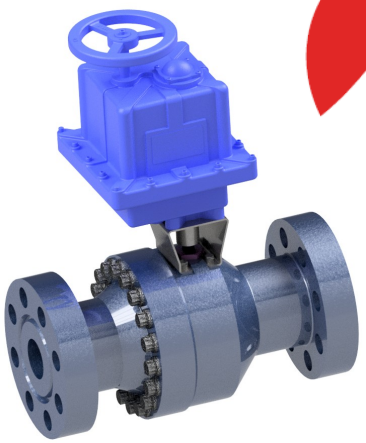


ATLAS
SEVERE SERVICE CONTROL VALVE

Fact Sheet

The Problem

Industrial fluid processing systems are tough on control valves, but depend on them to make the system work.

When the ***final control element*** fails, processing shuts down . . . Repair is expensive . . .Revenue stops . . .

. . . a big problem.

Solution

Install a severe service control valve that offers improved performance over any conventional, or unconventional, valve. Failure becomes a rarity. Processing reliability improves. Repair cost is saved. Revenue increases . . .

. . . Problem solved!.

How? The valve must . . .

- Have a flow path that avoids disrupting high velocity fluid while restricting it precisely.
- Not have an angle pattern that causes off-axis flow concentration.
- Have fully guided trim components to minimize vibration. Be quiet throughout its control range,
- Impart velocity-induced forces equally around the trim flow axis eliminating flow-induced vibration damage and noise.
- Avoid erosion damage by minimizing deflection angles for fluids impinging on hardened material surfaces.
- Avoid cavitation damage by recovering pressure far past the valve trim, allowing vaporized fluid to liquefy naturally.
- Isolate critical fluid containment surfaces from high-velocity, erosive, flashing fluids.
- Isolate internal actuation components completely from process fluid and permit direct lubrication.
- Be triple-sealed, providing a reliable secondary seal system and means to signal primary seal failure.

And how does **ATLAS** do it?

The simple, least restrictive linear flow path of **ATLAS** directs annular fluid flow to the center of the discharge end connection. Fluid does not change direction before or after the restriction throughout the control range.

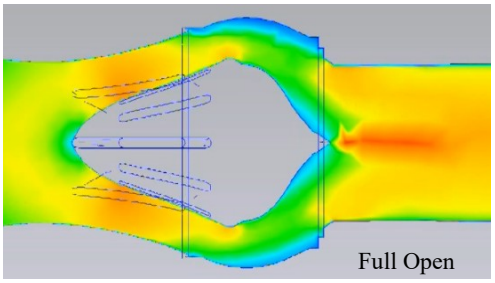
During choked flow conditions, vaporized fluid recovers pressure gradually rather than abruptly because it does not directly impact flow path surfaces.

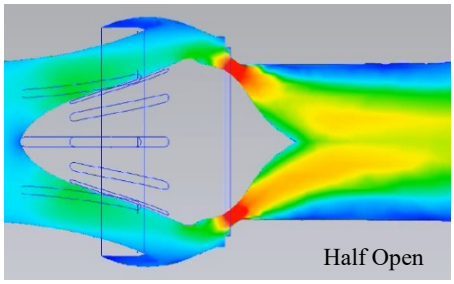
Features

- Multi-turn valve stem for precise control with low torque requirement
- Compliance with API 6A or ASME B16.34 for materials and construction
- Nitrocarburized 17-4PH stainless steel trim components
- Ultralube™ coated flow path and actuation components
- Tungsten carbide or 440C Seat
- End configurations to suit wide variety of applications
- Rotary-to-linear internal actuation employing the helical bevel gear drive system (U.S. pats 9,103,421, 9,404,561, Intl Pub No WO 2014/186437 A1)

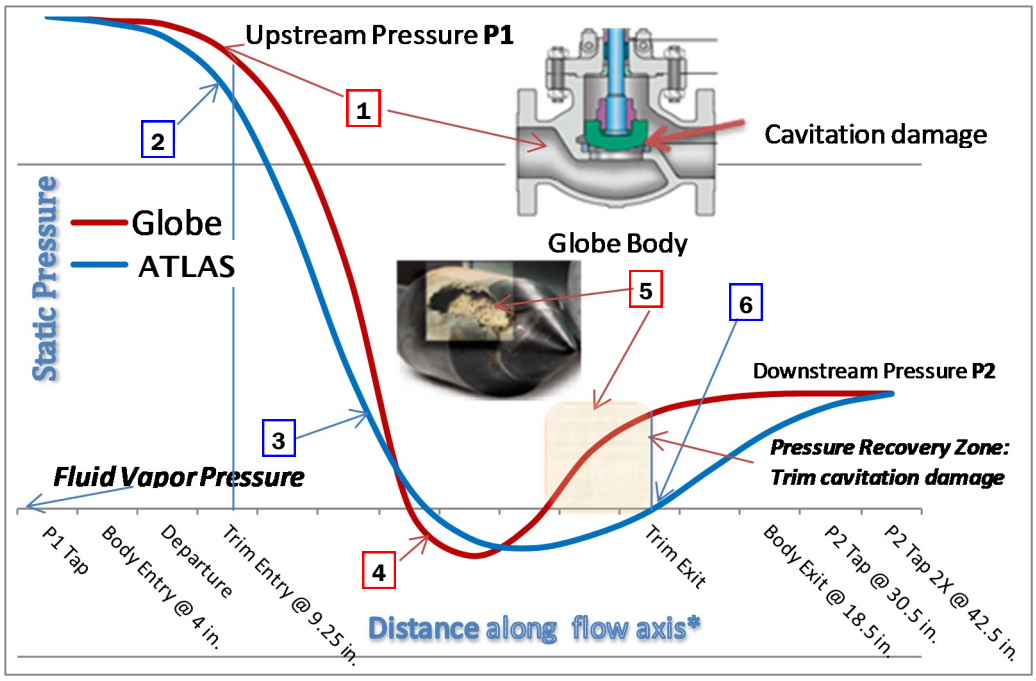
Inside ATLAS . . .

. . . Is a severe service control valve that permits accurate modulation of a fluid process in choked flow conditions. The unique, ideal flow path akin to that of a jet engine is maintained throughout the full range of control. The result is a cavitation damage resistant, high capacity, precision control valve suitable for high pressure drop, erosive fluid flow.



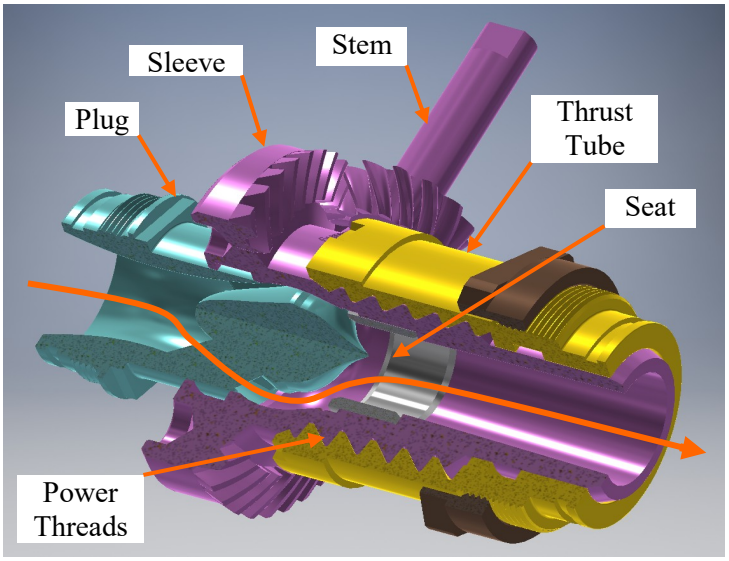


Control valve cavitation and how ATLAS avoids it:



Non-linear scale indicates a 2" Class 1500 flanged control valve in a ISA 75.02 test section.

1. Velocity begins to increase rapidly as fluid turns into lower globe body cavity.
2. Velocity increases gradually in **ATLAS** as fluid enters annular trim restriction.
3. Fluid, still in liquid state, reaches maximum velocity in trim restriction.
4. Fluid instantly accelerates as it passes trim restriction, dropping static pressure below vapor pressure.
5. Velocity decreases as fluid expands past the trim restriction. The upper globe body cavity causes pressure to build rapidly before fluid exits trim, leading to cavitation damage.
6. Absence of velocity restriction in **ATLAS** maintains static pressure in trim below vapor pressure.



Manufactured By

TOTAL Valve Systems

VSI VALVE SYSTEMS INTERNATIONAL

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