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Comparing Exchangers for Boiler Water/High Temperature Indirect Water Heaters

There are a few different options available if you are looking for a hydronic water heater that uses boiler water or high temperature hot water to heat potable water. One of the biggest decisions regarding boiler water heater types is determining which heat exchanger the system should utilize. Some models use a tube bundle heat exchanger while others use a plate and frame or brazed plate system. Tube bundle heat exchangers and plate and frame/brazed plate systems vary greatly in the way that they heat water and maintain a certain temperature. Both produce hot water, but in different ways.

Hubbell offers a wide range of hydronic water heating systems for water to water applications, which can be customized to meet your needs. Let's take a look at the heat exchangers for hydronic water heaters that should be considered by end users.

Tube Bundle

Tube bundles are designed to transfer heat from a, boiler water, solar water or high temperature hot water (HTHW) system to the domestic potable hot water system. The primary heat source, in this case boiler water or HTHW, travels through the tubing in the bundle within the shell, and transfers heat to the secondary system (potable water) without allowing either liquid to come into direct contact with the other.

Tube bundle heat exchangers are ideal for older non-condensing water heating systems, specifically ones that use oil to produce heat. Older boilers are more suitable for the tube bundle type heat exchanger as they deal with higher non-condensing water temperatures. The tube bundle design is easily accessible for maintenance and repair. This is not the case for certain plate type heat exchangers, such as brazed plates which are fixed together permanently and secured in a way that won't allow for this type of maintenance and part replacement.

Another main factor that must be considered if you are getting ready to use a tube bundle/shell and tube style heat exchanger is whether or not you will have enough room for it. This type of heat exchanger takes up significantly more room compared to plate type because the tubes are held within a tubular shell and ample withdrawal space is required to remove the bundle for servicing.

Plate & Frame

Plate and frame and brazed plate heat exchangers are able to disperse heat evenly throughout the water by using their own surface area to spread out heat. Therefore, all of the water is being heated efficiently and consistently, providing a reliable temperature for end users. Plates have a large, even surface, so water is able to heat up relatively fast-the more plates there are and the closer together they are positioned, the hotter the water is able to get.

Plate and frame or brazed plate heat exchangers do not need the same high temperature water delivery from the boiler to get the water to the ideal temperature for end users (around 140°). Plates are able to heat up more water at a faster rate and maintain high temperatures longer compared to tube bundles. For example, in order to achieve a water temperature of 140°, a boiler connected to a shell and tube bundle water heater would need to release water at around 180° in order to get it to the temperature the end user wants.

This temperature increase that would be necessary would naturally lead to much more energy being used to achieve the same temperatures as a plate and frame is able to deliver without as much energy being expelled. Plate and frame heat exchangers are able to reach touching temperatures so ultimately, the boiler doesn't have to do as much work to heat the water up, making it more efficient.

Plate and frame is a popular option because of how it works with condensing boilers- it keeps them efficient by evening out the boilers' cycling so that it fires at an efficient pace. Not only does this cut down on unnecessary boiler firing as well as the energy used each time the boiler fires, but it also reduces the potential for standby heat loss to occur because of the reduced firing rate of the boiler.

About Our Models

Our BW, BWP, BWX, and BWXP heaters are provided as a fully packaged system. They can be engineered to suit your specific needs. Our water heaters are built to strict ASME standards and are certified and registered with the National Board of Boiler and Pressure Vessel Inspectors.

Hubbell offers a wide variety of hydronic water heaters that can accommodate all of your water heating needs. Check out the links below to learn more.

<http://www.hubbellheaters.com/model/bwx/>
<http://www.hubbellheaters.com/model/bw/>
<http://www.hubbellheaters.com/model/bwp/>
<http://www.hubbellheaters.com/model/bwxp/>

About Hubbell

Hubbell is a leading manufacturer of water heaters used in a variety of applications including Industrial, Commercial, Food Service, and Offshore/Marine markets. We engineer emergency safety storage type, semi-instantaneous, and instantaneous type design water heaters. For more information on our emergency safety water heaters and other products please visit <http://www.hubbellheaters.com/>