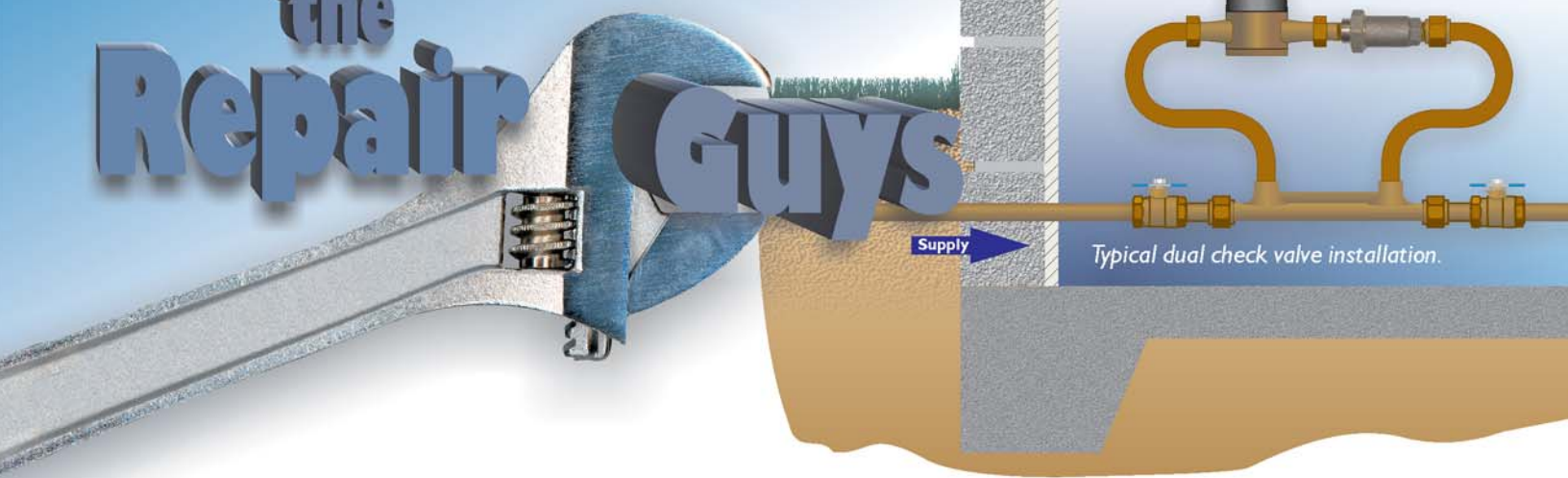


# the Repair Guys



*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](mailto: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 am a contractor who installs commercial and residential sprinkler systems for lawn irrigation purposes. In one of the districts that I do a lot of work in, they are now requiring that I install a *dual check valve* on the irrigation system as well as the usual reduced pressure principle assembly at the meter. This is new to me, and I'm not too sure of the reasons why I need this added expense or where exactly I'm supposed to put it. Could you guys shed some light on this, so that I'll be able to better explain to my customers why this is required?

## Mark -

Well first of all, let's establish what a dual check is. A dual check valve is a backflow preventer consisting of two independently operated inline spring-loaded check valves. Most dual check valves consist of bronze or plastic body material and plastic check modules. Although a few

dual checks are inline testable, most are not. To be tested they must be removed from service. The difference between the dual check and a double check valve assembly is the dual check valve does not come with inlet or outlet shut-off valves or testcocks. Most of the backflow manufacturers offer their own model of a dual check along with the other lines of backflow preventers. Most manufacturers offer the dual check valve in the 1/2" inch through 1 inch sizes, with a plethora of different inlet and outlet connections to make installation simple in most situations, regardless of the type of supply piping one may encounter.

## - Jason

You mentioned that only one of the water districts is requiring this added dual check valve on the irrigation system. This could be that the governing authority in that district has adopted this idea as a second line of defense and has added it to their local plumbing code. We have

*Some dual checks, like the Conbraco Model 40-300 shown at the right are inline testable and inline repairable. However, they do not have isolation valves and are not considered double check valve assemblies.*

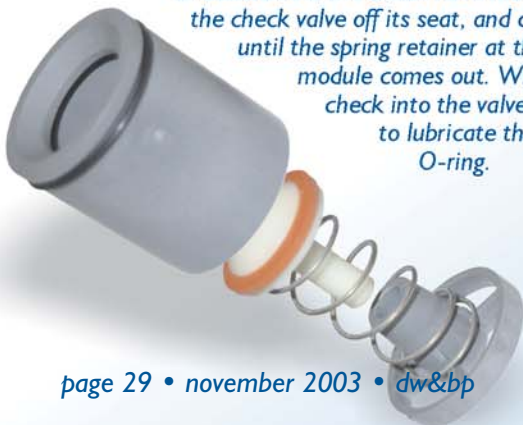


**CONBRACO**  
Model 4P3A44A



*Although plastic, this dual check valve is a more typical design, where the valve is removed from the piping to service the internal check valves.*

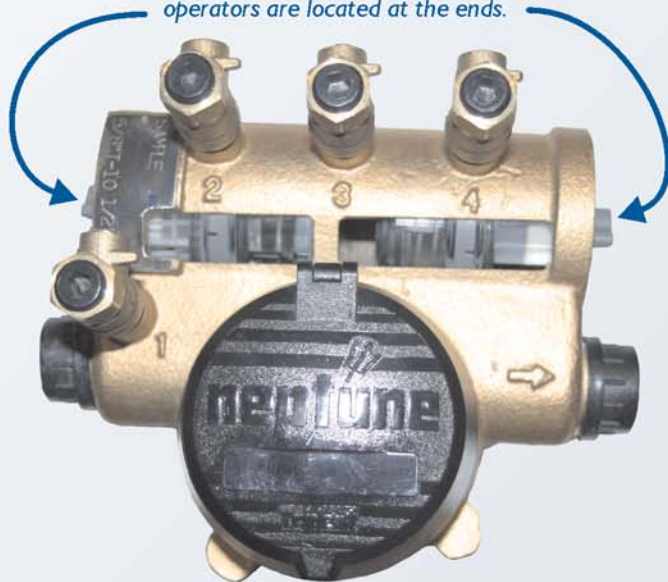
*To disassemble the check valve module, simply push the check valve off its seat, and continue to push until the spring retainer at the back of the module comes out. When inserting the check into the valve body, remember to lubricate the O-ring.*



seen this code in some cities throughout the country, and I think that this second line of defense is a great courtesy to the homeowner whether he/she knows it or not. We do find though that most of the irrigation contractors don't care for it too much because their job is to put in as few

zones as possible with the water pressure that is available to them from and through the meter connection. In most areas they already have to install a backflow prevention assembly at the city meter, and this reduces the amount of pressure that they have available. Adding a dual check valve increases the pressure loss problem.

*At first glance, the Neptune Technology Group cutaway shown below may appear to be a testable dual check valve with 4 test cocks. However, closer examination will reveal that this water meter has an integral double check valve assembly. The isolation valves are part of the check valves. The controls or valve operators are located at the ends.*



#### Mark -

One city agency we know of requires a reduced pressure principle assembly to be installed at the meter on all residential homes that have a lawn irrigation system. This valve they consider to be the containment backflow preventer. We all know that this is required to protect the public water supply from any contaminants (fertilizer, animal feces, etc.) that could enter this customer's piping via the lawn irrigation system. But, who's protecting the customer from contaminating himself via the lawn irrigation system? This is where we feel that the requirement to install a dual check is a courtesy to the homeowner. Why? Well most irrigation systems are installed by first cutting into the main line running to the home, installing a tee, and from there install piping, wire, valve boxes etc. Where the contractor cuts into the main line and installs this tee is where the city agency mentioned above wants the dual check installed, preferably in a small valve box. This dual check valve is considered to be the isolation backflow preventer. Without a dual check, any water or contaminants

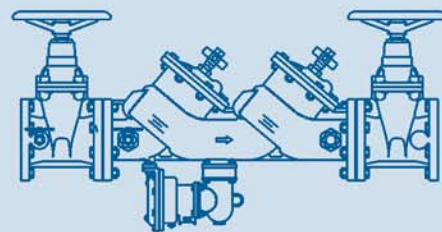


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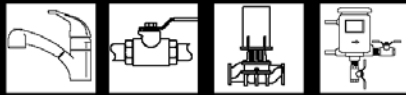
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Dual check valves earn the ASSE Seal though compliance with ASSE standard 1024, Performance Requirements for Dual Check Valve Type Backflow Preventers. The standard considers these backflow

preventers as low-hazard protection.

The Uniform Plumbing Code does not list ASSE 1024 in Chapter 14 - Mandatory Referenced Standards. In addition, the Uniform Plumbing Code that irrigation systems that do not have pumps shall use either an atmospheric, or pressure type vacuum breaker or a reduced pressure principle assembly. If the system has a pump, the only backflow preventer permitted is an RP.




The International Plumbing Code does list the ASSE 1024 standard in Chapter 13 - Referenced Standards. However, the code requirements for an irrigation system are nearly identical to that of the UPC. The International Plumbing Code requires the use of an AVB, PVB or RP on the system. If chemicals are introduced into the sprinkler system, the only backflow preventer allowed is the RP.



left in the irrigation piping can be drawn out of the irrigation pipe into the mainline going to the home which ends up at the kitchen sink.

### - Jason

As far as testing is concerned, we find that in most cases, the water authority does not require an annual inspection of the isolation dual check after the initial installation. A select few backflow manufacturers provide special fittings with their test kits to accommodate the testing of the individual check modules of the dual check valves they provide. So after educating the customer of the reason for the dual check, and how important it is, he/she may want you to test the dual check every year as well. However, we encourage you to consult the advice of the governing authority of the water system in regards to the appropriate placement of the dual check as well as if any testing is required. Hopefully we've answered your question regarding the dual check valve and its purpose to provide the water system with a second line of defense as well as protecting the homeowner from any possible contaminants entering his/her water lines via the irrigation system. 

Although the Watts Model No. 7 is not inline testable, it is technically field testable. The technician must remove the check modules from the bronze body, insert them into the sight tube's brass fitting (shown at right) and then apply a minimum 28-inch water column on the inlet of the check. If the check can hold the water column, it is reported as tight. Each check valve must be evaluated separately. When inserting the check modules into the valve body, remember to lubricate the O-rings.

