

The Client

City of Airdrie,
Alberta, Canada

The Challenge

Serious cavitation damage in reservoir fill valve due to pressure dropping to atmosphere from 60 psi (4.1 bar)

The Solution

A Singer 12" (300 mm) 2SC-PCO valve fitted with Singer's custom anti-cavitation trim

The Result

A long-lasting, dependable valve that handles high pressure drops without causing damage while minimizing noise

How Singer Trim Minimizes Cavitation Damage

Set in the foothills of Canada's Rocky Mountains is the City of Airdrie. Without a water supply, Airdrie purchases its water from neighbouring Calgary. Virtually every night, the City of Calgary pumps water into Airdrie's reservoir. The reservoir consists of two 218,000 cubic metre



(7,698,597 cubic ft.) tanks. Then, Airdrie pumps water into its distribution system so the city's 38,000 people have water throughout the day. Pumping water at 5,310 g/m (335 l/s) with pressure beginning at 60 psi (4.1 bar) and dropping to atmosphere, it's no wonder the reservoir fill valve had to be replaced regularly due to serious cavitation.

"We inspected the reservoir fill valve every year for damage due to cavitation," says Kelly McKague, City of Airdrie's facility operator. "The valve was completely eaten away so we had to replace it every 18 months because of wear and tear."

When McKague met with Summit Valve and Controls Inc. at a trade show, he was fascinated to learn about Singer Valve's anti-cavitation trim. "On display was the exact valve we had in the reservoir," says McKague. "That caught our attention and then they told us about Singer's anti-cavitation trim."

After further consultation, McKague decided to purchase a 12" (300 mm) Singer 2SC-PCO fitted with Singer's anti-cavitation trim. Singer Valve followed its standard practice by customizing the valve and the anti-cavitation trim to suit Airdrie's application.

Curious about the Singer valve's performance, McKague inspected the valve six months later. "We could have boxed the valve and resold it," says McKague. "There was absolutely no sign of cavitation, not even on the coating. We couldn't believe it."

One year after installation, McKague inspected the valve again. Again, no damage. "We were used to seeing extensive damage," says McKague. "Singer has saved us a lot of grief. The valve is working perfectly and we won't inspect it again for another few years."

Summit Valve's Harry Rehmann was on site when the Singer valve was opened and inspected. "When I saw the valve after it had been operating for several months," he says, "there were no marks on it. Not one. It was phenomenal. I estimate that the anti-cavitation trim prolongs the life of the valve by about 10 times. That's how effective it is."

What is Singer's anti-cavitation trim and how does it work? The valve is fitted with double sliding cages that are constructed with heavy stainless steel. The cages direct and contain the cavitation recovery, allowing the cavitation to dissipate without causing damage. "The anti-cav trim does not eliminate cavitation," says Rehmann. "Instead, it predetermines where the cavitation will occur."

Another benefit of the Singer anti-cavitation trim is the noise reduction. "Cavitation is really noisy," says Rehmann. "It's like gravel going through the valve. With the anti-cav trim, the valve is amazingly quiet."

Pleased with the performance of Singer's anti-cavitation trim, the City of Airdrie ordered another Singer valve with the anti-cavitation trim for its newest reservoir.

"We didn't have to think twice about that decision," says McKague. "The Singer anti-cavitation valve is definitely the right valve for the job."

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Benefits of Singer's Anti-Cavitation Trim

- Contains the cavitation and extends valve life
- Reduces noise and vibration
- Solves high pressure drop problems
- Controls variable flows

How It Works

Singer Valve's anti-cavitation trim allows for smooth control and protection from cavitation damage particularly where large pressure differentials preclude the use of standard automatic control valves. Double sliding cages of heavy stainless steel construction direct and contain the cavitation recovery, allowing it to dissipate harmlessly. The cages are engineered to meet the flow/pressure differential of each application.



Anti-Cavitation Trim Cut-Away

Did You Know...

The Singer anti-cavitation trim does not eliminate cavitation. Instead, it determines where the cavitation occurs; namely, inside the two stainless steel cages.

Singer Clients Who Use It

- Hidrocapital, Caracas, Venezuela
- Bajo Ebro, Zaragoza, Spain
- Nucor Steel, Crawfordsville, Indiana
- World Trade Center #7, New York City
- San Antonio Water, Texas
- Metro Vancouver, BC, Canada

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