

Reservoir Management Control Valve – Fill & Drain

Daisy Hill SR – United Utilities

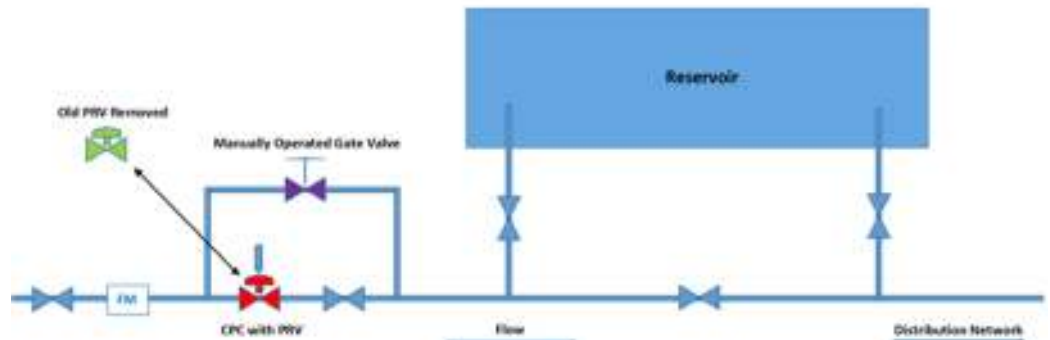
Key Features

- Automatic Control
- Local Flow or Position Control
- Integrated PRV feature
- 2 x valve solutions in a single valve body
- Default valve position on loss of feedback signals



The Daisy Hill Service Reservoir is situated in the heart of Lancashire and supplies clean water to over 10,000 properties. Until recently the reservoir levels were controlled manually by an onsite gate valve, this had to be adjusted frequently to allow for the sufficient turnover of water and ensure the reservoir did not overflow. The reservoir is located behind an active farm which made accessing the site extremely difficult; both time consuming and needing constant agreement by the farmer.

Secondary to the gate valve for inlet flow control was an old PRV, this served as the reservoir bypass valve to mimic reservoir static pressure directly into the distribution network in times of reservoir maintenance. Due to the time frame between tank servicing, the PRV was left isolated, this meant the valve had to be serviced and flushed to ensure it was operable in advance of a shut down. Again, a time consuming exercise.



The solution was to remove the old PRV and replace it with our Cla-Val CPC Position Control Valve with PRV feature. This enabled United Utilities to cease using the manually operated gate valve in favour of a flow control valve however retain the original PRV function on the one valve body. Mechanically switching between the two offers two valve functions into one valve body meaning the valve body was always in service irrespective of function.

To vary the flow rates through the valve we used our Cla-Val D22 Intelligent Controller to automatically adjust the flow set points relative to changes in reservoir level. For this application we used a bespoke Fill/Drain Valvapp allowing the reservoir to drain to a predetermined level before filling up once again.

Together with the auto fill/drain feature the Valvapp incorporates a manual flow and manual CPC position control which provides an operator with the choice of controlling the valve either automatically or local manual.

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D22 Valve controller

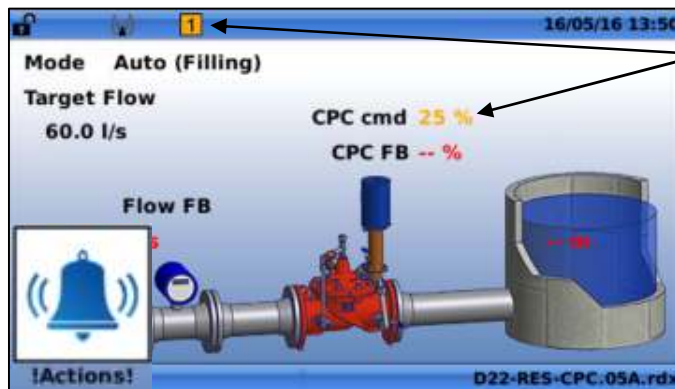
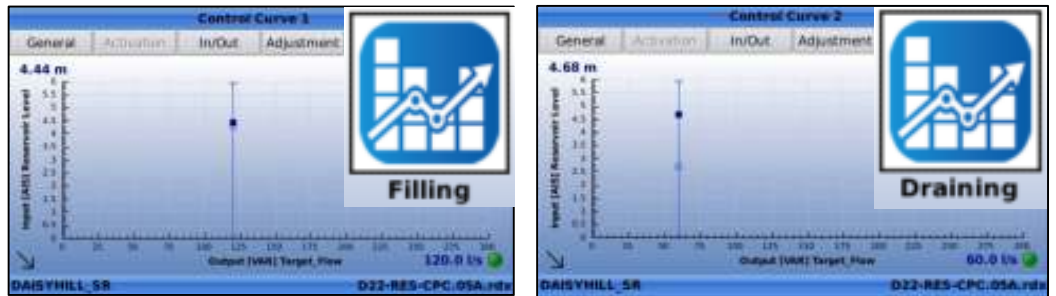
- **Auto Control**
 - Fill/Drain Profile
- **Local Control**
 - Manual Flow
 - Manual Position
- **Alarm Condition**
 - Takes the control valve to a safe default % position on loss of flow or level signal

Built into the D22 Controller are the fill and drain control curves which set the fill flow and drain flow profile. The internal PID loop electronically controls the valve flow set points from one to the other via a 'Threshold' level limit.

The reservoir level sensor feedback and flowmeter feedback (4-20ma signals) are connected into the D22 so that it can electronically see both flow and level.

@ Threshold High (max res level) = 5m - Flow decreases to 60 l/s

@ Threshold Low (min res level) = 4m - Flow increases to 120 l/s



! Actions !

If Level or Flow feedback signals fail, the D22 takes the valve to a default safe position.

For this application 25% provides approx. 80 l/s.

