

Backflow Preventer **RP-500** - Reduced Pressure Zone

Approved under : **USA** : NSF61 (Drinking water), ASSE 1013, AWWA C511, Approved by the Foundation for Cross Connection Control and Hydraulic Research at the University of Southern California, Listed for Uniform Plumbing Code. **Australia** : AS4020 (Drinking water), Watermark AS2845.1. **France** : ACS.

Installation

- (a) The RPZ device must be installed in an accessible location for periodic field-testing and maintenance.
- (b) The location selected should have adequate drainage for relief valve discharge. Drainage may be piped away, a funnel RPZ is provided (See figure). The RPZ should never be placed where it may become submerged in standing water.
- (c) Flush all upstream piping thoroughly to remove debris prior to installing the RPZ.
- (d) Assemble the components before positioning into permanent pipe installation.
- (e) Install the RPZ in a horizontal position with adequate clearance from walls and/or obstructions, for testing and maintenance.
A 305 mm to 338 mm clearance between the lower most portion of the RPZ and floor should be provided.
- (f) It is recommended that a “Y” strainer be installed just upstream of the RPZ assembly to eliminate any debris from entering the device and fouling the check and/or relief valve.
- (g) After installing the assembly and with the outlet shut-off valve (#2), pressurize the RPZ device and bleed air through test cock #3 Then open the outlet shut-off valve (#2).

Note: If water continues to drain from the relief valve, check the Trouble Shooting section for probable causes and solutions.

Installation Tips

- (a) Recommendation: Do not install in areas subjected to freezing for a long period of time.
- (b) The product must be protected from excessive pressure increases. Pressure increases can be caused by thermal expansion or water hammer. These excessive pressure situations must be eliminated to protect the valve and system from possible damage.
- (c) Do not use any pipe glue, oil grease or solvent on any parts unless instructed to do so.
- (d) Do not force parts. Parts should fit together freely.

Maintenance Instructions

A. Disassembly - RP 500.

1. Close the outlet shut-off valve (#2), then close the inlet shut-off valve (#1).
2. Bleed pressure from the assembly by opening test cock #1, #2, #3.
3. **Caution** The cover is spring-loaded and should be removed carefully to avoid personal injury.

- 3.1. Remove the relief valve cover bolts while holding the cover down.
 - 3.2. Lift the cover straight up.
 - 3.3. Remove the relief valve kit.
 - 3.4. Remove the spring.
 - 3.5. Remove the retainer.
 - 3.6. Extract the check valves.
- Note:** All the disassembled parts may now be cleaned and reassembled or, depending on their condition, discarded and replaced with a new assembly from the repair kit. O-rings should be cleaned or replaced as necessary and lightly greased with the NSF approved silicon based grease.

B. Assembly - RP 500.

1. Install the check valves. The valves must be securely in place.
 2. Install the retainer.
 3. Put the spring to its place.
 4. Install the relief valve kit.
 5. Put on the cover, hold it down and close the bolts.
- Caution** The bolts have to be secured with a recommended torque of:
2.5 Kg/m. for models DN 15/20/25
9 Kg/m. for models DN 32/40/50

TROUBLE SHOOTING GUIDE

Symptom	Cause	Corrective Action
1. Relief valve continuously discharges during no-flow conditions.	a. No. ⑤ check valve fouled with debris. b. No. ⑥ check valve fouled with debris coupled with a backpressure condition.	a. Inspect and clean the seat and seal. b. Inspect and clean the seat and seal.
2. Relief valves discharges continuously during flow and no-flow conditions.	a. Relief valve fouled with debris. b. Damaged diaphragm (allows water to pass through, from inlet to zone). c. The passage to inlet side of diaphragm plugged.	a. Inspect and clean relief valve seat disk and seat. b. Replace the relief valve kit. c. Inspect and clean passage in cover and body.
3. Relief valve discharges intermittently in a "spitting" action during no-flow condition.	Pressure fluctuations (water hammer) from supply.	Eliminate or reduce pressure fluctuations.
4. Relief valve does not open during field test no.1	a. Outlet shut-off valve (#2) not closed completely. b. Test equipment improperly installed.	a. Close outlet shut-off valve (#2) or inspect for possible through leakage. b. Recheck test procedure.
5. No. ⑥ check valve fails to hold backpressure.	a. Outlet shut-off valve (#2) not closed completely. b. No. ⑥ check valve fouled with debris.	a. Close shut-off valve #2 or inspect for possible through leakage. b. Inspect and clean the seat and seal.
6. Pressure differential across no. ⑤ check valve is low during field test no. 3 a (does not meet 0.2 bar minimum)	a. No. ⑥ check valve fouled with debris. b. Upstream pressure fluctuations causing inaccurate gauge reading.	a. Inspect and clean the seat and seal. b. Eliminate pressure fluctuation.

PARTS LIST

No.	Part
1.	Cover Assembly
2.	Relief Valve Assembly
3.	Relief Valve Spring
4.	Retainer
5.	Inlet Check valve Assembly
6.	Outlet Check valve Assembly
7.	Body Assembly
8.	Test Cocks (#1, #2, #3)
9.	Adaptor Assembly
10.	Clamp Assembly
11.	Funnel
12.	Strainer

