

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.



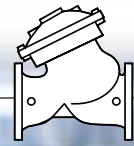
Features and Benefits

- **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**

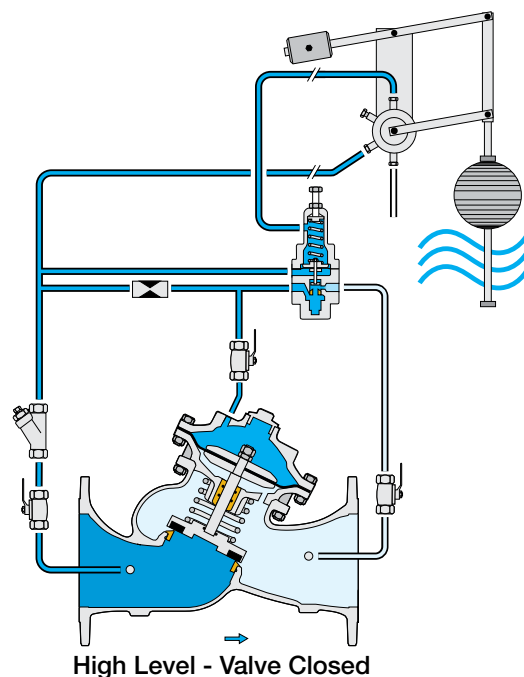
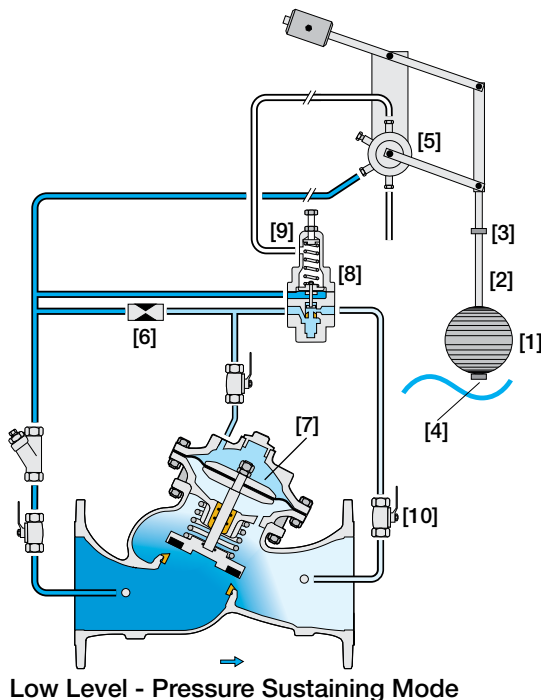
See relevant BERMAD publications.



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:

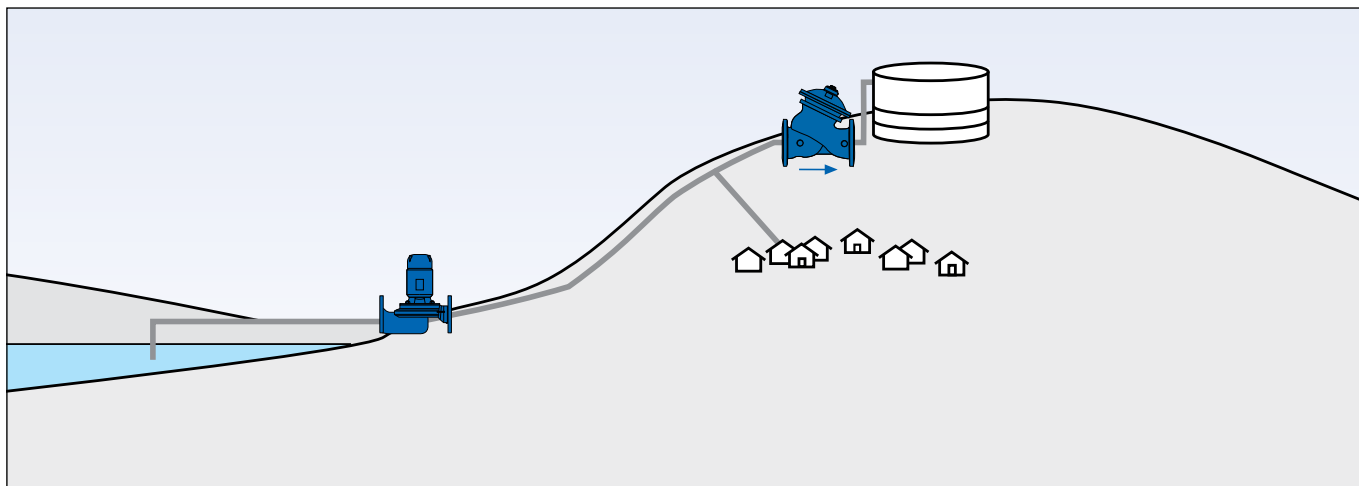
- Minimum level differential: 15 cm (6")
- Maximum level differential: 54 cm (21")
- Each extension rod adds 56 cm (22"), one extension rod supplied
- Extra counterweight required if second extension rod used
- Recommended continuous flow velocity: 0.3-6.0 m/sec ; 1-20 ft/sec
- Minimum operating pressure: 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.

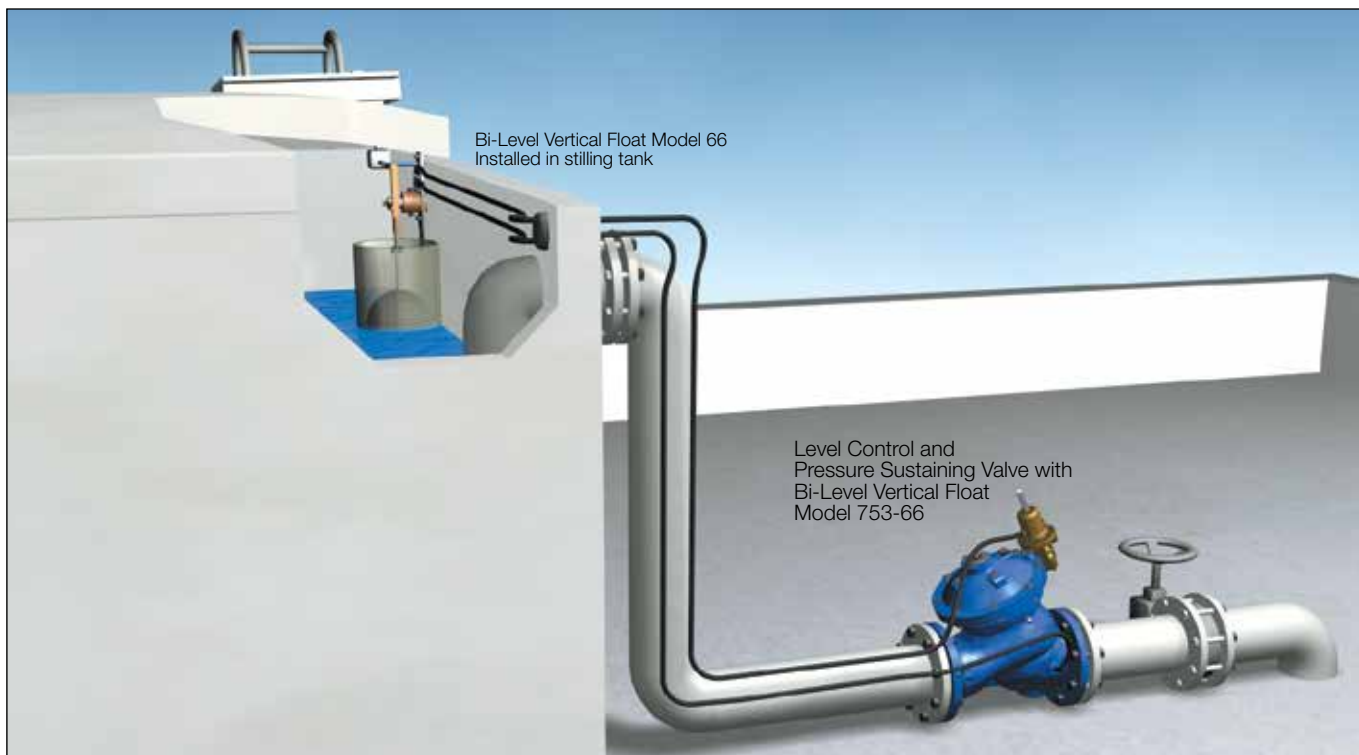


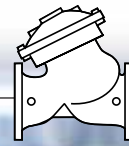
Typical Installation

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 ; 1/2-36"

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)

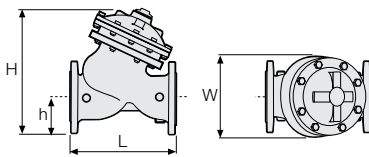
Kv = Metric system - valve flow coefficient (flow in m³/h at 1 bar ΔP with 15°C water)

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																												54	62	57	66	60	69	65	75	145	167	395	456	610	705	905	1,045	1,520	1,756	-	-	2,250	2,599	-	-	4,070	4,701				
	700 & 700EN	Kv / Cv - V-Port																												46	53	48	56	51	59	55	64	123	142	336	388	519	599	769	888	1,292	1,492	-	-	1,913	2,209	-	-	3,460	3,996				
	700 & 700EN	Kv / Cv - "Y" Flat																												42	49	50	58	55	64	115	133	200	230	460	530	815	940	1,250	1,440	1,850	2,140	1,990	2,300	3,310	3,820	3,430	3,960	3,550	4,100				
700-ES	PN16; 25	Kv / Cv - "Y" V-Port																												36	41	43	49	47	54	98	113	170	200	391	450	693	800	1,063	1,230	1,573	1,820	1,692	1,950	2,814	3,250	2,916	3,370	3,018	3,490				
		L (mm / inch)																												230	9.1	230	9.1	290	11.4	310	12.2	350	13.8	480	18.9	600	23.6	730	28.7	850	33.5	-	-	1,100	43.3	-	-	1,250	49.2				
		W (mm / inch)																												150	5.9	165	6.5	185	7.3	200	7.9	235	9.3	300	11.8	360	14.2	425	16.7	530	20.9	-	-	626	24.6	-	-	838	33				
		h (mm / inch)																												80	3.1	90	3.5	100	3.9	105	4.1	125	4.9	155	6.1	190	7.5	220	8.7	250	9.8	-	-	320	12.6	-	-	385	15.2				
		H (mm / inch)																												240	9.4	250	9.8	250	9.8	260	10.2	320	12.6	420	16.5	510	20.1	605	23.8	725	28.5	-	-	895	35.2	-	-	1,185	46.7				
Weight (Kg/lb)																												10	22	10.8	23.8	13.2	29	15	33	26	57.2	55	121	95	209	148	326	255	561	-	-	437	960	-	-	1,061	2,334						
700-EN	PN16; 25	L (mm / inch)																												-	-	-	-	-	-	310	12.2	350	13.8	480	18.9	600	23.6	730	28.7	850	33.5	-	-	-	-	-	-	-	-				
		W (mm / inch)																												-	-	-	-	-	-	200	7.9	235	9.3	320	12.6	390	15.4	480	18.9	550	21.7	-	-	-	-	-	-	-	-	-			
		h (mm / inch)																												-	-	-	-	-	-	100	3.9	118	4.6	150	5.9	180	7.1	213	8.4	243	9.6	-	-	-	-	-	-	-	-	-			
		H (mm / inch)																												-	-	-	-	-	-	305	12	369	14.5	500	19.7	592	23.3	733	28.9	841	33.1	-	-	-	-	-	-	-	-	-			
		Weight (Kg/lb)																												-	-	-	-	-	-	21	46.2	31	68.2	70	154	115	253	198	436	337	741	-	-	-	-	-	-	-	-	-			
700 Flanged	"Y" PN16 Class 150	L (mm / inch)																												205	8.1	210	8.3	222	8.7	250	9.8	320	12.6	415	16.3	500	19.7	605	23.8	725	28.5	733	28.9	990	39	1,000	39.4	1,100	43.3				
		W (mm / inch)																												155	6.1	165	6.5	178	7	200	7.9	223	8.8	320	12.6	390	15.4	480	18.9	550	21.7	550	21.7	740	29.1	740	29.1	740	29.1				
		h (mm / inch)																												78	3.1	83	3.3	95	3.7	100	3.9	115	4.5	143	5.6	172	6.8	204	8	242	9.5	268	10.6	300	11.8	319	12.6	358	14.1				
		H (mm / inch)																												239	9.4	244	9.6	257	10.1	305	12	366	14.4	492	19.4	584	23	724	28.5	840	33.1	866	34.1	1,108	43.6	1,127	44.4	1,167	45.9				
		Weight (Kg/lb)																												9.1	20	10.6	23	13	29	22	49	37	82	75	165	125	276	217	478	370	816	381	840	846	1,865	945	2,083	962	2,121				
	"Y" PN25 Class 300	L (mm / inch)																												205	8.1	210	8.3	222	8.7	264	10.4	335	13.2	433	17	524	20.6	637	25.1	762	30	767	30.2	1,024	40.3	1,030	40.6	1,136	44.7				
		W (mm / inch)																												155	6.1	165	6.5	185	7.3	207	8.1	250	9.8	320	12.6	390	15.4	480	18.9	550	21.7	570	22.4	740	29.1	740	29.1	750	29.5				
		h (mm / inch)																												78	3.1	83	3.3	95	3.7	105	4.1	127	5	159	6.3	191	7.5	223	8.8	261	10.3	295	11.6	325	12.8	357	14.1	389	15.3				
		H (mm / inch)																												239	9.4	244	9.6	257	10.1	314	12.4	378	14.9	508	20	602	23.7	742	29.2	859	33.8	893	35.2	1,133	44.6	1,165	45.9	1,197	47.1				
		Weight (Kg/lb)																												10	22	12.2	27	15	33	25	55	43	95	85	187	146	322	245	540	410	904	434	957	900	1984	967	2,132	986	2,174				
700 Threaded	"Y" PN16; 25 Class 150; 300	L (mm / inch)																												155	6.1	155	6.1	212	8.3	250	9.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		W (mm / inch)																												122	4.8	122	4.8	122	4.8	163	6.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
		h (mm / inch)																												40	1.6	40	1.6	48	1.9	56	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
		H (mm / inch)																												201	7.9	202	8	209	8.2	264	10.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
		Weight (Kg/lb)																												5.5	12	5.5	12	8	18	17	37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
		L (mm / inch)																												-	-	121	4.8	140	5.5	159	6.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
		W (mm / inch)																												-	-	122	4.8	122	4.8	163	6.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Globe PN16 Class 150	Globe PN25 Class 300	R (mm / inch)																												-	-	40	1.6	48	1.9	55	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		h (mm / inch)																												-	-	83	3.3	102	4	115	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
		H (mm / inch)																												-	-	225	8.9	242	9.5	294	11.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		Weight (Kg/lb)																												-	-	5.5	12	7	15	15	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		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	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		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	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		



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

