

DOROT Pressure Sustaining (PS)

Control function: Pressure Sustaining (PS)	
Pressure Sustaining Using 68-510/CXPS Pilot	
Applicable Series:	Sizes:
S300, S100, S500	1½" - 14" \ 40-350mm

1. Function Description

Dorot Series 300 Pressure-Sustaining Valve ('30-PS') is activated by the pressure of the pipeline. The valve maintains a steady, predetermined pressure in the network, upstream of its location. Should the upstream pressure exceed the required set-point, the valve opens; increasing network flow, thus reducing upstream pressure. If upstream pressure falls below the required value, the valve closes drip-tight.

2. Technical Features

- Media: Water; natural, non-aggressive fluids
- Pressure-rating PN16 or PN25 (250psi or 360psi) per specific valve model
- Temp. range:
 - S300: 2 - 80°C (35 - 176°F)
 - S500/100: 2 - 60°C (35 - 140°F)
- Flow speed for continuous operation: 0.05 – 5.5 m/sec (0.3 – 18 ft/sec)
Max. flow speed for intermittent operation: 8 m/sec (26 ft/sec)

Notes:

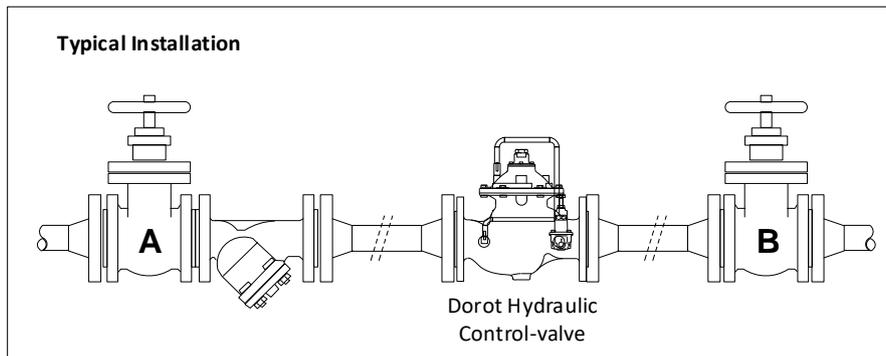
- In case the designed/actual operating conditions are not suitable for the above defined standard features, please contact Aquestia Applications-Engineering.
- Refer to specific valve model publications for further details.

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 fresh 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 works (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

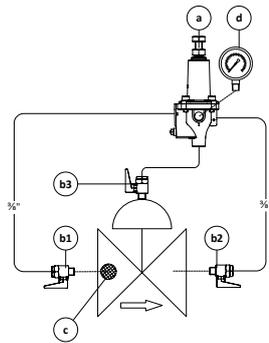


- a. The valve can be installed in any position, although installation with the bonnet facing up is recommended for ease of maintenance.
 - b. Flow direction should match the engraved arrow on the bonnet.
 - c. For maintenance considerations, it is recommended that manual isolation-valves (gate or butterfly) 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.
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5. Control Trim Design

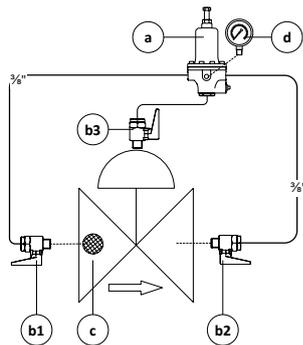
1.5" – 6" / 40 – 150 mm, 68510 Pilot



Main Parts

- a. Pilot valve
- b. Isolation ball valve
- c. Self-Flushing, inline control filter
- d. Pressure gauge

8" – 14" / 200 – 350 mm, CXPS Pilot



6. Commissioning & Adjustment

- a. Turn adjusting bolt of the pilot-valve [a] clockwise, all the way.
- b. Open ball valve [b1+b3] and close ball-valve [b2] to manually close the valve.
- c. Start the pump or open isolation valve [A].
- d. Bleed air out of the control chamber (refer to 'Air-bleed Procedure' below).
- e. Fully close the downstream isolation valve [B] and reopen it slightly (do not open more than 1-2 turns). Verify some type of demand, such as a hydrant valve open in the downstream system.
- f. Slowly turn adjusting bolt on pilot-valve [a] counter clockwise, until gauge [d] shows the required value + 0.5 bar.
- g. Open downstream ball valve.
- h. Slowly open downstream isolation valve.

ⓘ Charging the downstream system must be done slowly to prevent pressure surges

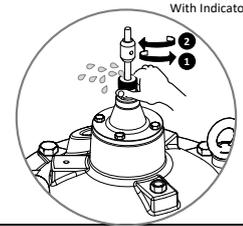
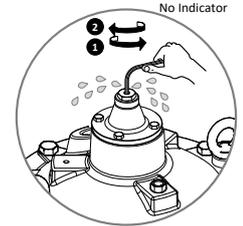
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Air-bleed in S-300/500 Valves

This should be done with the control chamber pressurized (main valve closed).

Using the supplied Allen key, open the air-bleed-screw on top of the bonnet and close it again when only water (no air), is discharged, (refer to diagram on the right).

In cases where an indicator-rod exists, (use hand-force only) to release and tighten the round nut on top of the indicator-guide.



7. Manual Activation

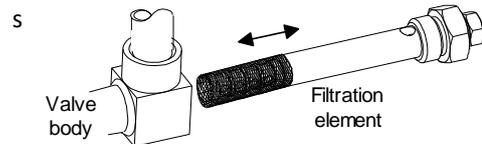
ⓘ Note that:

- The valve can be closed manually by closing ball valve [b2] while valves [b1, b3] are opened.
- The valve can be set in a fixed position, for maintenance of control circuit, by closure of valves [b3, b1 and b2] in that order. The automatic control function is cancelled while valve [b3] is closed.

ⓘ Return valves [b] to the “open” position after maintenance is completed.

8. Maintenance

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



Extraction of screen element, filter


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9. Troubleshooting		
General check list	Ball valves [b]	All must be opened when operated
	Schematics	Verify that the tubing is consistent with the schematics
	Release air trapped in the control chamber	
	Filter	Check and clean
	System adjustment	Verify that pilot valve is adjusted correctly by readjusting
Low upstream pressure	Upstream pressure is too low even though valve is throttled	Verify consumption can be supplied with the selected valve size
	Manual isolation valves [A] or [B] are throttled/closed	Verify all isolation valves upstream of the pressure gauge are fully open
	Check needle valve on pilot [a]	Close the needle valve and reopen it 1.5-2 turns.
High upstream pressure	Foreign object stuck in the main valve internal-trim	Disassemble main valve, extract inner trim and flush/remove object
	Cracked main valve diaphragm	Disassemble and replace diaphragm
	Cracked pilot valve diaphragm (water flows from pilot valve bonnet) or defective internal seal	Replace pilot valve diaphragm-assembly
	Check needle valve on the pilot [a]	Close the needle valve and reopen it 1.5-2 turns.

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