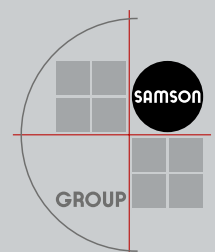


AC Valve Trims

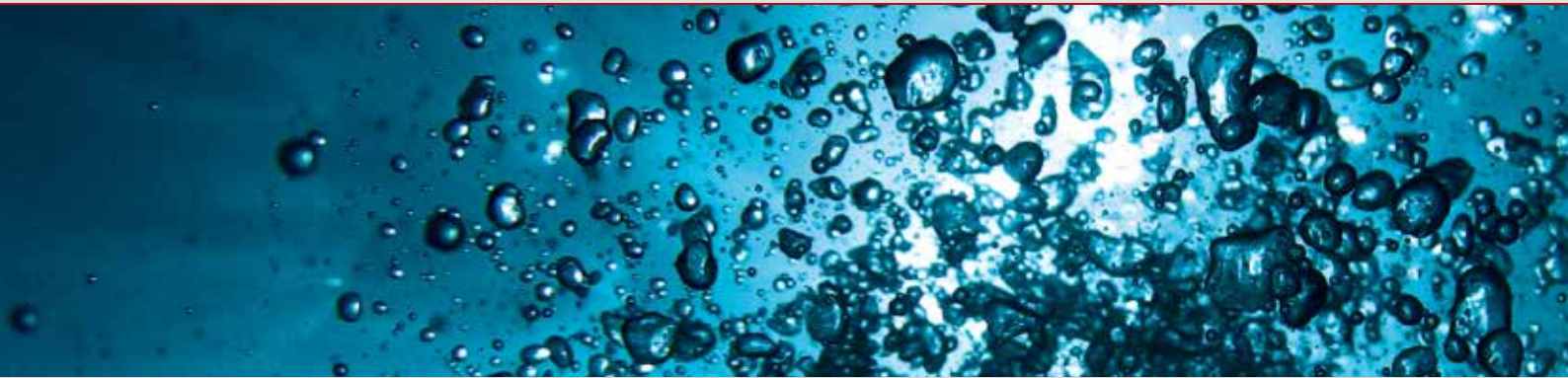
Anti-cavitation system



Where Innovation is Tradition



No cavitation at high pressure drops

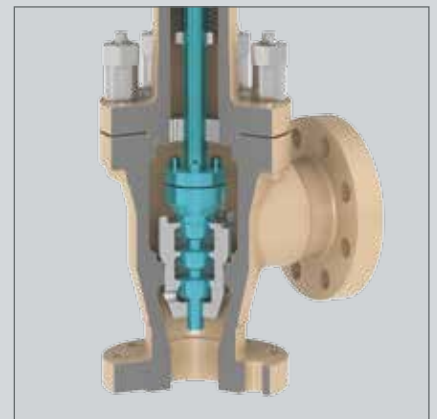
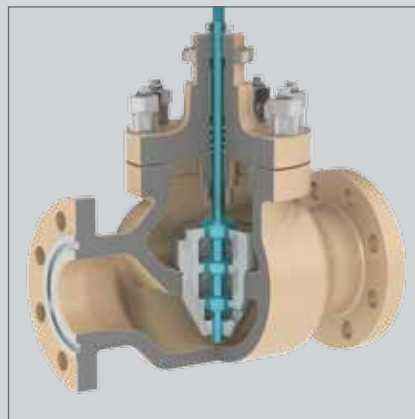
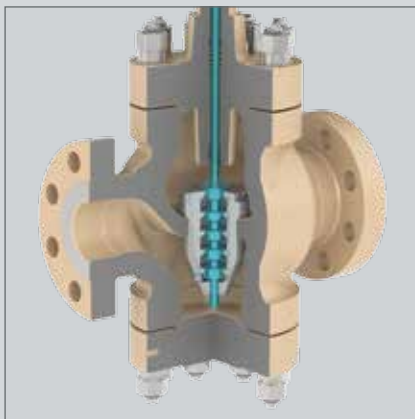


Preventing cavitation

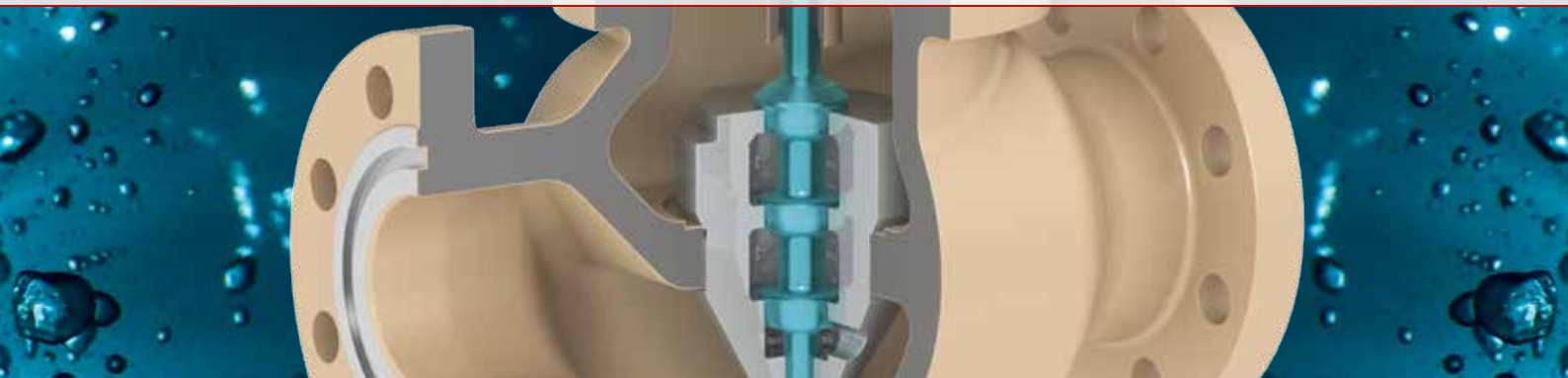
With the anti-cavitation system, SAMSON offers a seat-plug trim for globe and angle valves that effectively prevents cavitation and its effects, such as noise emissions and wear, even at high pressure drops.

Modular design

All versions of the anti-cavitation trim system known as "AC-trim" are included in the SAMSON modular valve design. Depending on the application, the trims can be installed in standard globe and angle valves without any problems to increase the valves' availability.



Benefits through optimized geometry



Preventing damage



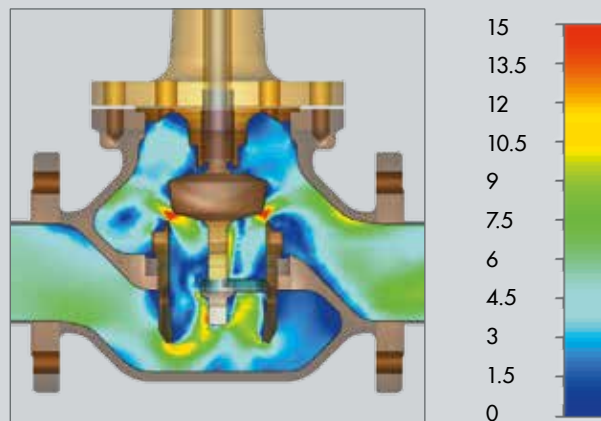
Bubble collapse during cavitation

Effects caused by cavitation (bubble formation) that affect the control valve and the control process:

- High noise levels
- Severe vibration in the plant sections affected
- Choked flow due to vapor formation
- Change in fluid properties
- Erosion of valve components
- Destruction of the control valve
- Standstill of the process

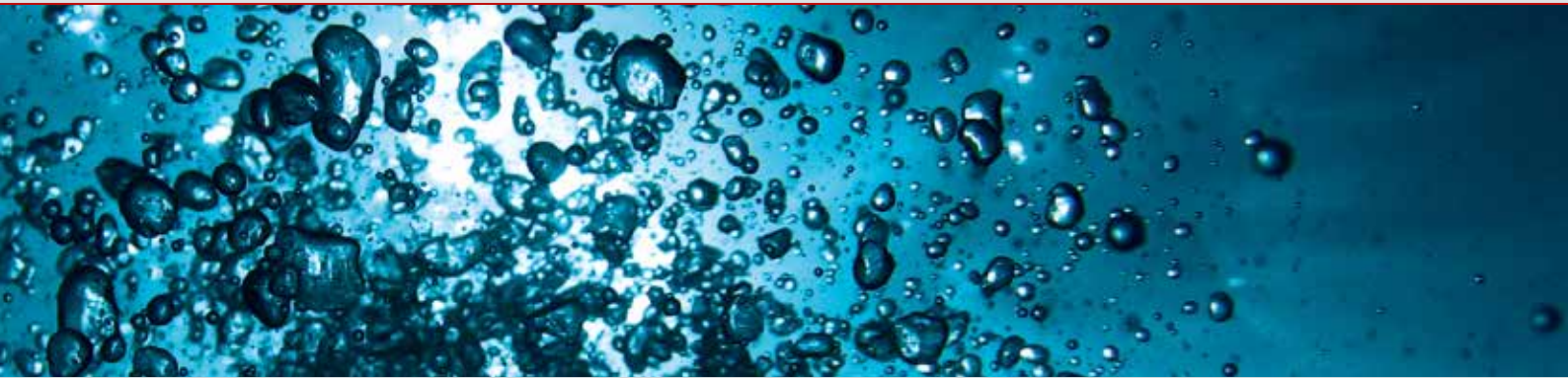
Computational fluid dynamics

The geometries of SAMSON AC-trims have been optimized using CFD (Computational Fluid Dynamics) to minimize their tendency to produce cavitation.



Flow velocity [m/s]

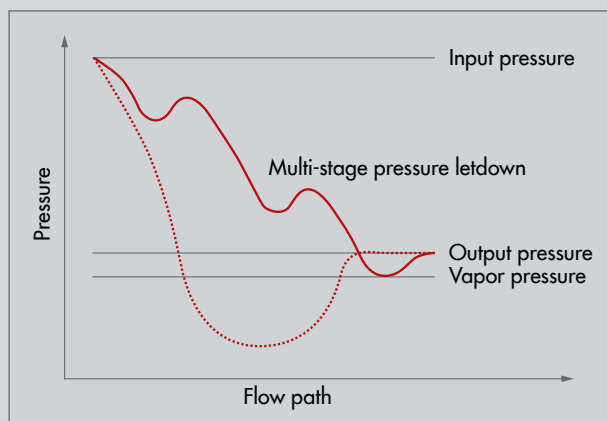
Multi-stage pressure letdown



Reducing pressure

Thanks to the multi-stage pressure letdown in the AC-3 and AC-5 trims, cavitation is warded off almost always since the lowest pressure that occurs along the flow path is always kept above the vapor pressure. This allows pressure drops of up to 200 bar to be handled without any problems.

It is always better to prevent cavitation than to merely reduce its damaging effects, e.g. by using high-quality materials.

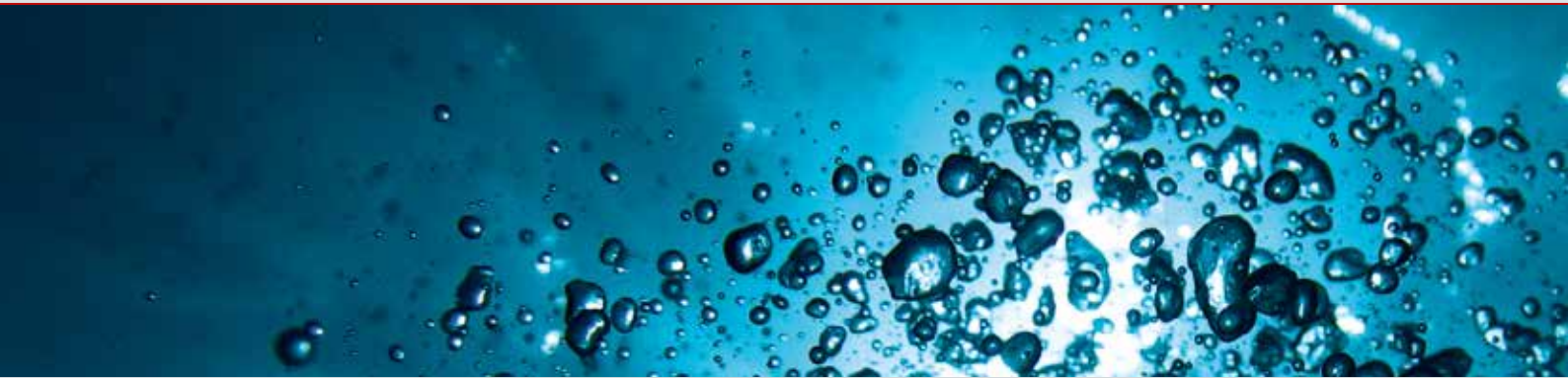


Pressure graph: — With AC-trim Without AC-trim

Applications

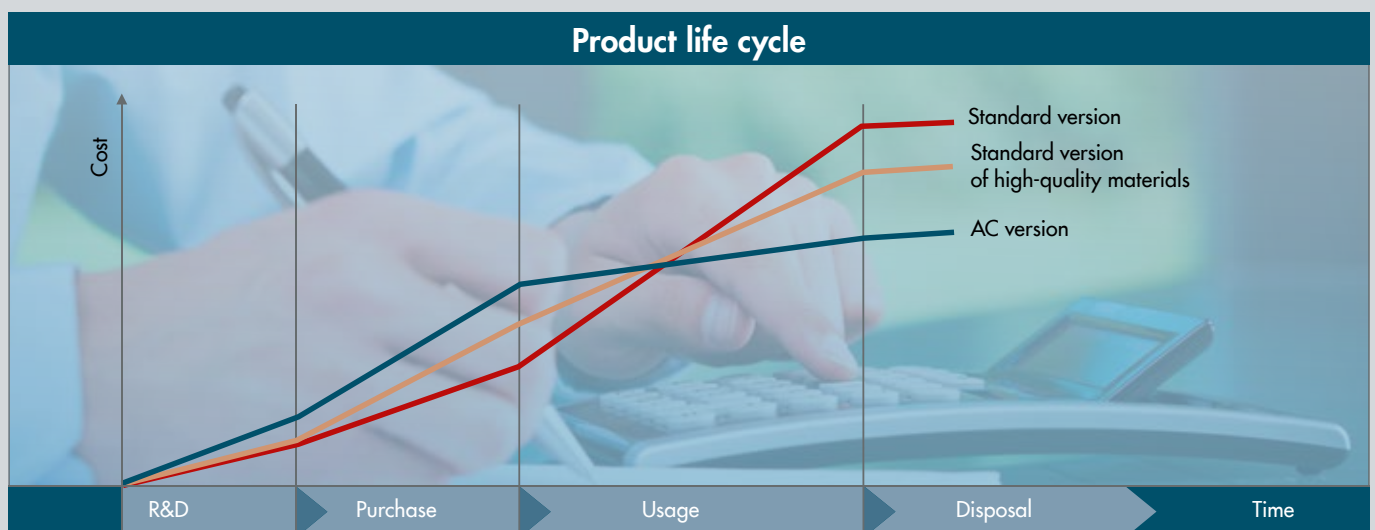
- Oil and gas:
Production water injection into wells
- Petrochemical industry:
Use in high-pressure separators (HHPS/CHPS)
Liquid level control in absorber towers
(rich amine letdown valve)
- Chemical and energy supply sector:
Control of boiler feedwater

Customer benefits



The main task of AC-trims is to prevent cavitation. Additionally, they increase the operational reliability of the valve used and the overall availability of the plant. The double guiding of the plug by the seat and body allow standard SAMSON globe and angle valves to be operated with little vibration. Thanks to the modular design of the SAMSON valves, AC-trims can easily be retrofitted.

In part, low-cavitation operation can considerably reduce the sound pressure level in the valve and prevent mechanical vibration. As a result, erosion on the surfaces of the internal parts can be avoided, which considerably extends the valve's service life. The cost incurred throughout the entire product life cycle is reduced, not least because unscheduled plant shutdowns are avoided.



Fields of application



	AC-1 	AC-2 	AC-3 	AC-5 
Valve size	DN 50 to 400 NPS 2 to 16	DN 80 to 250 NPS 3 to 10	DN 15 to 300 NPS ½ to 12	DN 25 to 200 NPS 1 to 8
Pressure rating	PN 16 to 160 Class 150 to 900	PN 16 to 160 Class 150 to 900	PN 40 to 400 Class 300 to 2500	PN 40 to 400 Class 300 to 2500
K _v coefficients C _v coefficients	35 to 1500 1730	16 to 320 20 to 375	0.25 to 160 0.3 to 190	0.4 to 63 0.5 to 75
Possible materials	1.4006, 1.4301, 1.4404 *	1.4006, 1.4301, 1.4404 *	1.4006, 1.4301, 1.4112, 1.4404 *	1.4006, 1.4301, 1.4112, 1.4404 *

* Optional Stellite facing



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