Bermad Level Control Valve
with Altitude Pilot, One Way Flow

Model: FP 750 - 80

Installation
Operation
Maintenance

Shall be provided with Model FP 750-80 cat page

1. Safety First

BERMAD believes that the safety of personnel working with and around our equipment is the most important consideration. Please read all safety information below and from any other relevant source before attempting to perform any maintenance function.
Comply with all approved and established precautions for working with your type of equipment and/or environment.
Authorized personnel should perform all maintenance tasks.
Prior to performing a procedure, read it through to the end and understand it. If anything is not clear, ask the appropriate authority.
When performing a procedure, follow the steps in succession without omission"

2. Description

The Model 750-80 Altitude Control Valve, One Way Flow is an automatic control valve designed to control the high water level in reservoirs and tanks without the need for external control devices such as floats, etc. It is a pilot controlled, hydraulically operated, diaphragm actuated globe valve design. The valve diaphragm is line pressure activated, controlled by a 3-way Altitude pilot valve to open or close.

3. Approvals

BERMAD 750-80 has no special certifications. Consult the manufacturer for any component approval recently to appear in the fire protection equipment directory.

4. Installation

Installation Instructions

Allow enough room around the valve assembly for any adjustments and future maintenance/disassembly work.
Thoroughly flush the pipeline to remove any dirt, scale, debris, etc. Failure to do this may result in the valve being inoperable.
Isolation valves A and B should be installed upstream and downstream of the main valve to allow for future maintenance operations.
Install the valve in the pipeline with the valve flow arrow on the body casting in the proper direction. Use the lifting eye provided on the main valve cover for raising and lowering the valve. For best performance, install the valve horizontally with the cover up. Ensure that the valve is positioned so that the valve cover can be easily removed for future maintenance.
A 1/2" sensing line should be connected from cock valve (2) to a point somewhere between the reservoir / tank and a minimum of three (3) pipe diameters from the main valve outlet. This placement will ensure accurate static pressure sensing. If possible, the sense line should be sloped upwards from the pilot toward the reservoir / tank to minimize air pockets from forming in the pilot.
After installation, carefully inspect/correct any damaged accessories, piping, tubing, or fittings.

In Line Static Test

4.1. Open Valve Static Test

Close cock valves 1 and 26 (if supplied) to isolate the pilot control system. This prevents dirt from entering into the control loop.
Remove a blow off plug on the main valve cover. This will allow the valve to fully open.
CAUTION: This will allow the valve to open fully. Ensure that this will not cause system damage. Check for leaks at the flange connections, fittings, etc.

4.2. Closed Valve Static Test

Close cock valve 26 (if supplied) and open cock valve 1.
Vent any trapped air in the main valve cover by loosening the tube fitting at the highest point on the cover. This will trap the main valve in a closed position while the upstream pipeline is pressurized.
Check the valve cover and diaphragm area for leaks, and tighten the cover bolts if necessary.

5. Equivalent Length

Deluge Valve Equivalent Length Value (Steel Pipe), for use in hydraulically calculated systems

Valve Size	Equivalent Length Value Meter (Ft)
2”	9.1 (30) of 2” pipe
2½”	12.1 (40) of 2½” pipe
3”	13.7 (45) of 3” pipe
4”	14 (46) of 4” pipe
6”	27.4 (90) of 6” pipe
8”	45.7 (150) of 8” pipe

6. Operation

Note: Ensure upstream pressure to the main valve exists.

Operation Instructions:

6.1 Turn the adjusting screw on altitude pilot (12) clockwise (CW) to create a relatively high spring tension.
6.2 Open cock valve 1 and turn cock valve 26 (if supplied) to the automatic (A) position. Open isolation valves A and B
6.3 Create a sensing pressure equal to the desired high level static head. This may be accomplished by using the inlet pressure through cock valve 2 instead of the reservoir static head in order to simulate the high level static head. Use a pressure gauge to read the static head created and trap this pressure in the pilot by closing cock valve 2.
6.4 Bleed air from pilot (12) by loosening a few bolts around the high side of the diaphragm circle. Re-tighten bolts. Re-pressurize if necessary.
6.5 After attaining the simulated high water level head, slowly turn the adjusting screw on the altitude pilot (12) counterclockwise (CCW) until the main valve begins to close. Tighten the locknut on the adjusting screw.
6.6 Check valve operation by slowly decreasing and increasing the sensing pressure. The main valve should open and close respectively. Re-adjust altitude pilot (12) as necessary. To raise/increase static head and water level turn adjusting screw clock-wise (CW). (Pilot will exhaust water each time it opens). To decrease/lower static head and water level turn screw counterclockwise (CCW).
6.7 Re-connect cock valve 2 to the reservoir / tank sense line.

7. Maintenance and Inspection Test

Maintenance Schedule

The following procedure suggestions are a maintenance guide. These procedure suggestions will vary depending on the type of fluid and operation conditions.

Description	Norm
Clean filter	Annually
Seat inspection	Annually
Seal inspection	Biannually or longer
Indicator Stem freedom of rotation	Annually
Valve freedom of movement	Annually
Sealing	Annually
Needle valve operation	Annually
Pressure gauge	Semi Annually
Seat damage	Annually
Inspect and/or replace diaphragm heavy duty	3 years
Inspect and/or replace diaphragm light duty	5 years

Field Maintenance Instructions

Bermad valves require no lubrication, no packing tightening, and require a minimum of maintenance. A periodic inspection schedule should be established to determine how the flow, the erosion, the dissolved minerals and the suspended particles are affecting the valve
After about three years of operation, replacement of important parts and diaphragm is recommended. Remove the valve cover, clean the valve body from sediments, clean the control tubing entry holes, and install a new main valve diaphragm and replace pilot valve other Elastomers.
Filter cleaning - The filter should be cleaned manually every time the valve is opened for internal inspection.

Part List

Bermad has a convenient and easy to use Ordering Guide for valve spare-parts and control system components. (See attached pages with spare part list and illustrated parts breakdown).
Bermad Company has a complete inventory of parts. Shipment on any part is made the same day the order is received. Stocking distributors in many regions also have an inventory of parts. Contact your local representative.

It is not recommended to store spare rubber parts for long periods (e.g. years). Rubber in improper storage conditions can harden, have ozone cracking, grow mold bloom and heat aging. Order new rubber parts when required.

8. Trouble-Shooting

Symptom	Probable Cause	Action

Valve fails to open	Insufficient inlet pressure	Check/create inlet pressure.
	3-way Selector valve closed	Turn the 3-way valve to “automat” position.
	Priming ball valve closed	Open ball.
	Reservoir is full. Compression.	Check reservoir water level.
	Insufficient pilot spring	Turn the adjusting screw CW on pilot .
Valve fails to close.	Filter (4) blocked	Remove filter cap and screen to clean.
	3-way Selector valve closed	Turn the 3-way valve to “automat” position.
	Priming ball valve closed	Open ball.
	Debris trapped in main valve.	Inspect valve interior, remove the cover, check the seat and disc seal. refer to Model FP 400 data.
	Diaphragm in main valve is leaking	Test for leakage. Close main isolating valve, open valve cover and check diaphragm elastomer.
Valve fails to regulate	Filter (4) blocked	Remove filter cap and screen to clean.
	Priming ball valve closed	Open ball.
	Sensing line blocked.	Check and clean.
	Altitude Pilot valve not properly adjusted	Readjust pilot valve. To raise/increase static head and water level turn adjusting screw clockwise (CW). (Pilot will exhaust water each time it opens). To decrease/lower static head and water level turn screw counterclockwise (CCW).

Note: This IOM need to be provided along with Model FP 450-80 cat pages & 400 valve data