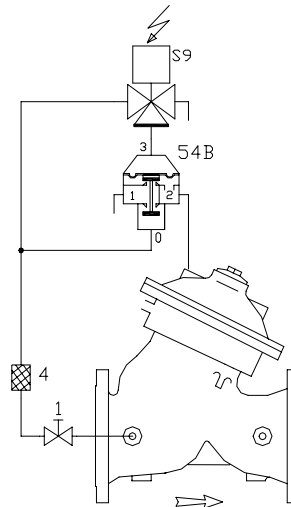
## Control Drawing

### PARTS LIST

1	2W Cock Valve
4	Control Filter
S9	3W Solenoid
54B	3W Hydraulic Valve ( w/o spring)



Sizes 10"; DN250 and Smaller



Sizes 10"; DN250 and Larger

## Trouble-Shooting

- Valve fails to Open:** Check for sufficient inlet pressure, confirm solenoid is not jammed, confirm power supply to solenoid & confirm solenoid coil is not burned (N.C. valves), & check cock valve [1] status.
- Valve fails to Close:** Check cock valve [1] status, confirm power supply to solenoid & confirm solenoid coil is not burned (N.O. valves), confirm solenoid is not jammed, clean control filter & detect for clogged ports or fittings, check if any debris trapped in the main valve, confirm diaphragm is not leaking on both the valve and the relay valve.

## Preventative Maintenance

- System operating conditions that effect on the valve should be checked periodically to determent the required preventative maintenance schedule.
- Maintenance instructions:
  - Tools required:
    - Metric and imperial wrenches
    - Anti seize grease
  - Visual inspection to locate leaks and external damages
  - Functional inspection including: closing, opening and regulation.
  - Close upstream and downstream isolating valves (and external operating pressure when used).
  - Once the valve is fully isolated vent pressure by loosening a plug or a fitting.
  - Open the stud nuts and remove the actuator as one unit from the valve body. Disassemble necessary control tubs.
  - It is highly recommended to stock a reserve actuator assembly for each size. This allows minimum system field work and system down time.
  - Disassemble the actuator and examine its parts carefully for signs of wear, corrosion, or any other abnormal conditions.
  - Replace worn parts and all the Elastomers. Lubricate the bolts and studs threads with Anti seize grease.

## Spare parts

Bermad has a convenient and easy to use ordering guide for valve spare-parts and control system components. For solenoid valves refer to model and S/N on solenoid tags.

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