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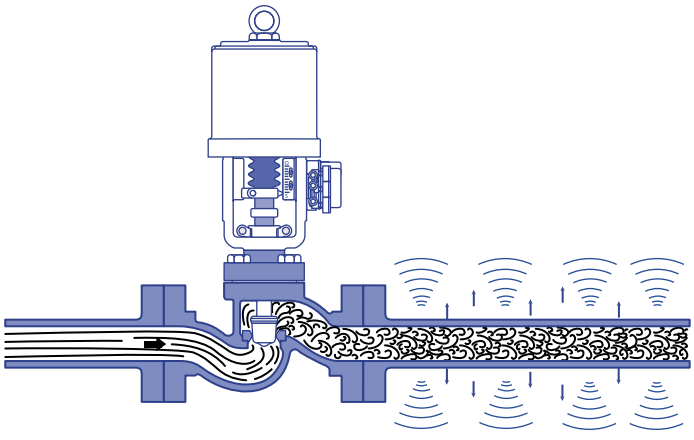
Severe Service Trim Noise Reduction

MagaFlo

MagaFlo

Noise Reduction trim

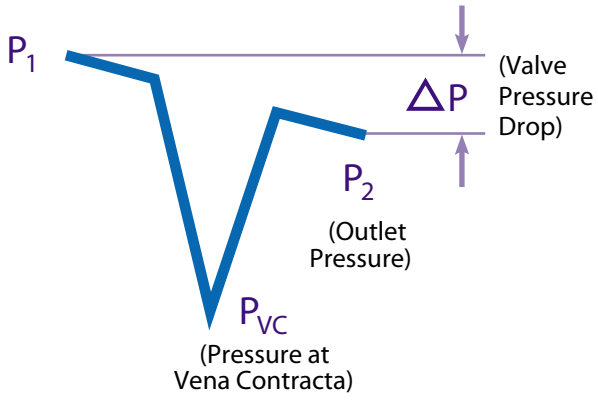
MagaFlo trim overcome the problem of control valve noise by dealing effectively with gaseous pressure reduction, and by controlling turbulence carried into the downstream piping.



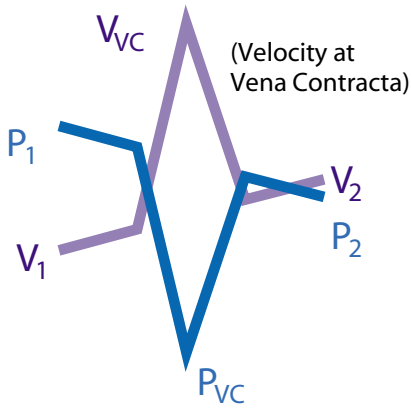
The Basic Principles In conventional single-throttling-point globe control valves, a vena contracta (point of greatest flow constriction) occurs immediately at the downstream of throttling point. A simplified pressure profile of the fluid as it passes through the valve shows slight pressure loss in the inlet and outlet passages, and a substantial reduction of pressure at the vena contracta. Note that the overall pressure drop between the inlet and the outlet does not reveal how far the pressure may have dropped within the valve itself.

The Problem with Gases The problem becomes apparent by superimposing a velocity profile on the pressure profile, discussed above. For single-throttling-point control valves, with the sharp pressure reduction, the velocity will be greatly increased at the vena contracta. While considerable noise can be generated as velocities in the valve approach sonic levels, substantial noise can be generated even where inlet and outlet velocities are significantly less than sonic.

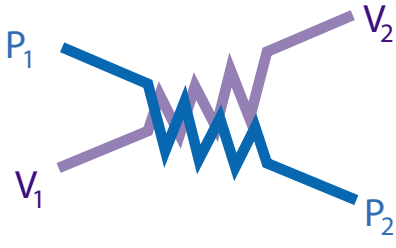
The Solution Without allowing a sharp pressure drop at the vene contra reduce the pressure from inlet to outlet gradually. Thus, gaseous velocities are maintained at remarkable values throughout the valve and high noise levels are simply not generated. Also, by breaking the flow into many small flow streams, turbulent energy is reduced and dissipated. In addition, noise generated upstream is substantially blocked by successive stages.



Pressure Profile Single Seat



Gaseous Noise



The Solution

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166 / 167, G I D C, Naroda, Ahmedabad : 382330. India
Phone : +91 79 22821619/22823369, Fax : +91 79 22822430
Email : info@mascotvalves.com / web : www.mascotvalves.com