

Fisher™ SVX Steam Conditioning Valve



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Engineered for the most demanding steam applications, the Fisher SVX Steam Conditioning Valve delivers precise pressure and temperature control in both cycling power plants and critical process environments. Backed by over 145 years of process control expertise, the SVX is built for performance, reliability and maintainability.

Designed using advanced Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD), the SVX valve body is optimized to withstand the rigors of high-pressure steam systems. Its robust construction offers long-term durability, even under rapid thermal cycling.

Key features include:

- **Whisper™ Flow Down Technology:**
Reduces noise and vibration while maintaining high flow capacity.
- **Steam Atomized Nozzle:** Designed to provide complete water atomization and vaporization across a wide operating range, protecting downstream piping and minimizing required straight pipe length.
- **Pressure Seal Bonnet:** Enhances sealing performance as pressure increases, eliminating the need for costly bolted bonnet fasteners and reducing maintenance time and cost.
- **Pilot Plug Design:** Enables precise control with a reasonable smaller actuator, improving responsiveness and efficiency at the same time maintaining dynamic stability.

SVX combines proven technology with modern engineering to deliver unmatched performance in steam conditioning applications.

Features

- **Total Steam Control** – Combines pressure and temperature control in a single valve.
- **Full Pressure Drop Capability** – Rugged cage-guided design enables handling of full steam pressure drop.

Figure 1. Fisher SVX Steam Conditioning Valve



- **Noise Attenuation** – Whisper Flow Down Technology.
- **High Temperature Class V Shutoff Capability** with all heavy duty solid metal shutoff surfaces.
- **Forged Valve Body** – FEA designed valve body can handle the most demanding applications and avoid thermal stress problems.
- **Flow Down Angle Body** – Permits horizontal stem orientation for easy drop in replacement of existing valves.
- **Thermally Compensated Trim** – The cage is case-hardened to maximize service life and is allowed to grow during thermally induced excursions. The plug is continuously guided and employs cobalt-based overlays for guide bands and tight metal-to-metal shutoff against the seat.
- **Easy Maintenance Seat Ring** – Threaded design provides Class V shutoff, long life and ease of replacement.
- **Steam Atomized Water Injection** – Incorporates a steam-atomized nozzle that uses steam to break water into fine droplets over a wide operating range.
- **Thermally Compensated Liner** – Provides better thermal shock protection to minimize thermal gradients.

Table 1. Physical Specifications

End Connection Sizes and Valve Body Ratings		Configuration
Valve Inlet, NPS	Inlet Pressure Ratings	Angle (Flow Down)
4 to 18	CL150 to CL2500	Flow Direction
20 to 24	CL150 to CL1500	Flow Down
Valve Outlet, NPS	Outlet Pressure Ratings	Port Diameter
8 to 18	CL150 to CL2500	90, 110, 155, 205 and 430 mm
20	CL150 to CL1500	Bonnet Type
24	CL150 to CL900	Pressure Seal Bonnet for class rating above CL600; Bolted Bonnet with spiral wound gasket for CL600 and below.
30	CL150 to CL600	Seat Ring Type
36 to 60	CL150 to CL300	Threaded
End Connection Types		Shutoff Classifications per ANSI/FCI 70-2 and IEC 60534-4
■ Butt weld ■ Raised Face Flanges, ■ Ring Type Joint Flanges (all sizes)		Class IV/V

- **High Turndown** – Standard trim control rangeability is 50:1. Special construction can provide up to 75:1 turndown.
- **Quick Stroking Actuation** – High performance pneumatic piston actuators with FIELDVUE™ digital valve controllers can achieve full stroke in less than 2 seconds while still maintaining highly accurate step response. Optimized digital valve controllers and accessory packages are available when high stroke speeds are required. Contact your [Emerson sales office](#) for assistance.
- **Customized Valve Body and Trim** – Valve is designed to meet your application requirements.
- **Performance Diagnostics** – With the diagnostic capability of FIELDVUE digital valve controllers, questions can be answered about a valve's performance, without pulling the valve from the line. The present valve/actuator signature (seat load, friction, pilot plug spring load, etc.) can be compared against previously stored signatures to discover performance changes before they cause process control problems.

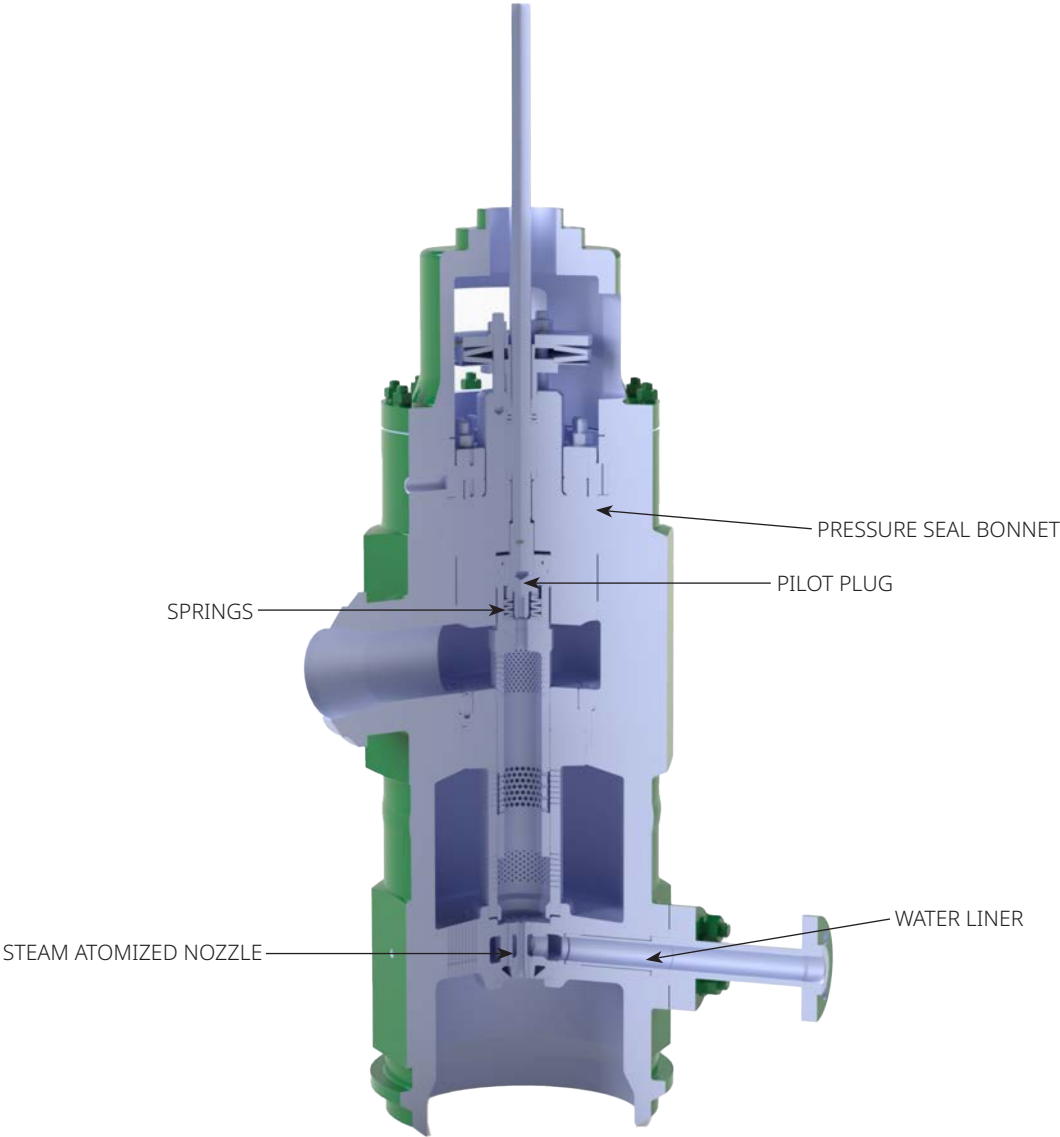
Options

- **Hydro-Test Fixture** – Provides a convenient way to establish hydrotest boundaries associated with using a split pressure class valve.
- **Commissioning Service** – Proper reassembly and calibration of turbine bypass valves, is critical for the valves to be ready for service when needed. Let skilled Emerson technicians take care of this vital commissioning service to protect this important plant asset.
- **Diagnostic Services** – The Emerson Service Group delivers world-class services and innovative technologies for top performance of critical service valves and other production assets.

Table 2. Material Specifications

Body/Bonnet	Seat Ring (Threaded)
SA105 (Carbon Steel) with Nitrided guiding, SA182 Grade F22 (2.25 Cr-1 Mo) with Nitrided guiding, SA182 Grade F91 (9 Cr-1 Mo-V) with Nitrided guiding	2.25 Cr-1 Mo with Alloy 6 Seating Surface 9 Cr-1 Mo-V with Alloy 6 Seating Surface
Plug	Seat Ring Retainer
2.25 Cr-1 Mo with Alloy 6 guiding and seating surfaces 9 Cr-1 Mo-V with Alloy 6 guiding and seating surfaces.	2.25 Cr-1 Mo Nitrided, 9 Cr-1 Mo-V Nitrided
Pilot Plug Springs	Water Liner
N07718	2.25 Cr-1 Mo, 9 Cr-1 Mo-V
Stem	Piston Rings
SA479 Type S20910, N07718 stems	Alloy 6 with N07750 Expander
Cage	Packing, Seals and Gaskets
9 Cr-1 Mo-V Nitrided, 2.25 Cr-1 Mo Nitrided	Graphite
Water Connection Bolting Joint	Nozzle
SA193 Grade B7, SA193 Grade B16, N07718	S42200

Figure 2. Fisher SVX Steam Conditioning Valve Sectional View



System Noise Level

Today's power plants must comply with strict noise limitations, especially those that are located close to residential areas. Satisfying a low fence line noise requirement requires a complete understanding of the system and how individual components can affect the total noise transmitted to the plant boundary.

Extensive steam conditioning noise research has been conducted at the Marshalltown research facility, resulting in a new understanding of the impact of sparger installations in turbine exhaust ducts. Testing has revealed critical spatial relationships of multiple spargers that must be maintained to prevent noise generation.

This knowledge, together with the application of low noise technology trims and pressure reducing devices, allows the Emerson research facility to accurately predict the system noise level.

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