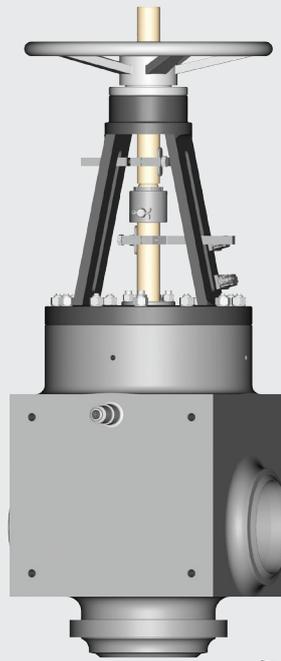
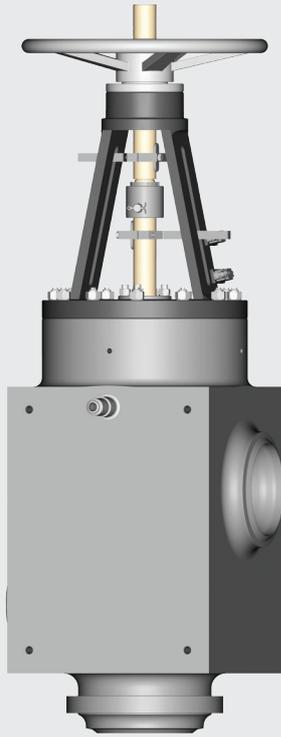


UV / SV



 Engineering  
GREAT Solutions

**Preheater Bypass System**

# UV / SV

To improve the efficiency of a steam generator, water is pressurised and pre-heated before being fed into the boiler. The heat exchangers in this feed water system need to be protected in case there is a rupture between the steam heating pipes and the water circulation, such a rupture would severely damage downstream equipment including the turbines. The pre-heater is protected by a bypass system that diverts the feed water around the heat exchanger in the event of a problem thus protecting the entire system.

## Key features

- > Easy maintenance and long life
- > Monolithic body design to avoid weld joints and for cost effectiveness
- > Modular design of the valve to meet customer specifications and requirements
- > Inlet, outlet and bypass connections to match the dimensions and material of the pipework

## Benefits

While in normal operation the feed water enters the inlet valve (UV), passes through the preheater and exits through the outlet valve (SV). In case of a pressure build-up in the preheater or in case of a leakage in the steam line, sensors will trip the bypass system and the feed water is diverted by the inlet valve (UV) around the pre-heater and out through the outlet valve (SV).

The main valves are medium actuated, i.e. they use the feed water pressure and flow to move the valves to the bypass position. There are pneumatic/manual periphery valves for triggering the system, bleeding

the system during commissioning and post maintenance and for adjusting the stroke speed of the main valves.

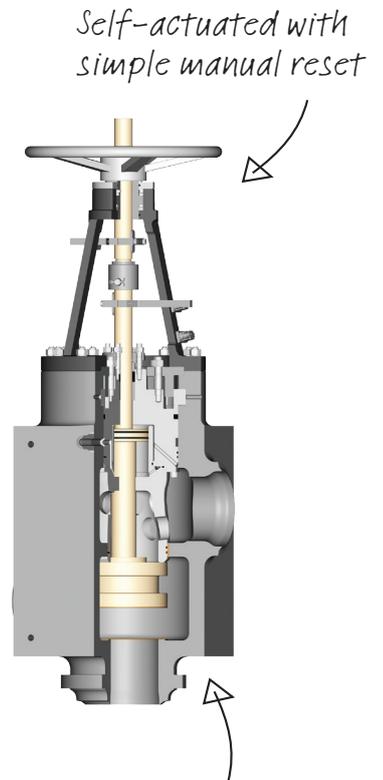
While in bypass mode the same pressure drop can be achieved as generated in the preheater.

After commissioning is completed or after the valves trip, the valve position is set to normal manually using the integrated hand wheels and gags.

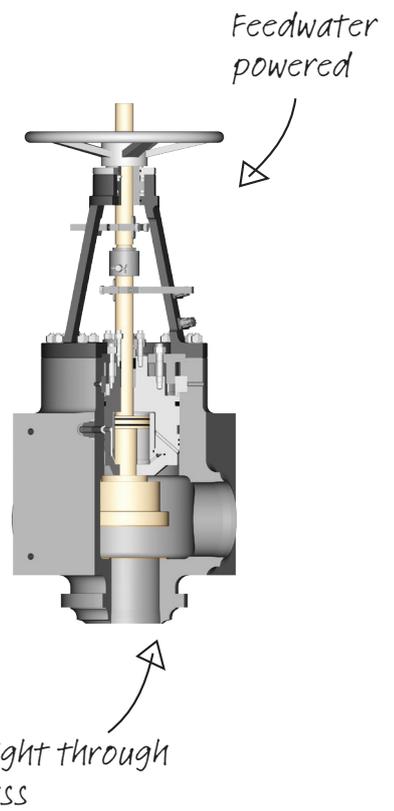
## Application

The valves are positioned at the inlet (UV valve) and at the outlet (SV valve) of the preheater. Steam, which is tapped off the turbine, is used to heat up the feed water passing through the preheater. Whenever a pressure build-up in the preheater is detected or if there is a rupture in the draw-off steam line which might possibly cause the high pressure feed water to enter the turbine, the preheater bypass system is activated. This is achieved by sending a signal to the quick acting on/off valves

which are connected to the actuators of the UV and SV valve. On the signal, the quick action on-off valves open and drain the upper piston chambers of the actuators inside the UV and SV valves which cause them to change the flow direction from preheater (normal) mode into bypass mode. The stroking times of both valves are controlled by a throttling device which is located between the main valves and the quick acting on/off valves.



*Streamlined interior for reduced pressure drop*



## Technical details

### Body style

3-way type, self-actuating

### Operating limits

Temperatures up to 400 °C  
Inlet pressures up to 350 bar[a]

### Interfaces

Butt-weld ends according to the customer's specification

### Seat

Hard faced plug and seat

### Bonnet

Self-sealing bonnet

### Actuator

Feedwater powered actuator inside the valve body

### Codes

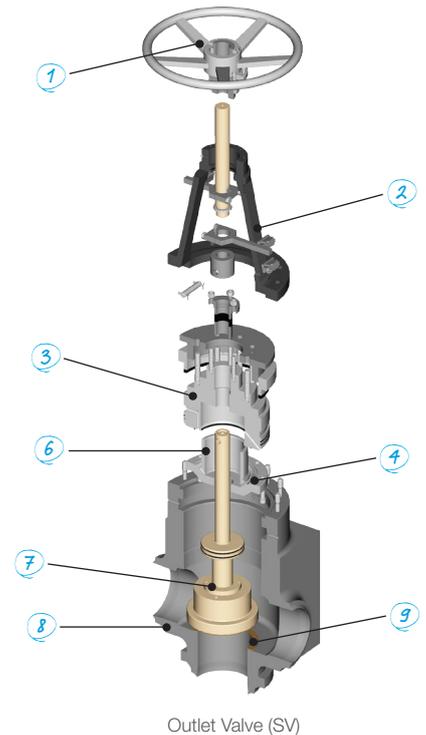
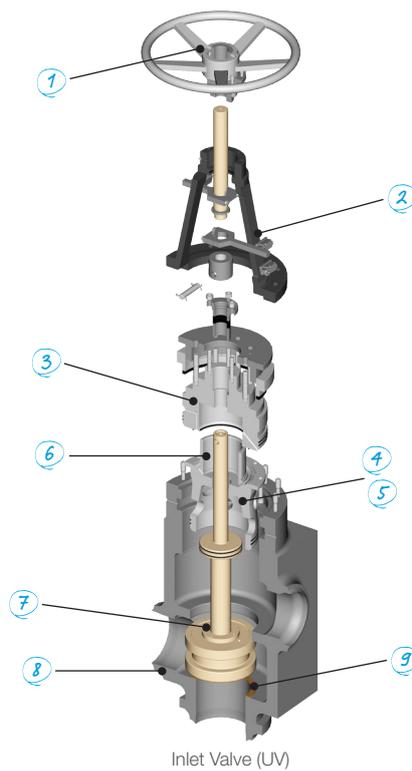
AD 2000, TRD, IBR, manufacturing acc. to ASME

### Options

Manual control valve for on-site activation of the bypass mode  
Additional limit switches for position indication

## Product breakdown

Item	Designation
1.	Hand wheel
2.	Yoke
3.	Pressure seal / upper actuator chamber
4.	Actuator lower chamber
5.	PR stage (UV only)
6.	Piston area
7.	Stem with plug
8.	Valve body
9.	Seat



## Materials

### Typical materials

#### Materials EN

1.0460

1.4515

1.6336

Further materials on request

#### ASTM

SA 105

SA 182 Gr. F1

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