

Singer Valve Eliminates Cavitation Damage in Reservoir Fill Application

BOOSTER PUMP STATION, PITTSFIELD TOWNSHIP, MI



Singer Valve Features:

- Anti-Cavitation Trim
- Rolling Diaphragm for Flow Stability
- Full Port Design
- Epoxy Coated Ductile Iron Body
- Stainless Steel Trim & Fasteners



Dual Stainless Steel Anti-Cavitation Cages

PROBLEM: Pittsfield Township had been modulating an electrically actuated valve to control the fill of their ground reservoir based on a set flow rate. Incoming pressure ranged from 55psi to 70psi whereas the maximum tank elevation ranged between empty and 16ft (approximately 7psi). This difference in pressure between the inlet and outlet of the valve resulted in significant cavitation. The downstream eccentric reducer failed first. The cavitation destroyed the cement lining in the ductile iron reducer and eventually eroded into the reducer walls. Pin holes formed, leaks sprung, and the Township had to replace the fitting. During the second reducer replacement, it was noted that the cavitation damage was not reserved to just the fitting, it had begun eating into the seat of the plug valve as well. The Township needed a solution to stop the cavitation damage immediately as well as maintain the current valve functions with their control programming.

SOLUTION: To solve the problem, Kennedy Industries proposed a Singer Valve diaphragm actuated control valve, as well as new custom concentric reducers. Singer Valve is the leader in anti-cavitation technology since the late 1980's. Singer Valve has researched and developed an "anti-cavitation trim" that they guarantee to eliminate cavitation damage. Working together with Pittsfield Township, the dual anti-cavitation cages were appropriately sized and customized to be included in the new control valve. The Singer control valve operates hydraulically with system line pressure as well as with dual solenoids and an interface controller which communicates with the Township's SCADA. The Singer single rolling diaphragm allows the valve to operate steadily at both high and low flows and speed controls included in the pilot allow for easy adjustment of the opening and closing speeds. The new valve was installed and integrated with their controls without modification of their existing programming. The Singer Control valve with anti-cavitation trim operates quietly and smoothly without cavitation damage.

