

Level Control & Pressure Sustaining Valve with Bi-Level Electrical Float

(Sizes 1½-14"; DN40-350)

Description

The Model 753-65 Level Control & Pressure Sustaining Valve with Bi-Level Electrical Float is a hydraulically operated, diaphragm actuated valve that controls reservoir filling in response to an electric signal. The valve opens at pre-set reservoir low level, and shuts off at pre-set high level. During filling, it sustains minimum upstream pressure regardless of fluctuating flow or reservoir 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. 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 strainer Bermad model 70F upstream from the pressure reducing valve, to prevent debris from damaging valve operation.
7. Install the float switch at a still place inside the reservoir.
Note: Float switch cable must be connected to a fixed point inside the reservoir and free of any obstructions along its full length. Apply a hook or another fixing-point above the desired shutting-level.
8. Cross-Check solenoid specifications with design requirements and solenoid/coil label.
9. Electric design/wiring must be carried out by authorized electrical engineer/electrician and comply with Electrical Codes.
10. Determine the loose cable length, to approximately 2 times longer than the reservoir maximum estimated level differential.
11. Thread the floating-weight on the cable and slide it along the cable until it's located away from the float-switch slightly more than half of the reservoir level differential.
12. Tie the cable to the fixing-point at the reservoir wall, using plastic zippers.
13. Pull and connect a 3-wired cable, from the control panel to the valve, for the solenoid actuation. Pull and connect a 3-wired cable, from the control panel to the float switch. Ensure approved cable protection. Confirm that the wires data meet solenoid specifications.
Note: Energizing the solenoid coil when it is not fixed in its place, is dangerous and might burn the coil.

Commissioning & Calibration

1. Confirm that cock valves [1], [2] & [3] are open (handle parallel to cock-valve body).
2. Confirm that the supply pressure is typical.
3. Open upstream and downstream isolating valves. Allow the 753-65 to open (ensuring the float switch is at its lower position – cable up) and start to fill-up the reservoir, while performing the below specified procedure:
 - 3.1. Calibrating the Pressure Sustaining Pilot & Venting air from the valve control loop:

The Model 753-65 is factory set to the system minimum allowed pressure. The set pressure is marked on the pilot's label. If the set pressure is either different from the design or the requirements have been changed, follow the below steps:

 - 3.1.1. Close the upstream isolating valve to reduce 753-65 inlet pressure. Ensure that the 753-65 sustains the upstream pressure, preventing it from decreasing below setting, even when the upstream isolating valve is almost closed.
 - 3.1.2. Unlock the pilot locking nut and slowly turn the pilot adjusting screw Clock-Wise to increase set pressure and Counter-Clock-Wise to decrease it.
 - 3.1.3. After the pressure is stabilized, lock the pilot locking nut and open fully the upstream isolating valve.
 - 3.1.4. During filling the reservoir change **manually** the float switch position to its upper position (cable down), forcing the valve to close, then to its lower position (cable up), forcing the valve to open. At each position, vent air from the valve control loop by loosening tube fitting at the highest point, allowing the air to bleed. Retighten the fittings eyebolts.
 - 3.2. Calibrating shutting upper-level:

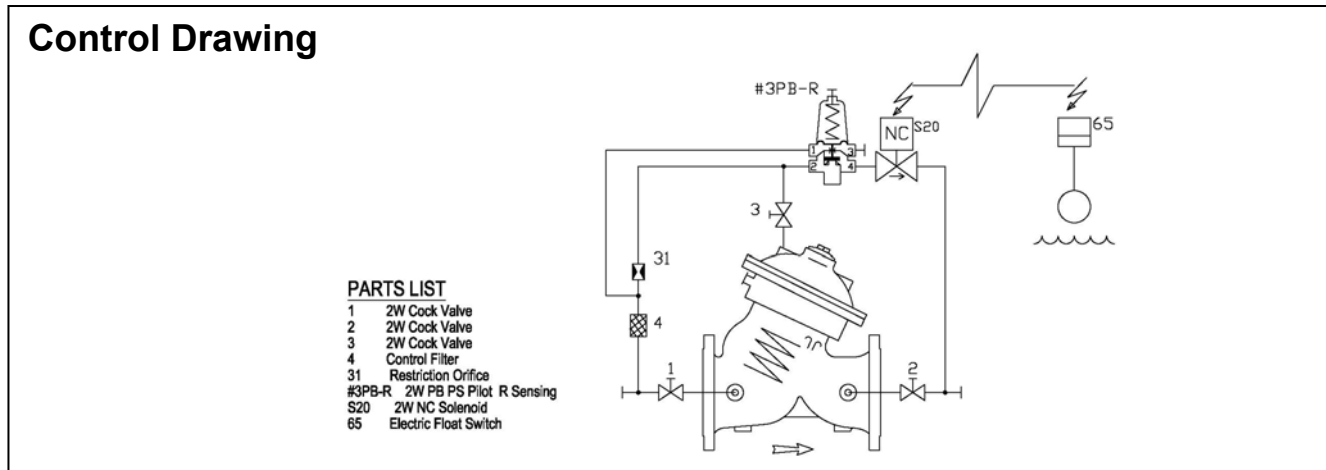
Ensure that the 753-65 closes as the water level reaches the upper set-level. If the 753-65 has not closed, slide the floating-weight along the cable towards the float-switch, to lower level setting or away from the float-switch to raise it, until the valve closes automatically at the desired upper-level. Lock the weight at that point.

3.3. Calibrating opening lower-level:

Allow the water level to drop by consuming from the reservoir or by draining it. Ensure the 753-65 remains closed until water level reaches the desired lower-level, switches at that point and opens fully. Pull the cable through its fixing-point, lengthening it to lower the level setting or pull back the cable, shortening it to raise the level setting, until the valve opens **automatically** at the desired lower-level.

Note: For switching valve tendency from closing to opening and vice versa, change manually the float-switch position cable-down to close and cable-up to open.

- The Restriction [31] enables the 2-Way control & reduces valve closing speed.



Trouble-Shooting

- Valve fails to Open:** Check for sufficient inlet pressure, confirm float switch & pilot setting, confirm power supply to solenoid & confirm solenoid coil is not burned, check cock valves status.
- Valve fails to Close:** Confirm float & pilot setting, check cock valves status, clean control filter & detect for clogged ports or fittings, confirm solenoid is not jammed, check if 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 753-65 control chamber.

Preventative Maintenance

- System operating conditions that effect on the valve should be checked periodically to determent the required preventative maintenance schedule.
- Maintenance instructions:
 - Tools required:
 - Metric and imperial wrenches
 - Anti seize grease
 - Visual inspection to locate leaks and external damages
 - Functional inspection including: closing, opening and regulation.
 - Close upstream and downstream isolating valves (and external operating pressure when used).
 - Once the valve is fully isolated vent pressure by loosening a plug or a fitting.
 - Open the stud nuts and remove the actuator as one unit from the valve body. Disassemble necessary control tubs.
 - It is highly recommended to stock a reserve actuator assembly for each size. This allows minimum system field work & system down time.
 - Disassemble the actuator and examine its parts carefully for signs of wear, corrosion, or any other abnormal conditions.
 - Replace worn parts and all the Elastomers. Lubricate the bolts and studs threads with Anti seize grease.

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.

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