Installation, Operation & Maintenance

Aquestia
Directing the Flow

DOROT Pressure Reducing Valve with Manual Override (PR/M)

Control Function PR/M Pressure Reducing Valve with Manual Override	
Applicable models: S100	Sizes: 1½" - 8" R / 40 - 200mmR

1. Function Description

DOROT S100 PR-M 3W 31-100, is an automatic, 3-way, pilot-controlled pressure reducing valve with manual override. The valve maintains a steady, preset pressure in the network, downstream of its location. If pressure falls below the preset value, the pilot valve completely vents the main valve control chamber to minimize losses.

2. Technical Features

- Medium: Water; natural, non-aggressive fluids, other (contact Aquestia).
- Pressure rating: 10 bar (145 psi).
- Temp. range: 2 – 80°C (35 - 176°F).
- Flow speed for continuous operation: 0.1 – 5.5 m/sec (0.3 – 18 ft/sec).
  Maximal flow speed for intermittent operation: 8 m/sec (26 ft/sec).

Notes:

- If the designed/actual operating conditions on-site are incompatible with the definitions above – please contact Aquestia application engineering.
- Refer to the specific valve model publications for further details.

3. Safety Guidelines

Before using this product:

- Read and understand the instructions and save them for future reference.

Before disassembly of any accessory or component:

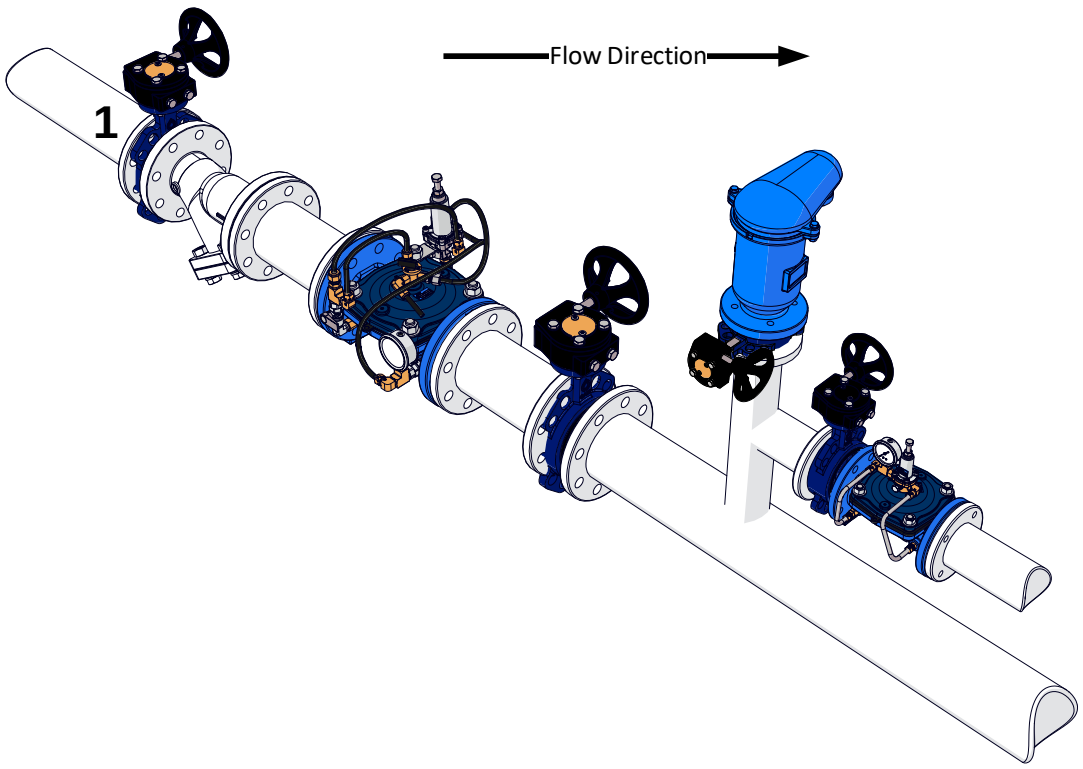
- All internal pressures must be relieved, and all media drained from the system in accordance with all applicable procedures.
- Pressure must be 0 (zero) bar/psi.

Please note:

- Damage to the system/surroundings may occur if installation, commissioning, operation, or maintenance instructions are not followed, or if applicable codes of practice and regulations are ignored.
- Electrical works, (e.g., connection of solenoid valves, limit switches etc.), must be performed by a certified electrician.
- Errors in the layout design, installation or operation may affect the valve performance and pose a risk to the system and/or the operator/users.
- The system layout, installation, and commissioning are the responsibility of the system designer, installer and/or user.
- In any case of doubt and prior to taking any further action, please contact an Aquestia representative for assistance.

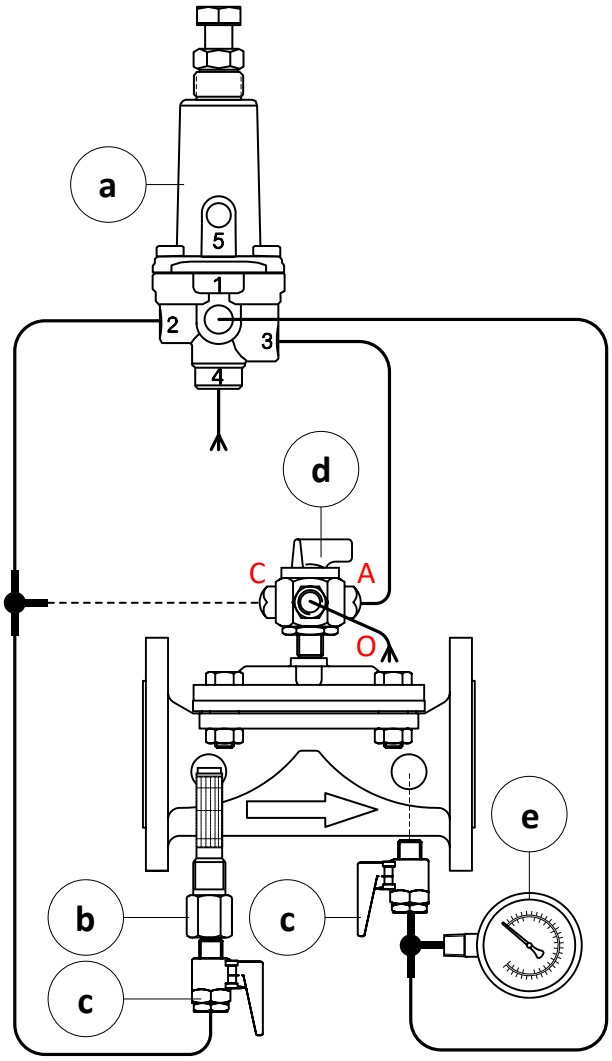
ⓘ ***Failure to follow the instructions set forth in this publication could result in property damage, personal injury, or death from hazards that may be associated with this type of equipment.***

4. Pre-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. It is highly recommended to install an upstream manual isolation valve [1], with a strainer between the upstream isolation valve and the valve inlet, as shown in the diagram above.
d. Flush the pipeline upstream of the valve, before assembly of the control valve.
e. DOROT valves are generally designed for use in freshwater systems. Please consult Aquestia application engineering if other media is to be used.

5. Control Trim Design



Main Parts

a. Pressure reducing pilot, model 31-100.
b. Self-flushing, inline control filter.
c. Isolation ball valve.
d. SY3 – 3-position selector valve.
e. Pressure gauge.

6. Commissioning & Adjustment

a. Turn pilot valve adjustment bolt [a] counterclockwise, completely.
b. Start the pump or open the upstream isolation valve [1] (see section 4).
c. Move SY3 – 3-position selector valve [d] to 'A' position.
d. Create some downstream demand, using a hydrant valve or similar.
e. Slowly turn pilot valve adjustment bolt [a] clockwise, until required downstream pressure is reached.
f. Increase and decrease upstream pressure by opening or throttling the upstream isolation valve [1] (see section 4), to ensure the main valve is regulating properly.

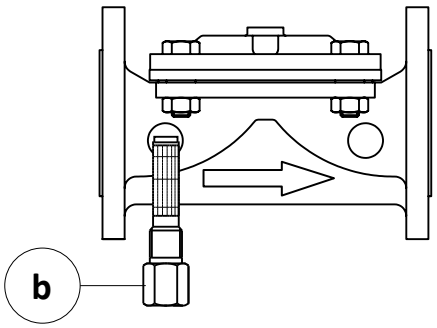
ⓘ Pressurizing the downstream system must be done slowly to prevent pressure surges.

7. Maintenance & Periodic Inspection

During maintenance, the main valve must be isolated from external pressures by closing the isolation valve [1].

a. Normally, the self-flushing inline control filter [b] does not require maintenance.
However, if necessary, the self-flushing inline control filter can be cleaned as follows:
- Remove the self-flushing inline control filter from the valve using a wrench.
- Gently disconnect the screen locking ring [b1].
- Extract screen [b2] and clean.
- Reassemble and reconnect the self-flushing inline control filter when finished.

b. Inspect valve performance periodically, by actuating the solenoid valve [a] to ensure the valve is closing/opening.



[b2] [b1] [b]

8. Troubleshooting			
Issue	**Cause**	**Check**	**Solution**
Valve fails to open	Pressure too low.	Compare with design data.	Increase upstream pressure.
	The 3-way selector is in 'C' position.	Verify knob position.	Turn to 'A' position.
Valve fails to close	Damaged diaphragm.	Turn 3-way selector to port 'O', constant water flow.	Replace diaphragm. Refer to I.D. number.
	Debris between diaphragm and diaphragm seat.	Reduced water flow, noisy.	Dismantle, clean, and reassemble.
	Faulty pilot.	Disconnect pipe at port '3' - water does not flow from upstream (port '2') to port '3'.	Clean pilot or replace.
Valve fails to regulate and/or unstable performance	Incorrect trim connections.	Compare with schematic.	Change accordingly.
	Wrong spring in pilot.	Check data, red spring 15-120 mwc (22-175 psi) downstream.	Change to green spring 5-60 mwc (7-85 psi).
	Inlet pressure too low.	Measure, check system design.	Increase pressure.
	Clogged filter.	Disconnect upstream pipe, reduced stream.	Clean or replace.
	Valve has low pressure diaphragm*.	Noisy, chattering, high pressure differential. Check diaphragm I.D.	Change to high pressure diaphragm.
	Low flow or high-pressure differential.	Valve is surging.	Install dripper or needle valve at vent port.

* If low pressure conditions are present, please contact Aquestia application engineering.