



# Level Control and Pressure Sustaining Valve

## with Bi-Level Vertical Float

- Reservoir level control
- Prioritizing consumers over reservoir filling
- Backup for reservoir supply valves

The Model 753-66 Level Control and Pressure Sustaining Valve with Bi-Level Vertical Float is a hydraulically operated, diaphragm actuated control valve that controls reservoir filling, opening at pre-set reservoir low level and shutting off at pre-set high level. During filling, it sustains minimum upstream pressure regardless of fluctuating flow or reservoir level.



### Features and Benefits

- **Line pressure driven** – Independent operation
- **Bi-Level hydraulic float control**
  - On/off service
  - Low cavitation damage
  - Inherent reservoir refreshing
- **Double chamber design**
  - Moderated valve reaction
  - Non-slam closing characteristic
  - Protected diaphragm
- **External installation**
  - Easy access to valve and float
  - Easy level setting
  - Less wear and tear
- **In-line serviceable** – Easy maintenance
- **Flexible design** – Easy addition of features
- **Balanced seal disk** – High relief flow capacity

### Major Additional Features

- Electric float backup – 753-66-65
- Altitude pilot backup – 753-66-80
- Closing surge prevention – 753-66-49

See relevant BERMAD publications.



### Operation

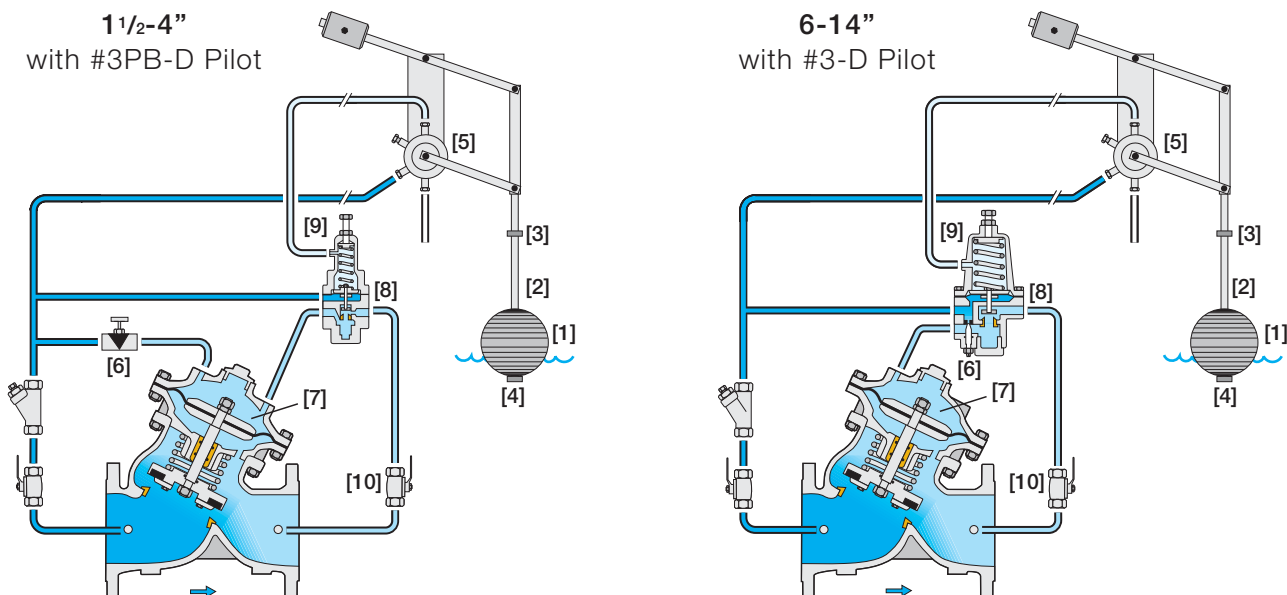
The Model 753-66 is a float and pilot controlled valve.

The float [1] slides along the rod [2]. When the float reaches either the adjustable high [3] or low [4] level stoppers, it either pushes the rod assembly up or pulls it down, switching the float pilot [5] position. When the float is between the adjustable stoppers, the main valve remains in its last position. The needle valve [6] continuously allows flow from valve inlet into the upper control chamber [7]. The pressure sustaining pilot [8], set to minimum allowed system pressure, senses upstream pressure and accordingly controls outflow from the upper control chamber.

At high level, the float pilot applies pressure to the pressure sustaining pilot spring cell [9], shutting off outflow from the upper control chamber. Thus causes the main valve to close.

At low level, the float pilot vents the pressure sustaining pilot spring cell allowing the main valve to modulate open while sustaining minimum upstream pre-set pressure.

The needle valve controls the closing speed. The downstream cock valve [10] enables manual closing.



**Note:** For 16" and larger valves, see "Pilot Valve Selection" table at the last page of Model 730.

### Engineer Specifications

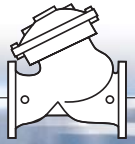
The Level Control and Pressure Sustaining Valve shall control reservoir filling, opening at pre-set reservoir low level and shutting off at pre-set high level. During filling, it shall sustain minimum upstream pressure regardless of fluctuating flow or reservoir level.

**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 4-Way, "Last Position", adjustable bi-level, hydraulic vertical float, an adjustable, direct acting, 2-Way pressure sustaining pilot valve, a needle valve, isolating cock valves, and a filter. All fittings shall be forged brass or stainless steel. The assembled valve shall be hydraulically tested and factory adjusted to customer requirements.

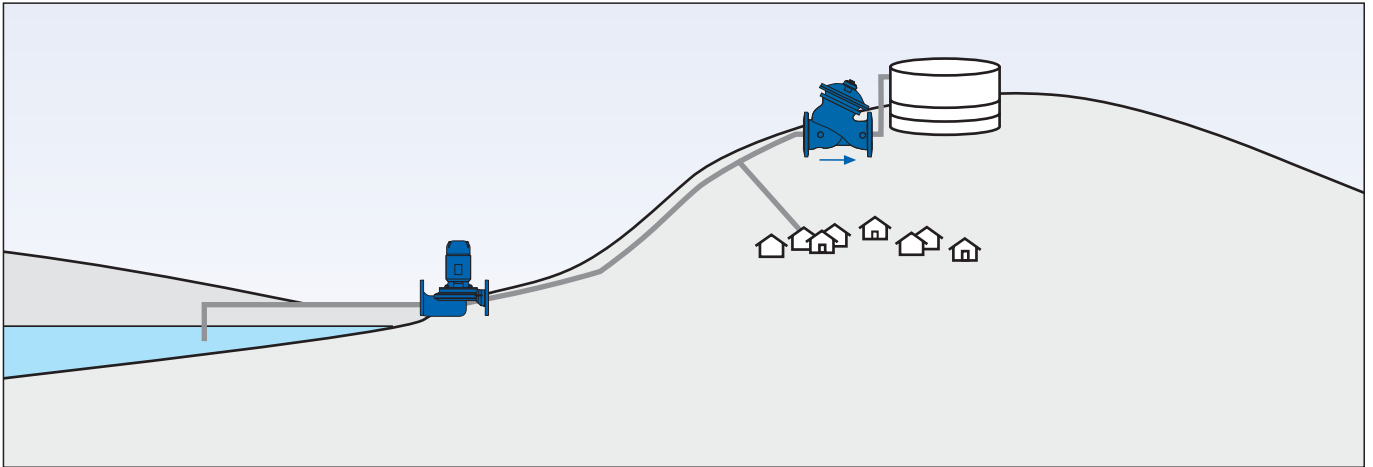
**Quality Assurance:** The valve manufacturer shall be certified according to the ISO 9001 Quality Assurance Standard. The main valve shall be certified as a complete drinking water valve according to NSF, WRAS, and other recognized standards.



### Typical Applications

#### Level Control and Pressure Sustaining

In this elevated reservoir system, pressure to consumers is prioritized over reservoir filling by adding the pressure sustaining feature to the Model 750-66-B Level Control Valve thereby, modifying it to become the Model 753-66 Level Control and Pressure Sustaining Valve.

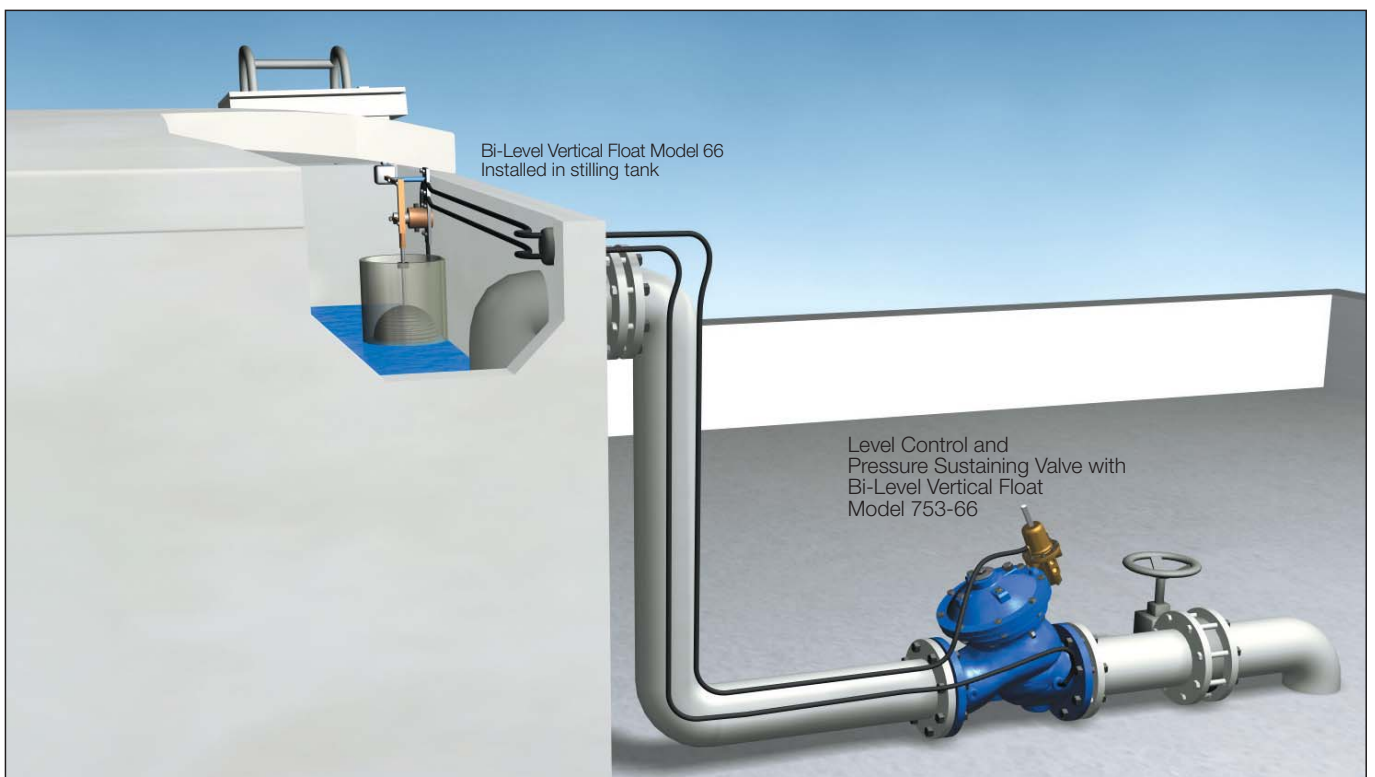


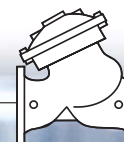
### Typical Installation

#### Rooftop in high-rise building

Rooftop reservoir level control is attained by electric control of the basement pumps. As overflow of a rooftop reservoir can cause costly damage, on-site hydraulic backup protection is recommended.

To prioritize pressure for upper floor consumers or a fire protection system, while ensuring fail-safe overflow protection, install the Model 753-66 Level Control & Pressure Sustaining Valve with Bi-Level Vertical Float.

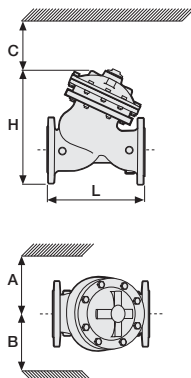




### Technical Data

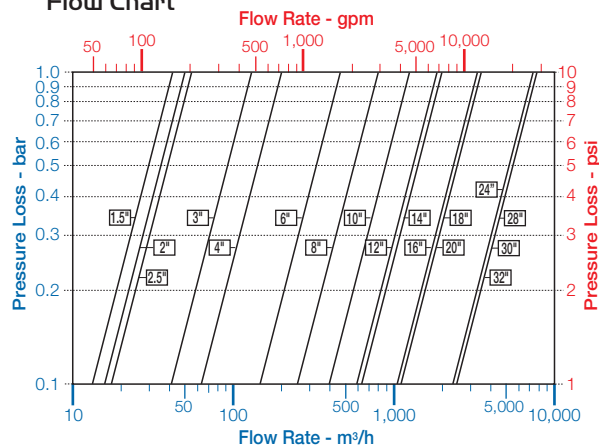
#### Dimensions and Weights

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:**
- Accessories:** Bronze, Brass, Stainless Steel & NBR
- Tubing:** Copper or Stainless Steel
- Fittings:** Forged Brass or Stainless Steel
- Sustaining Pilot Standard Materials:**
- Body:** Brass, Bronze or Stainless Steel
- Elastomers:** NBR
- Springs:** Galvanized Steel or Stainless Steel
- Inner trim:** Stainless Steel
- Float Standard Materials**
- Pilot body:** Brass
- Seals:** NBR (Buna N)
- Internals:** Stainless Steel & Brass
- Lever system:** Brass
- Float:** Plastic
- Float rod:** Stainless Steel
- Base plate:** Fusion bonded epoxy coated Steel
- Optional materials:** Stainless Steel metal parts and float, FPM (Viton®) seals

#### Float Assembly Technical Data:

- Minimum level differential: 15 cm (6")
- Maximum level differential: 54 cm (21")
- Each extension rod adds 56 cm (22"), one extension rod supplied
- Extra counterweight required if second extension rod used
- See BERMAD float installation recommendations
- If inlet pressure is below 0.7 bar (10 psi) or above 10 bar (150 psi), consult factory

### 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"	753	66	Y	C	16	EB	-	CB	VI
Waterworks	1 1/2 - 32"	Level Control and Pressure Sustaining	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	Double Chambered Valve Position Indicator Large Control Filter V-Port Throttling Plug Orifice Assembly Electric Limit Switch 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	B I F V U S N T D R E
Closing Surge Prevention	49		Ductile Iron Standard	C						
Modulating Horizontal Float	60		Cast Steel	S						
Bi-Level Electric Float	65		St. Steel 316	N						
Bi-Level Vertical Float	66		Nickel Alumin. Bronze	U						
Modulating Vertical Float	67		ISO-16	16						
Altitude Pilot	80		ISO-25	25						
Modulating Altitude Pilot	82		ANSI-150	A5						
Sustaining Altitude Pilot	83		ANSI-300	A3						
Bi-Level Altitude Control	86		JIS-16	J6						
			JIS-20	J2						
2-14 Meter Setting Altitude Pilot	M6									
5-22 Meter Setting Altitude Pilot	M5									
15-35 Meter Setting Altitude Pilot	M4									
25-70 Meter Setting Altitude Pilot	M8									
Multiple choices permitted										

