Solutions for pressure management and leakage reduction

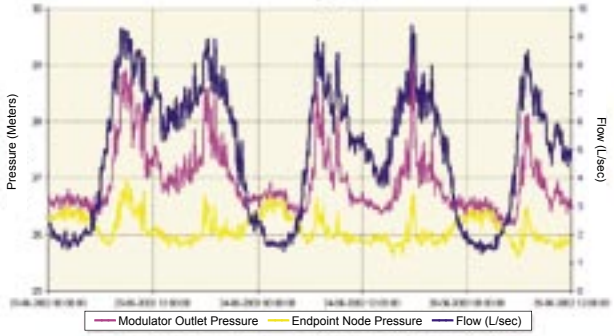
HyMod

Pressure Reducing Valve with Hydraulic Flow Modulation

Description

Dorot model HyMod is an automatic pilot controlled, pressure reducing valve activated by the pressure of the pipeline. The valve reduces upstream pressure to a downstream pressure that increases or decreases simultaneously with the demand flow. The pressure into the zone is continually adjusted according to the zone's actual demand, thus compensating for the system loss. The pressure-flow profile can be adjusted The Dorot HyMod will control from no flow, to maximal full open flow without any chattering or slamming.

3" HyMod Hydraulic Modulator
5 Min Averaging Data



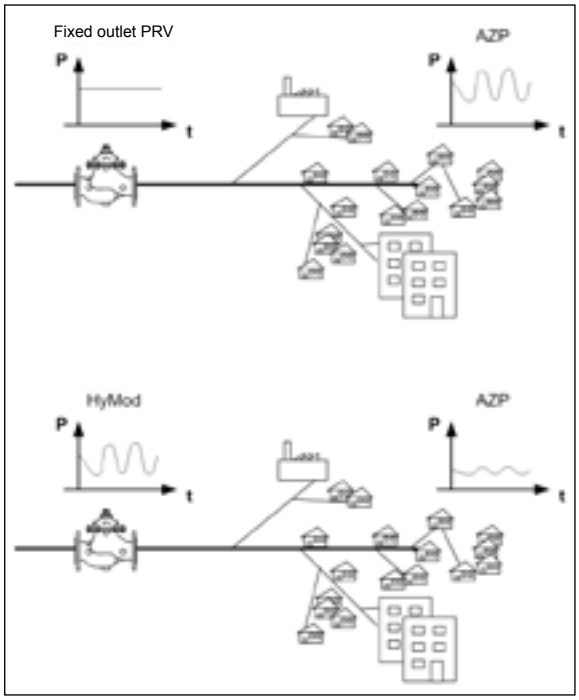
Features

- Maximum potential water saving by redaction in leakage
- Reducing burst frequency
- No power supply requirements
- Utilizes a standard pilot valve with no bias chambers or design changes
- No extra moving parts in addition to those of a standard fixed outlet PRV
- Fast, real time response to demand changes
- Simple to commission, operate and maintain
- Completely stable down to no-flow demand. No throttling plug or by-pass valve used
- The pressure-flow profile can be easily modulated in situ for optimization, without need for orifice plate replacement

Models

HyMod Type 1 - Is fitted with a stainless steel sluice valve, enabling maximal flexibility for the user to alter the pressure-flow modulation and minimum compromise between allowed losses and required modulation range. HyMod Type 2 - Is fitted with a stainless steel orifice plate, enabling the user to alter the pressure-flow modulation for in situ fine tuning in a specific range, without the need for orifice plate replacement.

Typical installation



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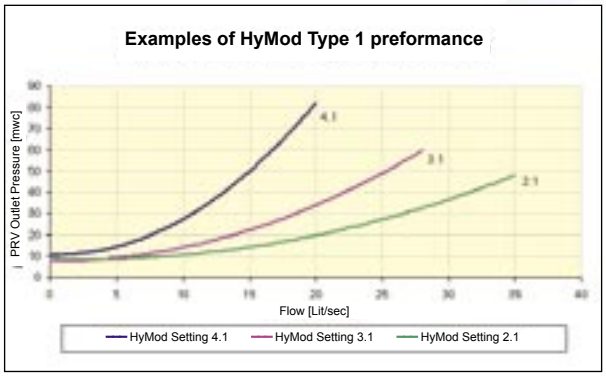
Pressure-Flow Profiles

The pressure will change at a user selected profile determined by two points:

1. Required valve low outlet pressure PL at minimal demand flow QL (normally – night demand at 03:00 AM).
2. Required valve high outlet pressure PH at maximal demand flow QH.



Design Notes

- The PRV creates a defined minimum pressure differential (head loss). To this, one should add (PH-PL)/4 loss created by the modulation device. This loss should be incorporated in the design considerations. This note refers to cases where the upstream pressure may drop to near the maximal pressure setting - PH.
- Regulating valves may operate in destructive cavitation conditions. Refer to Dorot's relevant publications for further information.
- Minimal pressure setting (PL) should be equal or larger than the required minimal pressure (PCN) plus the elevation difference (ΔH) between the critical node in the system and the HyMod location. PL ≥PCN + ΔH
- Maximal pressure setting (PH) should be equal or larger than the required minimal pressure (PCN) plus the elevation difference between the critical node in the system and the HyMod location plus maximal expected system losses (Δh) at maximal demand flow. PH ≥PCN + ΔH + Δh

Optional Features

- Electric and \ or Manual On-Off control
- Hydraulic check-valve function
- Limiting maximal pressure
- Excessive Flow Shut-Off function.

Where to use

The HyMod application is designed for the use in Pressure Management schemes where the target pressure in the zone (normally the AZP) changes as a result of varying demand. These changes are often associated with high leakage index and burst frequency.

Where not to use

Where constant logging option is required – consider using electronically modulated PRV model PRM (EF).Where two point pressure reducing (time or flow modulated) is more cost effective - consider using PRM (E2), PRM (D2) or PRM (FR) models. Where there are no significant losses between the valve location and the AZP - consider using fixed outlet PRV model PR.