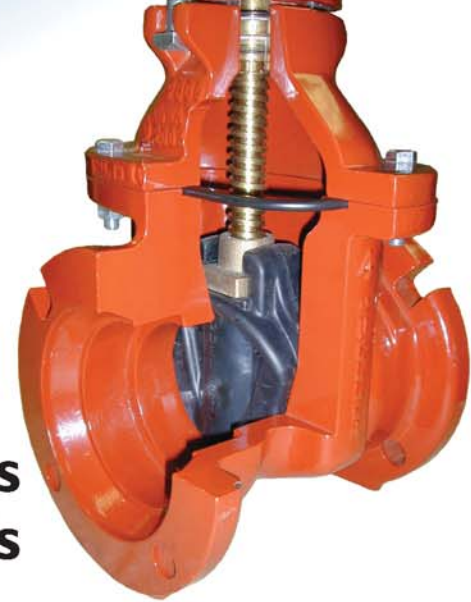


the Repair Guys

Shut-Off Valves Aid Diagnosis



In our line of work, we field questions from contractors and technicians concerning repairs, installations, and general backflow prevention practices. We'd like to share some questions we receive and our answers. Everyone has different opinions on these subjects and we would like to hear yours. Contact us with your questions and ideas via email at: imark@backflowparts.com or mail us at American Backflow Products Co., Post Office Box 37025, Tallahassee, FL 32315.

— Mark Inman and Jason Gregg

QUESTION -

I have a 4-inch reduced pressure principle assembly that has me puzzled. The relief valve will discharge (drip) during evening hours and stop during the day. Because of the discharge, I did not test the unit and simply assumed that the first check valve was fouled and may need to be repaired. As I closed the number 2 shutoff valve, the discharge immediately stopped. When I inspected the first check valve, everything looked to be in good shape. Could there be a problem with the relief valve?

Mark -

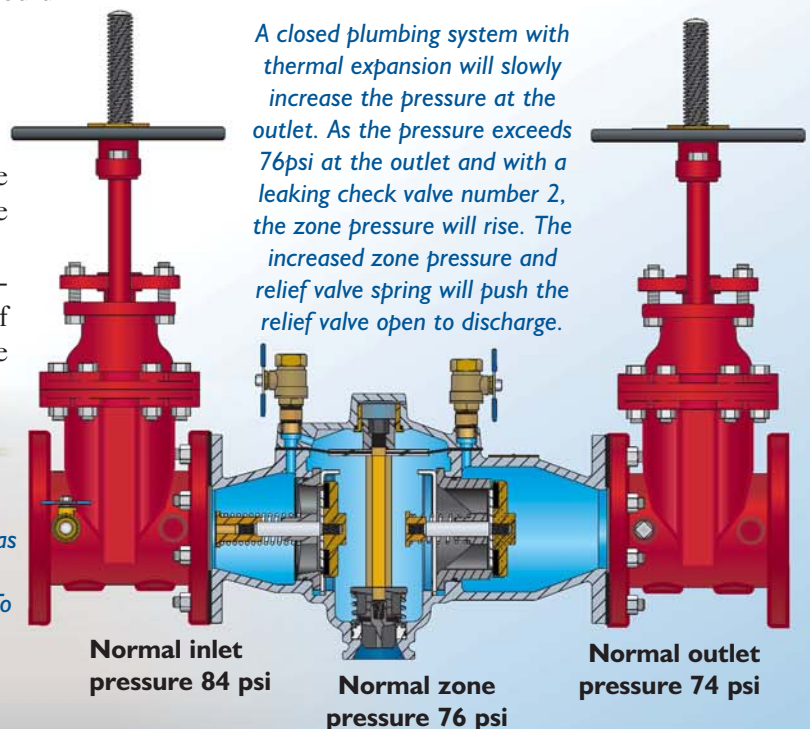
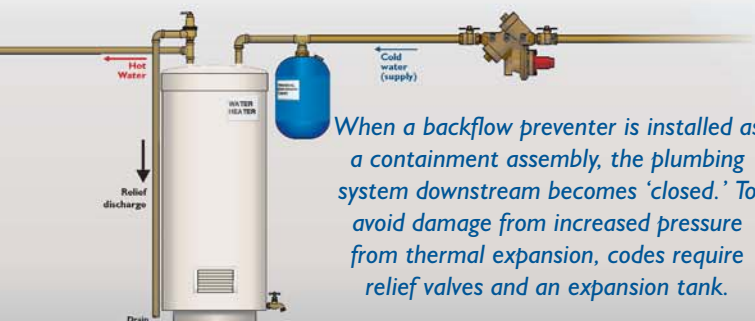
Based on what you described, I do not think you have a problem with the relief valve, the problem could possibly be with the second check valve. Before we make that diagnosis, we should get a little more information.

I think you have made a good start at troubleshooting the assembly. You noticed that the relief valve (RV) was discharging only at certain times of the

day, and the discharge stopped when you closed the number 2 shutoff valve. In this situation, there are two other things that would be helpful to know. First, can you determine the water usage during the times that the RV is discharging? Second, can you determine what the plumbing system is like downstream of the backflow preventer?

- Jason

Let's say that the assembly feeds a small office complex that is vacant during the evening and night hours. The complex will normally have a water heater within the building as well. You may ask, 'why is this information about the building important and what does it have to do with the backflow preventer?' Well, we want to know what the hydraulic conditions are within the system to help diagnose the problem with the assembly. We could be dealing with pressure fluctuations, backpressure, or even water flowing through the unit. How the assembly



reacts to each of these conditions will help us figure out what the problem could be.

Mark -

In this particular situation the problem may be a combination of backpressure caused by thermal expansion within the piping system and a fouled number 2 check valve. As a general rule, we know that the relief valve will discharge if there is backpressure present and the number 2 check is leaking. The first clue is when you closed the outlet ball valve, you sealed off the backpressure and the discharge stopped. The second clue was the fact that the discharge occurred only when the building was vacant and there was no discharge during the day, when water was being used regularly.

- Jason

If this is true, you'll probably find at least a badly damaged second check valve disc. Many times the information you use to troubleshoot can come from different sources, such as the customer or maintenance person. This is a quick and easy way to collect information, and in some cases, save you time and money on the job. If you find the source of the problem, you can help the customer to correct it, therefore saving him money as well. By the way, after you are done with the repair, explain to your customer the effects of thermal expansion and let him know his options on how to protect the system.

dw&bp

Something to think about —



Leaking downstream shut-off valves.

Although not found in most test procedure textbooks, here's something to consider when trouble-shooting a leaking shut-off valve number 2.

Close both shut-off valves. slowly open test cock number 4. If water starts flowing, we're not sure if the leak is from shut-off 1 or 2. Therefore, slowly open test cock number 3. There will probably be a 'spurt' of water. If the flow stops at test cock 3 but continues from TC 4, there is a leak at shut-off valve 2. What does it mean if there is a greater flow at TC 3 and a reduced flow at TC 4? What could be the problem if water was flowing from TC 4 and then slowly started dripping from TC 3?

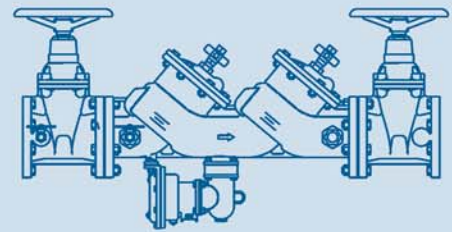


PARTS

(800) 575-9618

24 Hour Fax (850) 575-6508

Visit us at www.backflowparts.com



Backflow Preventer

- Repair Kits
- Accessories
- Enclosures