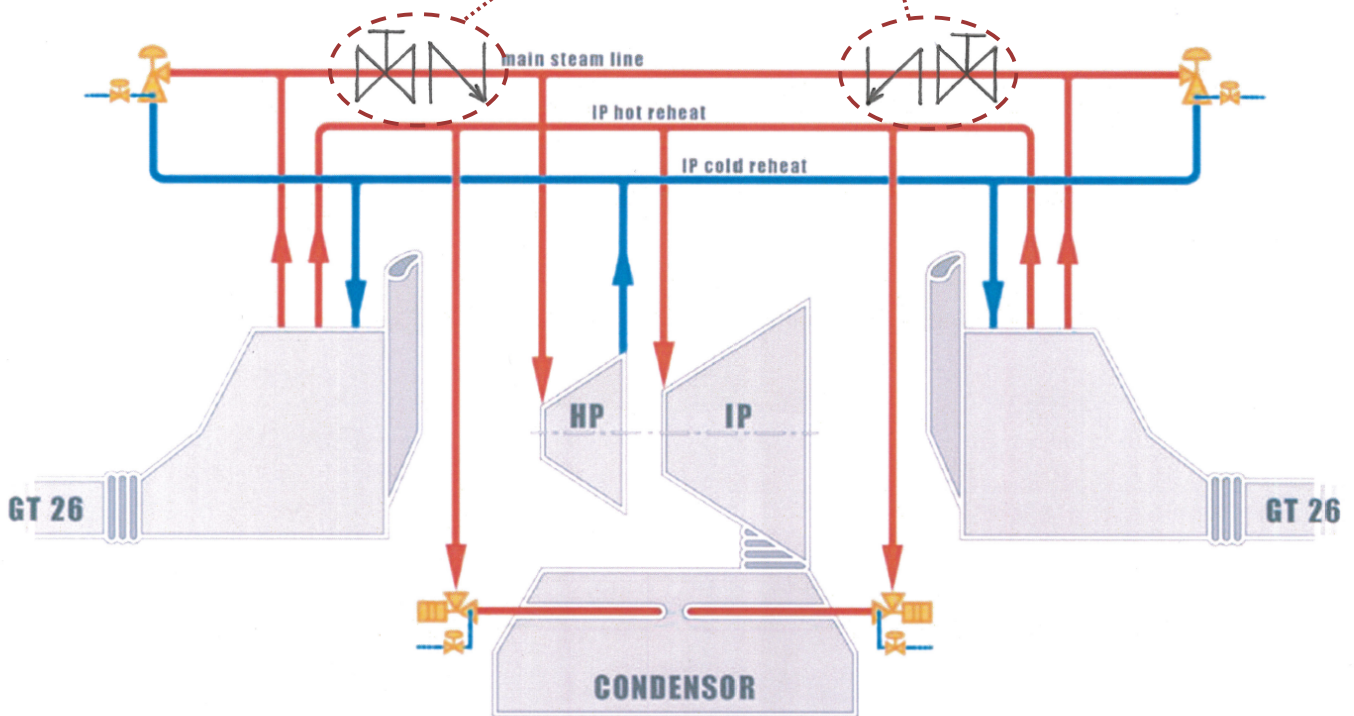
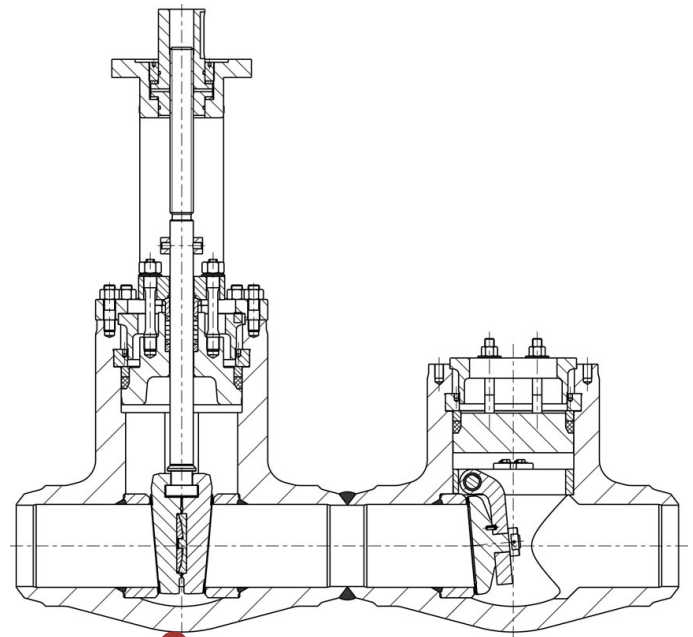


## STOP & CHECK

### CURRENT SITUATION

In many power stations with two gas turbines, two HRSG's and one steam turbine, a check valve and a stop valve are installed in the main steam lines.

If we build a combination, based on two different pressure-containing bodies, the unit would be identical to the drawing. There are two pressure seal bonnets and two heavy forged valve bodies, welded together or welded in different sections of the line. In total we have to deal with three or four welds; although AVS can carry out the welds between the check valve and the gate valve in the factory. Other disadvantages are the space requirements, the additional weight, the extra insulation and also the additional cost factor. Furthermore, the maintenance and inspection costs for these combinations, have to be based on two valves.



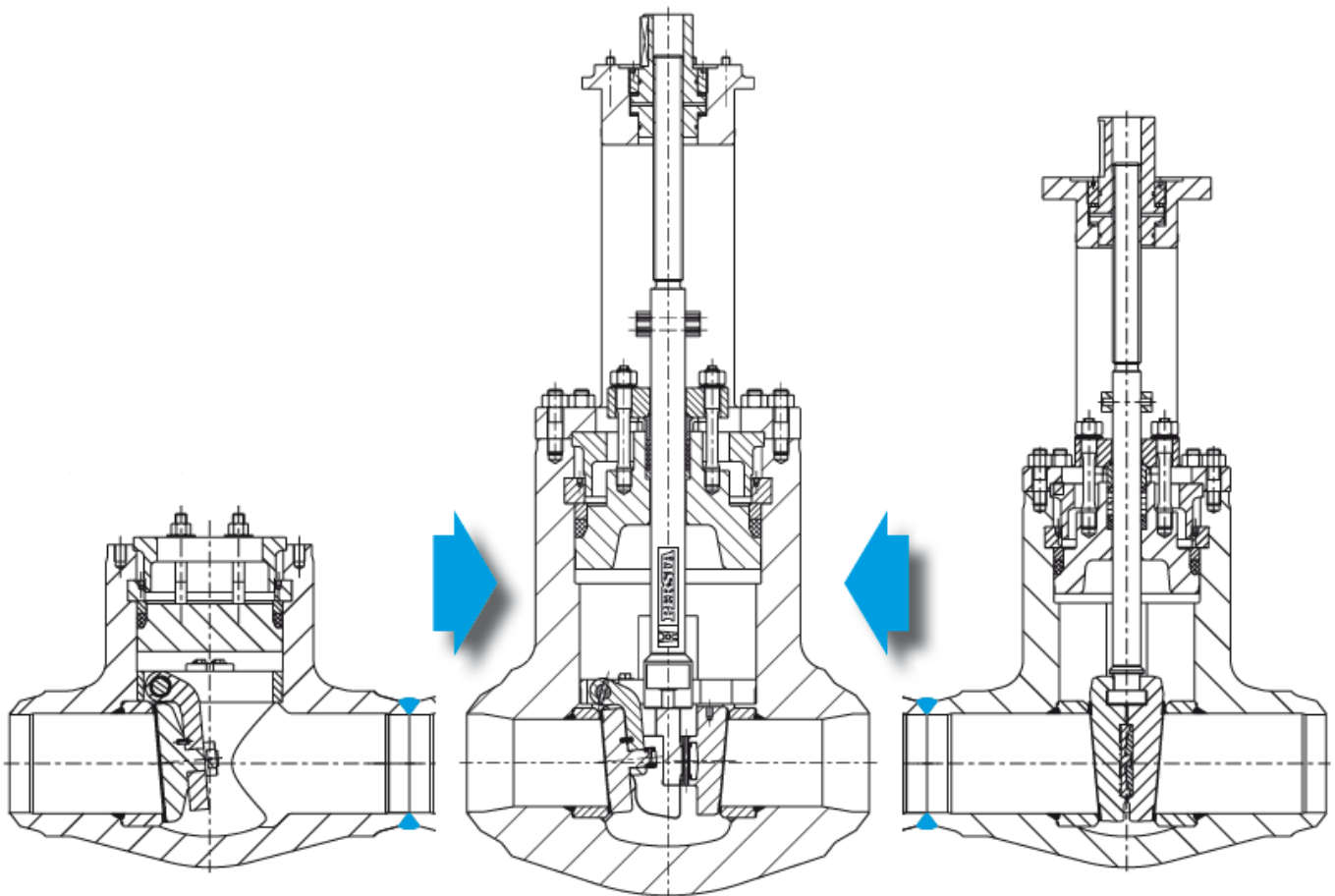
**ABOVE:** Tapered parallel slide gate valve and swing check combination (source Persta)

## THE 2 IN 1 SOLUTION !

New developments within PERSTA have combined the tapered parallel slide gate valve, with a full swing check valve, brought together in one valve body: the **stop-check valve**. Based on a standard gate valve body and standard stock items a **stop-check valve** can be created. Based on standard PERSTA hollow forgings, high-pressure equipment can be built. It is evident that the costs of a combined **stop-check valve** are much lower than the conventional use of a separate stop valve and check valve. Especially where pressures and temperatures are high, the features of the new PERSTA **stop-check valve** provide many advantages.

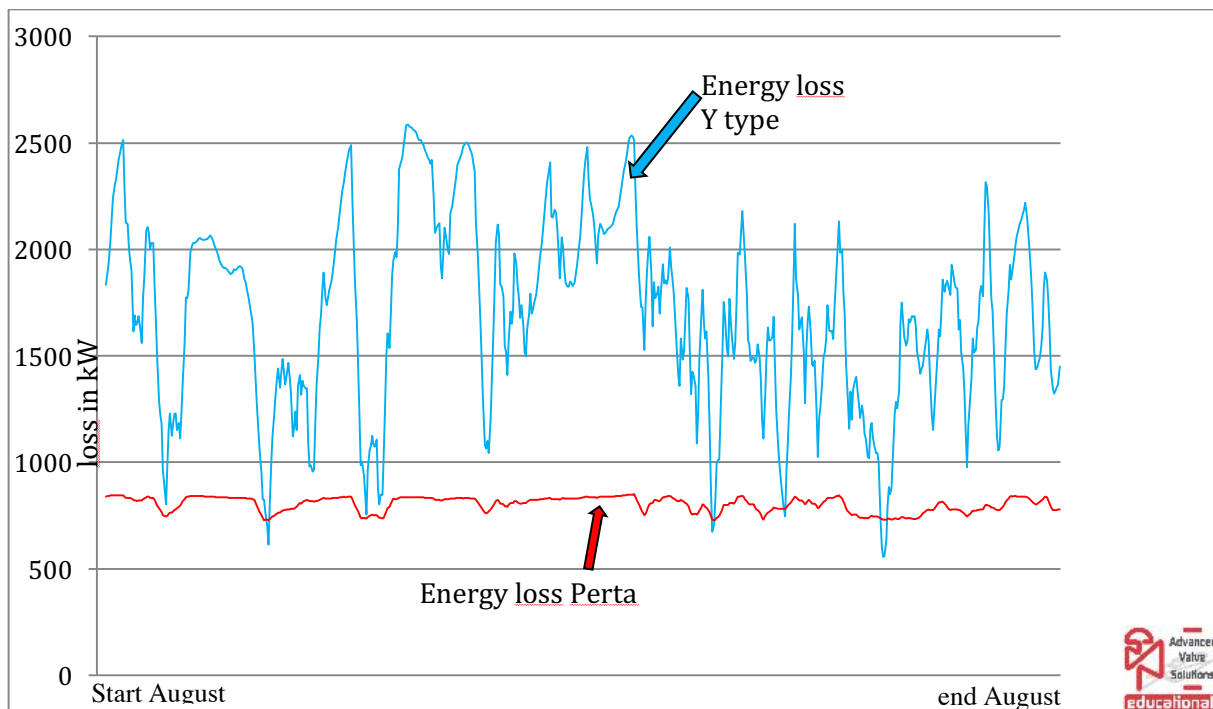
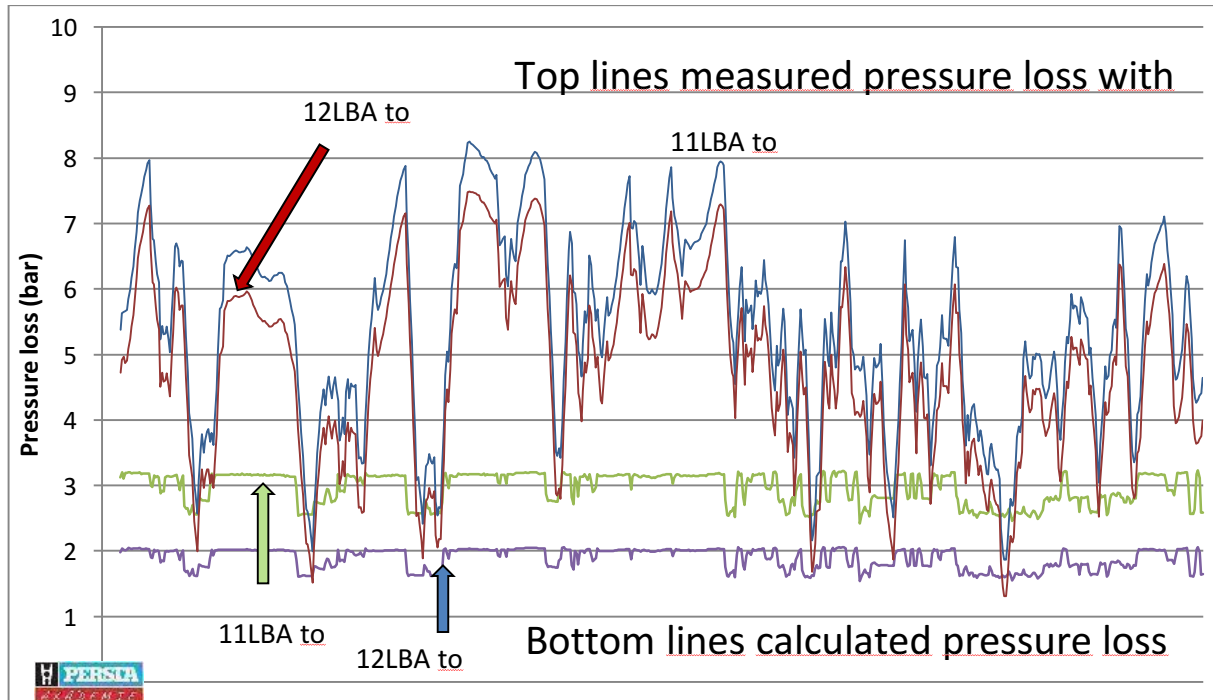
### BENEFITS

- ✓ **Less pressure drop (compared to Y-type), more efficient**
- ✓ **One valve**
- ✓ **Just two welding seams in pipeline**
- ✓ **Space and weights savings**
- ✓ **Less insulation time and effort**
- ✓ **Less maintenance and inspection requirements**



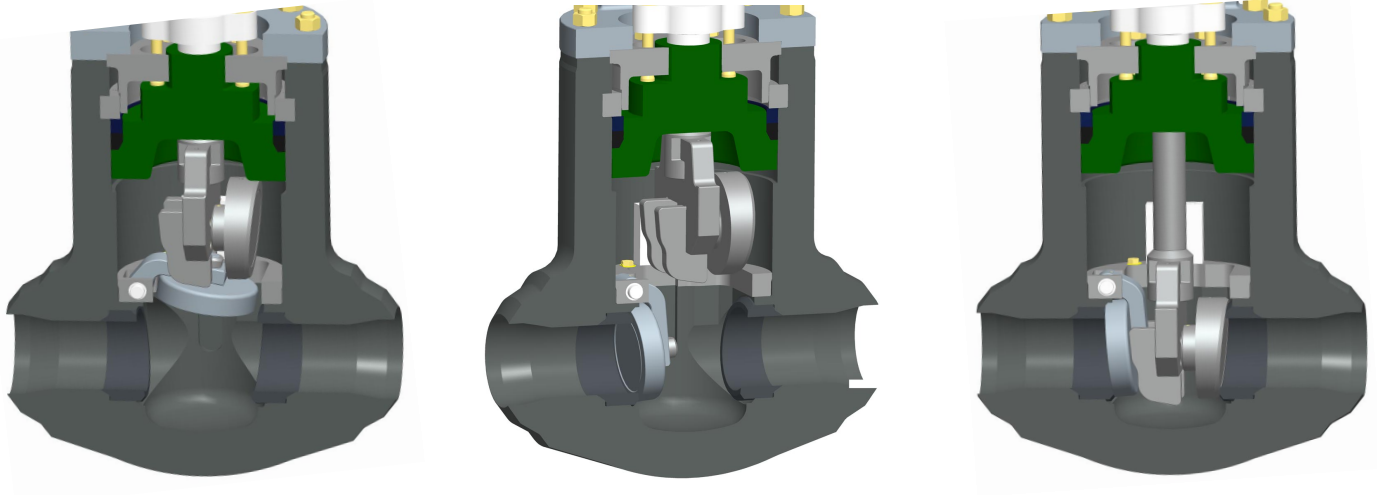
## PROVEN DESIGN

Recently, AVS successfully replaced a Y-type globe main steam **stop-check valve** at Marchwood Powerstation. The valve was designed for normal operation conditions 75 kg/s, 134 barg, 552 °C. Due to reduced resistance in the main steam line we achieved additional 2–3 bar at the inlet of the steam turbine. This results on an extra power output of **818 kW** and **€275.000,-** of annual earnings.



## **FUNCTION**

With a swing check valve and the straight through pattern of the valve body the pressure drop is negligible. When the valve is required to be closed an additional disk is lowered on a second downstream seat. The mounting arrangement of the second disk provides a positive closing force on the swing check disk resulting in a tight bidirectional closure. Now the stop-check valve is performing as a tapered parallel slide gate valve.



<b>Position 1</b>	<b>Position 2</b>	<b>Position 3</b>
<i>Function: check valve</i>	<i>Function: check valve</i>	<i>Function: stopvalve</i>
<i>Position check valve: open</i>	<i>Position check valve: closed</i>	<i>Position check valve: closed</i>
<i>Spindle stop valve: raised</i>	<i>Spindle stopvalve: raised</i>	<i>Spindle stopvalve: lowered</i>
<i>Flow: positive</i>	<i>Flow: no</i>	<i>Flow: no</i>

## APPLICATIONS:

In the industry many possible applications can be identified.

### HRSG

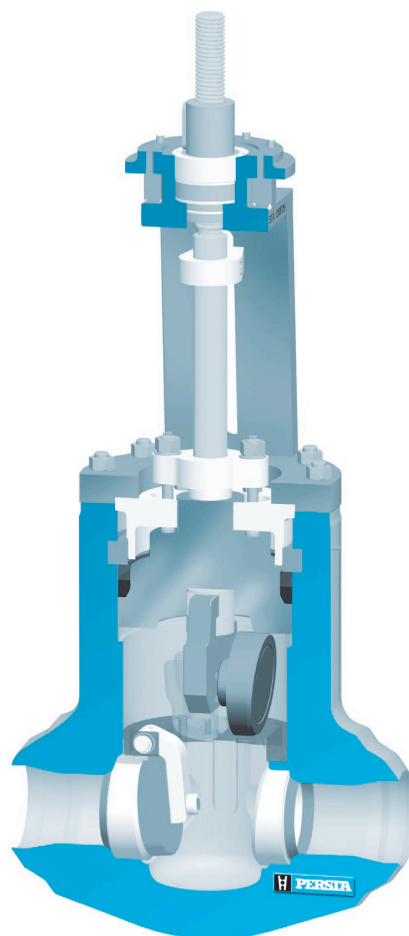
In many power stations with two gas turbines, two HRSG's and one steam turbine, a check valve and a stop valve are installed in the main steam lines. Depending on pressure, temperature and capacity a **12"**, **16"** or **20"** valve provides the best technical and commercial combination for the installation performance.

### Pump protection

Every high pressure pump is fitted with a check valve. If this check valve can be combined with a stop valve, a significant saving can be achieved. High pressure forged check valves and gate valves provide weight and subsequent cost savings

### Oil & Gas

In the oil and gas industry, produced water is re-injected into the well. These pumps do have a check valve and a stop valve. Combining it into the Persta stop-check valves gives a considerable saving in space and weight. Please check the availability of materials, such as **Duplex**, **Super Duplex** and **254 SMO**.



Our stop-check valves are available in different materials

EN DIN	ANSI
15Mo3 (1.5415)	<b>A 182 F1</b>
13CrMo4-5 (1.7335)	<b>A 182 F12</b>
10CrMo910 (1.7380)	<b>A 182 F 22</b>
X10CrMoVNb 91 (1.4903)	<b>A 182 F 91</b>
15NiCuMoNb5 (1.6368)	<b>WB36</b>

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