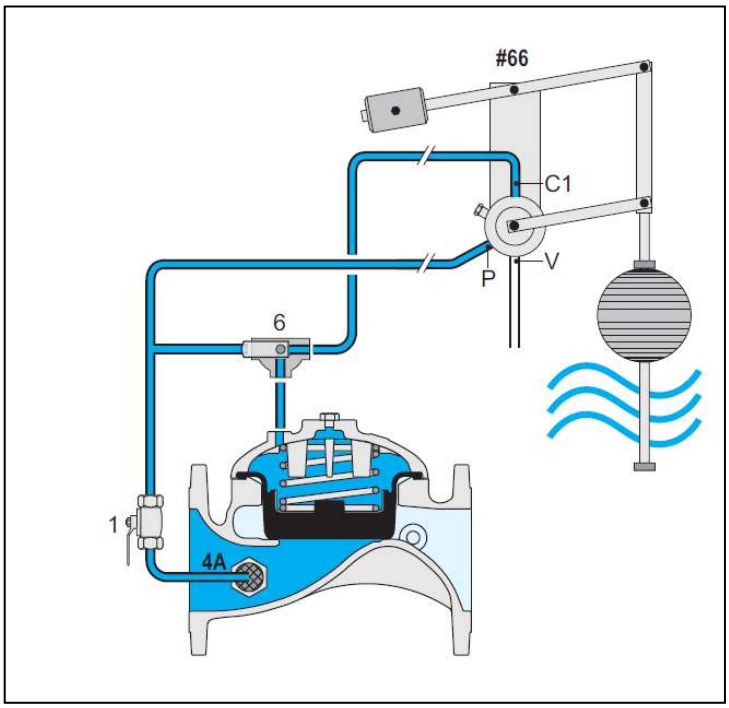
Level Control Valve with Bi Level Vertical Float

(Sizes 1.5''- 8"; DN40-200)

Description:

The BERMAD Model IR-450-66-Z Level Control Valve With Bi-Level Vertical Float is a hydraulically operated, Diaphragm actuated control valve. The valve is hydraulically controlled to fully open at preset reservoir low level and to shut at preset high level.



Installation:

1. Ensure enough space around the valve assembly for future maintenance and adjustments.
2. Prior to valve installation, flush the pipeline to insure flow of clean fluid through the valve.
3. For future maintenance, install Isolation gate valves upstream and downstream from Bermad control valve.
4. Install the valve in the pipeline with the valve flow direction arrow in the actual flow direction.
5. For best performance, it is recommended to install the valve horizontally and upright.
6. After installation carefully inspect/correct any damaged accessories, piping, tubing, or fittings.
7. Install the float pilot assembly either at an external balancing tank or at an internal stilling tank (refer to the enclosed "Float #66" catalog page).
8. Pull three parallel ½" or ⅜" control tubes, from the valve to the float. Mark each of the tubes at both sides for identification.
9. It is highly recommended to install a strainer Bermad model 70F upstream from the pressure reducing valve, to prevent debris from damaging valve operation.
10. Determine the desired rod length according to level differential between the float assembly and reservoir lowest level.
11. 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.
12. Install the upper & lower stoppers on the rod without the float ball. Use **3**/**16**" Ellen-Key to lock the stoppers on the rod
13. Screw the upper rod to its place at the bottom of the lever system & tighten the lock nut by ½" spanner.
14. 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 by 7/16" spanner.
15. Remove the lower stopper to enable threading-in the float ball. Reassemble the lower stopper & 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 installed rod.
16. Connect the control tubes ends, using ⅜" copper or reinforced plastic tube, to the valve and to the float according to control drawing :
    16.1. Tubes from in line filter (4A) to float port (P).
    16.2. Tube from float port (C1) to 3w cock valve (6).

Commissioning & Calibration:

1. Confirm that cock's valves (1+6) are open.
2. Adjust water levels & setting the stoppers:
   - 2.1. 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).
   - 2.2. Hold the lever system at its lower position & set the lower-stopper to 100 mm above desired lower level.
3. Open upstream and downstream isolating valves. Allow the IR- 450-66-Z to open (ensuring the lever system is at its lower position) and fill-up the reservoir.
4. Vent air from the valve control loop by loosening tube fitting at the highest point, allowing the air to bleed Retighten the fittings eyebolts. Open fully the downstream isolating valve.
5. Calibrating shutting upper-level:
   Ensure that the IR-450-66 close as the water level reaches the upper set-level. If the IR-450-66 has not closed, move the lever-system **manually** to its upper position, forcing the valve to close. Change the upper stopper location down, to lower level setting or up to raise it, until the valve closes **automatically** at the desired upper-level.
1. Calibrating opening lower-level:
   Allow the water level to drop by consuming from the reservoir or by draining it. Ensure the IR-450-66 remains closed until water level reaches the desired lower-level, switches at that point and open fully. Change the lower stopper location down, to lower level setting or up to raise it, until the valve opens **automatically** at the desired lower-level**.**

Trouble-Shooting:

Symptoms	Cause	Remedy
Valve fails to open	1. Cock valve (1+6) position. 2. Hydraulic control command. 3. Float Setting. 4. Not sufficient inlet pressure**.**	1. Check Cock valve (1+6) is open. 2. Check no existence of hydraulic pressure command in 3w cock valve (6). 3. Confirm float setting. 4. Check for sufficient inlet pressure.
Valve fails to close	1. Cock valve (1+6) is close. 2. Hydraulic control command. 3. Control circuit is clogged. 4. Debris. 5. Diaphragm.	1. Check Cock valve (1) is open. 2. Check existence of hydraulic pressure command in 3w cock valve (6). 3. Check for any debris trapped in the valve control circuit. 4. Check for any debris trapped in the valve body. 5. Check diaphragm is not leaking.

Preventive Maintenance:

1. System operating conditions that effect on the valve should be checked periodically to determent the required preventative maintenance schedule.
2. Maintenance instructions:
   - 2.1. Tools required:
     - 2.1.1. Metric and imperial wrenches
     - 2.1.2. Anti-seize grease
     - 2.1.3. Visual inspection to locate leaks and external damages
   - 2.2. Functional inspection including: closing, opening and regulation.
   - 2.3. Close upstream and downstream isolating valves (and external operating pressure when used)
   - 2.4. Once the valve is fully isolated vent pressure by loosening a plug or a fitting.
   - 2.5. Open the screw nuts and remove the cover unit from the valve body. Disassemble necessary control tubs.
   - 2.6. It is highly recommended to stock a reserve parts assembly for each size. This allows minimum system field work. Disassemble the cover and examine the inside parts carefully for signs of wear, corrosion, or any other abnormal conditions.
   - 2.7. Replace worn parts and all the Elastomers. Lubricate the bolts and screws threads with Anti seize grease.
   - 2.8. Winterizing /freezing prevention: drain the valve & the valve accessories (pilot, solenoid) on time.

Spare Parts

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

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