

## Level Control and Pressure Sustaining Valve with Bi-Level Vertical Float

Model 753-66

- 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.



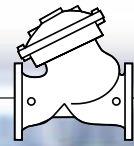
### Features and Benefits

- **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**

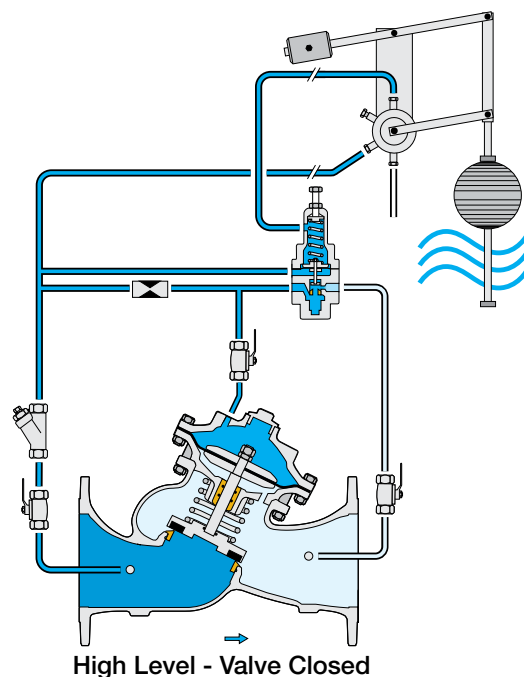
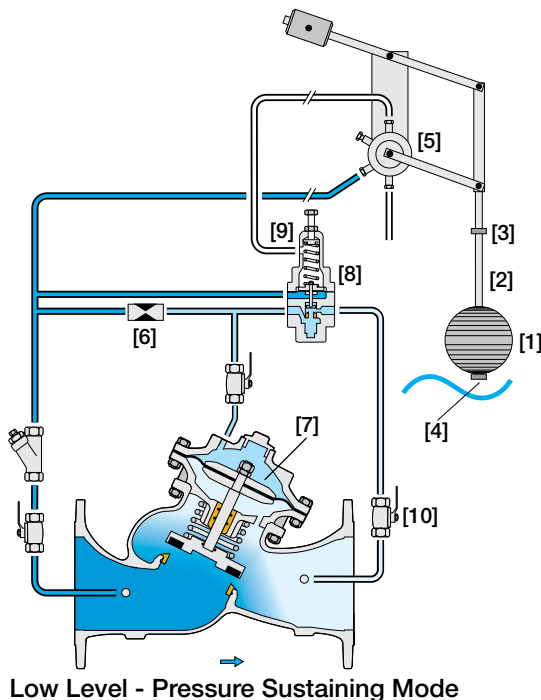
See relevant BERMAD publications.



## 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 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 restriction 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 downstream cock valve [10] enables manual closing.



## Pilot System Specifications

### Standard Materials:

#### Pilot:

Body: Stainless Steel 316 or Bronze  
Elastomers: Synthetic Rubber  
Spring: Stainless Steel

#### Float Pilot:

Body: Brass or Stainless Steel 316  
Elastomers: Synthetic rubber  
Internal parts: Stainless Steel 316 & Brass  
Lever system: Brass or Stainless Steel 316  
Float: Plastic  
Float rod: Stainless Steel  
Base plate: Fusion bonded epoxy coated Steel or Stainless Steel 316

#### Tubing & Fittings:

Stainless Steel 316 or Copper & Brass

#### Accessories:

Stainless Steel 316, Brass and Synthetic Rubber Elastomers

### Pilot Adjustment Range:

0.5 to 3.0 bar ; 7 to 40 psi  
0.8 to 6.5 bar ; 11 to 95 psi  
1 to 16 bar ; 15 to 230 psi  
5 to 25 bar ; 70 to 360 psi

### Notes:

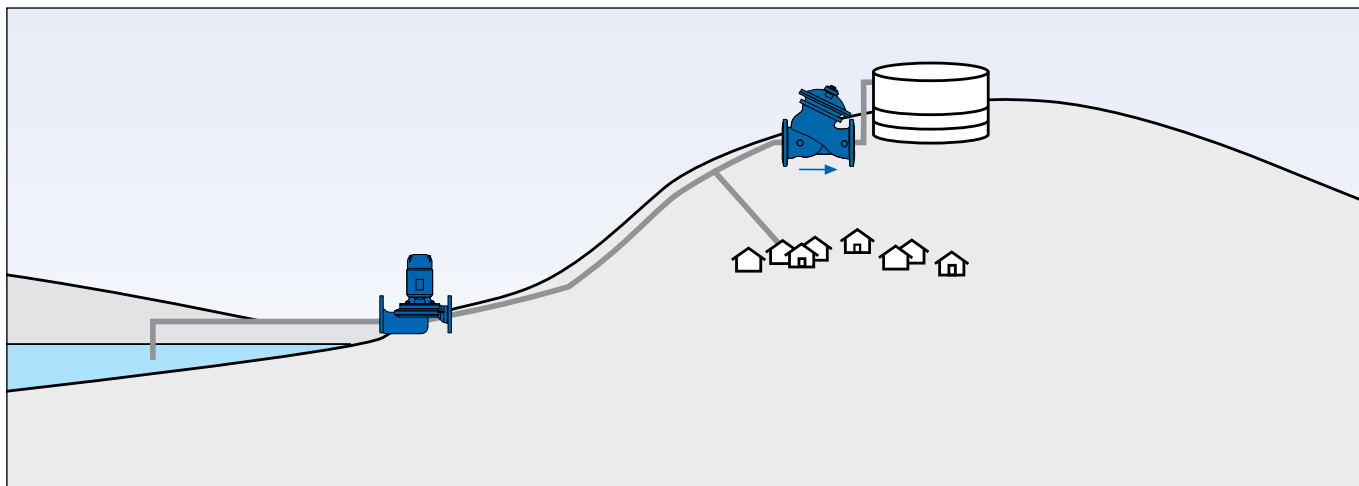
- Minimum level differential: 15 cm (6")
- Maximum level differential: 54 cm (21")
- Each extension rod adds 56 cm (22"), one extension rod supplied
- Extra counterweight required if second extension rod used
- Recommended continuous flow velocity: 0.3-6.0 m/sec ; 1-20 ft/sec
- Minimum operating pressure: 0.7 bar ; 10 psi. For lower pressure requirements consult factory
- Inlet pressure, outlet pressure and flow rate are required for optimal sizing and cavitation analysis
- See BERMAD float installation recommendations



## 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.

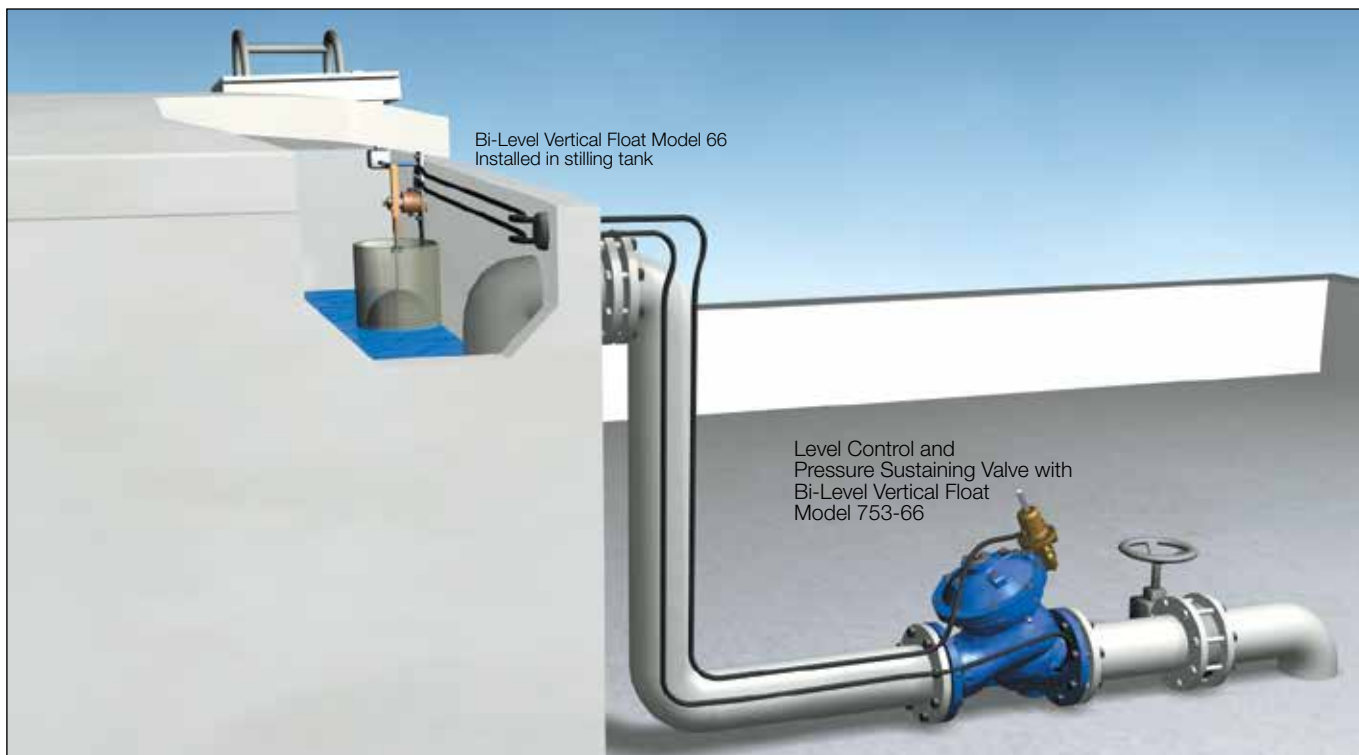


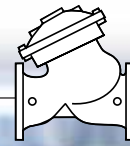
## Typical Installation

### 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

**Size Range:** DN40-900 ; 1½-36"

**End Connections (Pressure Ratings):**

**Flanged:** ISO PN16, PN25 (ANSI Class 150, 300)

**Threaded:** BSP or NPT

**Others:** Available on request

**Valve Patterns:** "Y" (globe) & angle, globe (DN600-900 ; 24"-36")

**Working Temperature:** Water up to 80°C ; 180°F

**Standard Materials:**

**Body & Actuator:** Ductile Iron

**Internals:** Stainless Steel, Bronze & coated Steel

**Diaphragm:** Synthetic Rubber Nylon fabric-reinforced

**Seals:** Synthetic Rubber

**Coating:** Fusion Bonded Epoxy, RAL 5005 (Blue) approved for drinking water or Electrostatic Polyester Powder

### Differential Pressure Calculation

$$\Delta P = \left( \frac{Q}{Kv; Cv} \right)^2$$

**ΔP** = Differential Pressure for fully open valve (bar; psi)

**Q** = Flow rate (m³/h; gpm)

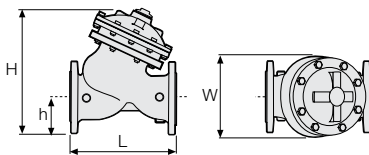
**Kv** = Metric system - valve flow coefficient  
(flow in m³/h at 1 bar ΔP with 15°C water)

**Cv** = US system - Valve flow coefficient  
(flow in gpm at 1 psi ΔP with 60°F water)

$$Cv = 1.155 Kv$$

### Flow Data & Dimensions Table

DN / Size		40	1.5"	50	2"	65	2.5"	80	3"	100	4"	150	6"	200	8"	250	10"	300	12"	350	14"	400	16"	450	18"	500	20"		
Flow Data	700 & 700ES	Kv / Cv - Flat																											
	700 & 700EN	Kv / Cv - "Y" Flat																											
	700 & 700EN	Kv / Cv - "Y" V-Port																											
700-ES	PN16; 25	L (mm / inch)																											
		W (mm / inch)																											
		h (mm / inch)																											
		H (mm / inch)																											
		Weight (Kg/lb)																											
700-EN	PN16; 25	L (mm / inch)																											
		W (mm / inch)																											
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		Weight (Kg/lb)																											
700 Flanged	"Y" PN16 Class 150	L (mm / inch)																											
		W (mm / inch)																											
		h (mm / inch)																											
		H (mm / inch)																											
		Weight (Kg/lb)																											
	"Y" PN25 Class 300	L (mm / inch)																											
		W (mm / inch)																											
		h (mm / inch)																											
		H (mm / inch)																											
		Weight (Kg/lb)																											
700 Threaded	"Y" PN16; 25 Class 150; 300	L (mm / inch)																											
		W (mm / inch)																											
		h (mm / inch)																											
		H (mm / inch)																											
		Weight (Kg/lb)																											
	Angle PN16; 25 Class 150; 300	L (mm / inch)																											
		W (mm / inch)																											
		R (mm / inch)																											
		h (mm / inch)																											
		H (mm / inch)																											



### Specify when ordering:

- Size
- Main model
- Additional features
- Pattern
- Body material
- End connection
- Coating
- Voltage & main valve position
- Tubing & Fittings materials
- Operational data (according to model)
- Pressure data
- Flow data
- Reservoir level data
- Settings

\* Use BERMAD's Waterworks Ordering Guide

DN / Size		600	24"	700	28"	750	30"	800	32"	900	36"
Globe PN16 Class 150	L (mm / inch)	1,450	57.1	1,650	65	1,750	68.9	1,850	72.8	1,850	72.8
	W (mm / inch)	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2
	h (mm / inch)	470	18.5	490	19.3	520	20.5	553	21.8	600	23.6
	H (mm / inch)	1,965	77.4	1,985	78.1	2,015	79.3	2,048	80.6	2,095	82.5
	Weight (Kg/lb)	3,250	7,150	3,700	8,140	3,900	8,580	4,100	9,020	4,250	9,350
Globe PN25 Class 300	L (mm / inch)	1,500	59.1	1,650	65	1,750	68.9	1,850	72.8	1,850	72.8
	W (mm / inch)	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2
	h (mm / inch)	470	18.5	490	19.3	520	20.5	553	21.8	600	23.6
	H (mm / inch)	1,965	77.4	1,985	78.1	2,015	79.3	2,048	80.6	2,095	82.5
	Weight (Kg/lb)	3,500	7,700	3,700	8,140	3,900	8,580	4,100	9,020	4,250	9,370

