

## Level Control Valve with Modulating Vertical Float

(Sizes 1.5" – 16" DN40 - 400)

### Description

Hydraulically operated control valve that sustains reservoir level

Reservoir filling is in response to a hydraulically controlled modulating vertical float that maintains a constant water level, regardless of fluctuating demand (can be used on reservoir intake or outtake according to application)

### Installation

1. Ensure enough space around the valve assembly for future maintenance and adjustments
2. Prior to valve installation, flush the pipeline to ensure a flow of clean fluid through the valve
3. For future maintenance, install Isolation Valves upstream and downstream of the control valve
4. Install the valve in the pipeline with the valve flow direction arrow in the actual flow direction. When applicable use the lifting ring provided on the main valve cover for installing the valve
5. For best performance, it is recommended to install the valve horizontally and upright. For different valve positions – consult Bermad
6. It is highly recommended to install a Bermad strainer (model 70F) upstream of the control valve, to prevent debris from damaging the valve's operation
7. Install the float pilot assembly vertically either at an external balancing tank or at an internal stilling tank (refer to the "Float #67" catalog page)
8. Pull a 1/2" or 3/8" control tube, from the valve to the float
9. Determine the desired rod length according to level differential between the float assembly and reservoir desired level
10. Assemble the extension rods to the upper rod and to one another. Apply glue ("Loctite 200" or equivalent) and screw tight. Be careful not to damage the rod
11. Install the upper & lower stoppers on the rod without the float ball. Use 3/16" Allen-Key to lock the stoppers on the rod
12. Screw the upper rod to its place at the bottom of the lever system & tighten the lock nut using a 1/2" spanner
13. Balance the float assembly by moving the weight against the rod and stoppers (without the float ball). After reaching equilibrium, tighten the balancing-weight screw and its lock-nut using a 7/16" spanner
14. Remove the lower stopper to enable threading-in of the float ball. Reassemble the lower stopper and lock it in its place  
**Note:** You may have to pull out the whole rod, in order to reach the lower stopper. If so, release the rod lock-nut, unscrew the installed rod (with its extensions & the stoppers) and pull it up from the stilling tank. After threading-in the float ball and locking the lower stopper back in its place, reassemble the rod.
15. Connect the control tube ends, using a suitable 3/8" control tube, to the valve and to the float, according to control drawing below, from cock valve [2] to float inlet (upper) port

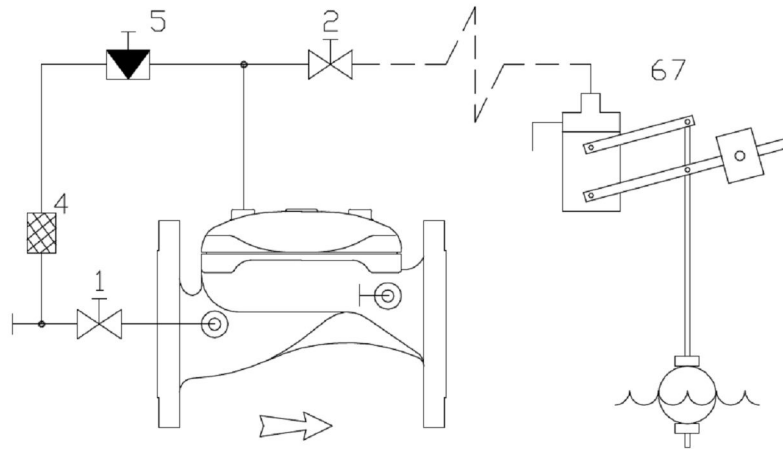
### Commissioning & Calibration

1. Confirm that the supply pressure is typical
2. Confirm that cock valves [1] and [2] are open (handle parallel to cock-valve body)
3. Adjust the water level by setting the stoppers:
  - Hold the lever system at its upper position & set the upper stopper to 100 mm below desired upper level (but not higher than 150 mm below over-flow level)
  - Slide the float ball up towards the upper stopper and fasten it by locking the lower stopper
4. Open upstream and downstream isolating valves. Allow the control valve to open (ensuring the lever system is at its lower position) and fill-up the reservoir
5. Vent air from the valve control loop:  
During filling the reservoir move the lever-system manually to its upper position, forcing the valve to close, then to its lower position, forcing the valve to open. At each position, vent air from the valve control loop by loosening a tube fitting at the highest point on the valve & at pilot float inlet port, allowing the air to bleed. Retighten the fittings eyebolts
6. Calibrating reservoir level:  
Ensure that the control valve closes as the water level reaches the set-level. If the control valve has not closed, move the lever-system to its upper position, forcing the valve to close. Change the stoppers location down, to lower level setting or up to raise it, until the valve closes at the desired upper-level. Allow the water level to drop by releasing water from the reservoir or by draining it. This will cause the valve to open
7. The needle valve [5] enables the 2-Way control and controls valve closing speed. It should be set between 1 to 2 turns open, according to valve size, float distance & elevation and the desired closing speed
8. Cock valve [2] enables manual closing

## Control Drawing

### PARTS LIST

- |    |                              |
|----|------------------------------|
| 1  | 2W Cock Valve                |
| 2  | 2W Cock Valve                |
| 4  | Control Filter               |
| 5  | Needle Valve                 |
| 67 | 2W Modulating Vertical Float |



## Trouble-Shooting

- Valve fails to Open:** Check for sufficient inlet pressure, confirm float setting & check cock valves status, check needle valve opening rate, confirm control tube length, size & elevation, check for clogged ports or fittings between valve & float
- Valve fails to Close:** Confirm float setting, check cock valves status, needle valve opening rate, clean control filter & check for clogged ports or fittings, check for any debris trapped in the main valve, confirm diaphragm is not leaking
- Valve fails to Regulate:** Check cock valves status, release air trapped in the valve's control chamber

## Preventative Maintenance

- System operating conditions that affect the valve should be checked periodically to determine the required preventative maintenance schedule.
- Maintenance instructions:
  - Tools required:
    - Metric and imperial wrenches
    - Anti seize grease
  - Periodical maintenance
    - Visual inspection to locate leaks and external damage
    - Functional inspection including: closing, opening and regulation
  - 5 yearly scheduled maintenance
    - Close upstream and downstream isolating valves (also close any external sensing pressure when used)
    - Once the valve is fully isolated, vent residual pressure by loosening a plug or fitting
    - Disassemble necessary control hubs, unscrew the cover fastening bolts and remove the cover.
    - Inspect the diaphragm and sealing area on the valve body
    - Replace the diaphragm if worn or damaged
    - Lubricate all threads with Anti seize grease and replace the cover

## Spare parts

Bermad has a convenient and easy to use ordering guide for valve spare-parts and control system components at

<http://www.bermad.com/downloads>

For solenoid valves refer to model and S/N on solenoid tags.

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