

Texas Slam Dance!

By Val-Matic Valve & Mfg. Corp.

New technology eliminates valve slam



The check valve installed at the wastewater treatment plant located in north Texas is mounted in a vertical orientation just off the pump.

System operators have their work cut out for them when their pumping applications involve high head, surge tanks or multiple pumps. Recently, a north Texas wastewater treatment plant was learning this first hand. The north Texas utility serves four cities, the largest having between 70,000 and 80,000 people.

Its lift station contains four 8-in. vertical centrifugal sewage pumps that feed a 600-ft-long, 48-in.-diameter force main. Online since 1987, the station was equipped with traditional weight and lever air cushioned swing check valves.

According to a system operator for the Texas wastewater treatment plant, the check valves were breaking

down. Following repair, they kept breaking internally resulting in massive water hammer.

"This station takes a lot of flow, so it was hampering us," the system operator said. "The station was down until we could get parts in or have them machined."

The existing valves, from multiple manufacturers, were no longer reliable and it was difficult to find a valve to fit the unique circumstances of a vertical application. Accordingly, existing air-cushioned swing check valves had to be rigged with additional external springs and cables in an attempt to combat slamming.

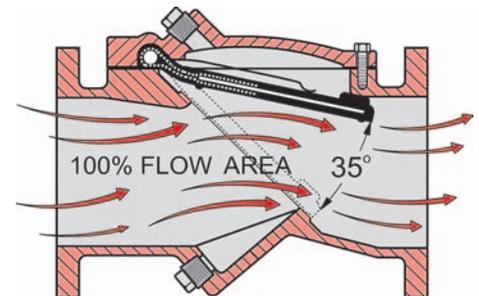
Despite these efforts, the valves were closing hard, and a one-year-old

replacement valve had just broken a shaft pin.

The installation was too dynamic for an ordinary check valve. As such, the tall vertical run of pipe following the pumps created extremely fast flow reversals and water hammer after power failure. The existing valves had weighted levers with cables and springs anchored to the floor, making for a dangerous situation.

"This is one of the biggest suppliers of water in north Texas and the largest processor of wastewater," noted John Bolender, president of Valve and Equipment, a manufacturer's representative. "They came to me looking for replacement valves that could replace slamming cushion swing check valves."

Bolender recommended the Val-Matic Surgebuster Check Valve. Specifically engineered to handle high head applications, multiple pump systems, and systems known to



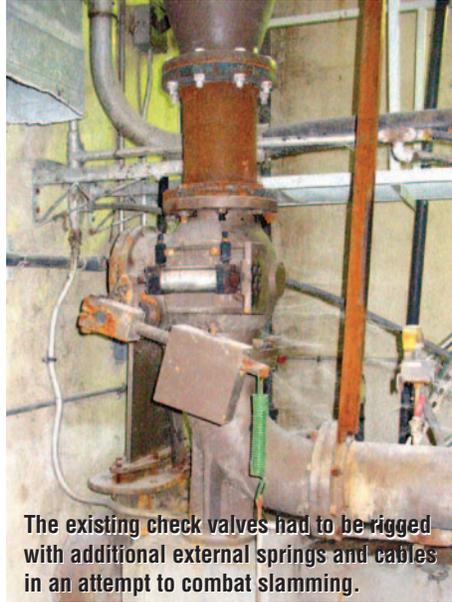
A wastewater treatment plant located in north Texas installed a check valve that provides a 100% unobstructed flow area coupled with non-slam closure.

surge, this check valve was designed to handle extreme applications.

The Surgebuster achieves a rapid closure through a short disc stroke of 35° and can maintain a 100% flow area.

What makes the check valve unique is its patented Disc Accelerator—a precision-formed stainless steel mechanism that closes the disc rapidly, avoiding any slamming by flow reversal while allowing the disc to be stabilized under flow conditions.

“When they told me about their application, I suggested the Surgebuster, as I knew they hadn’t seen anything like it,” said Bolender.



The existing check valves had to be rigged with additional external springs and cables in an attempt to combat slamming.

The wastewater treatment plant system operator agreed, saying, “we saw the valve and thought it was a good design.”

The check valve was installed in place of the traditional swing check valve after a vertical elbow on the vertical discharge of an 8 in. pump. The consequent installation was so quiet, the flow could only be heard by placing your ear against the valve.

“We were amazed at how quiet it was. After that we were pretty much sold. Another valve went down and I replaced it [with a Surgebuster]. As the other two go down I will replace those as well,” the system operator said. [www](#)