

# Pressure Relief/Sustaining Valve

## with Solenoid Control

- Prioritizing pressure zones
- Pump overload & cavitation protection
- Backup for reservoir supply valves
- Safeguarding pump minimum flow
- Switching between pressure regimes

The Model 730-55 Pressure Relief/Sustaining Valve with Solenoid Control is a hydraulically operated, diaphragm actuated control valve that sustains minimum pre-set, upstream (back) pressure regardless of fluctuating flow or varying downstream pressure. It also either opens or closes in response to an electric signal. When installed as a circulation valve, the Model 730-55 relieves excessive line pressure when above maximum pre-set.



### Features and Benefits

- **Line pressure driven** – Independent operation
- **Solenoid controlled**
  - Low power consumption
  - Wide ranges of pressures and voltages
  - Normally Open, Normally Closed, or Last Position
- **Balanced seal disk** – High relief flow capacity
- **In-line serviceable** – Easy maintenance
- **Double chamber design**
  - Moderated valve reaction
  - Protected diaphragm
- **Flexible design** – Easy addition of features
- **Variety of accessories** – Perfect mission matching
- **"Y" or angle, wide body** – Minimized pressure loss
- **Semi-straight flow** – Non-turbulent flow
- **Stainless Steel raised seat** – Cavitation damage resistant
- **Obstacle free, full bore** – Uncompromising reliability
- **V-Port Throttling Plug** – Low flow stability

### Major Additional Features

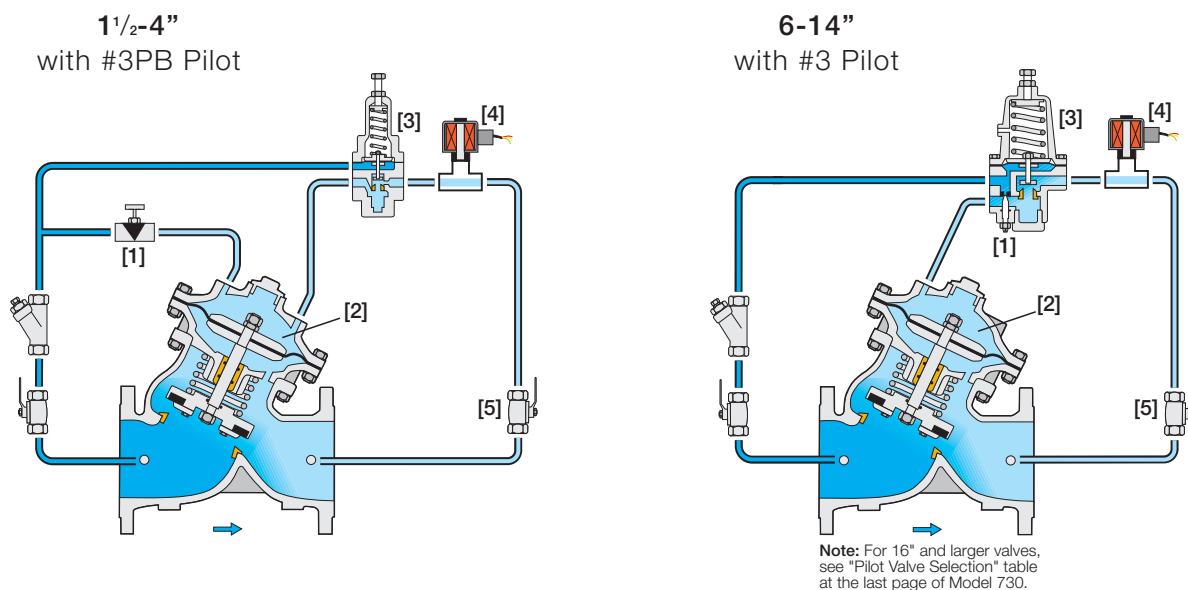
- Pressure sustaining and reducing with solenoid control – **723-55**
- Electrically selected multi-level settings – **730-45**
- High sensitivity pilot – **730-55-12**
- Electric override for fire protection – **FP-730-59**
- Level-control & pressure sustaining with bi-level electric float – **753-65**
- Pump circulation & pressure sustaining valve – **748**
- Electronic pressure sustaining valve – **738-03**

See relevant BERMAD publications.



## Operation

The Model 730-55 is a pilot controlled valve equipped with an adjustable, 2-Way, pressure sustaining pilot and a solenoid pilot. The needle valve [1] continuously allows flow from the main valve inlet into the upper control chamber [2]. The pilot [3] senses upstream pressure, and the solenoid [4] together control outflow from the upper control chamber. Should this pressure fall below pilot setting, the pilot closes, enabling pressure to accumulate in the upper control chamber, and causing the main valve to throttle thereby sustaining upstream pressure at pilot setting. Should upstream pressure rise above pilot setting, the pilot releases accumulated pressure and the main valve modulates open. Should the solenoid pilot close, pressure in the upper control-chamber accumulates causing the main valve to shut off. The needle valve controls the closing speed. The downstream cock valve [5] enables manual closing. Normally closed, normally open and last position models are available.



## Engineer Specifications

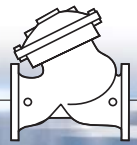
The Pressure Relief/Sustaining Valve with Solenoid Control shall sustain minimum pre-set, upstream pressure regardless of fluctuating flow or varying downstream pressure; and it shall either open or close in response to an electric signal. When installed as a circulation valve, the Model 730-55 relieves excessive line pressure when above maximum pre-set.

**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 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 2-way adjustable, direct acting pressure sustaining pilot valve, a needle valve, isolating cock valves, a filter, and a 2-Way solenoid pilot. All fittings shall be forged brass or stainless steel. The assembled valve shall be hydraulically tested and factory adjusted to customer requirements.

**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.

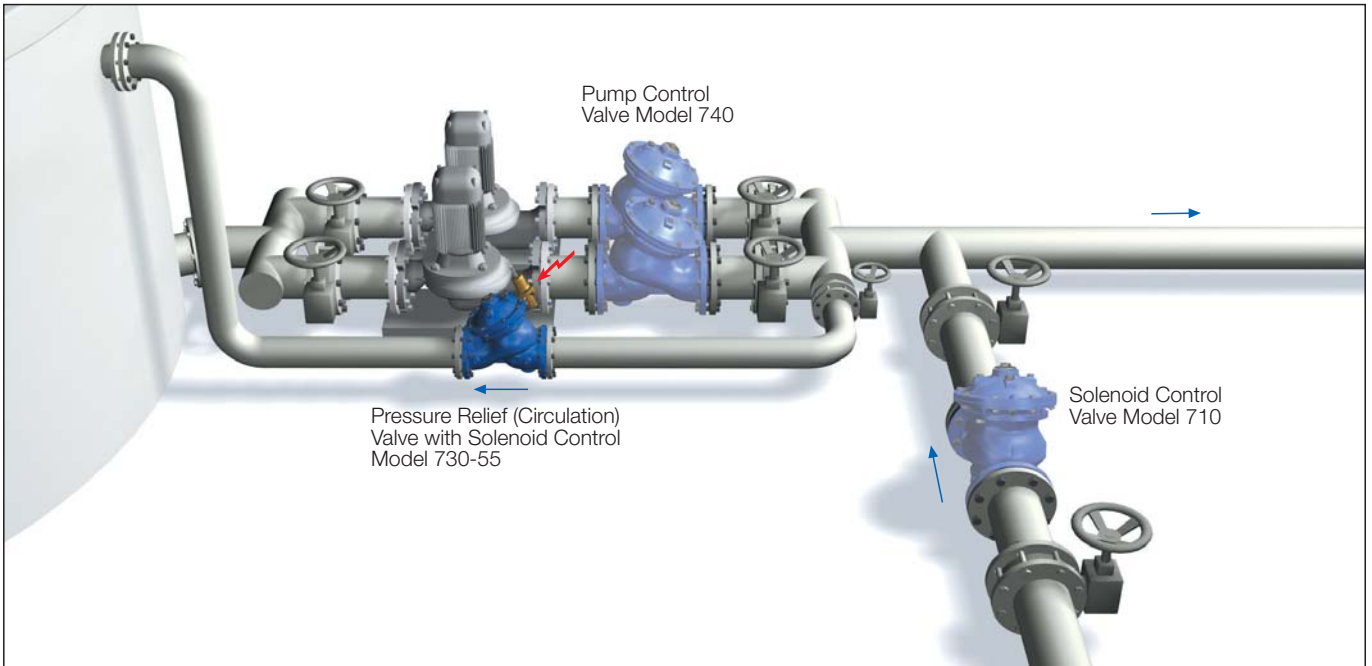


## Typical Applications

### Circulating Valve with Reservoir Overflow Protection

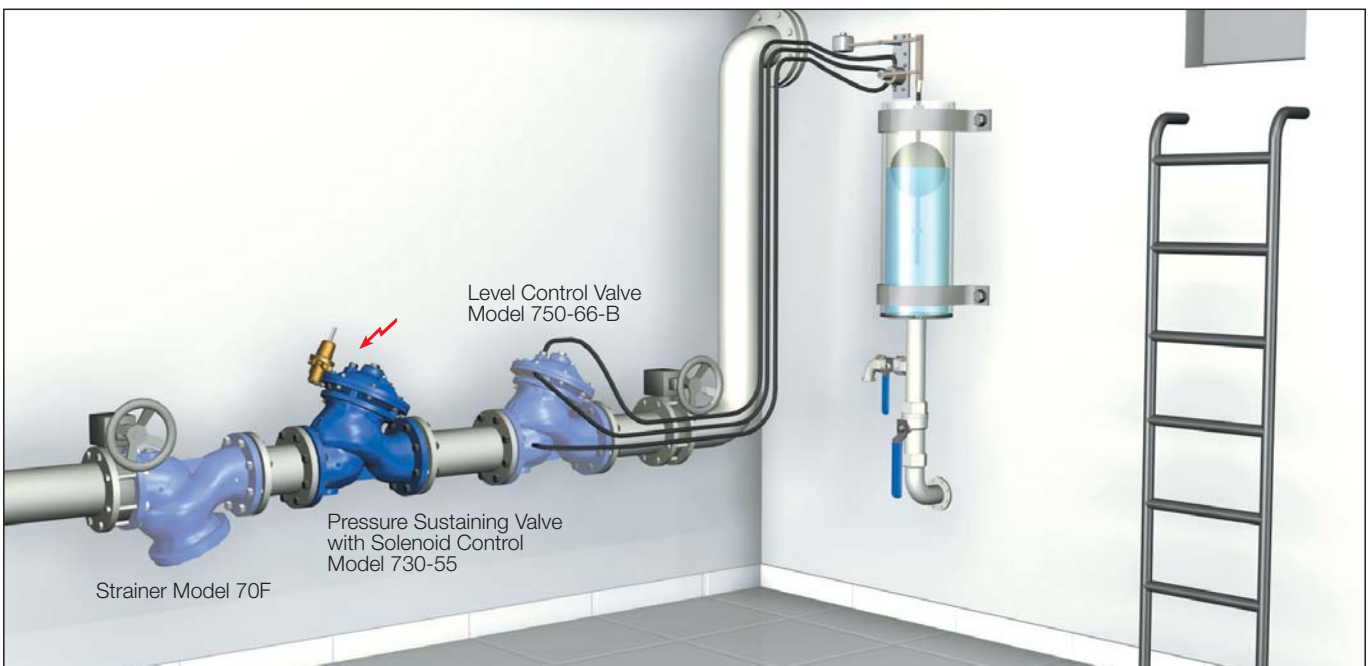
Water is supplied to the consumer network from the reservoir or directly from the major supply network:

- During pumping from the reservoir, the Normally Closed Model 730-55, with energized solenoid, serves as a circulation valve.
- During direct supply, pressure might be higher than pilot setting, possibly causing reservoir overflow. The de-energized solenoid keeps the Model 730-55 closed, preventing reservoir filling from this source.



### Reservoir Level Control Backup

To sustain minimum network pressure, the Normally Open Model 730-55 prioritizes consumers before supply to the reservoir. In addition, this valve provides electric control backup protection (solenoid & float switch) should the hydraulic level control fail.

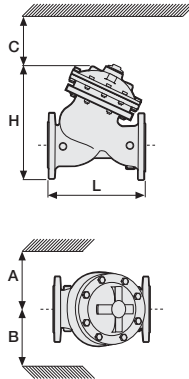




### Technical Data

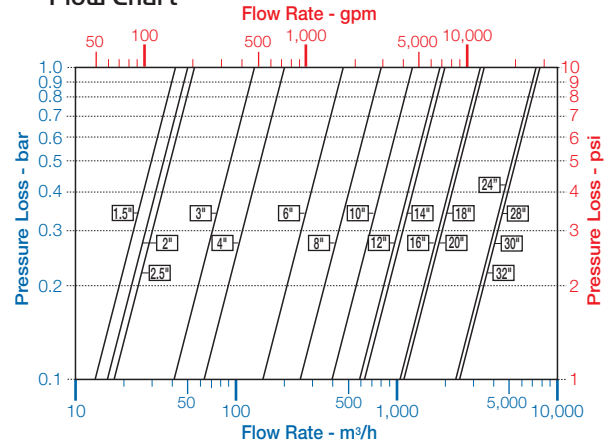
#### Dimensions and Weights

Size	A, B		C		L		H		Weight		
	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:** Bronze, Brass, Stainless Steel & NBR
- Accessories:** Copper or Stainless Steel
- Tubing:** Copper or Stainless Steel
- Fittings:** Forged Brass or Stainless Steel
- Pilot Standard Materials:** Body: Brass, Bronze or Stainless Steel
- Elastomers:** NBR
- Springs:** Galvanized Steel or Stainless Steel
- Internals:** Stainless Steel

#### Pilot Valve Selection

Valve Size	Pilot Setting (bar)	Pilot Type		
		#3PB	#3	#3HC
1 1/2-4"	<15	■	●	
40-250 mm	>15		●	
6-14"	<15		■	
150-350 mm	>15		●	
16-32"	<15			■
400-800 mm	>15			●

■ Standard model ● with high pressure setting kit

#### 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.

### 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"	730	55	Y	C	16	EB	4AC	CB	I
Waterworks	1 1/2" - 32"	Pressure Relief/Sustaining		Oblique (up to 20") Angle (up to 18") Globe (24-32" only) G	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	
No Additional Feature			00		Ductile Iron Standard Cast Steel St. Steel 316 Nickel Alumin. Bronze U					
High sensitivity pilot			12							
Check Valve			20							
Solenoid Controlled & Check Valve			25							
Multi-Setting Levels - Electrically Selected			45							
Closing Surge Prevention			49							
Hydraulic Control			50							
Solenoid Controlled			55							
Electric Override			59							
					ISO-16 ISO-25 ANSI-150 ANSI-300 JIS-16 JIS-20	16 25 A5 A3	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	Valve Position Indicator Large Control Filter V-Port Throttling Plug Electric Limit Switch 3-Way Control Loop Valve Position Transmitter 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	I F V S X Q N T D R E 6

Multiple choices permitted

Multiple choices permitted

