

The Client

Butler County
Department of
Environmental
Services
Butler County,
Ohio, USA

The Challenge

- Extreme erosion and noise caused by high pressure drop
- Inconsistent control of remote storage tank levels
- Inability to sequence new valves

The Solution

Singer's 2SC-PCO with Anti-Cavitation Trim and multi-process control panel

The Result

One algorithm that controls storage tank levels and valve sequencing

Singer Valve Solves Triple Dilemma in Ohio

Nothing prevents Singer Valve from solving a complicated application. In fact, Singer Valve seems to thrive on the most challenging issues imaginable.

In Butler County, Ohio, Singer Valve found a way to solve three issues in one application. Through its representative, Kerr Marketing Agency, Singer Valve was introduced to the county, which purchases wholesale water from the cities of Hamilton and Cincinnati. Butler County provides drinking water to a population of approximately 100,000 people.

The first concern occurred at the Symmes Road Pressure Reducing and Metering Facility. The facility's two valves handled extreme pressure drops from 120 psi (8.2 bar) to 15 psi (1 bar), resulting in severe cavitation damage and extreme noise. The second issue was providing the county with the ability to sequence the two valves. The third aspect was the inability to accurately control levels in two remote storage tanks that the main transmission line supplied. The operational protocol was further complicated because the remote tanks are at different overflow elevations and design capacities. Also, both booster pump stations that draw from these tanks are equipped with constant speed horizontal centrifugal pumps that range from 3,000 to 4,500 gpm (189 l/sec to 284 l/sec), which resulted in sudden hydraulic gradient and outlet pressure fluctuations. The fluctuations created operational challenges at the water treatment facility and in the distribution system.

How did Singer Valve solve each of the three issues to Butler County's satisfaction? Enter Singer's dual solenoid electronic valve with anti-cavitation trim and multi-process control panel. The original valves which suffered from cavitation damage were standard valves that pre-dated Singer's revolutionary anti-cavitation design.

"We read case studies about how Singer's anti-cavitation trim reduces damage and noise and handles a high pressure drop," says Bo Copeland, an engineer who worked with Butler County's Department of Environmental Services during the project. One valve was replaced with a new 16" (400 mm) Singer dual solenoid electronic valve with the anti-cav trim. The second 16" (400 mm) valve was replaced by another manufacturer due to competitive bidding requirements.

A Singer multi-process control panel—programmed with a complicated, custom algorithm—sequences the two 16" (400 mm) valves and controls water levels in the remote storage tanks. It interfaces smoothly with Butler County's SCADA.

"The ability to incorporate a customized control system has proven to be invaluable for this application," says Tom Rhoades, Butler County's chief water operator.

"The complexity of this project was unusual," says Eugene Bahia, Singer Valve's instrumentation specialist who wrote the algorithm. "We worked closely with Butler County to meet all the requirements of this application."



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singervalve.com





Singer MCP-TP
(Interactive Touch Screen)



Benefits of Singer's 2SC-PCO with Anti-Cavitation and Multi-Process Controller

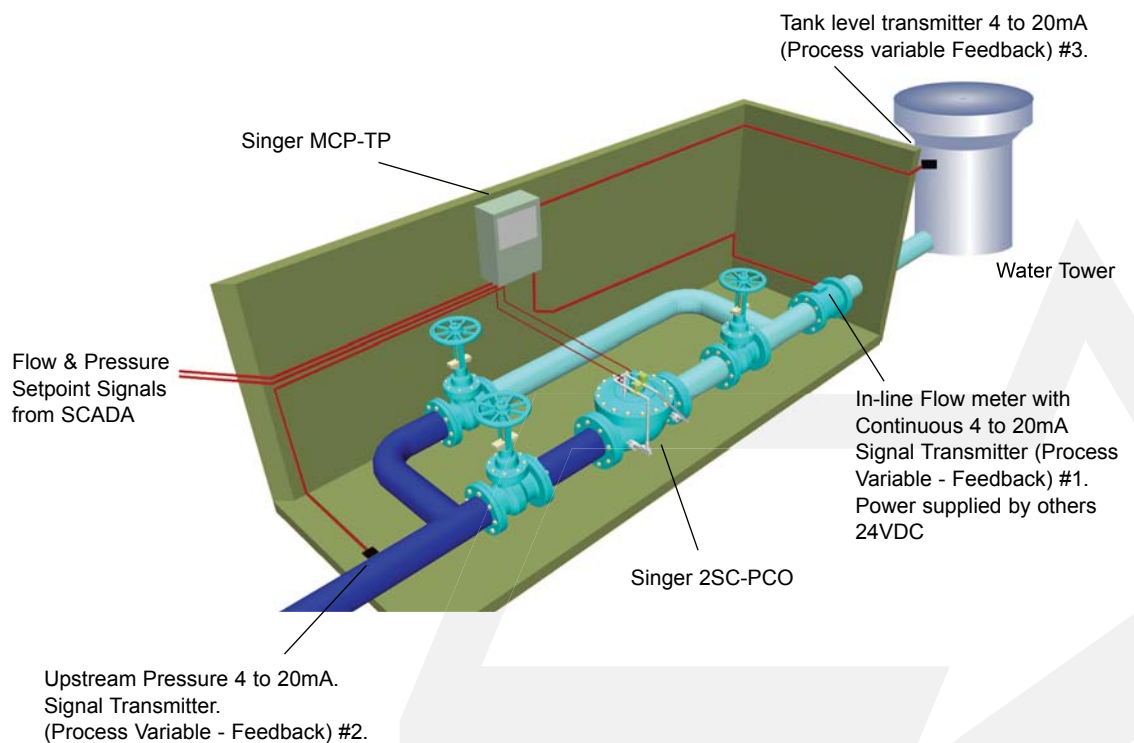
- Control panel monitors multiple processes and remotely controls the dual solenoid control valve
- Dual solenoid electronic control valve allows precise control from remote locations
- Minimal power needed for stand-by operation
- Interfaces directly with SCADA
- Anti-cavitation trim controls variable flows and vibration and is self-contained

How It Works

The Singer 2SC-PCO dual solenoid electronic control valve employs the basic Singer model 106 or 206 PG main valve. The flow into and out of the upper operating chamber is controlled by two pilot solenoids. The electronic control determines whether the opening solenoid or the closing solenoid is operated. The change in valve position is dependant upon which solenoid is operated and the duration of the energized period.

Did You Know...

Singer Valve specializes in developing and customizing electronic control systems. We don't provide products; we provide customized solutions that incorporate Singer products. To ensure our products perform and our customers are satisfied, we provide full support to our customers around the world. To locate your nearest Singer Valve representative, visit singervalve.com.



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