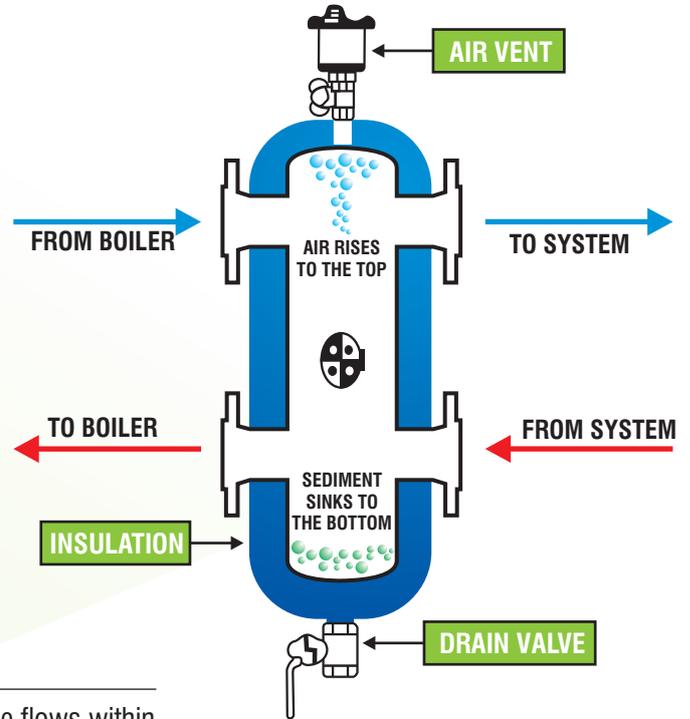




HYDRAULIC SEPARATOR

How does it work?

The Hydraulic Separator efficiently separates the primary and secondary circuits by acting as a closely spaced tee, which is normally seen in a traditional primary-secondary piping. However, the Hydraulic Separator does more than just separating the circuits – this highly engineered product also acts as an air and dirt separator. The vessel is designed to create a low velocity area allowing air to rise to the top and sediment to sink to the bottom.

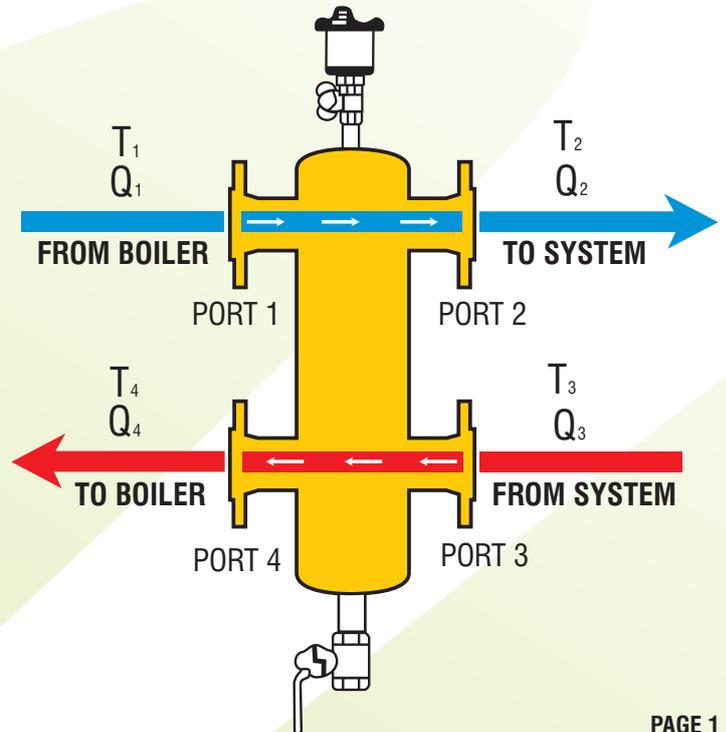


There are three possible flow paths, which are all dependent on the flows within the primary and secondary circuits.

Flow Path #1:

Flow in the primary circuit is equal to flow in the secondary circuit. This is an example of a balanced flow where the flow and temperature from the boiler is equal to that of the distribution system. The hot water from the boiler remains near the top two ports, Port 1 and Port 2.

A similar situation occurs on the bottom ports, Port 3 and Port 4 – the flow and temperature from the system are equal to the flow and temperature of the fluid going back to the boiler. In cases like this, mixing in the Hydraulic Separator is very minimal.



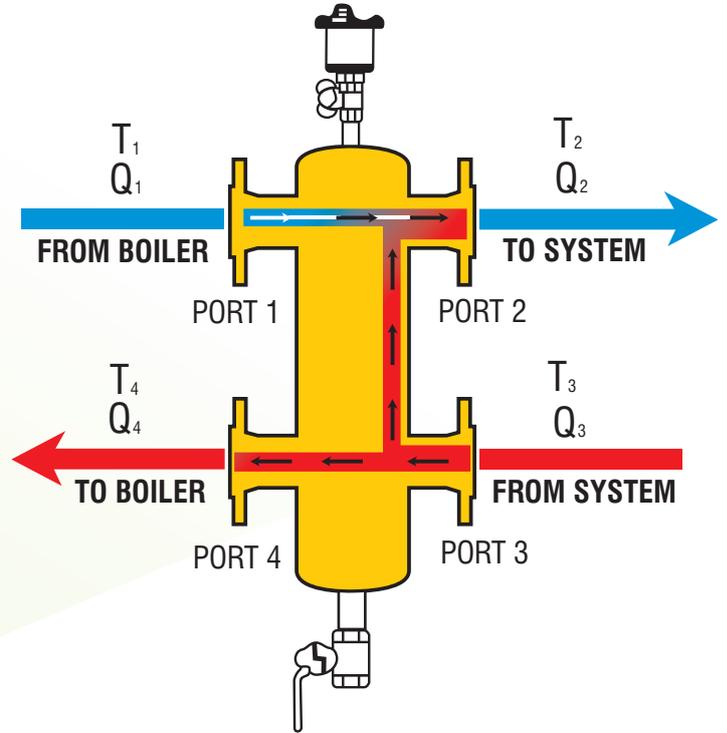


HYDRAULIC SEPARATOR

Flow Path #2:

Flow in the secondary circuit is greater than flow in the primary circuit. Since the flows are no longer balanced, the temperature going to the secondary circuit is no longer the same as the temperature from the boiler. This is primarily due to mixing of the supply and return fluids within the PSH body.

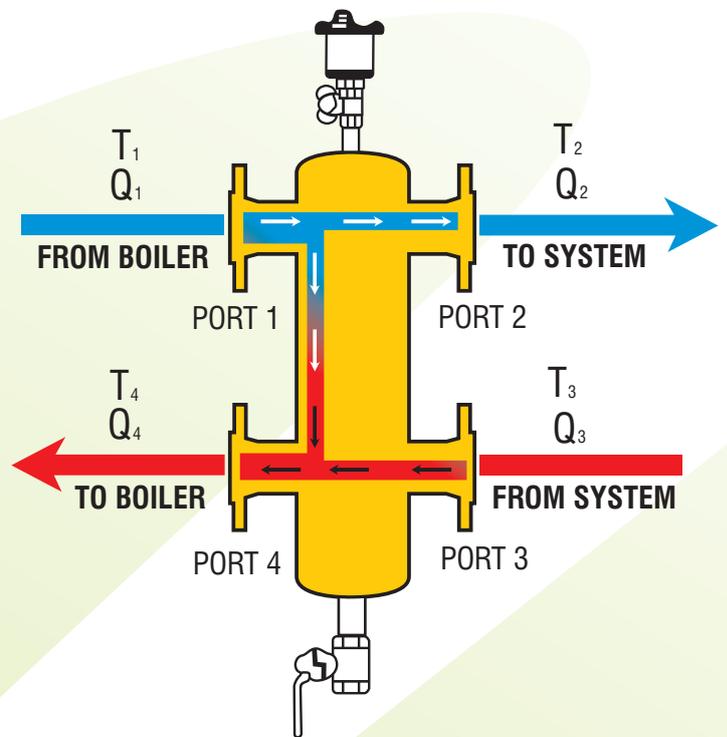
To satisfy the system demand, a portion of the fluid returning from the system at Port 3 mixes with the fluid entering the PSH from the boiler at Port 1. This situation results in a lower temperature flow at T₂ going to the system. The formula to calculate T₂ is shown in the appendix on the back page.



Flow Path #3:

Flow in the primary circuit is greater than flow in the secondary circuit. This is another case of an unbalanced flow. This time, the system requirement is less than the boiler output. The flow returning from the system, Q₃, mixes with the hot water from the boiler, Q₁. This results in an increase in boiler return temperature. The formula to calculate T₄ is shown in the appendix on the back page.

In all three cases described, the air and dirt are separated from the fluid as it enters the Hydraulic Separator. The air rises to the top vessel and vented to the atmosphere via the automatic air vent while the sediment sinks to the bottom, which could be removed through the drain valve.

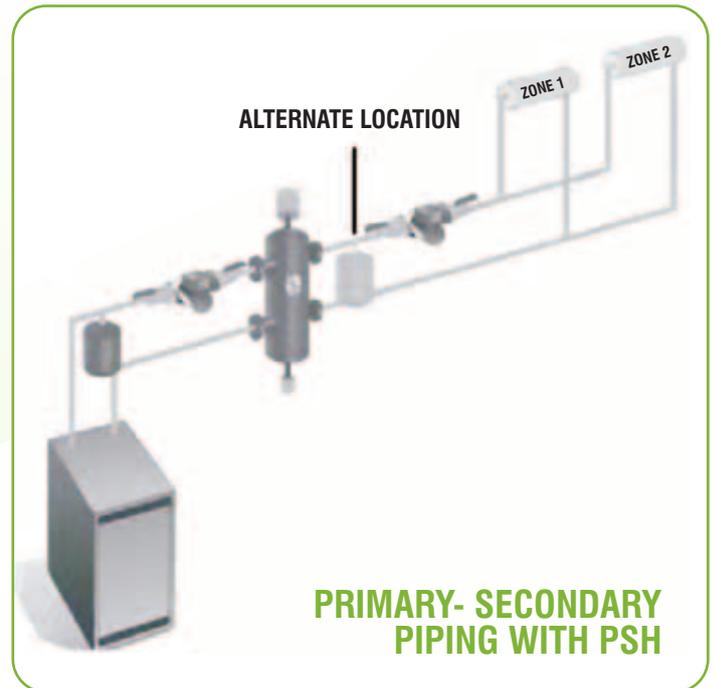
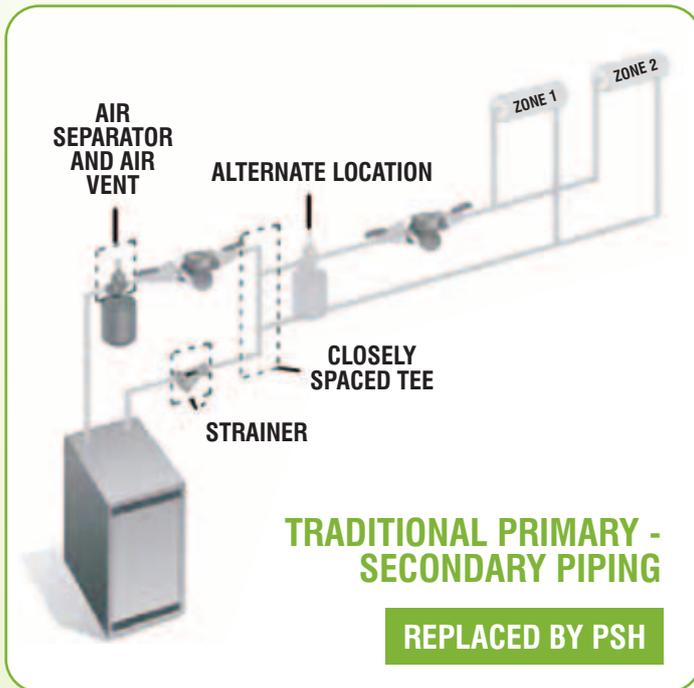




HYDRAULIC SEPARATOR

Piping layout

The Hydraulic Separator is multi-purpose equipment that replaces several components in the system, simplifying piping and reducing installation time.



BENEFITS, FEATURES AND FUNCTIONS:

- Hydraulically separates primary and secondary circuits.
- Separates and vents air from the system.
- Separates and collects impurities in the circuits.
- Provides ease of installation. No complicated piping.
- Reduces installation labour.
- Reduces amount of fittings and piping.
- Eliminates strainer, air vent, and air separator.
- Available in 1" and 4" connections.
- Epoxy resin painted steel body with brass air vents and drain valve.

a highly engineered product that also acts as an air and dirt separator.

