



Pressure reducing and sustaining with manual-override (PR/PS/M)

Control function PR/PS/M

Pressure reducing and sustaining valve with manual-override

Applicable models: 75

Sizes: 1½" - 8"R / 40 - 200mmR

1. Function description

An automatic, pilot-controlled pressure sustaining and pressure reducing valve, with selector valve for manual override. 1. The valve will open when the pressure reaches a predetermined pressure, upstream of its location. 2. The valve will limit the downstream pressure to a set value, regardless of upstream pressure and flow variations.

2. Technical features

- Medium: Water; natural, non-aggressive fluids, other (contact Aquestia).
- Pressure-rating: 10 bar (145 psi).
- Temp. range: 2 – 60°C (35 - 140°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:

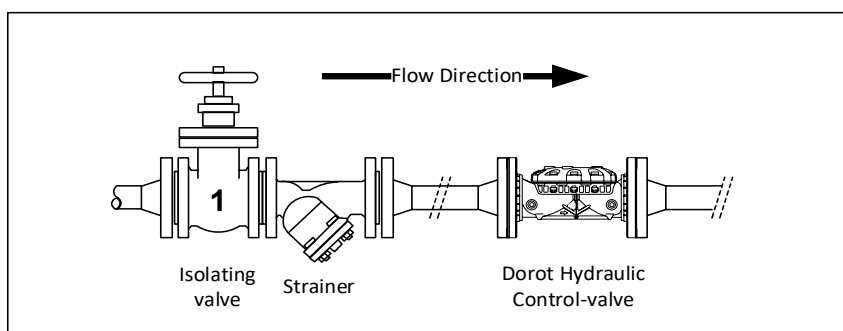
- All internal pressures must be relieved, and all media drained from the system in accordance with all applicable procedures.
- Pressure must be 0 (zero) bar/psi.

Please note:

- Damage to the system/surroundings may occur if installation, commissioning, operation, and 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's performance and risk the system and the operator/users.
- The system's 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.

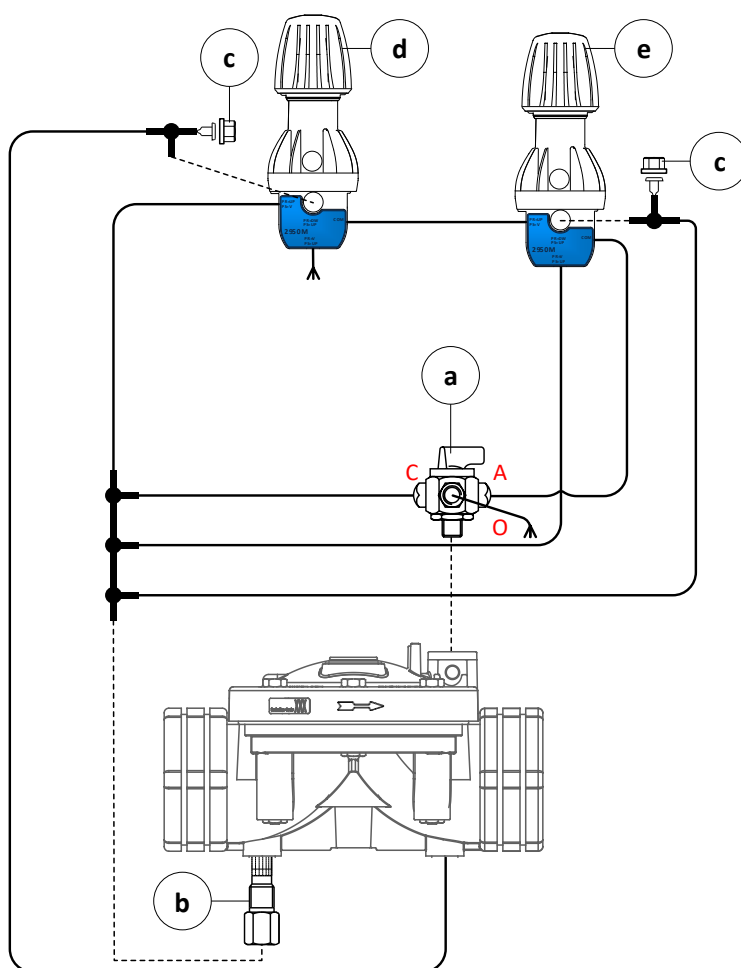
ⓘ Failure to follow the instructions set forth in this publication could result in property damage, personal injury, or death from hazards that may be associated with this type of equipment.

4. Pre-installation



- a. The valve can be installed in any position, though installation with the bonnet facing up is recommended for ease of maintenance.
- b. Flow direction must match the engraved arrow on the bonnet.
- c. It is highly recommended to install an upstream manual isolating valve [1], with a strainer between the upstream isolating valve and the valve's inlet, as shown in the drawing 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



Main Parts

- a. SY3 – 3-pos selector valve.
- b. Self-flushing, inline control-filter.
- c. Pressure test point (Madkan or Schrader valve).
- d. Reducing pilot-valve, model 29-50M.
- e. Sustaining pilot-valve, model 29-50M.

6. Commissioning & adjustment

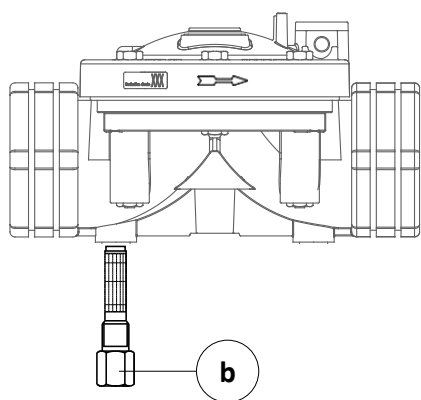
- a. Turn adjusting bolts of pilot-valves [d] and [e] counter-clockwise completely.
- b. Start the pump or open the upstream isolation valve [1] (see section 4).
- c. Move SY3 – 3-position selector valve [a] to 'A' position.
- d. Create some downstream demand, using a hydrant valve or similar.
- e. Slowly turn adjusting bolt of pilot-valve [d] clockwise, until the required downstream pressure is reached.
- f. Increase flow above the duty point, so that upstream pressure is lower than the required set-point.
- g. Slowly turn adjusting bolt of pilot-valve [e] clockwise, until the required upstream pressure is reached.
- h. Increase and decrease downstream pressure by changing the demand using the downstream hydrant valve or similar, to ensure the main valve is reducing pressure properly.
- i. Increase and decrease upstream pressure by opening or throttling the upstream isolation valve [1] (see section 4), to ensure the main valve is sustaining pressure properly.

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

7. Maintenance and periodical inspection

During maintenance, the main valve must be isolated from external pressures by closing the isolating 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's locking ring [b1].
 - Extract screen [b2] and clean.
 - Reassemble and reconnect the self-flushing inline control-filter when finished.
- b. Inspect valve performance by checking downstream pressure periodically.



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', water flows constantly.	Replace diaphragm. Refer to I.D. number.
	Debris between diaphragm and diaphragm seat.	Reduced water flow, noisy.	Dismantle, clean, and reassemble.
	Faulty pilot/s.	Disconnect tube at port 'COM' of pilot [e] - water does not flow from upstream (port 'V') to port 'COM'.	Clean pilot/s or replace.
Valve fails to regulate	Incorrect trim connections.	Compare with schematic.	Change accordingly.
	Wrong spring in pilot.	Check data, yellow spring 5- 25 mwc (7-35 psi).	Change to green spring 10-45 mwc (14-70 psi).
	Inlet pressure too low.	Measure, check system design.	Increase pressure.
	Clogged filter.	Disconnect upstream tube, reduced stream.	Clean or replace.
Unstable performance	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 pilot [e] vent port (port 'V').

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