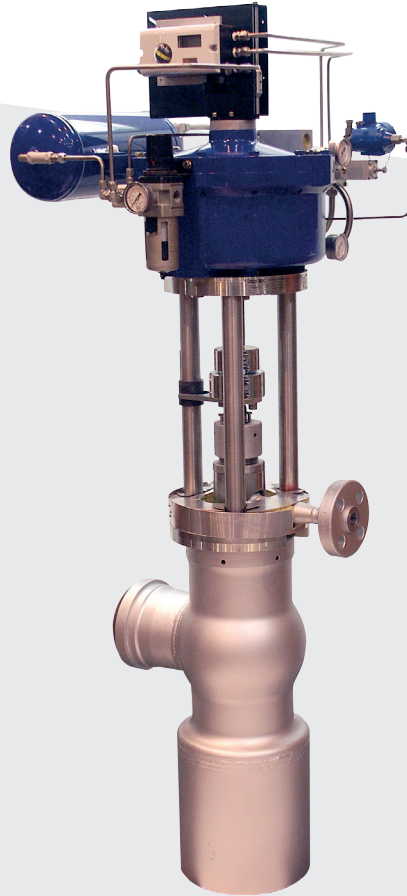



VST-SE



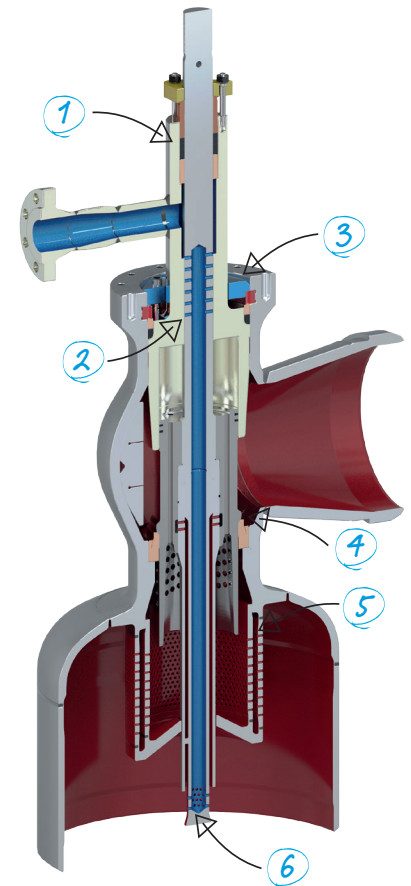

Engineering
GREAT Solutions

Steam Conditioning Valve

VST-SE: Steam Conditioning Valve

The VST-SE valve is primarily used in industrial and utility power plants for the conditioning of auxiliary and process steam. It features excellent rangeability, due to its steam atomising pipe which draws high pressure steam from the valve inlet to atomise the incoming spray water, as well as its integrated water proportioning system which ensures that the spray water and steam is controlled simultaneously. Its rangeability makes it suitable for process industries which typically require accurate and stable steam pressure / temperature control under a broad spectrum of operating conditions.

The spray water enters the valve through a water flange near the actuator yoke and is then admitted into the hollow valve stem through a series of calibrated holes in the upper part of the stem. The cooling water or condensate is injected into the centre of the steam flow in an area of high velocity, minimum pressure and very high turbulence. These factors contribute to a very efficient mixing and very fast evaporation of the spray water.



1. Gland / stuffing box
2. Drilled control area for water
3. Pressure seal bonnet
4. Plug
5. Pressure reducing pipes
6. Steam atomizing nozzle

Key features

Steam attemperation is achieved by the injection of finely atomised water into the low pressure section of the combined pressure control and desuperheating valve. The coolant enters the valve through a water flange near the actuator yoke and is then admitted into the hollow valve stem through a series of calibrated holes in the upper part of the stem (water flow control section). The stem is an integral part of the steam control plug

- > An external water control valve compensates for pressure and temperature variations of the coolant, and temperature variations of the live steam
- > Steam assisted spray water evaporation, where the cooling water is injected into the centre of the steam flow in an area of high velocity, minimum pressure and very high turbulence

- > Downstream of the valve, the steam velocity decreases and the kinetic energy is transformed into heat. This further assists the rapid evaporation of the coolant
- > Fully forged valve body

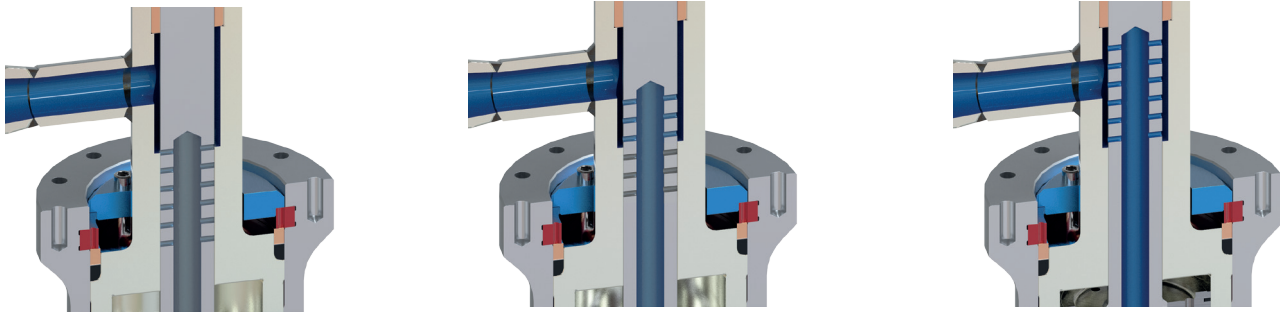
Benefits

- > The VST-SE maintains a rangeability of at least 50 to 1 even when a diffuser arrangement is required to reduce noise and vibration
- > The VST-SE Steam Conditioning Valve requires no thermal protection sleeves in the steam line downstream of the valve
- > Excellent steam conditioning rangeability
- > Direct cooling water proportioning provides fast response control

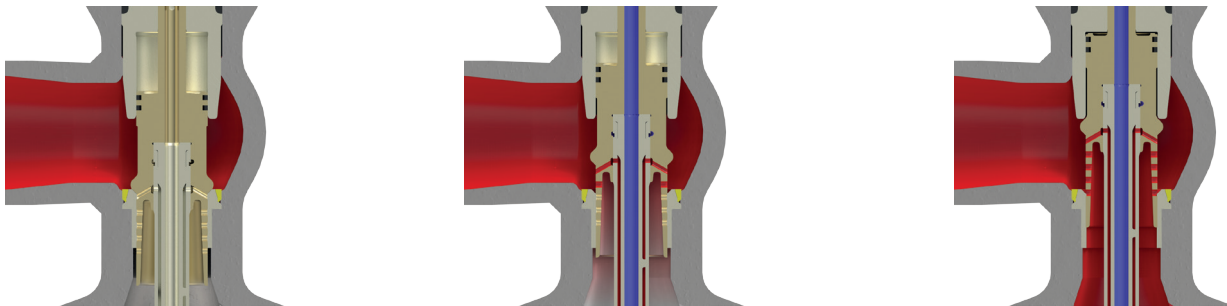
- > The VST-SE Steam Conditioning Valve is designed for the lowest possible noise generation. The injection of cooling water into the area of highest noise generation in addition to the use of a cage type plug, results in noise levels acceptable for most applications
- > Long service life with low maintenance requirements

- > A welded seal is used to create a 100% tight seal between valve body and seat. The seat itself is designed so that material stresses caused by temperature fluctuations are eliminated
- > Where further noise reduction is required, IMI CCI will deliver the VST-SE valve equipped with a diffuser arrangement to ensure that specified noise levels are met

Valve design



Water proportioning system (closed / 50% open / fully open)



Plug and steam atomising pipe (closed / 50% open / fully open)

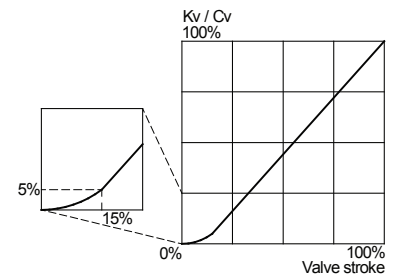
Product specification

Leakage rate

- > Standard version - ANSI B16.104 class III valve plug with labyrinth seals. (valve size 56, 72, 90 with piston rings)
- > B-plug: ANSI Class V FCI 70-2 / EN 1349
- > BT, T-plug: ANSI Class III or IV FCI 70-2 / EN 1349

Valve designation guide

Valve type VST-SE
 Plug design B, BT, T

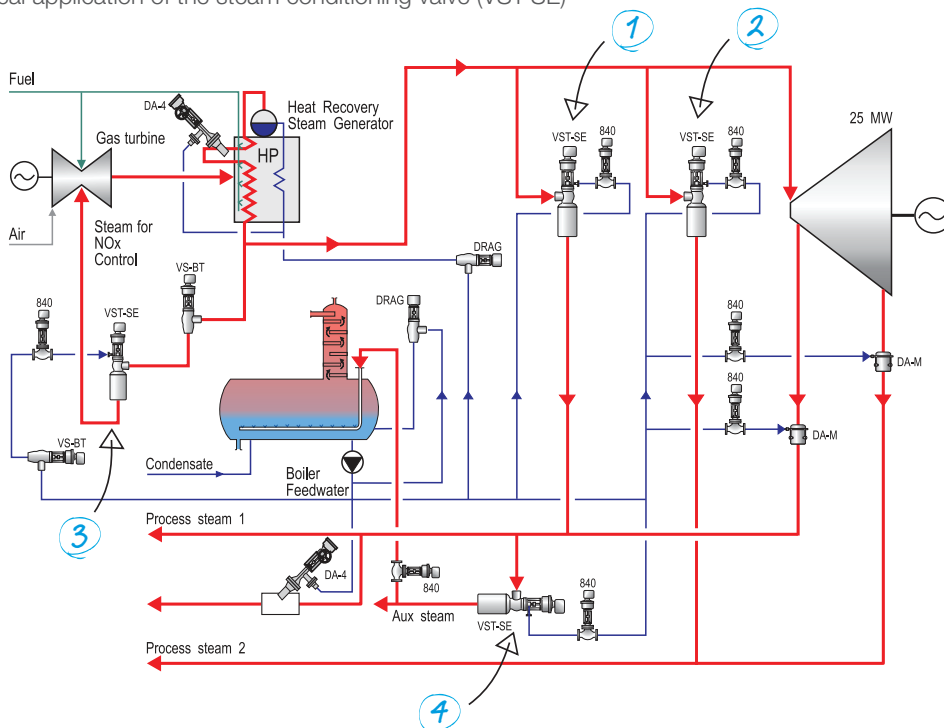


Standard linear valve characteristics.

Other characteristics on request.

Product specification

Typical application of the steam conditioning valve (VST-SE)



1. VST-SE bypass to turbine extraction process steam
2. VST-SE bypass to turbine exhaust process steam
3. VST-SE auxiliary steam
4. VST-SE auxiliary steam for NOx control

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