

SINGER ROLLING DIAPHRAGM VALVE REPLACES CONVENTIONAL FLAT DIAPHRAGM TYPE



Location Brisbane, QLD Australia
Industry Water & Waste
Client Brisbane Council

BACKGROUND

The greater Brisbane Council region has a large network of pressure reducing valves. All of these are telemetry directed and flow modulated. Put simply they turn the system's pressure down when demand is low and turn it up when demand is high.

This network was initially driven by water saving benefits but maintenance savings are now often the cost justification. Pipe bursts have been reduced significantly saving thousands of dollars every day in infrastructure replacement.

PROBLEM

One of the Brisbane Council's sites, operating with a flat diaphragm type control valve, was causing problems during low flow events, particularly overnight.

This is not uncommon with such valves and the problem causes pressure surging, sometimes quite violent, and can compound as the valve becomes unstable operating in the near closed zone.

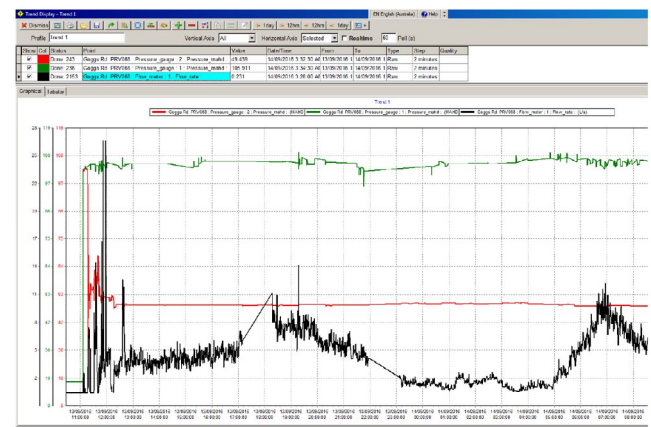
As a temporary fix Brisbane Council had been continually running a scour with water running to the drainage stormwater system. This was an attempt to increase the flow through the valve and to stabilise it. During this period a large amount of treated water was wasted.

SOLUTION

HMA Flow & Industrial proposed a replacement Singer valve fitted with the unique rolling diaphragm technology. This technology enhances valve control, precision and especially stable low flow capability. The rolling diaphragm acts like a piston as opposed to a flat flexible piece of rubber and the following testimony is the outcome.

TESTIMONY

So far, the new PRV is performing better than anything I've ever seen before, its gold! The zone night-flow was as low as 0.25 L/sec last night and as you can see in the graph below, the outlet pressure has not even budged one little bit. It's so smooth in fact, that the RTU is not even recording detailed history points for the outlet gauge (the more it fluctuates, the more points it will record. However, if not fluctuating it will only record a point every 30 mins or so).



I'm glad we simulated a large fire-flow type scenario as well whilst you were there. As you recall we increased the flow from 5 L/sec to 30 L/sec through the scour valve and the PRV reacted within a couple of seconds meaning no loss of outlet pressure. This is very positive. We will consider this valve in similar applications in future if/when the need arises.

Attila Stahlut (Brisbane Council)