

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



### Model 753-65

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

The Model 753-65 Level Control and Pressure Sustaining Valve with Bi-Level Electric Float is a hydraulically operated diaphragm actuated control valve that controls reservoir filling in response to an electric signal. The valve opens at pre-set low level and shuts off at pre-set high level. During filling, it sustains minimum upstream pressure, regardless of fluctuating flow or reservoir level.

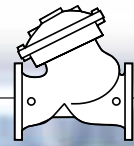
### Features and Benefits

- **Line pressure driven** – Independent operation
- **Bi-Level electric float switch**
  - On/off service
  - Low cavitation damage
  - No hydraulic sensing tubes
  - Simplified float installation and setting
  - Reservoir inherent refreshing
- **Solenoid controlled**
  - Low power consumption
  - Normally Open or Normally Closed main valve
- **Double chamber**
  - Moderated valve reaction
  - Protected diaphragm
- **In-line serviceable** – Easy maintenance
- **Flexible design** – Easy addition of features
- **Balanced seal disk** – High relief flow capacity

### Major Additional Features

- Hydraulic float backup – **753-65-66**
- Altitude pilot backup – **753-65-80**
- Closing surge prevention – **753-65-49**
- Electrically selected multi-level settings – **753-65-45**

See relevant BERMAD publications.



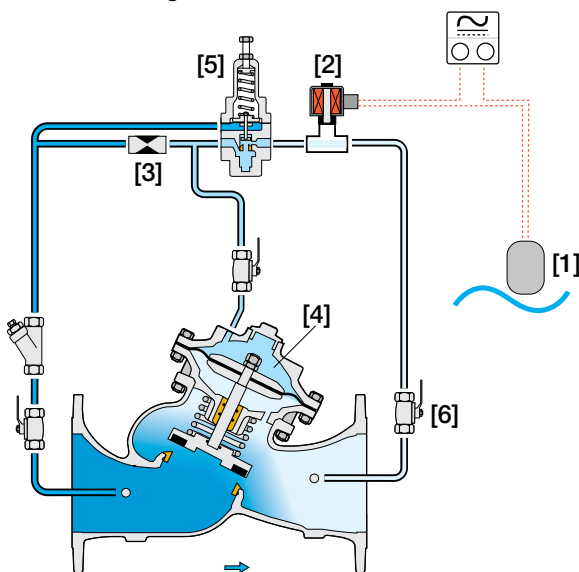
## Operation

The Model 753-65 is a pilot controlled valve equipped with an adjustable, 2-Way pressure sustaining pilot, a solenoid pilot\* and an electric float switch.\*\*

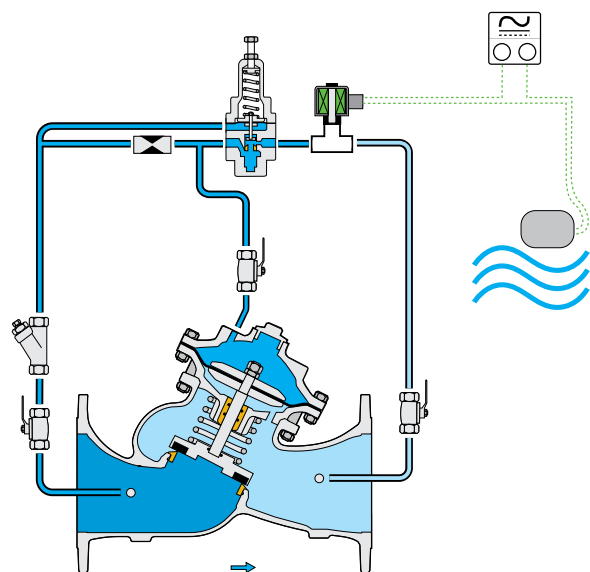
The float switch [1] closes at pre-set low level to energize the solenoid [2] and opens at pre-set high level to de-energize the solenoid. The restriction [3] continuously allows flow from the valve inlet into the upper control chamber [4]. The pressure sustaining pilot [5], set to minimum allowed system pressure, senses upstream pressure, and together with the solenoid pilot, controls outflow from the upper control chamber. At high level, the solenoid closes causing the main valve to shut off. At low level, the solenoid opens leaving the pressure sustaining pilot to modulate the main valve open while sustaining minimum upstream pre-set pressure. The downstream cock valve [6] enables manual closing.

\* Normally Closed, Normally Open and Last Position main valves are available.

\*\* Other switching means are available.



Low Level - Pressure Sustaining Mode



High Level - Valve Closed

## Pilot System Specifications

### Standard Materials:

#### Pilot:

Body: Stainless Steel 316 or Bronze

Elastomers: Synthetic Rubber

Spring: Stainless Steel

#### Solenoid:

Body: Brass or Stainless Steel

Elastomers: NBR or FPM

Enclosure: Molded epoxy

#### 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

### Solenoid Electrical Data:

#### Voltages:

(ac): 24, 110-120, 220-240, (50-60Hz)

(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

#### Float switch

**Max. Current:** 16A@250V

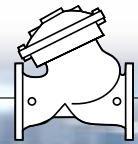
**Fluid specific weight:** 0.95-1.10

**Working temperature:** Water up to 60°C (140°F)

**Dimensions:** Length – 124 mm (4.9") Width – 90 mm (3.5") Cable length – 4.9 m (16 ft.)

#### Notes:

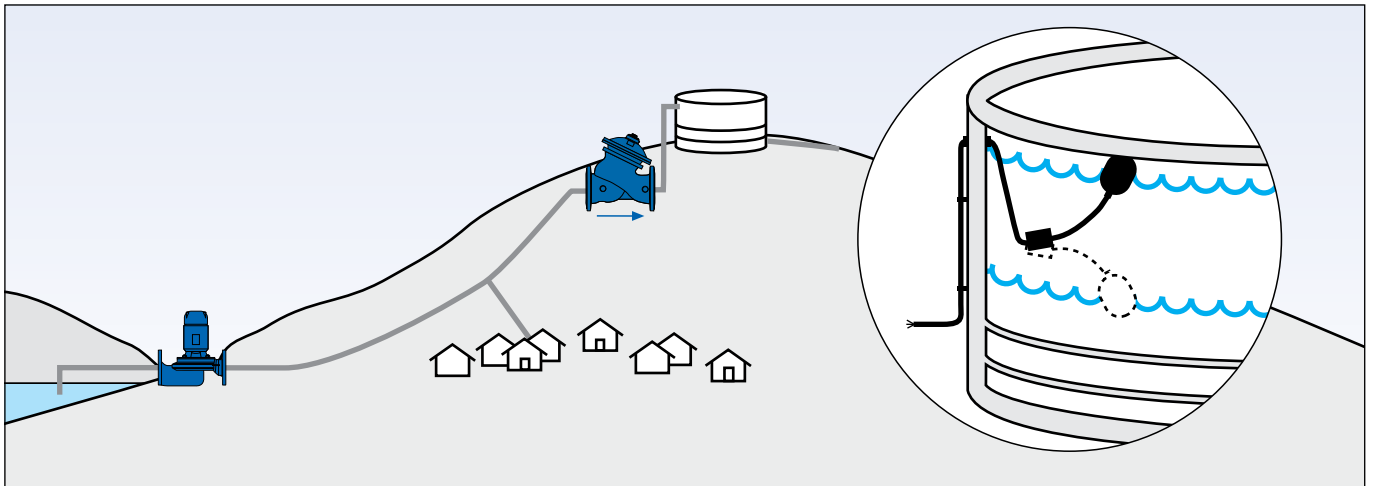
- Recommended continuous flow velocity:  
0.3-6.0 m/sec ; 1-20 ft/sec
- Minimum operating pressure: 0.7 bar ; 10 psi.  
For lower pressure requirements consult factory
- Inlet pressure, outlet pressure and flow rate are required for optimal sizing and cavitation analysis



## 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 750-65 Level Control Valve, thereby modifying it to become the Model 753-65 Level Control and Pressure Sustaining Valve.



## Typical Installation

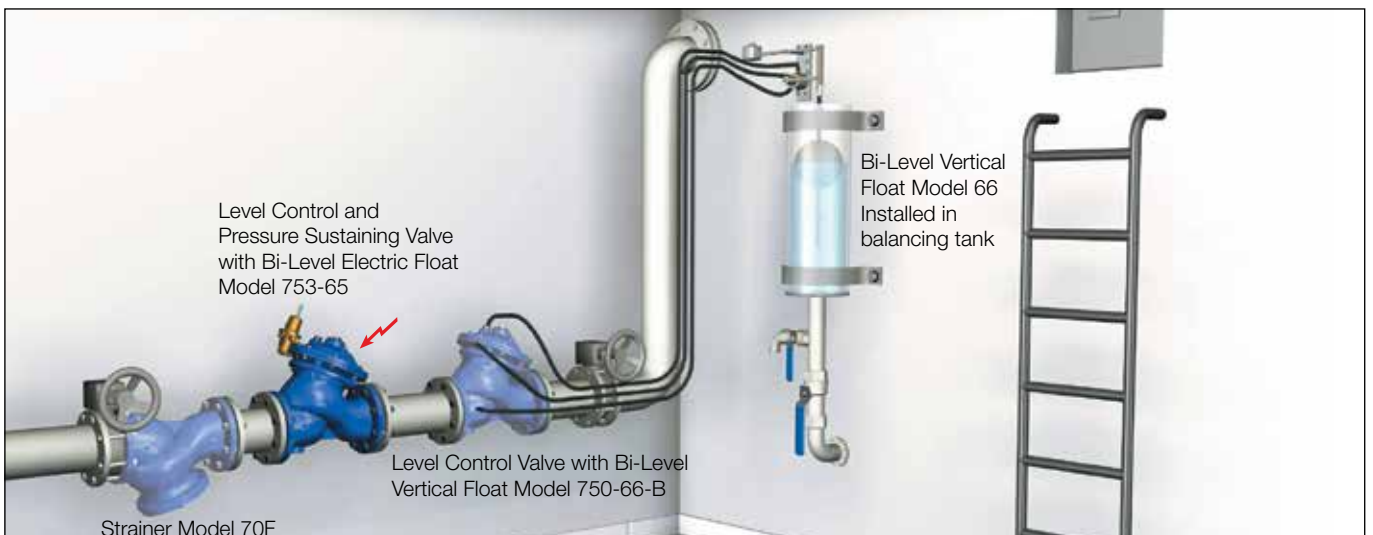
### Basement reservoirs in high-rise building

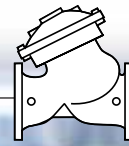
Excellent reservoir level control is achieved by installing BERMAD's Model 750-66-B due to these features:

- On/off service
- Full powered opening & closing
- Low throttling noise
- Non-slam closing characteristic

When prioritizing consumers over reservoir filling is required, rather than adding the pressure sustaining feature to the Model 750-66-B, BERMAD recommends installing a Model 753-65, Normally Open, Level Control and Pressure Sustaining Valve with Bi-Level Electric Float. This enables:

- Adding the required pressure sustaining feature
- Ensuring full backup by a "second line" of protection
- Retaining all the benefits of the Model 750-66-B





### 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

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

$\Delta P$  = Differential Pressure for fully open valve (bar; psi)

$Q$  = Flow rate (m³/h; gpm)

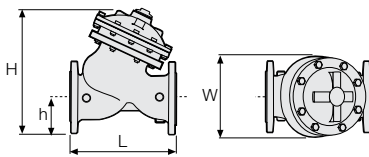
$Kv$  = Metric system - valve flow coefficient (flow in m³/h at 1 bar  $\Delta P$  with 15°C water)

$Cv$  = US system - Valve flow coefficient (flow in gpm at 1 psi  $\Delta P$  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)																											
		h (mm / inch)																											
		H (mm / inch)																											
		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)																											
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		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

