

Level Control Valve with Modulating Horizontal Float

Model: FP 450-60

- Reservoir filling
 - Low volume reservoirs
 - Large surface area reservoirs

Description

The Model FP 450-60 Level Control Valve with Modulating Horizontal Float is a hydraulically controlled, diaphragm actuated, control valve that controls reservoir filling to maintain constant water level, regardless of fluctuating demand.

Features and Benefits

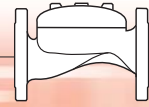
- **Line pressure driven** – Independent operation
- **Modulating hydraulic float control**
 - “Always Full” reservoir
- **Fully supported vulcanized diaphragm**
 - One moving part
 - Rugged radial seal disk
 - Protected diaphragm
- **Dynamically restrained actuation**
 - Moderate valve reaction
 - Non-slam closing
- **Balanced rolling-diaphragm**
 - High flow capacity
 - Very low opening and closing pressure requirements
- **In-line serviceable** – Easy maintenance
- **Flexible design** – Easy addition of features
- **External installation** – Pilot operated



Major Additional Features

- Pressure sustaining – **453-60**
- Flow control – **457-60-U**
- Electric float backup – **450-60-65**

For further options, See relevant BERMAD publications.



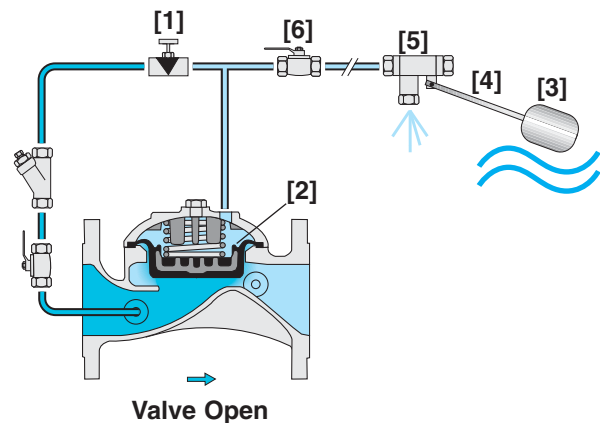
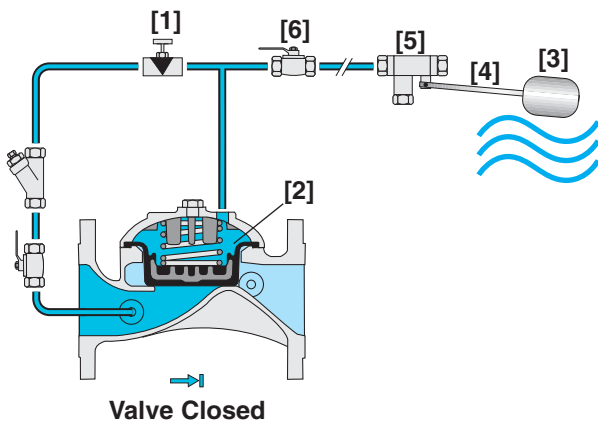
Operation

The Model FP 450-60 is a float controlled valve equipped with a 2-way, horizontal float pilot assembly.

The needle valve [1] continuously allows flow from the valve inlet into the control chamber [2]. The float [3] is attached to the float pilot arm [4]. The location of the float assembly and the position of the float determines the level setting.

Should the level rise toward the setting, the float pilot [5] throttles, pressure in the control chamber accumulates causing the main valve to throttle closed, reducing filling rate, and eventually closing drip tight.

Should the level fall, the float pilot releases pressure from the control chamber causing the main valve to modulate open. The needle valve controls the closing speed. The cock valve [6] enables manual closing.



Engineer Specifications

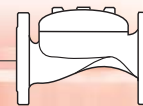
The Level Control Valve shall control reservoir filling to maintain constant water level regardless of fluctuating demand.

Main Valve: The main valve shall be an elastomeric type globe (or angle) valve with a rolling-diaphragm. The valve shall have an **unobstructed flow path**, with no stem guide or **supporting ribs**. The body and cover shall be ductile iron. All external bolts and nuts shall be of Stainless Steel 316. All valve components shall be accessible and serviceable without removing the valve from the pipeline.

Actuation: Valve actuation shall be accomplished by a fully peripherally supported, one-piece balanced rolling-diaphragm, vulcanized with a rugged radial seal disk. The diaphragm assembly shall be the only moving part.

Control System: The control system shall consist of a 2-way, stainless steel horizontal float pilot assembly, 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.

Quality Assurance: The valve manufacturer shall be certified according to the ISO 9000 and 9001 Quality Assurance Standard.



Typical Applications

Large Fire Water Reservoirs

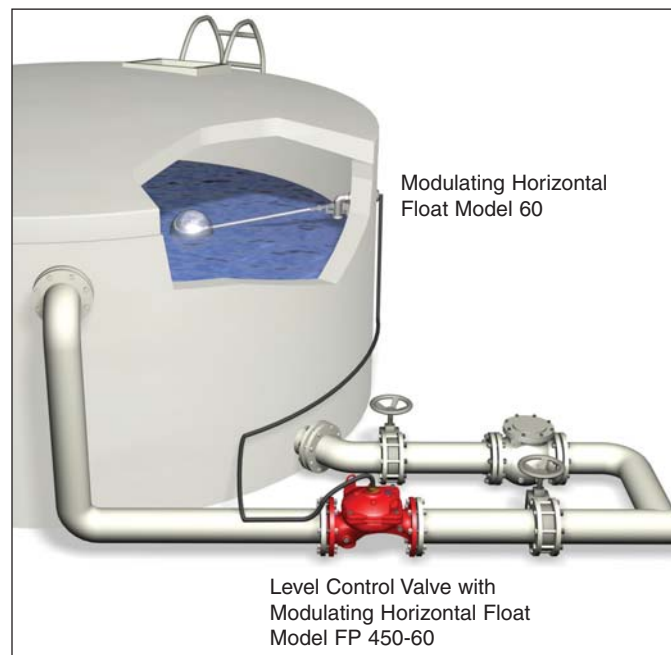
Mechanical level control valves present various issues:

- Valves are often at inaccessible locations
- Float and arm assemblies are heavy and cumbersome
- Relatively low maximum pressure
- Tendency for mechanical devices to leak
- Increased valve corrosion due to humid environment inside the tank
- Difficult maintenance

The Model FP 450-60 overcomes these difficulties by applying a float pilot, separated from the valve itself, which controls a Hydraulic Valve.

Consider replacing the “60” horizontal float assembly with the “67” vertical float assembly for:

- Heavy duty service
- Easy level setting
- Aggressive or corrosive fluids



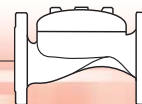
Rooftop Reservoirs

Rooftop reservoir level control is attained by electric control of the basement pumps according to reservoir level. As overflow of a rooftop reservoir can cause costly damage, hydraulic back-up protection is recommended. Where system design requires an “always full” rooftop reservoir, the Model FP 450-60 Modulating Level Control Valve:

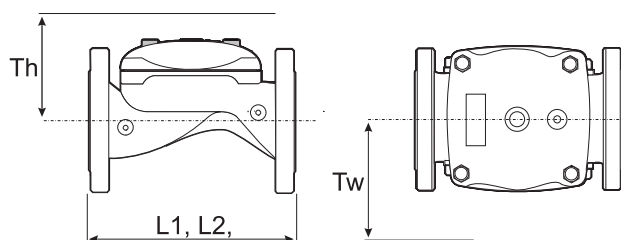
- Modulates open immediately when level starts dropping
- Closes securely to prevent overflow

Secured closing, even after long periods of the valve being open, is ensured by the fully developed hydraulic closing force applied over the peripherally, one-piece balanced rolling-diaphragm, vulcanized with a rugged radial seal disk.





Technical Data



Valve Size		1½, 2"		2½"		3"		4"		6"		8"		10"		12"	
Dimension	(1)L1	205	8½	205	8½	250	9⅜	320	12⅞	415	16⅝	500	19⅜	605	23⅜	725	28½
	(2)L2	180	7⅛	210	8¼	255	10⅛	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Tw	284	11⅜	284	11⅜	300	11⅜	313	12⅝	341	13⅞	415	16⅝	443	17⅞	481	18⅝
	Th	210	8¼	210	8¼	215	8⅞	243	9⅞	315	12⅞	350	13¾	382	15	430	6⅝

Notes:

1. L1 is for flanged valves.
2. L2 is for threaded NPT or BSP.
3. Tw & Th are max. for pilot system.
4. Data is for envelope dimensions, component positioning may vary.
5. Provide space around valve for maintenance.

Connection Standard

- Flanged: ANSI B16.42 (Ductile Iron), B16.5 (Steel & Stainless Steel), B16.24 (Bronze), B16.1 (Cast Iron), ISO PN16
- Threaded: NPT or BSP for 2, 2½ & 3"

Water Temperature

- 0.5 – 50°C (33 – 122°F)

Available Sizes

- Globe: 1½, 2, 2½, 3, 4, 6, 8, 10 & 12"
- Angle: 2, 3 & 4"

Pressure Rating

- Max. inlet: 250 psi (17 bar)

Manufacturers Standard Materials

Main valve body and cover

- Ductile Iron ASTM A-536

Main valve internals

- Stainless Steel & Elastomer

Control Trim System

- Brass control components/accessories
- Stainless Steel 316 tubing & fittings

Elastomers

- Polyamide fabric reinforced Polyisoprene, NR

Coating

- Electrostatic Powder Coating Polyester, Red (RAL 3002)

Optional Materials

Main valve body

- Carbon Steel ASTM A-216 WCB
- Stainless Steel 316
- Ni-Al-Bronze ASTM B-148

Control Trim

- Stainless Steel 316
- Monel® and Al-Bronze
- Hastelloy C-276

Elastomers

- NBR
- EPDM

Coating

- High Built Epoxy Fusion-Bonded with UV Protection, Anti-Corrosion

Float Data

Standard Materials:

- Pilot body: Stainless Steel
- Float: Stainless Steel
- Float rod: Stainless steel

Working temperature:

- Water up to 50°C (122°F)

Pressure rating:

- 16 bar (230 psi)

Ports:

- ½" BSP

If inlet pressure is below 0.7 bar (10 psi) or above 10 bar (150 psi) consult factory