Avoid The Strain!

Recently, we received a customer call saying that a flange on one of our gate valves broke. One of our regional managers was sent to see if he could troubleshoot the issue.

A painting contractor first discovered the crack while applying a protective coating to exposed piping and valves in a new Water Treatment Plant (WTP). The crack was in the casted portion of the valve body that transitions into the connecting flange.

As you can see from the photo, **pipe strain** is the likely culprit. A 10-inch Milwaukee Valve gate is being used as an isolation valve for some inlet bypass piping. The valve alone weighs 436 pounds.

In addition to the broken valve, the system includes two other 400+ lb. gate valves, in addition to two long (more than 15') runs of iron pipe, the related elbows, and the columns of water contained in the piping, all totaling a heck of a load for our cast-iron problem, with little or no visible support to this system. Pipe strain and flange breakage? Obviously!

Pipe strain is a common problem just about anywhere that has pipes, fittings, valves and appliances, such as pumps. When looking to increase reliability in your facility, finding and fixing pipe strain issues is a great place to start.

Generally speaking, there are 4 common reasons for pipe strain:

- Improper pipe support (or no support altogether!)
- Process changes that do not accommodate the piping system.
- Improper design or installation of pipe or machinery
- Movement in the system caused by temperature or

pressure changes.

5 TIPS FOR AVOIDING PIPE STRAIN

So how to avoid pipe strain and increase the life of your valves?

1. Use proper planning and installation techniques.
2. Never ***EVER*** use a come-along, chain hoist, or any other tool to force a pipe and valve flange to meet.
3. Piping systems should be designed, not "*spitballed*" at the site.
4. Support your pipes! Valves flange are not designed to support excessive weight.
5. Utilize expansion and bellow joints to minimize effects of temperature and pressure changes.

Pipe strain is a leading cause of premature system failure, and should be the number one item to correct in your system. Doing so will allow you to get ahead of unplanned failures, downtime, and callbacks.

Need help to correct pipe strain and misalignment in your facility? Consult **your sales representative or regional manager** for guidance.

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