

Solenoid Controlled Valve

- Network management optimizing
- Pressure zone isolating
- Burst excess flow shut-off
- Reservoir overflow safety backup
- Switching between "on-duty" valves
- Automatic refreshing of reservoirs

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

For very low pressure applications, refer to the Full Powered Opening and Closing Model 710-B.



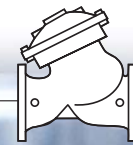
Features and Benefits

- **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 (option "B") & 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

- Full powered opening & closing – **710-B**
- Check feature – **710-20**
- Opening & closing speed control – **710-03**
- Relief override – **710-3Q**
- Flow over the seat (fail-safe close) – **710-O**
- Closing surge prevention – **710-49**

See relevant BERMAD publications.



Operation

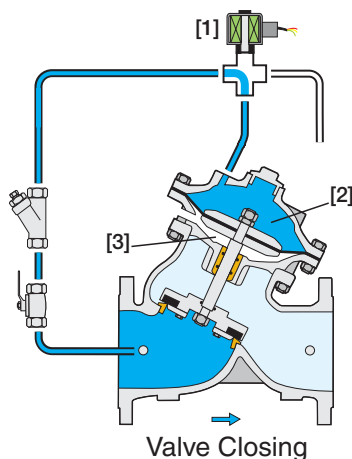
The Model 710 is a solenoid controlled valve equipped with a 3-Way solenoid pilot.

The normally open solenoid [1] applies pressure to the upper control chamber [2], harnessing valve differential pressure to power the diaphragm actuator, closing the main valve. Energizing the solenoid vents control chamber pressure, causing the main valve to open fully. The lower control chamber [3] is open to the atmosphere.

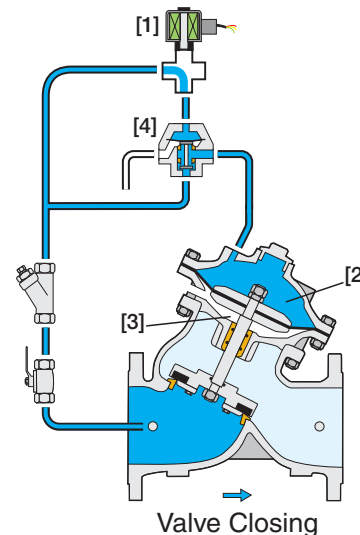
In cases where pipeline water is contaminated (corrosive, debris laden) external control fluid is often used.

For 10" and larger valves, an accelerator [4] quickens valve response.

Size Range 1 1/2-8"



Size Range 10-20"



Engineer Specifications

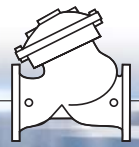
The Solenoid Controlled Valve shall either open fully or shut off in response to electric signals.

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: The control system shall consist of a 3-Way solenoid pilot valve (for 10" and larger valves, an accelerator shall be added to the solenoid), an isolating cock valve, and a filter. 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.



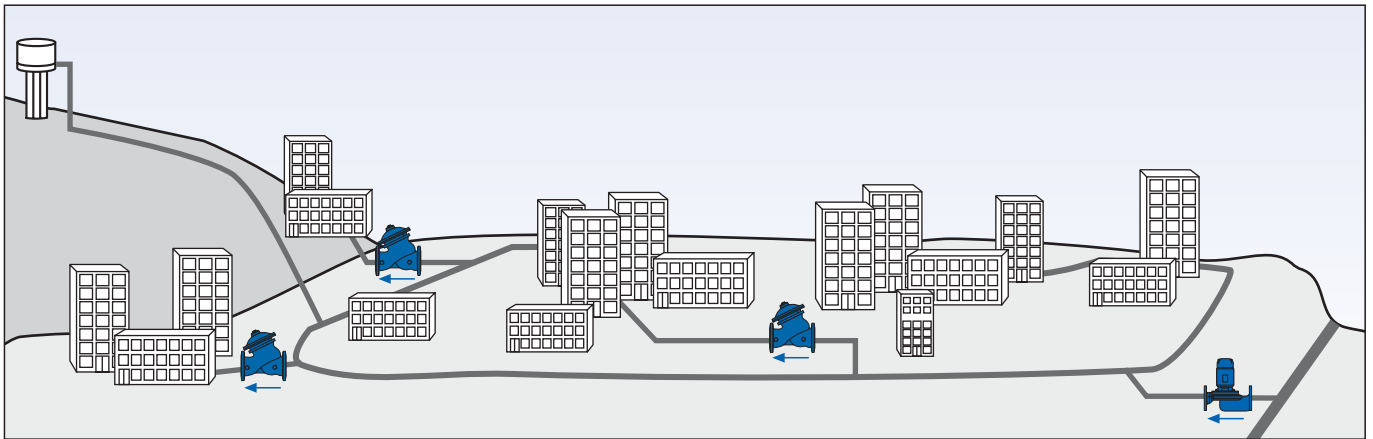
Typical Applications

Complex Distribution Networks

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

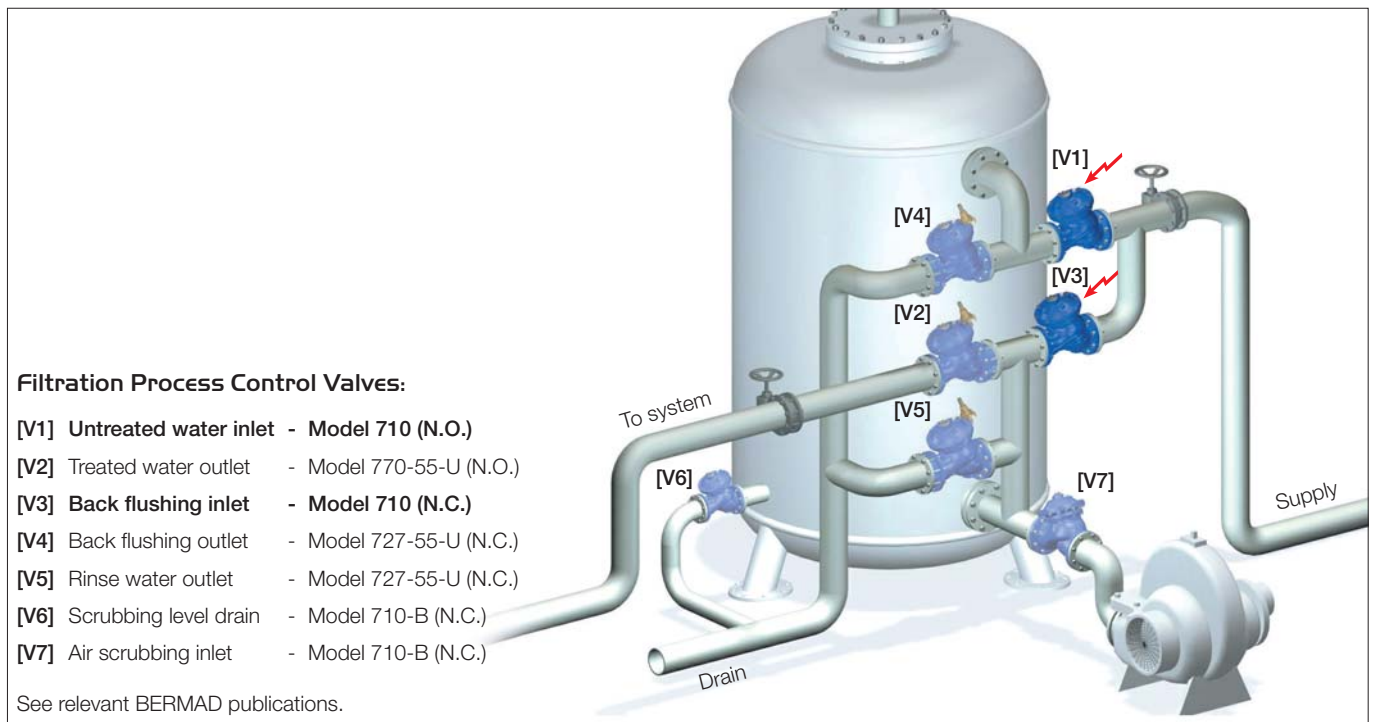
- Sources are of various qualities and costs
- Source quality varies throughout the year
- Consumers demand various qualities
- Zones require isolation for maintenance
- Burst occurrence requires management
- Reservoirs call for systematic refreshing

The Model 710 is well suited to meet all the above needs and more. It should be included for placement in multiple locations during the design stage or with changing needs.



Filtration Systems

In a filter battery installed as part of a water treatment system, each filter requires periodic back flushing. This process entails reversing the direction of flow through each filter. Two Model 710 valves [V1] & [V3], installed upstream from each filter, enable this reversal. The "untreated water valve" [V1] is Normally Open and the "back flushing inlet valve" [V3] is Normally Closed.

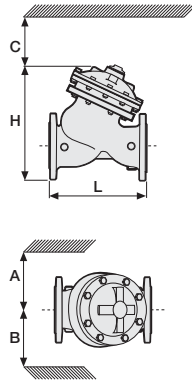




Technical Data

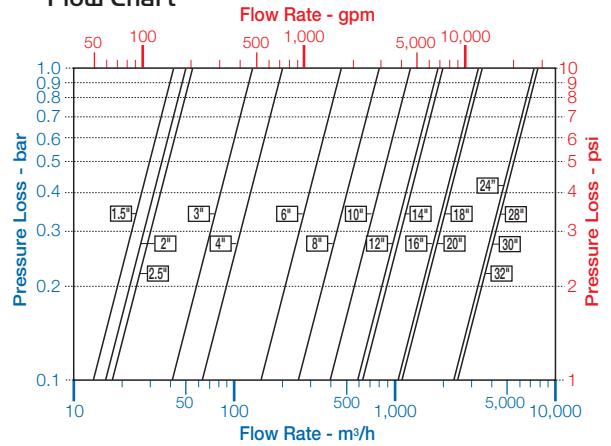
Dimensions and Weights

Size		A, B		C	L		H		Weight		
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
40	1 1/2"	350	14	180	7	205	8.1	239	9.4	9.1	20
50	2"	350	14	180	7	210	8.3	244	9.6	10.6	23
65	2 1/2"	350	14	180	7	222	8.7	257	10.1	13	29
80	3"	370	15	230	9	250	9.8	305	12.0	22	49
100	4"	395	16	275	11	320	12.6	366	14.4	37	82
150	6"	430	17	385	15	415	16.3	492	19.4	75	165
200	8"	475	19	460	18	500	19.7	584	23.0	125	276
250	10"	520	21	580	23	605	23.8	724	28.5	217	478
300	12"	545	22	685	27	725	28.5	840	33.1	370	816
350	14"	545	22	685	27	733	28.9	866	34.1	381	840
400	16"	645	26	965	38	990	39.0	1108	43.6	846	1865
450	18"	645	26	965	38	1000	39.4	1127	44.4	945	2083
500	20"	645	26	965	38	1100	43.3	1167	45.9	962	2121



Data is for Y-pattern, flanged, PN16 valves
 Weight is for PN16 basic valves
 "C" enables removing the actuator in one unit
 "L", ISO standard lengths available
 For more dimensions and weights tables, refer to Engineering Section

Flow Chart



Data is for Y-pattern, flat disk valves
 For more flow charts, refer to Engineering Section

Main Valve

- Valve Patterns:** "Y" (globe) & angle
- Size Range:** 1 1/2"-32" (40-800 mm)
- End Connections (Pressure Ratings):**
- Flanged:** ISO PN16, PN25 (ANSI Class 150, 300)
- Threaded:** BSP or NPT
- Others:** Available on request
- Working Temperature:**
Water up to 80°C (180°F)
- Standard Materials:**
- Body & Actuator:** Ductile Iron
- Internals:**
Stainless Steel, Bronze & coated Steel
- Diaphragm:**
NBR Nylon fabric-reinforced
- Seals:** NBR
- Coating:**
Fusion Bonded Epoxy, RAL 5005 (Blue)
NSF & WRAS approved or Electrostatic Polyester Powder, RAL 6017 (Green)

Control System

- Standard Materials:**
- Accessories:**
Bronze, Brass, Stainless Steel & NBR
- Tubing:** Copper or Stainless Steel
- Fittings:** Forged Brass or Stainless Steel
- Solenoid Standard Materials:**
- Body:** Brass or Stainless Steel
- Elastomers:** NBR or FPM
- Enclosure:** Molded epoxy
- Solenoid Electrical Data:**
- Voltages:**
(ac): 24, 110-120, 220-240, (50-60 Hz)
(dc): 12, 24, 110, 220
- Power Consumption:**
(ac): 30 VA, inrush; 15 VA (8W), holding or 70 VA, inrush; 40 VA (17.1W), holding
(dc): 8-11.6W

Values might vary according to specific solenoid model

Solenoid Selection

Valve Size	Solenoid Model		Accelerator Model	
	330 (2.0 mm)	311 (1.0 mm)	54	58
1 1/2"-8"	■			
1 1/2"-6"		■		
10-20"	■		■	
8-20"		■	■	
24-32"	■			■
24-32"		■		■

PN 16 PN 25

Accelerator Standard Materials:

- Body:** Brass or Stainless Steel
- Internals:** Stainless Steel & Brass
- Elastomers:** NBR or FPM

How to Order

Please specify the requested valve in the following sequence: (for more options, refer to Ordering Guide)

Sector	Size	Primary Feature	Additional Feature	Pattern	Body Material	End Connections	Coating	Voltage & Position	Tubing & Fittings	Additional Attributes
WW	6"	710	00	Y	C	16	EB	4AC	CB	I
Waterworks	1 1/2 - 32"	Solenoid Controlled		Oblique (up to 20") Angle (up to 18") Globe (24-32" only)	Y A G	Epoxy FB Blue Polyester Green Polyester Blue Uncoated	EB PG PB UC	Copper Tubing & Brass Fittings Plastic Tubing & Brass Fittings St. St. 316 Tubing & Fittings	CB PB NN	
				Ductile Iron Standard Cast Steel St. Steel 316 Nickel Alumin. Bronze	C S N U					
				ISO-16 ISO-25 ANSI-150 ANSI-300 JIS-16 JIS-20	16 25 A5 A3 J6 J2	24VAC/50Hz - N.C. 24VAC/50Hz - N.O. 24VDC - N.C. 24VDC - N.O. 24VDC - L.P. 220VAC/50-60Hz N.C. 220VAC/50-60Hz N.O.	4AC 4AO 4DC 4DO 4DP 2AC 2AO	Double Chamber Valve Position Indicator Large Control Filter Electric Limit Switch Flow Over the Seat St. St. 316 Control Accessories St. St. 316 Internal Trim (Closure & Seat) St. St. 316 Actuator Internal Assembly Delrin Bearing Viton Elastomers for Seals & Diaphragm Pressure Gauge	B I F S O N T D R E 6	

Multiple choices permitted

