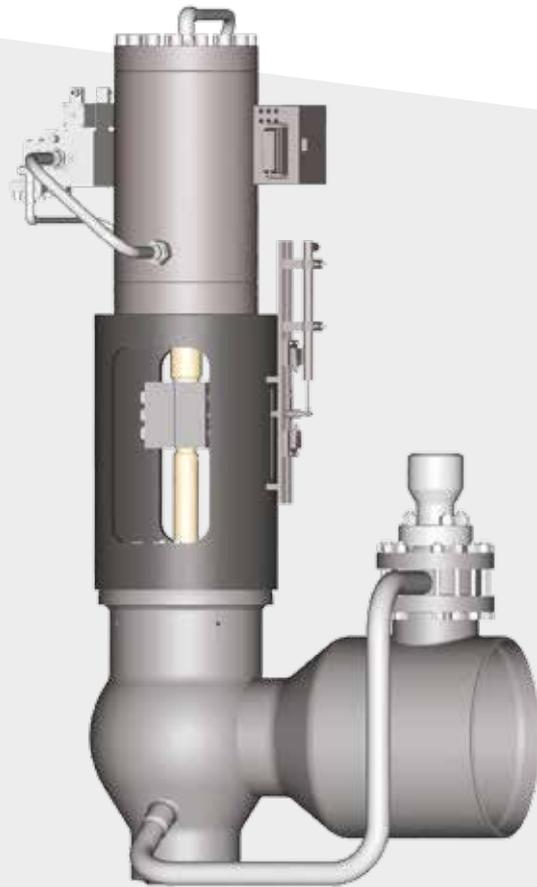


SIRA BHsT




Engineering
GREAT Solutions

HP Turbine Bypass Valve

SIRA BHsT

A high pressure turbine bypass valve is used to divert some or all of the steam flowing from the main boiler away from the turbine and into the cold reheater line. The valve reduces both the pressure and temperature so the steam can be safely transferred between these two systems.

Key features

- > Low noise levels due to multiple controlled throttle stages
- > Optimised design of the steam atomising nozzle, therefore:
 - Optimum homologation of water and steam.
 - High steam velocities inside the nozzle for excellent water.
 - Reduced evaporation lengths.
- > Pinpoint positioning accuracy for stringent control requirements
- > Optimised valve body design to minimise thermal stresses in case of load changes
- > Modular design of the valve to meet customer specifications and requirements
- > Inlet, outlet and spray water connections to match the dimensions and material of the pipework
- > Type test approval certification; BKZ 1011
- > Easy maintenance and long life

Benefits

The pressure reduction in the SIRA BHsT valve is accomplished using multiple controlled and uncontrolled pressure reducing stages. The plug accurately regulates the flow of steam through the valve. When the valve initially opens, some of the steam is also diverted through an integral pipe to the steam atomising injection nozzle.

- > The multiple stages prevent excessive noise generation during operation and reduces the pressure drop across the valve thus ensuring maximum efficiency of the entire plant
- > The valve seat is integrated in the body and hard faced for added durability and a long, trouble free life
- > The steam atomising nozzle is centrally arranged in the valve outlet and the nozzle can easily be removed for maintenance
- > The steam atomising injection is designed to reduce the size of the water droplets. This increases their surface area improving vaporisation and ultimately reduces the overall time to reach the target temperature
- > The hydraulic actuator with integral instrumentation components provides powerful, accurate positioning, control and feedback

Application

Primarily, the valve is used during the start-up and shut down operations of conventional power plants. The quick opening function allows the steam to be quickly diverted away from the turbine when load changes occur and/or the turbine trips.

If the installed valves are sized to 100% of the boiler maximum continuous rating and they are equipped with the safety control block mounted on the hydraulic actuators, the valves can also serve as an over pressure safety relief system for the main boiler.



The trip signal is generated by a triple redundant safety cabinet. The entire system then meets the stringent DIN EN ISO 4126 – part 5 standards (formerly known as TRD 421) as a controlled safety pressure relief system (CSPRS).

Technical details

Body style

Angle type, stem/actuator vertical

Operating limits

Temperature up to 650°C
Inlet pressures up to 320 bar[a]

Interfaces

Butt-weld ends according to the customer's specification

Plug

Parabolic plug

Bonnet

Self-sealing bonnet

Actuator

Double acting hydraulic actuator with opening helical spring (single-acting controlled)

Seat tightness

DIN 60534-4 part 3 - Leakage class V
ASME B 16-104 - class V
ANSI FCI 70-2 - class V

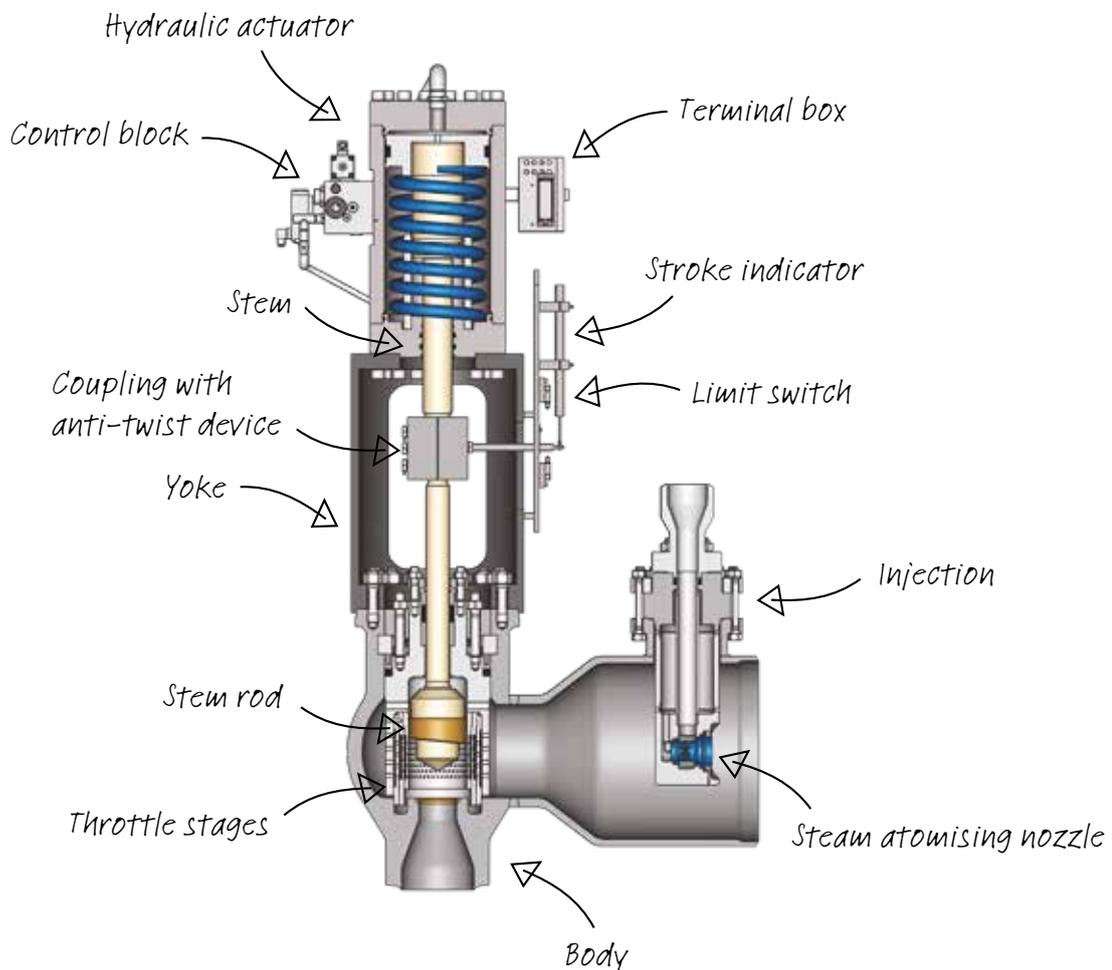
Options

Additional T-piece at the valve inlet
SIL III certified system (IEC EN 61511) in conjunction with MT 5356

Product breakdown

Typical materials

Materials EN	ASTM
1.7335	SA 182 Gr. F12
1.7383	SA 182 Gr. F22
1.4903	SA 182 Gr. F91
1.4901	SA 182 Gr. F92



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