

Superchanger Boiler Blowdown Heat Recovery Applications

Heat recovery from boiler blowdown is an important application for the Superchanger plate and frame heat exchanger.

The term blowdown describes the removal, under pressure, of a portion of the boiler water in order to extract any impurities that may be present. It is accomplished by utilizing one of the following methods:

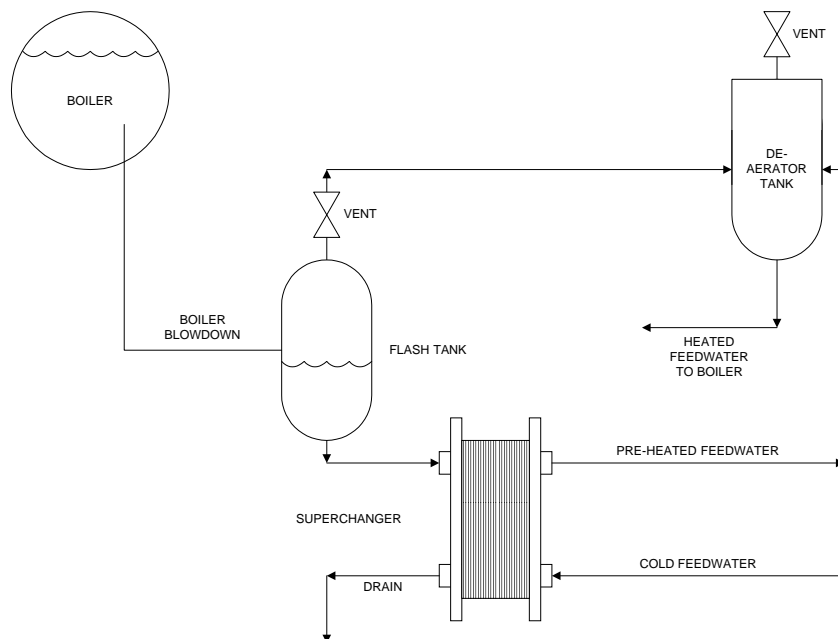
1. Bottom Blowdown – which removes impurities from the lower portion of the boiler water at *non-continuous* intervals.
2. Surface Blowdown – which removes impurities on a *continuous* basis that are held in suspension by chemicals in the top layer of the boiler water.

Regardless of the method, a Superchanger heat exchanger can be utilized to recover heat from the blowdown fluid. The heat recovered by the Superchanger unit is used to pre-heat the cold make-up water before it is fed into the boiler.

The higher the temperature of the make-up water before it enters the boiler, the less fuel it takes to elevate it to required temperature levels.

In some instances, the temperature of the blowdown extracted from the boiler may be in excess of 300°F (corresponding to 50 psig or greater operating pressure).

Even though such temperatures are beyond Superchanger gasket limitations, a Superchanger unit can still be utilized – especially when the boiler make-up feedwater system includes a de-aerator tank.



Under such conditions, the blowdown can first be routed to a flash tank that is vented to the de-aerator.

Escaping steam from the flash tank will then be recaptured in the de-aerator and subsequently combined with the make-up water.

At the same time, the decrease in pressure experienced by the blowdown in the flash tank will reduce its temperature to a level compatible with the Superchanger heat exchanger.

Many Superchanger units are already providing substantial energy savings in boiler blowdown heat recovery systems. They are easy to install, require minimum maintenance and yield their users an amazingly rapid return on investment.