


DOROT Altitude Pilot Control Valve (AL)

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| Altitude Pilot Control Valve (AL) | |
| Level Control Using 3110A Pilot | |
| Applicable Series: | Sizes: |
| S300, S100, S500 | 1" - 6" / 25-200Rmm (≤8"R) |

1. Function Description

Dorot Altitude Pilot Control Valve ('AL') is an automatic, pilot controlled, level control valve, activated by the pressure of the pipeline. The main valve is controlled by a highly sensitive pilot, located outside the tank. The pilot opens or closes the valve in response to the static pressure of the water. The pilot allows for differential adjustments between maximum and minimum levels.

2. Technical Features

- Media: Water; natural, non-aggressive fluids
- Pressure rating: PN16 or PN25 (250psi or 360 psi) per specific valve-model
- Temp. range:
 - S300: 2 – 80 C (35 - 176 F)
 - S500/S100: 2 – 60 C (35 - 140 F)
- Flow velocity for continuous operation: 0.05 – 5.5 m/sec (0.3 – 18 ft/sec)
Max. flow velocity for intermittent operation: 8 m/sec (26 ft/sec)

Notes:

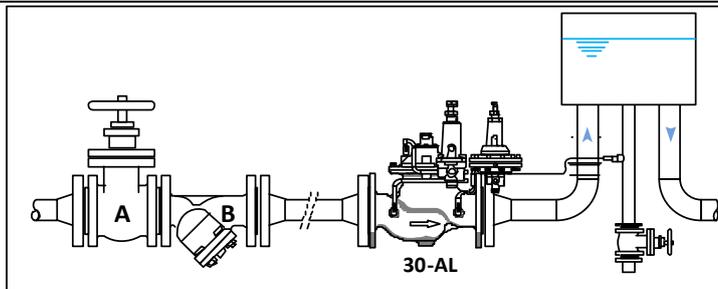
- In case the designed/actual operating conditions are not suitable for the above defined standard features, please contact Aquestia Applications-Engineering.
- Refer to specific valve model publications for further details.

3. Safety Guidelines

- Injury or damage to the system/surroundings may occur if installation, commissioning, operation or maintenance instructions are not followed correctly, or if applicable codes of practice and regulations are ignored.
- Dorot valves are designed for use in potable water systems. Please consult Aquestia Applications-Engineering in case other media is to be used.
- Be sure to depressurize the valve, prior to any disassembly of valve or control-trim parts.
- Electrical work (e.g. connection of solenoid valves, limit switches etc.), must be executed by a certified electrician.
- Errors in the layout-design, installation or operation may affect valve performance and may be a risk to the system and operators/users. Please note, the system layout, installation and commissioning of valves is the responsibility of the system designer, installer and/or user.
- In any case of doubt and prior to taking any further action, please contact Aquestia representative for assistance.


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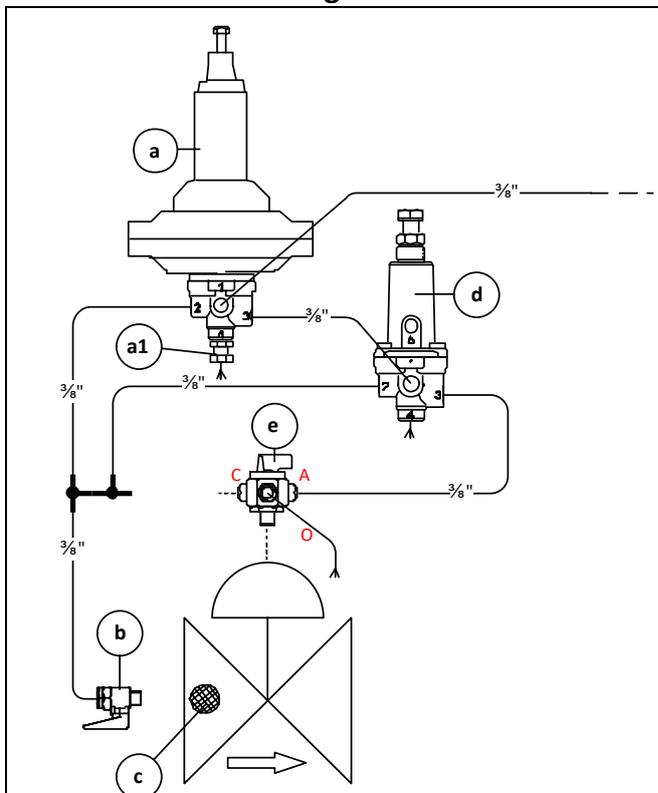
4. Installation



a. The valve can be installed in any position, although installation with the bonnet facing up is recommended for ease of maintenance.
b. Flow direction should match the engraved arrow on the bonnet.

- c. For maintenance considerations, it is recommended that manual isolation valves (gate or butterfly) are installed, both sides with a strainer between the upstream isolation valve and the valve inlet (as shown in the diagram above).
d. Flush pipeline, upstream of the valve, before assembly of the control valve.
e. Port #1 of the pilot (a) should be connected to the bottom of the tank in a turbulence-free location (Example: tank drainage pipe).

5. Control-Trim Design



Main Parts

- a. High-sensitivity, hydrostatic pressure control pilot valve, model 3110A
b. Isolation ball valve
c. Self-Flushing, inline control *
d. 3-way pilot valve (used as a relay valve), models 3110F or 31-100
e. SY3 – 3-pos. selector valve (SY6 for 6"/150mm)

(*) Note: If no self-flushing filter is available, an external filter should be installed on outlet of valve [b]



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6. Commissioning & Adjustment

High-level Setting:

- a. Fill the tank to its maximal level. Tighten the adjusting bolts of pilots [a, d] all the way.
- b. Turn the knob of valve (e) to port (C) - manual closure of the main valve.
- c. Open valve (b)
- d. Disconnect the control tube at port (3) of pilot (a)
- e. Turn adjustment bolt of pilot (a) in counterclockwise direction until water starts to leak from port #3. This is the set point of maximal level.
- f. Reconnect the control tube to port #3 of pilot (a)
- g. Disconnect the tube from port #3 of pilot [d] and turn it's adjusting bolt to release counterclockwise until water starts flowing from port #3.
- h. Reconnect the control tube to port #3 of pilot (d)
- i. Turn the knob of the valve [e] to "AUTO" position.

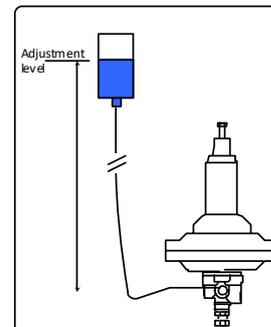
Low-level Setting:

- a. Open adjustment nut [a1] of pilot valve [a] outside (counterclockwise when looking from bottom), some 3 full turns from the fully inserted position.
- b. Drain the tank to the required low level, or: see **Remark** below.
- c. Turn adjustment nut [a2] of pilot valve [a] inside (clockwise when looking from bottom) until water starts to leak from the port [4].

Note: setting is very sensitive. Be sure there is no leakage from port #4 of pilot valve [a] when the level is higher than the minimal opening level.

Remarks:

- a. Stages (a) and (j) above, can be eliminated by using a water container, connected by small-diameter flexible tube, to port #1 of pilot valve [a], which will be located alternatively at high-and low levels, to simulate the static pressure of the tank at those levels.
- b. Factory setting of the differential between closing and opening levels, is approx. 1m\3ft'.
To increase differential, turn adjustment nut at port #4 counterclockwise. To reduce it, turn it clockwise.
Note: setting is very sensitive. Be sure there is no leakage from port #4 of pilot valve [a] when the level is higher than the minimal opening level.
- c. To raise max. level, turn adjustment bolt [a1] in pilot valve [a] clockwise. To reduce the level, turn it counterclockwise.



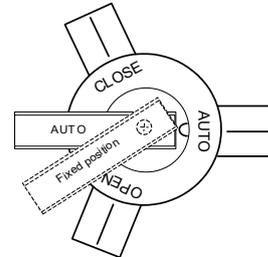


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7. Manual Activation

The valve can be opened or closed manually by operating the selector valve.

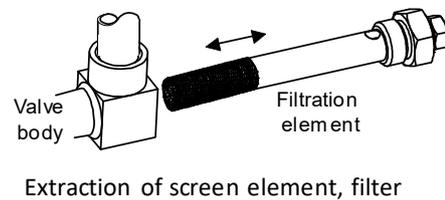
Turn the handle toward port "OPEN" or "CLOSE" respectively.



① REMEMBER to return the manual override to "AUTO" position after maintenance is completed.

8. Maintenance

- Inspect and clean the in-line filter [c] as water quality dictates. This service should be performed every few months.
During this operation, the main valve must be isolated from external pressure by closure of up- and downstream isolation valve [A].
- Inspect valve performance by checking water levels periodically.




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9. Troubleshooting

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| General check list | Ball valve [b] | All must be opened when operated |
| | Selector valve [e] | Set to "AUTO" position for automatic level-control operation |
| | Schematic diagram | Verify that the piping is consistent with the schematic diagram |
| | Filter | Check and clean |
| | Adjustment bolt [a1] | Adjust so that water comes out of port #3 of pilot valve [a] when the level is higher than the set maximal level, and that no water passes below that level |
| | Adjustment nut [a2] | Adjust so that water drains out of port #4 of pilot valve [a] when the level is lower than the set minimal opening level, and is not draining above that level |
| | Adjustment bolt [d1] | Adjust so that water comes out of port #3 of pilot valve [d] when pilot valve [a] sends a pressure-command to port #1 of pilot valve [d] |

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