

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.



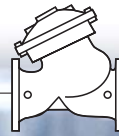
Features and Benefits

- **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

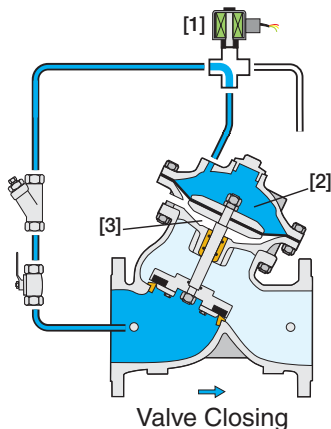
The Model 710 is a solenoid controlled valve equipped with a 3-Way solenoid pilot.

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.

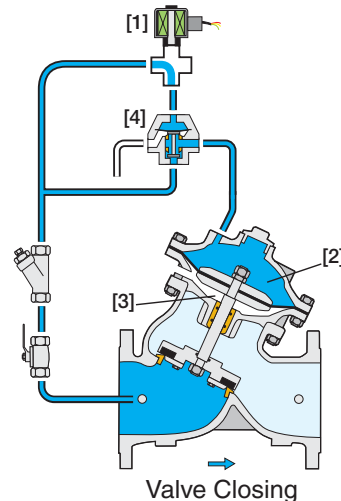
In cases where pipeline water is contaminated (corrosive, debris laden) external control fluid is often used.

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

Size Range 1 1/2-8"



Size Range 10-20"



Engineer Specifications

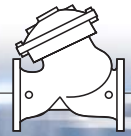
The Solenoid Controlled Valve shall either open fully or shut off in response to electric signals.

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.



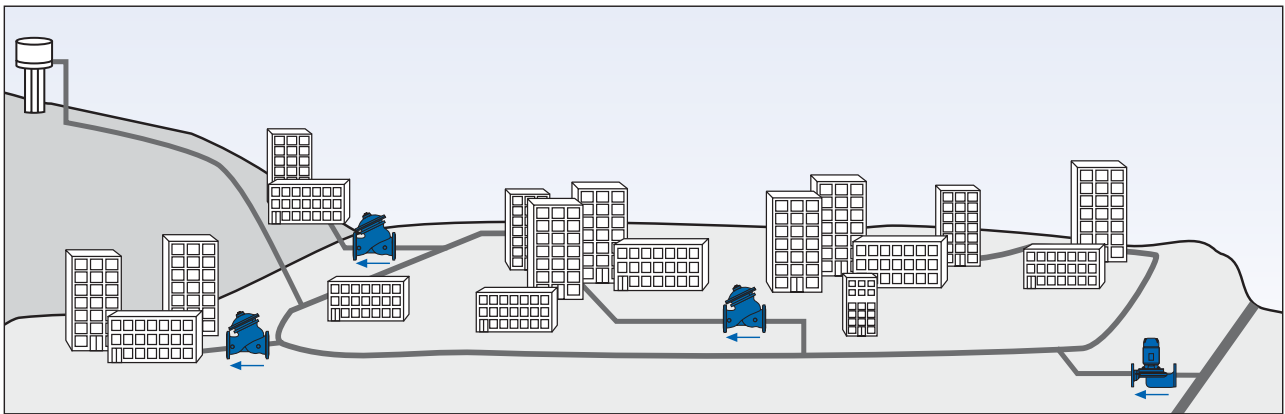
Typical Applications

Complex Distribution Networks

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

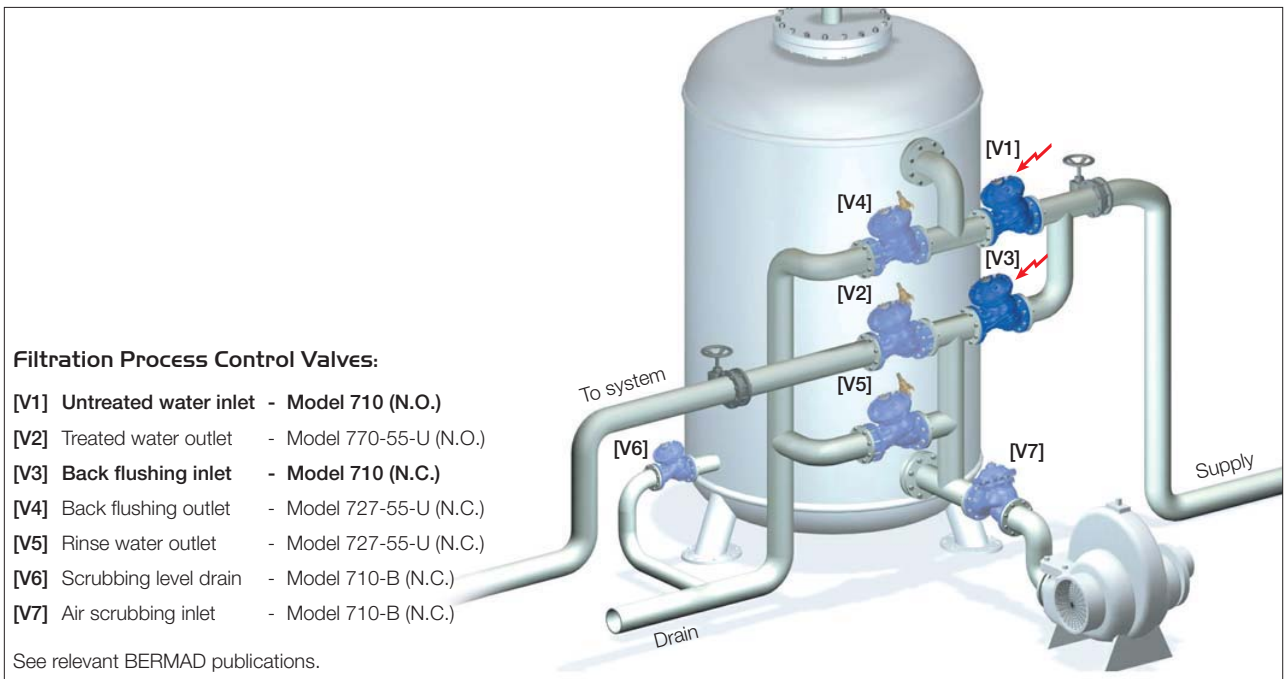
- Sources are of various qualities and costs
- Source quality varies throughout the year
- Consumers demand various qualities
- Zones require isolation for maintenance
- Burst occurrence requires management
- Reservoirs call for systematic refreshing

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.



Filtration Process Control Valves:

- [V1] Untreated water inlet - Model 710 (N.O.)
- [V2] Treated water outlet - Model 770-55-U (N.O.)
- [V3] Back flushing inlet - Model 710 (N.C.)
- [V4] Back flushing outlet - Model 727-55-U (N.C.)
- [V5] Rinse water outlet - Model 727-55-U (N.C.)
- [V6] Scrubbing level drain - Model 710-B (N.C.)
- [V7] Air scrubbing inlet - Model 710-B (N.C.)

See relevant BERMAD publications.

BERMAD Waterworks



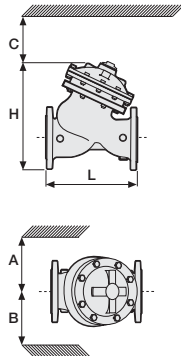
700 Series

Model 710

Technical Data

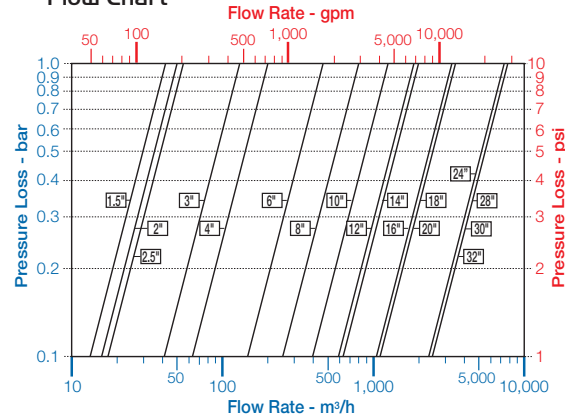
Dimensions and Weights

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:
Voltagess:
 (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") Y Angle (up to 18") A Globe (24-32" only) G	Ductile Iron Standard C Cast Steel S St. Steel 316 N Nickel Alumin. Bronze U	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	
No Additional Feature			00							
Closing and Opening Speed Control			03							
Check Valve			20							
Relief Override			3Q							
Closing Surge Prevention			49							
Multiple choices permitted				ISO-16 16 ISO-25 25 ANSI-150 A5 ANSI-300 A3 JIS-16 J6 JIS-20 J2		24VAC/50Hz - N.C. 4AC 24VAC/50Hz - N.O. 4AO 24VDC - N.C. 4DC 24VDC - N.O. 4DO 24VDC - L.P. 4DP 220VAC/50-60Hz N.C. 2AC 220VAC/50-60Hz N.O. 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

