BERMAD Fire Protection



Level Control Valve with 2-Way Vertical Float Model FP 450-67

- "Always Full" Firewater Reservoir
- Automatic Self Operation
- Suitable for systems with poor quality water



The Model FP 450-67 Level Control is a hydraulically controlled, diaphragm actuated valve for controlling the level in firewater reservoirs. The 2 way vertical float modulates the valve to keep the reservoir full or at a preset level at all times.

The unobstructed flow passage, simplicity of design and robust construction makes the FP 450-67 suitable for use with firewater which is often of a poor quality.

(for Illustration Only)

Features and Benefits

Line-pressure driven Independent operation

Rugged Reliability

- Single-piece fully supported rolling diaphragm
- Obstacle-free unobstructed flow path
- Suited for use with low quality water

Hydraulically Restrained Actuation

- Non-slam closing
- Quiet and smooth operation

High Performance

- High flow capacity
- Low operating pressure

External Installation

- Easy access to valve & float
- Simple level setting
- Less wear and tear

In-Line Serviceable

Quick and easy maintenance

Flexible Design

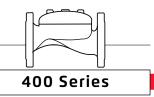
Simple addition of factory supplied features

Major Additional Features

- Pressure sustaining 453-67
- Electric float backup 450-67-65
- Flow control **457-67-U**

For further options, See relevant BERMAD publications.





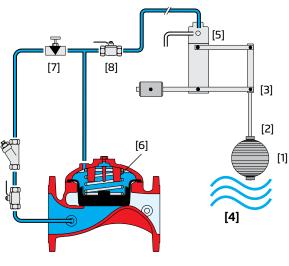
Operation

The Model 450-67 is a float controlled valve equipped with an adjustable, 2-Way vertical float pilot assembly. The needle valve **[7]** continuously allows flow from valve inlet into the control chamber **[6]**. The float **[1]** is locked on the float assembly rod **[3]** between two adjustable stoppers **[4]** and **[2]**.

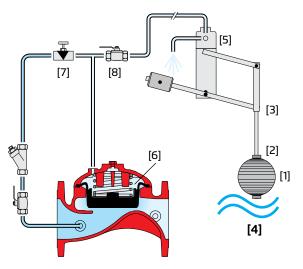
When the reservoir water is at the set level, the float pilot **[5]** will be closed and inlet pressure will accumulate in the main valve control chamber by way of the needle valve, causing the main valve to throttle, closing drip tight. Should the water level fall below the set level, the float pilot will release pressure from the control chamber causing the main valve to modulate open, keeping the reservoir level constant at all times.

The cock valve [8] overrides the float and enables manual closing.

Use the needle valve to control the closing speed.



Valve Closed (set position)



Valve Open (operating condition)

Engineer Specifications

The Level Control Valve shall hydraulically open and shut at pre set level.

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 construction material 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, single 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 BERMAD model 67 "always full type", 2-way vertical float pilot valve assembly with adjustable level mechanism of brass or stainless steel 316, a needle valve, isolating cock valves and Y control filter. All fittings shall be forged brass or stainless steel 316.

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.



Model FP 450 - 67

400 Series

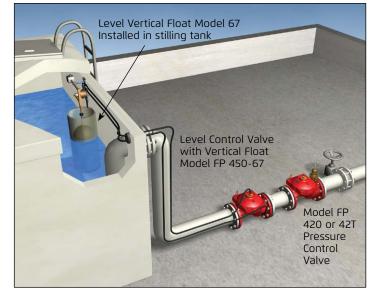
Infrastructure Installation

Rooftop reservoir

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 backup protection is recommended.

The Model FP 450-67 is suited to this function. When open, it presents minimal interference, but when needed, it shuts off securely.

To prioritize pressure to upper floor consumers or fire protection system, install the Model FP 420 or 42T Pressure Control Valve upstream from the Model FP 450-67.

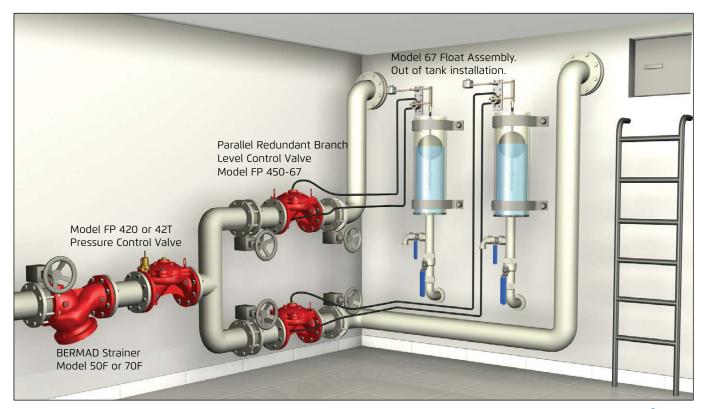


Basement Reservoirs

Basement reservoir design requires consideration of specific issues:

- Supply cut-off is unacceptable.
- Reservoir overflow might damage expensive equipment.
- Noise level and duration should be limited.
- Municipal supply pressure might be low.

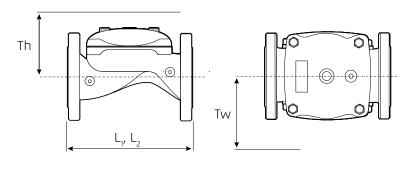
The Model FP 450-67, as part of a Reservoir Fill-Up system, fulfills these requirements and more.





Model FP 450 - 67

Technical Data



Size		2″		21/2″		3″		4″		6″		8″		10″		12″	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
Dimensions	L, ⁽¹⁾	205	8 ¹ /2	205	8 ¹ /2	257	101/8	320	12 ⁹ /16	415	165/16	500	1911/16	605	23 ¹³ /16	725	28 ¹ / ₂
	L ₂ ⁽²⁾	180	7 ¹ /16	210	8 ¹ /4	255	10 ¹ /16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Tw	284	11 ³ /16	284	11³/16	300	11 ³ /16	313	125/16	341	13 ⁷ /16	415	165/16	443	17 ⁷ /16	481	1815/16
	Th	210	8 ¹ /4	210	8 ¹ / ₄	215	87/16	243	9 ⁹ /16	315	12³/8	350	13³/4	382	15	430	615/16

Notes:

L, is for flanged valves.
L, is for threaded NPT or ISO-7-Rp.

3. Tw & Th are max. for pilot system.

Connection Standard

- Flanged: ANSI B16.42 (Ductile Iron), B16.5 (Steel & Stainless Steel), B16.24 (Bronze) ISO PN16
- Grooved: ANSI/AWWA C606 for 2, 3, 4, 6 & 8" • Threaded: NPT or ISO-7-Rp for 2, 21/2 & 3"
- Water Temperature
- 0.5 60°C / 33 140°F

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)

Available Sizes

- Globe: 11/2, 2, 21/2, 3, 4, 6, 8, 10 & 12"
- Angle: 2, 3 & 4"
- Pressure Rating
- Max. inlet: 250 psi (17 bar)

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

Elastomers

- NBR
- EPDM
- Coating
- Corrosion resistant fusion-bonded High Build epoxy coating with UV protection

Float Data

4. Data is for envelope dimensions, component positioning may vary.

5. Provide space around valve for maintenance

- **Standard Materials:**
- Pilot body: Brass
- Seals: NBR (Buna N)
- Internals: Stainless Steel & Brass
- Lever system: Brass
- Float: Plastic
- Float rod: Stainless Steel
- Base plate: Fusion bonded epoxy coated Stainless Steel

Optional materials:

- Stainless Steel metal parts and float General Information:
- 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 see BERMAD float installation recommendations

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



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