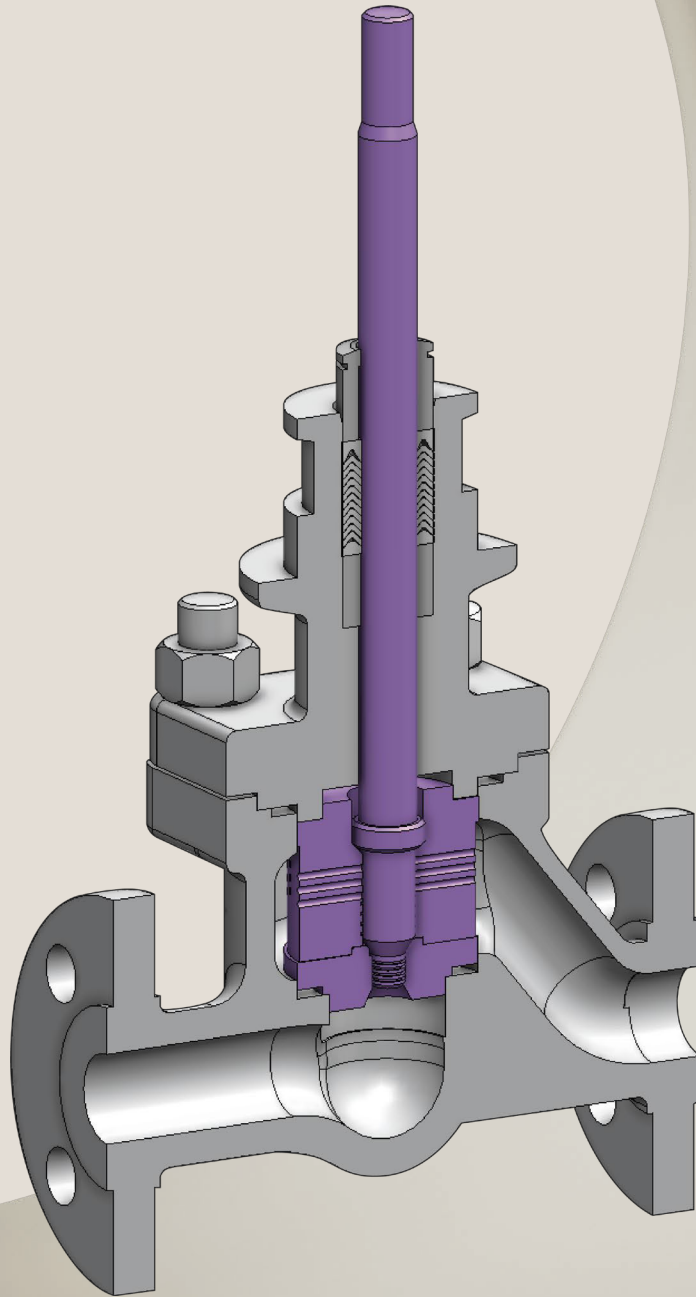
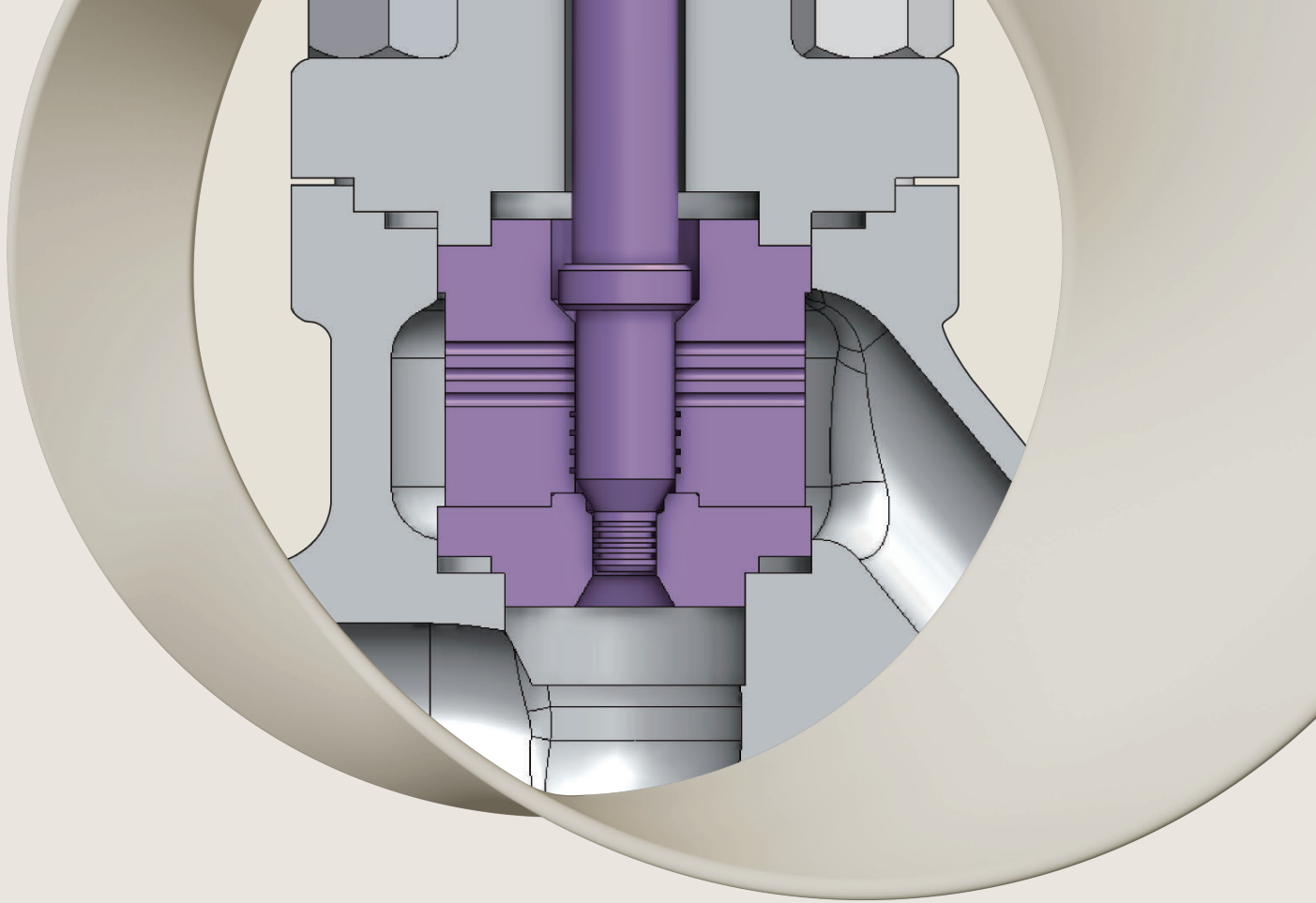


Process Automation

IMI CCI

Longer Serviceable Trim (LST)





Longer Serviceable Trim

LST extends valve service life by effectively mitigating trim erosion

When the flow rate drops below the capacity of the flow passages, high pressure and increased kinetic energy in the clearance area between the cage and plug can cause cavitation, damaging the seating surface.

LST (Longer Serviceable Trim) is specially designed to solve cavitation issues at minimum flow control. The LST solution mitigates this by relocating the vena contracta to optimize flow regulation and minimize cavitation damage in critical areas. This innovative design incorporates a nose on the plug, labyrinth grooves, and a gap control mechanism to enhance control precision, protect the seating surface, and ensure smooth operation.

The LST solution provides a great upgrade option for new installations and existing valves. Adopting the LST solution helps significantly extend the valve service life, up to four times longer, without compromising valve performance. It provides a reliable and efficient solution for effective flow control.

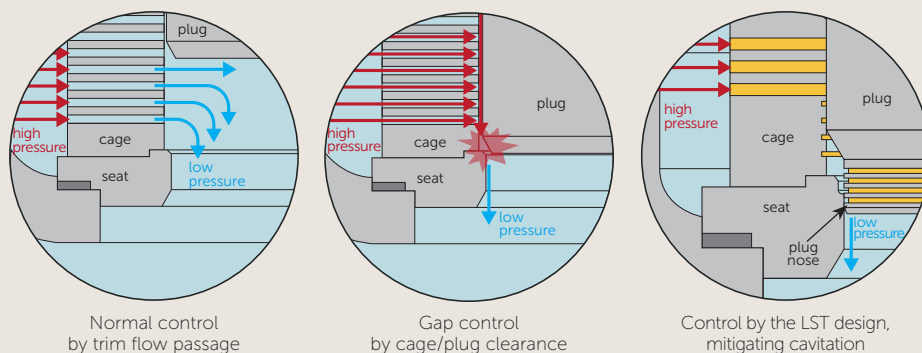
Industry challenges

Normal control

Typically, during normal operation, the flow rate is controlled by the open area of the flow passage in the cage or disk stack. These flow passages inherently control kinetic energy through a specific pressure drop. As a result, there is a continuous flow control without issues, provided the trim type is appropriately selected based on operating conditions.

Gap control

If the customer adjusts the flow rate to a level smaller than what the flow passages can handle, all flow passages will be closed by the plug, causing the liquid to flow through the clearance area between the cage and plug. In this scenario, the inlet high pressure is concentrated in the clearance area. Simultaneously, as the kinetic energy of the fluid increases, the likelihood of cavitation also rises. This process ultimately leads to rapid damage to the nearby seating surface.



Specification

This product range incorporates the standard LST design used in the IMI CCI 840H control valves.

Parts	Item	Feature
Body	Body type	Globe
	Flow direction	Flow-to-close (OTP)
	Valve size range	1" to 8"
Trim	Trim type	Drilled hole 1- or 2-stage cage for anti-cavitation
	Trim characteristics	Customised EQ-%
	Trim size range (1-stage)	3/8 to 5"
	Trim size range (2-stages)	3/8 to 2½"
	Plug & seat ring	440C SS with heat treatment
	Cage & stem	410 SS with heat treatment
	Balance cylinder	410SS with heat treatment; or Forged material equivalent to body
Other	Fluid type	Water or liquid
	Maximum pressure drop	70 bar
	Labyrinth on cage & plug	4 labyrinths on the bottom of cage / plug nose required

Key features and benefits

Enhanced plug design with an added nose

Relocating the vena contracta to the downstream improves flow regulation and reduces cavitation.

Labyrinth grooves on the plug nose

The labyrinth grooves feature reduces clearance Cv, enhancing control precision.

Protection of seating surface

Shifting the point of vena contracta in clearance control scenarios helps avoid damage to the seating surface.

Gap control mechanism

When the valve opens with gap control, the plug does not completely open the port of the seat which guides the plug and seat interaction, ensuring smooth operation.

Full open control

When the plug nose moves away from the seat, it allows full open, which achieves control through the flow passage of the cage, ensuring efficient flow regulation.

Typical applications

Power plants

- HP Turbine Bypass TCV
- Attemperator TCV
- Process Desuperheater TCV
- CRH to Aux Steam TCV
- Feedwater Control Valve
- Drum Level Control Valve
- High rangeability requirement

Oil & gas plants

- Process desuperheater TCV
- High rangeability requirement

Process Automation

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