Solutions for pressure managment and leakage reduction

PRM(FR)

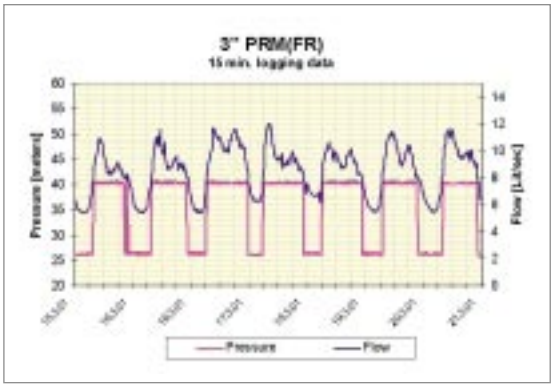
Two-stage, Hydraulic Flow Modulated Pressure Reducing Valve

Description

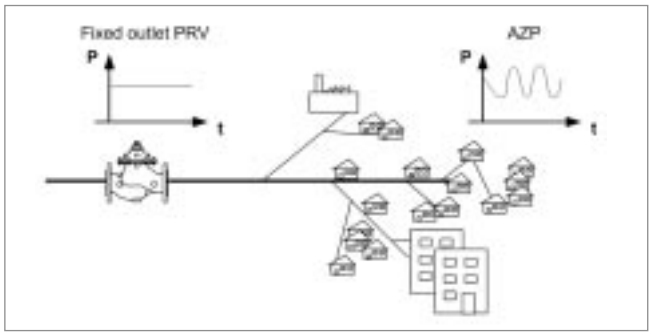
Dorot model PRM (FR) is an automatic pilot controlled, pressure reducing valve activated by the pressure of the pipeline.
The valve reduces upstream pressure to a dual set-point downstream pressure that shifts automatically in response to the demand flow.
The pressure into the zone is adjusted according to the zone's actual demand, thus compensating for the system loss.
The Dorot PRM (FR) will control from no flow, to maximal full open flow without any chattering or slamming.

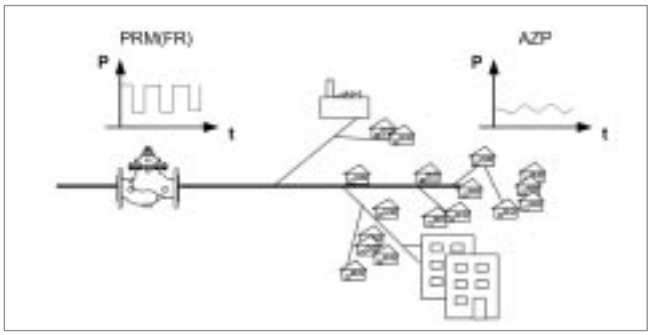
Features

- Reduces background leakage
- Reducing burst frequency
- No power supply requirements
- Maximal reliability: Bias chamber assembled on a standard PRV pilot and modulated by a standard flow control pilot valve.
- Fast, real time response to demand changes
- Simple to commission, operate and maintain
- Completely stable down to no-flow demand. No throtteling plug or by-pass valve used



Typical installation





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Pressure Settings

The pressure will change to a user selected two points:
1. Required valve low outlet pressure PL at a demand flow lower than Q.
2. Required valve high outlet pressure PH at a demand flow higher than Q.

Design Notes

- The PRV creates a defined minimum pressure differential (head loss). To this, one should add 1.5 mwc loss created by the orifice plate. 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 - P_H.
- Regulating valves may operate in destructive cavitation conditions. Refer to Dorot's relevant publications for further information.
- Minimal pressure setting (P_L) should be equal or larger than the required minimal pressure (P_{CN}) plus the elevation difference (ΔH) of the critical node in the system and the PRM location.
  $P_L \geq P_{CN} + \Delta H$
- Maximal pressure setting (P_H) should be equal or larger than the required minimal pressure (P_{CN}) plus the elevation difference of the critical node in the system and the PRM location plus maximal expected system losses (Δh) at maximal demand flow.
  $P_H \geq P_{CN} + \Delta H + \Delta h$

Optional Features

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

Control System

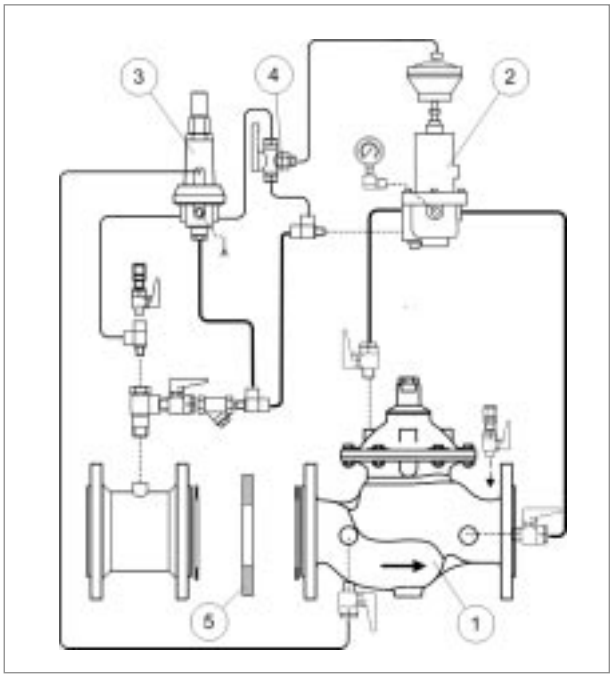
Main Parts:
① S-300 PRV
② CRM Bias Chamber modulated 2-way PR pilot valve.
③ 76-200 Differential Pressure Reducing 3-way pilot valve.
④ Manual high-pressure setting override selector valve.
⑤ Orifice plate (designed for the required flow setting).

Where to use
The PRM (FR) 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 more accurate flow modulated pressure reducing is required - consider using models HyMod, PRM (EF) or EC

Where there are no significant losses between the valve location and the AZP - consider using fixed outlet PRV model PR



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