


**DOROT Pump Control Valve [BC]**

Pump Control Valve [BC]	
Applicable Series:	Sizes:
S300, S100	1½" - 6" / 40-150mm

### 1. Function Description

Dorot Series 300 Pump Control Valve ('30-BC') is an automatic control valve, activated by the pressure of the pipeline. The valve will minimize pump starting and stopping surges by slowly opening at pump startup and slowly closing prior to pump shutdown. The valve closes instantly upon power failure.

### 2. Technical Features

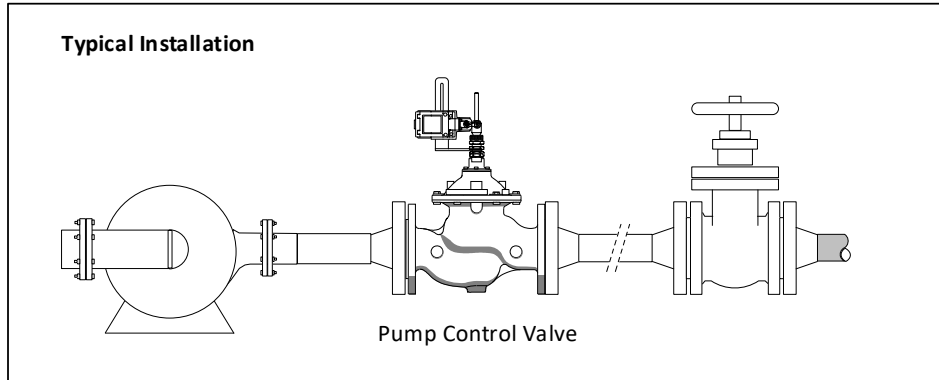
- Media: Water; natural, non-aggressive fluids
- Pressure rating: PN16 or PN25 (250psi or 360 psi) per specific valve-model
- Temp. range:
  - S300: 2 – 80°C (35 - 176°F)
  - S100: 2 – 60°C (35 - 140°F)
- Flow velocity for continuous operation: 0.05 – 5.5 m/sec (0.3 – 18 ft/sec)  
Max. flow velocity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

#### Notes:

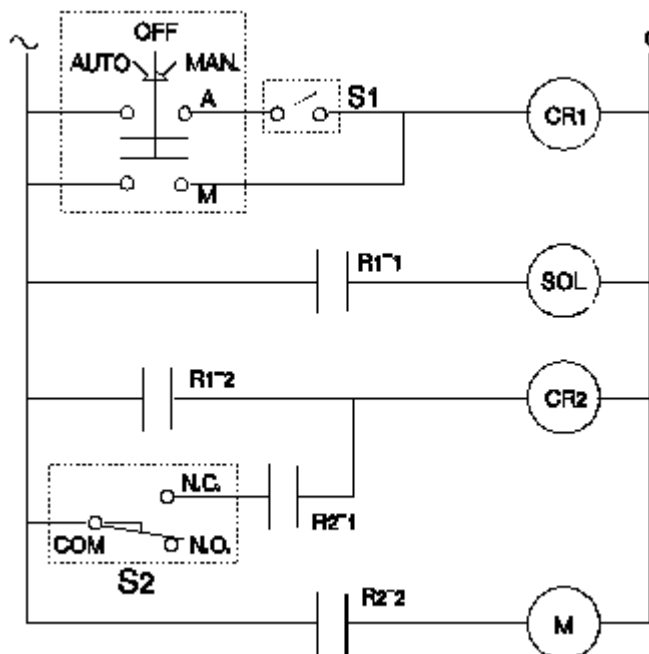
- In case the designed/actual operating conditions are not suitable for the above defined standard features, please contact Aquestia Applications-Engineering.
- Refer to specific valve model publications for further details.

### 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**


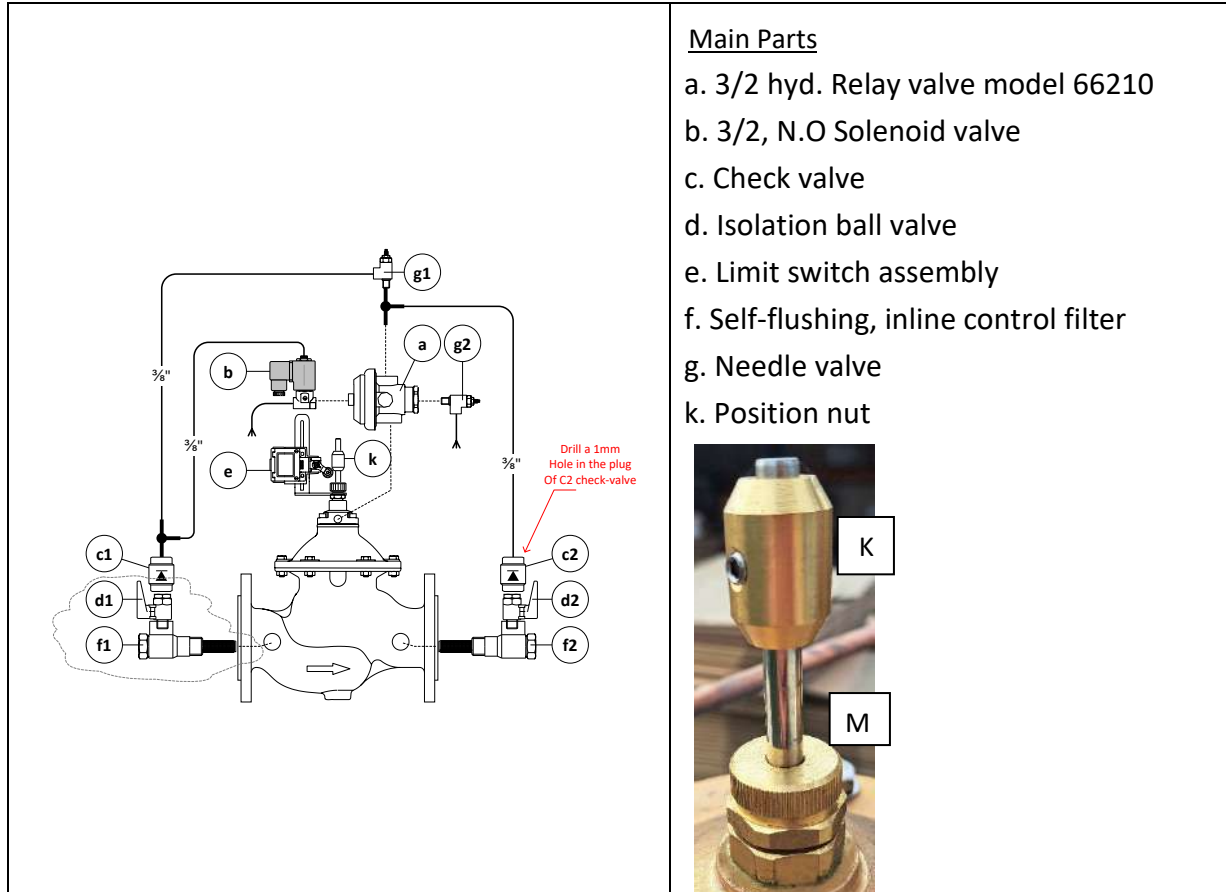
- Assemble the valve on the pump discharge side, so flow direction matches the arrow on the valve. Installing isolation valves is recommended.
- Connect solenoid [a] to the control panel through N.O. contact R1-1 of relay [CR1].
- Connect the limit switch [d] to the control panel. Connection should be "OPEN", while the switch is pressed (the valve is closed). The limit switch should be connected to the relay coil [CR2] in parallel to N.O. contact R1-2 of relay [CR1].

**5. Electrical Circuit in The Control Panel**


*S1= Remote control (optional)*  
*S2= Limit switch (in pressed position, closed valve)*  
*SOL= Solenoid*  
*M= Motor contactor coil*

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### 6. Control-trim Design



### 7. Commissioning & Adjustment

1. Both isolation valves [d] are open.
2. Manual override bolt on the solenoid is in the automatic position.
3. Needle valve [g1] is open - 2 turns.
4. Electrical circuit on the pump panel operates correctly:
  - a. Switch to "manual" : R1-1 closed, R1-2 closed, R2-1 closed, R2-2 closed
  - b. Press the arm of the limit switch [d] and hold it in pressed position
  - c. Switch to "Off": R1-1 open, R1-2 open, R2-1 closed, R2-2 closed
  - d. Release limit switch arm: R1-1 open, R2-1 open, R2-2 open
5. Start the pump, the BC valve will open.
6. Switch-off the pump. The BC valve will close.
7. When the valve has been closed, assemble position nut [k] on the rod; move it down until it presses the arm of limit switch [d]. The pump motor should stop. Lock the nut in the present position.
8. Drain air from the control chamber using draining nut [m]. Wait until air bubbles no longer appear and close the nut using hand force only.

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

# Installation, Operation & Maintenance

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<p><u>Air bleed in S-300/500 valves</u></p> <p>This should be done with the control chamber pressurized (main valve closed)</p> <p>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).</p> <p>In cases where an indicator rod exists – using hand force only – release and tighten the round nut at the top of the indicator guide.</p>	
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### 8. Manual Activation

ⓘ Not Applicable

### 9. Maintenance

- a. Inspect and clean the in-line filter [f1 and f2] 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 [pump and isolation valve].
- b. Inspect valve performance by checking pressure gauge(s) periodically.

	<p style="text-align: center;">Extraction of screen element, filter</p>
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### 10. Troubleshooting

General check list	Ball valves [b]	All must be opened when operated
	Schematic diagram	Verify that the piping is consistent with the schematic diagram
	Release air trapped in the control chamber	Verify that the orifice is the correct diameter
	Filter	Check and clean
	System adjustment	Verify that the pilot valve is adjusted correctly
Closes too slowly	Needle valve	Fully close the needle valve and reopen it, 1.5 turns

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