


**DOROT** Pressure Reducing and Sustaining (PR/PS)

<b>Pressure Reducing and Sustaining Valve (PR/PS)</b>	
<b>Pilots: 68-410 &amp; 68-510 / CXPR &amp; CXPS</b>	
Applicable Series:	Sizes:
S300, S100, S500	1½" - 14" / 40-350mm

### 1. Function Description

The DOROT Series 300 Pressure Reducing and Sustaining Valve ('30-PR\PS') is activated by the pressure of the pipeline. It features an automatic, pilot controlled back-pressure sustaining valve and a pressure reducing valve and opens when pressure reaches a set value, upstream of the valve. The valve limits the downstream pressure to a set value, regardless of upstream pressure or flow variations.

### 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:**

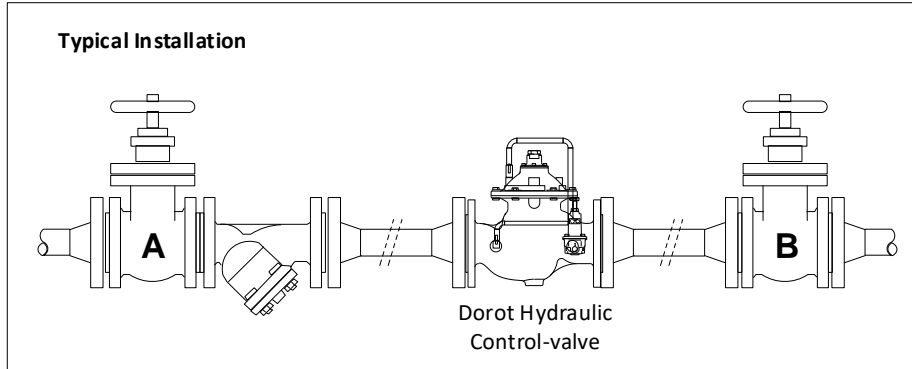
- In case the designed/actual operating conditions are not suitable for the above defined standard features, please contact Aquestia Applications-Engineering.
- Refer to specific valve model publications for further details.

### 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 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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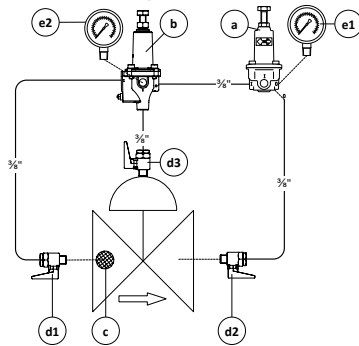
#### 4. Installation



- The valve can be installed in any position, although installation with the bonnet facing up is recommended for ease of maintenance.
- Flow direction should match the engraved arrow on the bonnet.
- 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).
- Flush pipeline upstream of the valve, before assembly of the control valve.

#### 5. Control Trim Design

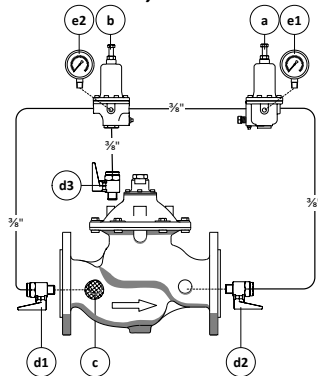
##### 1.5" – 6" / 40 – 150 mm, 68410 & 68510 Pilots



##### Main Parts

- Pilot Valve, Model 68410/CXPR
- Pilot Valve, Model 68510/CXPS
- Self-flushing, Inline Control Filter
- Isolation Ball Valve
- Pressure Gauge

##### 8" – 14" / 200 – 350 mm, CXPR & CXPS Pilots



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### 6. Commissioning & Adjustment

- Turn adjusting bolt on the Pilot Valves [a + b] counterclockwise, all the way.
- Open Ball Valves [d1+d3] and close Ball Valve [d2].
- Start the pump or open Isolation Valve [A].
- Bleed air out of the control chamber (refer to 'air bleed procedure' below).
- Fully close downstream Isolation Valve [B] reopen it slightly (no more than 1-2 turns). Verify demand, such as a hydrant valve open downstream.
- Slowly turn adjusting bolt on Pilot Valve [a] clockwise until Gauge [e1] displays required value.
- Open Ball Valve [d2].
- Slowly open downstream Isolation Valve [B], until upstream pressure Gauge [e2] drops below set point.
- Slowly turn adjusting bolt on Pilot Valve [b] clockwise until Gauge [e2] displays required value.

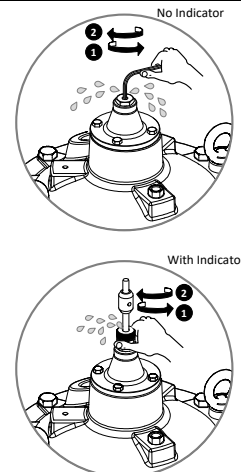
#### ⓘ Charging the downstream system must be done slowly to prevent pressure surges

##### 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 air-bleed-screw at the top of the bonnet and reclose it when only water, (no air) is discharged (refer to diagram on the right).

In cases where an indicator rod exists – using hand force only – release and tighten the round nut at the top of the indicator guide.



### 7. Manual Activation

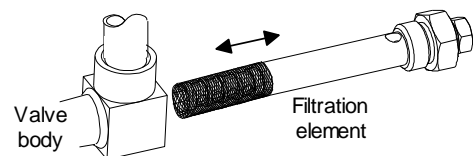
#### ⓘ Note that

- Valve can be closed manually by closing Ball Valve [b2] while valves [b1, b3] are open.
- 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 is cancelled while valve [b3] is closed.

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

### 8. Maintenance

- Inspect and clean the inline 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 valves [A, B].
- Inspect valve performance by checking water levels periodically.



Extraction of screen element, filter


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<b>9. Troubleshooting</b>		
General check list	Ball valves [b]	All must be open when operated
	Schematic diagram	Verify that piping is consistent with the schematic diagram
	Release air trapped in the control chamber (S300 only)	
	Filter	Check and clean
	System adjustment	Verify pilot valve is adjusted correctly
	Needle valve on the pilot (b) is not adjusted properly	Fully close needle valve and reopen 1.5 turns
Low downstream flow	Downstream pressure is too low even though valve is open	Verify consumption can be supplied with selected valve size
	Manual isolation valves [A] or [B] are throttled/closed	Verify all isolation valves upstream of the pressure gauge are fully open
High downstream flow	Downstream pressure is too high	Verify there is no other pressure source in the zone
	Foreign object stuck in the main valve's internal-trim	Disassemble main valve, extract inner trim and flush/remove object
	Cracked main valve's diaphragm	Disassemble and replace diaphragm
	Cracked pilot-valve's diaphragm (water flow from the pilot valve's bonnet) or defective internal seal	Replace the pilot valves diaphragm assembly

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To ensure receiving updated information on parts specifications, please contact us at [info@aquestia.com](mailto:info@aquestia.com).

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