

# Powered Opening Solenoid Controlled Valve

- Zero pressure system control
- Network management optimizing
- Low pressure burst excess flow shut-off
- Reservoir distribution routing
- Filter drain-off prior to air scrubbing
- Gravity filter bed outlet control
- Sewerage "fill and flush" systems

The Model 710-B Powered Opening Solenoid Controlled Valve is a double chambered, hydraulically operated, diaphragm actuated control valve that either opens fully, regardless of valve differential pressure, or shuts off in response to electric signals.



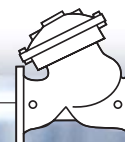
## Features and Benefits

- **Line pressure driven**
  - Independent operation
  - No motor required
  - Long term drip tight sealing
- **Solenoid controlled**
  - Low power consumption
  - Low cost wiring
  - Wide ranges of pressures and voltages
  - Normally Open, Normally Closed or Last Position
- **In-line serviceable** – Easy maintenance
- **Double chamber**
  - Full powered opening and closing
  - Non-slam closing characteristic
  - Protected diaphragm
- **Semi-straight flow** – Smooth flow characteristics
- **"Y" or angle, wide body** – Minimized pressure loss
- **Flexible design** – Easy addition of features

## Major Additional Features

- Opening & closing speed control – 710-03-B
- Relief override – 710-3Q-B
- Flow over-the-seat (fail-safe close) – 710-BO
- Closing surge prevention – 710-49-B

See relevant BERMAD publications.



## Operation

The Model 710-B is a solenoid controlled valve equipped with two 3-Way solenoid pilots.

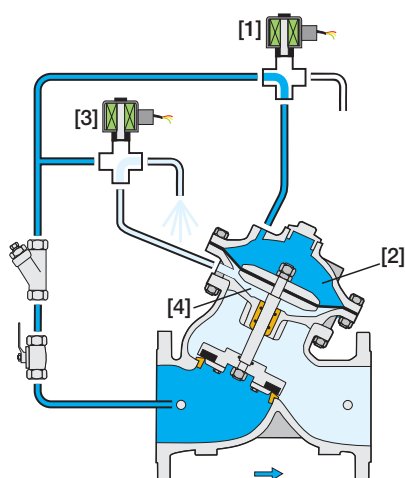
The Normally Open solenoid [1] applies pressure to the upper control chamber [2], harnessing line pressure to power the diaphragm actuator while the Normally Closed solenoid [3] vents the lower control chamber [4], closing the main valve.

Energizing the solenoids vents the upper control chamber pressure while applying line pressure to the lower control chamber, causing the main valve to powerfully open.

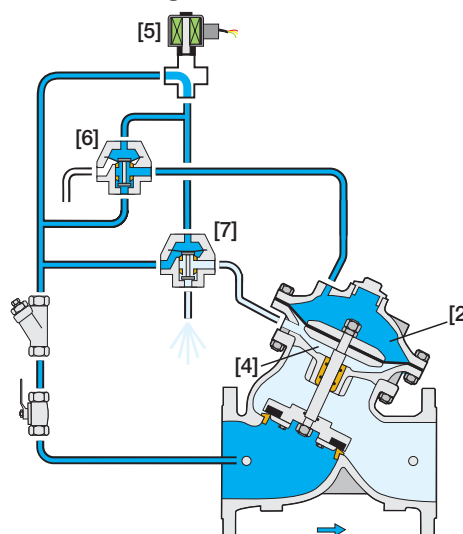
In cases where pipeline water is contaminated (corrosive, debris laden) or where vacuum conditions exist, external control fluid is often used.

For 10" and larger valves, a single solenoid [5] commands two accelerators [6] & [7] (replacing solenoids [1] & [3] used for the smaller valves) to powerfully open and close the main valve.

Size Range 1 1/2"-8"



Size Range 10-20"



## Engineer Specifications

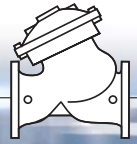
The Powered Opening Solenoid Controlled Valve shall either open fully, regardless of valve differential pressure, or shut off, in response to an electric signal.

**Main Valve:** The main valve shall be a center guided, diaphragm actuated globe valve of either oblique (Y) or angle pattern design. The body shall have a replaceable, raised, stainless steel seat ring. The valve shall have an unobstructed flow path, with no stem guides, bearings, or supporting ribs. The body and cover shall be ductile iron. All external bolts, nuts, and studs shall be Duplex® coated. All valve components shall be accessible and serviceable without removing the valve from the pipeline.

**Actuator:** The actuator assembly shall be double chambered with an inherent separating partition between the lower surface of the diaphragm and the main valve. The actuator assembly shall not consist of any closing spring nor spring-like device. The entire actuator assembly (seal disk to top cover) shall be removable from the valve as an integral unit. The stainless steel valve shaft shall be center guided by a bearing in the separating partition. The replaceable radial seal disk shall include a resilient seal and shall be capable of accepting a V-Port Throttling Plug by bolting.

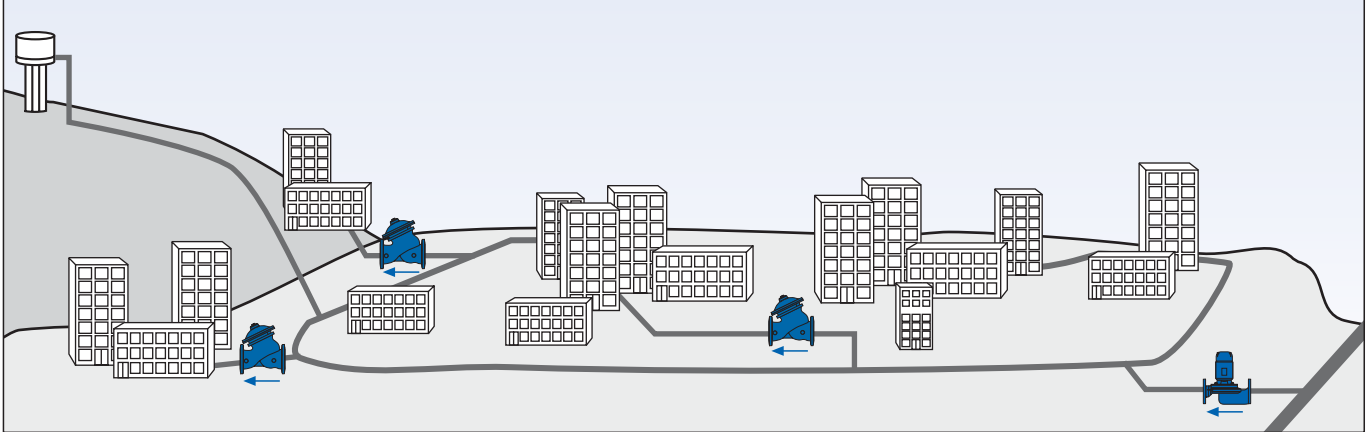
**Control System:** For sizes 1 1/2"-8", the control system shall consist of two 3-Way solenoids, an isolating cock valve, and a filter. For sizes 10" and larger, the control system shall consist of one 3-Way solenoid, two accelerators, isolating cock valve, and a filter. 4/2 and 5/2 solenoids shall be acceptable as well. All fittings shall be forged brass or stainless steel. The assembled valve shall be hydraulically tested.

**Quality Assurance:** The valve manufacturer shall be certified according to the ISO 9001 Quality Assurance Standard. The main valve shall be certified as a complete drinking water valve according to NSF, WRAS, and other recognized standards.



## Typical Applications

### Complex Distribution Networks



In complex distribution networks, management optimization of sources and consumers is essential:

- Sources are of various qualities and costs
- Source quality varies throughout the year
- Consumers demand various qualities
- Zones require isolation for maintenance
- Burst occurrence requires management
- Reservoirs call for systematic refreshing

Low pipeline pressure normally exists at reservoir sites and sometimes occurs at other system points. The Model 710-B, as a powered opening valve, is well suited to meet all the above needs and more, even at very low line pressure.

It should be included for placement in multiple locations during the design stage or with changing needs.

### Reservoir Outlet Routing

In this reservoir system, the level is normally allowed to drop only as far as the level limiting by-pass. The Model 710-B fully opens, at near zero head, to allow flow of lower level "reserve" water for high priority or emergency services. In other reservoir contexts, the Model 710-B fulfills several other functions:

- Routing to multiple consumers, such as pumping station, lower lying consumers, other reservoirs and more
- Reservoir outlet shut-off upon distribution system burst
- Connection between two reservoirs when head differential is sometimes near zero

