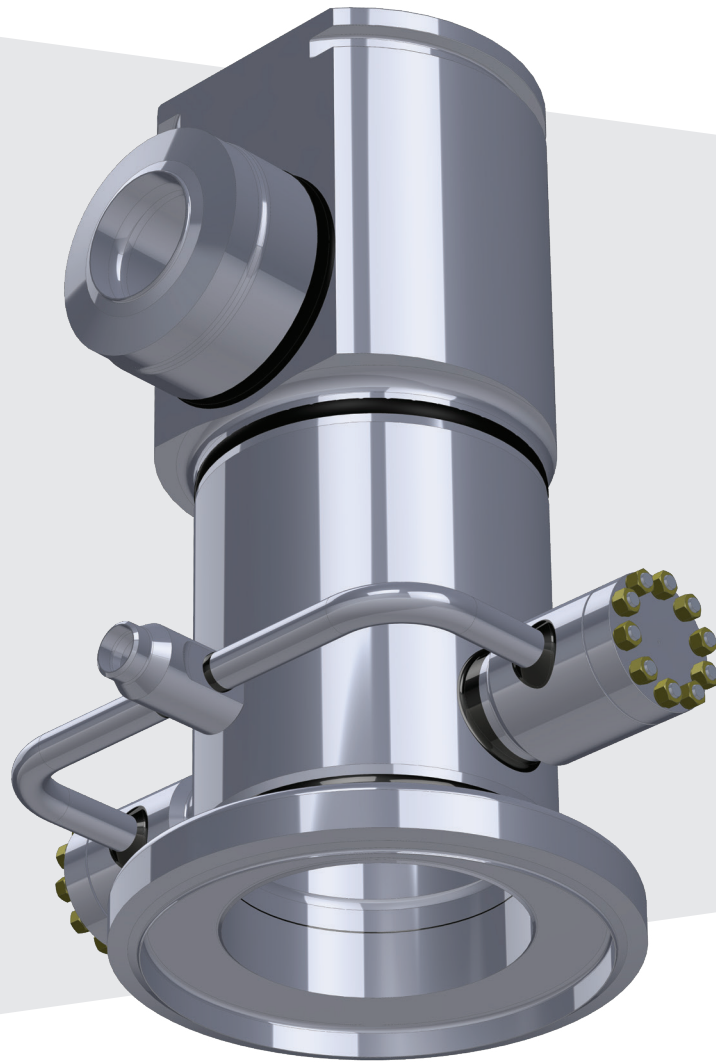



VBSE




Engineering
GREAT Solutions

**High Pressure Turbine
Bypass Valve**

VBSE - Turbine Bypass Valve

The VBSE is a steam conditioning valve used for steam throttling and desuperheating through spray water injection, directly at the outlet. Used for start-ups and load rejection, they bypass the steam to various reheat lines until the steam temperature matches the turbine blade temperature.

With a range of available body materials, the VBSE valve can be used for the main steam pressures and temperatures of today's most advanced single and double reheat thermal power plants.

Key features

- > Specially designed for modern ultra-supercritical power plants load ramping and trip case requirement
- > Forged body design with flow-to-close flow pattern
- > Pressurised seal bonnet design allowing for greater reliability at high pressures
- > Can be equipped with hydraulic, electromechanical or pneumatic actuator.
- > Seal welded seat with integral first stage pressure reduction tube allowing for quick maintenance and replaceable features
- > Spring loaded water injection nozzles
- > Integral inlet nozzle upon request
- > Different plug designs available

Benefits

- > Compact and robust design with more standardised components
- > Reduced number of components
- > Easy maintenance features allowing quick access to internals and pressure reduction tube
- > Inlet bonnet cage with drilled hole pattern to reduce the level of noise emission
- > No need for special tools for assembly/dissassembly
- > Exchangeable trim
- > Pilot plug design allowing for Class V / MSS SP 61 shut-off class
- > Outlet expansion for improved mixing and atomisation
- > Modular design to meet all customer demands

Product specification

Body style

Forged angle type valve body, flow direction - flow-to-close

Nozzle connection

For steam pipes: butt-welding, according to customer's requirement
For spray water pipes: butt-welding, according to customer's requirement

Trim design

Welded seat ring, pilot operated trim

Steam data

Temperature range: up to 630°C
Inlet pressure: up to 350 bar

Seat leakage class

EN 12266-1 Cl. B or MSS-SP61 or ANSI/ FCI 70.2 Cl. V

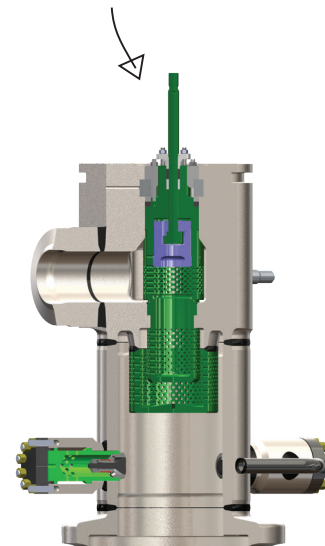
Actuation

Hydraulic, electric or pneumatic actuator

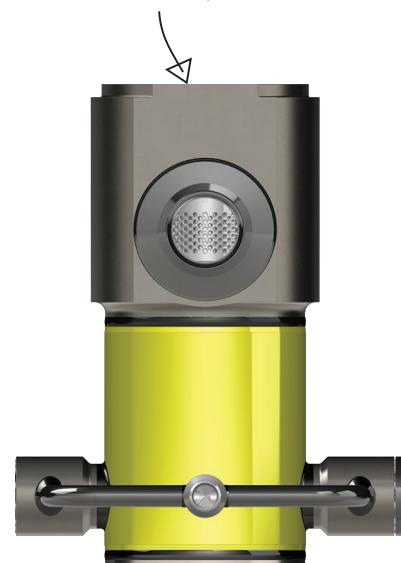
Serviceability

All internal trim parts, seat ring (welded), spray nozzles

Optional inlet transition piece



Self-sealing bonnet



Options

Transition pieces for large pipe diameters and material compatibility.
Prewarming and/or drain connection available upon request
Integral inlet upon request

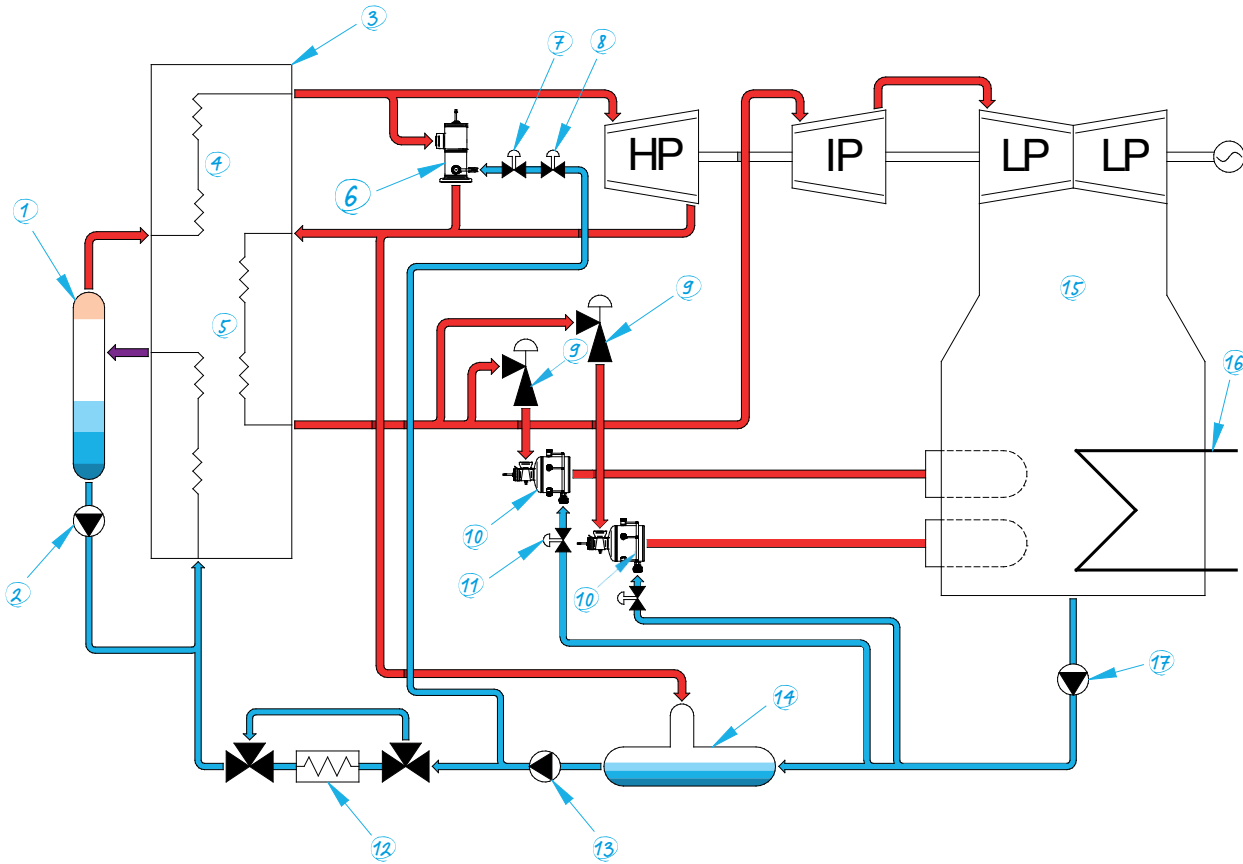
Certification

Certified acc. to PED 2014/68/EU

Design code

EN 12516-2, others upon request

Application example

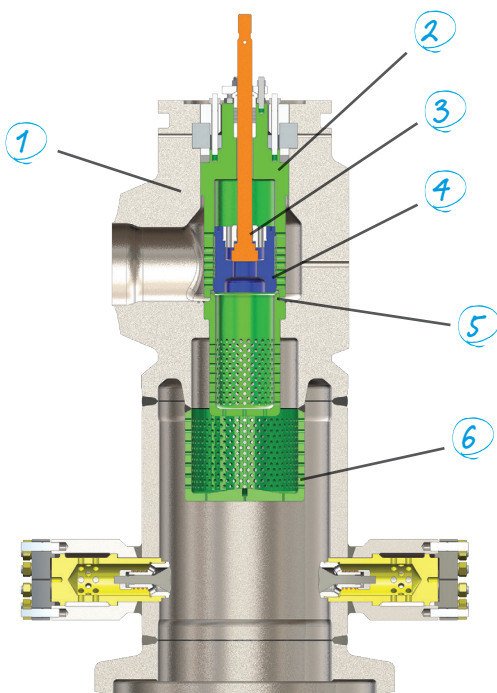


1. Separator
2. Boiler circulation pump
3. Boiler
4. Superheater
5. Reheater
6. HP bypass valve

7. HP spray water control valve
8. HP spray water stop valve
9. LP isolation valve
10. LP bypass valve
11. LP spray water control valve
12. HP water heater

13. HP feed water pump
14. Deaerator
15. Condenser
16. Circulation water
17. Condensate pump

Valve breakdown



No.	Part	Material*
1	Valve body	A182 F22 A182 F91 A182 F92
2	Bonnet cage	A182 F22 A182 F91 A182 F92
3	Stem	X19CrMoNbVN11-1 + Inconel (optional)
4	Plug assembly	X19CrMoNbVN11-1 A182 F92 (Optional)
5	Valve seat	A182 F22 + Stellite hard facing A182 F91+ Stellite hard facing A182 F92 + Stellite hard facing
6	PR-tube assembly	Gr. 22 A182 F91

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