



The Repair Guys

An NRS gate valve has an internally sealed stem which stays in the same vertical position if the valve is open or closed. Basically this means that as you turn the hand wheel, the stem does not move up and down. Since the stem does not move vertically you will usually not have leakage problems with these stems. Typically, an o-ring or two will be used to seal against leaks in NRS valves. If a leak does occur, you will have to break down the stuffing box and replace the o-rings to stop the leak. The other type of gate valve is the OS&Y or sometimes known as the Outside Screw & Yoke.

Mark:

OS&Y gate valves have stems that move up and down as the hand wheel is opened and closed. The reason for this is so you can visually tell if the valve is open or closed. This is important in certain applications such as fire systems. Many times you may even find a tamper switch installed on this valve. The tamper switch will usually set off an alarm in a control panel if the valve is being opened or closed.

Repairing Leaky Gate Valves

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 that we receive as well as our answers. Everyone has different opinions on these subjects and we would like to hear yours. Contact us with questions and ideas via email at: imark@backflowparts.com or mail us at American Backflow Products Co., PO Box 37025, Tallahassee, Florida 32315.

~ Mark Inman and Doug Taylor

Question:

I am testing a large assembly (2 1/2 inch - 10 inch). As I was closing the shut off valve, water began to leak around the stem of the gate valve. The leak continued even after I reopened the gate valve. Can this be repaired or do I have to replace the gate valve?

Doug:

First we need to identify what type of gate valve you have. There are a few different brands of gate valves that manufacturers will use for larger backflow assemblies, but they will be either Outside Stem & Yoke (OS&Y) or a Non Rising Stem (NRS).





The stem for this valve must be sealed by a packing material. A rope or braided cotton packing (usually impregnated with a wax and grease mixture) is used to seal the stem. This packing fits around the stem under the packing gland and keeps water from leaking around the stem. When a leak occurs, you can first try to tighten the packing gland. This will compress the packing and should stop the leak. If the leak does not stop, then the packing should be replaced.

Doug:

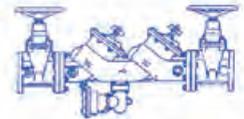
For most valves, replacing the packing can be done without shutting down the water system. The first step is to back seat the valve. Back seating will occur when the valve is fully opened, and will temporarily seal the leak around the stem. You simply open the valve completely with about 50-100ft-lb of pressure. Once the leaking has stopped, you can remove the packing bolts and nuts on the packing gland. Slide the packing gland up the stem and you will have access to the packing. You may need a packing hook, which is a flexible corkscrew tool, to help remove the old packing. Once you have removed the old packing you will want to repack the valve with new packing by wrapping it around the stem and pushing it down into the valve body.

Mark:

After the new packing has been replaced, it may need to be compressed a little so that the packing gland can be reinstalled. This can be done using two pieces of all-thread rod. Cut both all-thread rods to 6 inches long, making sure to use the same diameter all-thread rod as your packing bolts. Place the all-thread rod through the packing gland and tighten the nuts onto the all-thread rod to compact the packing in the valve. Next, remove the all-thread rod and replace with the bolts. Turn the hand wheel, so the valve is about half way open. Finally, tighten the nuts evenly until all leakage around the stem stops. You may need to exercise the valve a few times to make sure there are no leaks around the stem. Be careful not to over tighten the gland because it can crack and there is no reason to compress the packing more than is needed to stop the leak. ▼



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