



Heat Storage Improves the Performance of All Wood-fired Boilers

Our pressurized and un-pressurized heat storage systems provide significant advantages to all wood boiler owners.

How It Works

When used in conjunction with a heat storage system, a wood boiler is able to operate continuously at full output through the entire burn cycle, producing the cleanest and most efficient burn. However, this output is often greater than the heating requirements of the house. The extra heat generated during the burn cycle is transferred to the heat storage system for later use. Because of the buffer the heat storage system provides, you are free to fire the boiler when it is convenient for you. On many days in the winter, you will be able to load the boiler once in 24 hours. In the spring and fall you may only fire the boiler every two days and in summer you may be able to go a week between firings to meet all your domestic hot water needs. Problems with creosote or overheating are eliminated. The insulated storage tank absorbs the heat produced at maximum boiler output until the wood is consumed and the boiler shuts off. Once the wood load has burned through in your wood boiler, stored heat is pulled from the storage tank as heat and domestic hot water is needed in the house.

Pressurized Storage

The pressurized storage tank packages include two or three large steel tanks that are plumbed together so that they behave as one large tank. The advantage of this style of heat storage is simpler piping, smaller footprint and potentially lower cost. These tanks are large and heavy, however, so in order to use this style of heat storage, you must have good access to the location in which they will be installed and a minimum ceiling height of seven feet.

Due to the large increase in the heating system fluid volume, pressurized storage may not be as appropriate for systems that contain glycol (anti-freeze).

Un-pressurized Storage

Un-pressurized storage tanks come to your job site or home completely knocked-down and are assembled in their final installed location. The advantage is that these tanks can be brought into just about any basement or building, regardless of accessibility. Narrow doors, steep staircases and low bulkheads or ceiling heights do not present a problem. In addition to being easier to move and locate, these tanks offer a higher level of insulation (lower standby loss). Because these tanks are relatively short, they do have a larger footprint than the pressurized option.



Heat Exchange Coils

Any proper boiler system will be pressurized. In order to keep the boiler system pressurized when using a un-pressurized storage tank, copper heat exchange coils are immersed in the water that is stored in the tank. Boiler water circulates through these coils, transferring heat into the water that is held in the tank. These same coils are used to draw heat back out of

the stored water once the wood boiler has burned through its load of wood. The water that is held in the tank acts as a heat sink. In this way, boiler fluid is kept separated from tank storage water, and the boiler system is able to remain pressurized.

Heat Storage Systems

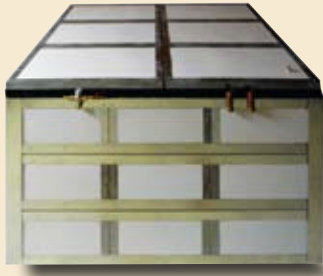
- Optimize Wood Burning
- Extend Boiler Life
- Provide Year-round Hot Water

About BioHeatUSA

BioHeatUSA™, formerly Tarm USA, is a third-generation, family-owned business that has pioneered the sales and service of European residential central heating equipment in North America for over 30 years. BioHeatUSA's primary objective is to offer innovative home heating solutions, along with a significant commitment to consumer education and environmental awareness. Exclusive partnerships with ISO 9001 certified manufacturers allows BioHeatUSA to offer products with operational reliability, unique firing efficiency, and to promote the clean burning of carbon-cycle biomass that is critical to the lowering of net greenhouse gas emissions.

A heat storage system will continue to call for heat from the boiler, allowing you to burn wood throughout the year.

4 Britton Lane | P.O. Box 285 | Lyme, NH 03768 | 800.782.9927 | info@bioheatusa.com | www.bioheatusa.com



Un-pressurized Square Heat Storage System

Our square heat storage tanks incorporate heavily insulated structural panels and an industrial-grade PVC liner with permanently welded seams. Built by the inventors of the Softank (the most copied tank in the solar and wood boiler industry), their modular design allows for fast and easy transportation and assembly by only one person. The individual panel sections are small enough to move easily in tight spaces. With exterior dimensions of 75¾" x 75¾", the square tank fits the same space as an 822 gallon round tank, despite having over twice the wall thickness.

- 180°F continuous, 200°F intermittent rating
- Rigid, steel reinforced, 4.5" polyisocyanurate foam sidewalls, 4" polyisocyanurate foam top, 3" polyisocyanurate foam base
- R30 with thermal breaks
- Ships on one pallet and can be unloaded by one person easily
- No soldering in the tank, which speeds up installation and reduces the likelihood of liner damage
- Domestic coil (hung on side wall of tank) ships with integrated Sparco tempering valve.
- Space heating for 100,000 Btu boilers can be handled with only one coil
- Limited residential warranty of 10 years for the tank structure, 5 years for the liner and coils



Un-pressurized Round Heat Storage System

Our lightweight, round heat storage tanks are constructed of an aluminum skin, foam insulation (R-14), and a seamless, EPDM rubber liner. This construction adds inherent strength while being corrosion resistant to damp locations. Due to the flexible sidewalls, the tank can be easily maneuvered. When set up, the tanks are generally 48" tall with diameter dependent upon total volume required. Taller sizes can be made to fit more restrictive locations.

- Standard sizes from 400 to 1550 gallons, with custom sizes available
- Pressurized heat exchangers solve problems such as air removal, expansion, and anti-freeze protection
- During the summer, domestic hot water can be produced with just one boiler firing every 4-7 days
- A large domestic hot water coil is submersed within the tank to produce plenty of domestic hot water with the tank temperatures as low as 120°F
- Tanks can easily be integrated with solar thermal systems by using additional heat exchange coils
- No penetrations below water line
- The lid incorporates a port for water testing and filling
- A large collection of plumbing concept diagrams are available to allow for easy integration with existing heating systems
- Five-year warranty



Pressurized Heat Storage System

Our pressurized heat storage system utilizes multiple ASME-rated, carbon steel tanks. The vertical orientation of the tanks (33" diameter and 77" tall) makes it easy to pass through most exterior doorways and stand vertical under typical 8' (96") ceilings. This arrangement saves valuable floor space while allowing for desirable temperature stratification. The tanks are equipped with an engineered base ring that provides for a secure vertical stance. Insulation is added after the tanks are placed for ease of movement and installation.

- 220 gallons each
- 368 pounds shipping weight
- Maximum design pressure 125 psig
- With a 450°F maximum operating temperature, there is no need to worry about over-heating
- Many installations will use fewer circulators than with un-pressurized heat storage systems
- Closed system does not require annual water level and Ph testing
- One-year warranty