

## Level Control Valve with Bi-Level Altitude Control

### Model 750-86

- High level reservoirs & water towers
- Energy cost critical systems
- Systems with poor water quality
- Inherent refreshing
- Low noise generation

The Model 750-86 Level Control Valve with Bi-Level Altitude Control is a hydraulically controlled, diaphragm actuated control valve that shuts off at pre-set reservoir high level and fully opens at pre-set low level, as sensed by two 2-Way high sensitivity altitude pilot mounted on the main valve.

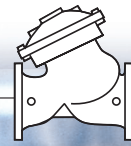


### Features and Benefits

- Line pressure driven – Independent operation
- Bi-level altitude pilot
  - No float, simple installation
  - On/Off service
  - No cavitation damage
  - Suitable for low quality water
  - Reservoir inherent refreshing
- Double chamber design
  - Moderated valve reaction
  - Protected diaphragm
- External installation
  - Easy access to valve
  - Easy level setting
  - Less wear and tear
- Balanced seal disk – High flow capacity
- In-line serviceable – Easy maintenance
- Flexible design – Easy addition of features

### Major Additional Features

- Pressure sustaining – 753-86
  - Flow control – 757-86-U
  - Closing surge prevention – 750-86-49
  - Level sustaining – 75A-86
- See relevant BERMAD publications.



## Operation

The Model 750-86 adds a low level setting feature to the standard Altitude Control Valve.

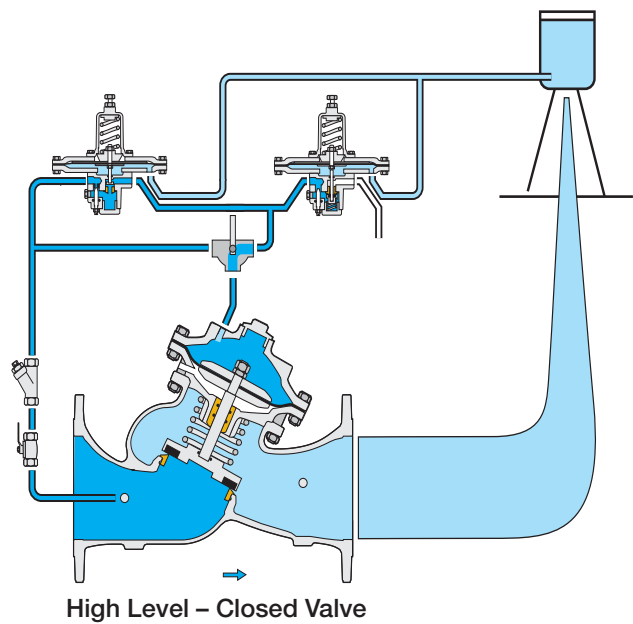
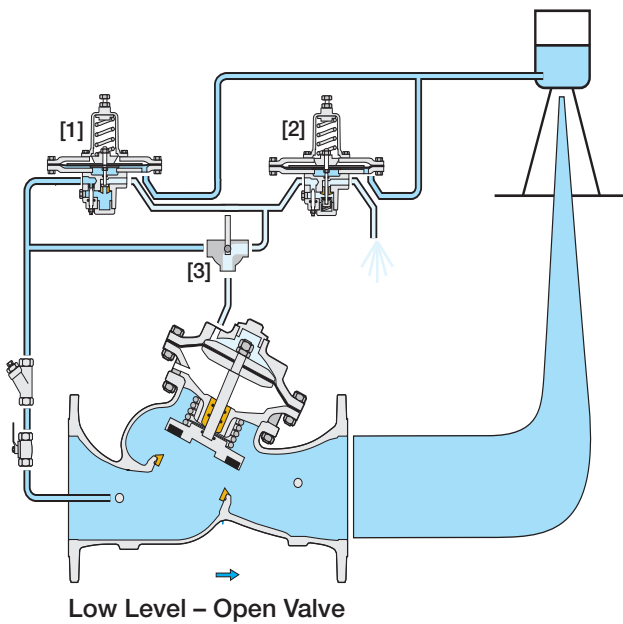
A high level pilot [1] and a low level pilot [2] are adjusted to open at different settings.

Should the static head rise to the closing set point, the high level pilot opens causing the main valve to close.

Should the static head drop to the opening set point, the low level pilot opens causing the main valve to open.

When the level is between pilot settings, both pilots are closed and the main valve remains in its last position.

The 3-Way cock valve [3] enables manual closing of the main valve.



## Pilot System Specifications

### Standard Materials:

#### Pilot:

Body & Cover: Brass or Stainless Steel

Elastomers: Synthetic Rubber

Spring: Galvanized Steel or Stainless Steel

Internal parts: Stainless Steel

Diaphragm Covers: Fusion bonded epoxy coated Steel or Stainless Steel

#### Tubing & Fittings:

Stainless Steel 316 or Copper & Brass Open

#### Accessories:

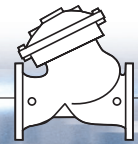
Stainless Steel 316, Brass and Synthetic Rumsbber Elasto

### Altitude Adjustment Range:

Code	Meter	Feet
M1	2-6	7-20
M6	2-14	7-46
M5	5-22	17-72
M4	15-35	49-115
M8	25-70	82-230

### Notes:

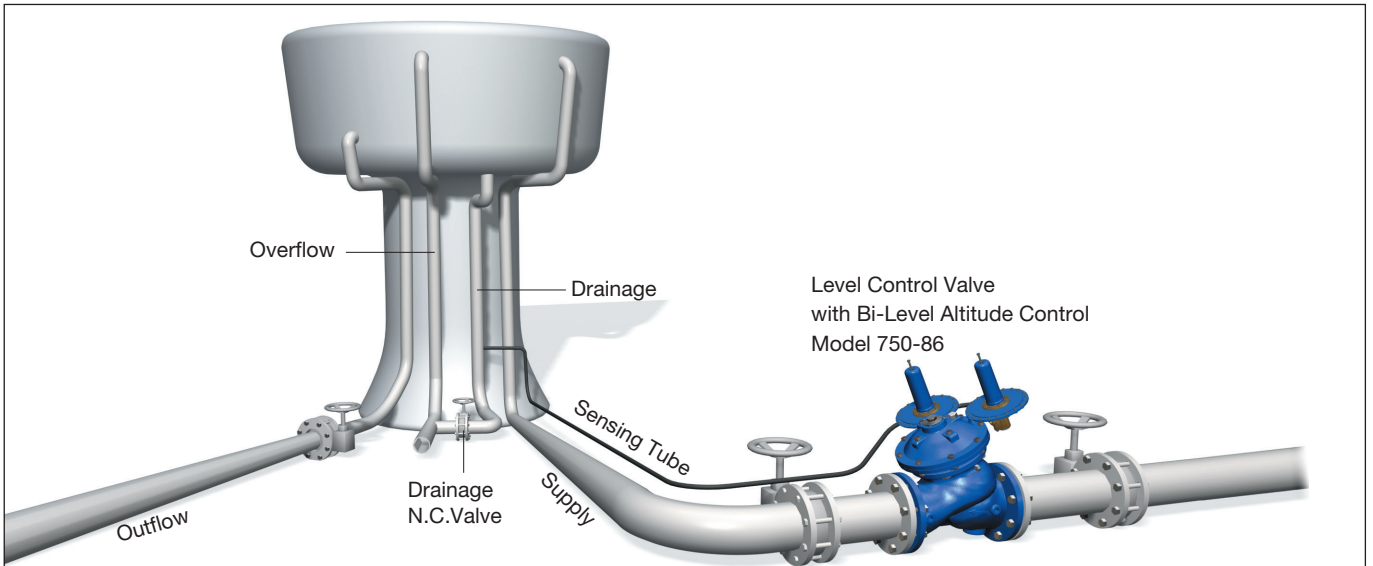
- Recommended continuous flow velocity: 0.3-6.0 m/sec ; 1-20 ft/sec
- Minimum operating pressure: 0.7 bar ; 10 psi.  
For lower pressure requirements consult factory



## Typical Applications

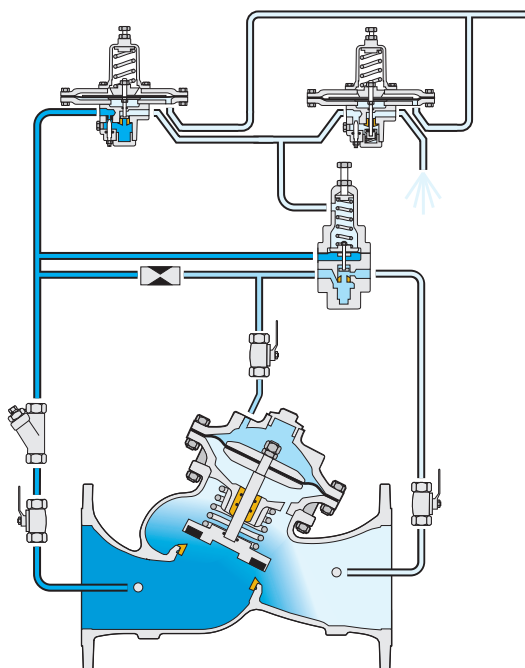
### Bi-Level Water Towers

The Model 750-80-X senses the static head of the water level in the tank by means of a high sensitivity pilot. To do so accurately, the sensing tube end must be connected to a “still point” at the bottom of the tank. The drainage pipe provides this “still point,” a location not influenced by flow velocity as in filling and outflow pipes.



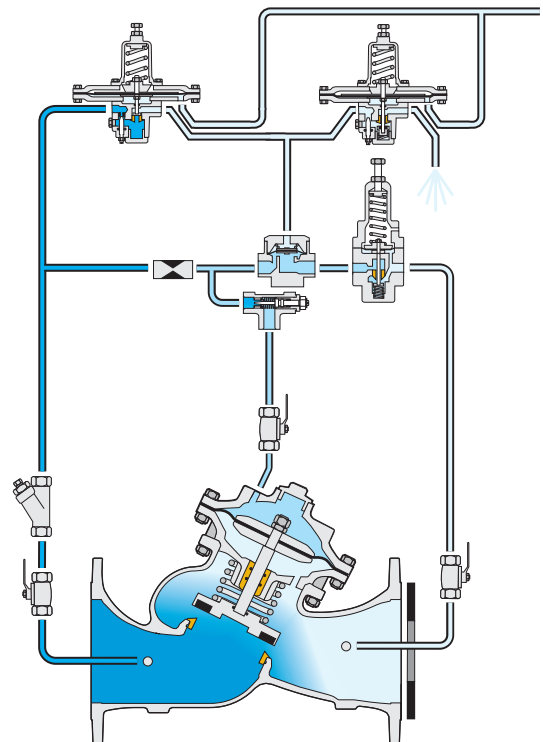
### Level Control and Pressure Sustaining Valve with Bi-Level Altitude Control Model 753-86

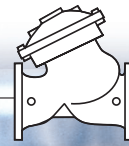
The Model 753-86 adds the Bi-Level altitude control feature to the Model 730 Pressure Sustaining Valve for applications where prioritizing consumers over reservoir filling is needed.



### Level and Flow Control Valve with Bi-Level Altitude Control Model 757-86-U

The Model 757-86-U adds the Bi-Level altitude control feature to the Model 727-U Flow Control Valve.





### Technical Data

**Size Range:** DN40-900 ; 1 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

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

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

$Q$  = Flow rate (m<sup>3</sup>/h; gpm)

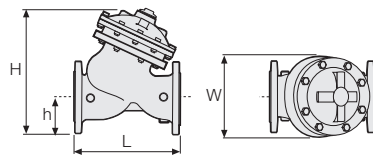
$Kv$  = Metric system - valve flow coefficient (flow in m<sup>3</sup>/h at 1 bar  $\Delta P$  with 15°C water)

$Cv$  = 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-ES																												
	700-EN																												
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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	
	"Y" PN25 Class 300	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	
		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)	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	
	700 Threaded	"Y" PN16; 25 Class 150; 300	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
			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																		
Angle PN16; 25 Class 150; 300		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																			
700 Threaded	"Y" PN16; 25 Class 150; 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																			



### 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
Globe PN25 Class 300	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
	h (mm / inch)	470	18.5	490	19.3	520	20.5	553	21.8	600	23.6
Globe PN25 Class 300	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

