

RHT Prefabricated Boiler Panel

Tips for proper air elimination and start-up



Project Information

Job Name:

Location:

Engineer:

Contractor:

Manufacturer's Representative:

Part No. Ordered:

Date Submitted:

Submitted By:

Approved By:

Connecting to the panel

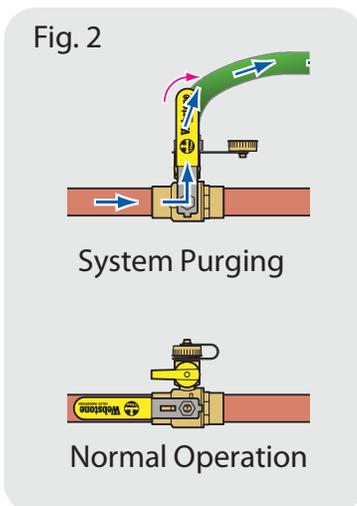
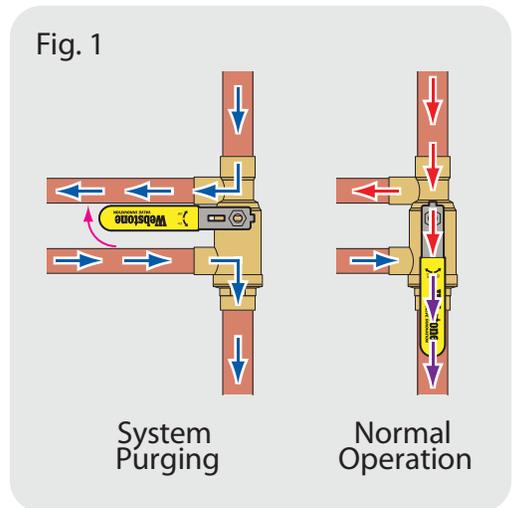
After mounting your RHT hydronic panel in the proper location you will need to proceed with the following steps:

1. Confirm all circuits from the radiant panels, radiators or other heat emitters are connected to the Supply and Return system manifolds in the respective heated areas.
2. Connect the Supply and return lines from the Boiler piping (Primary /Secondary) to the system manifolds.
3. Connect the combination Backflow prevention device/pressure reducing valve (make-up water valve). Typically this is supplied with a 1/2" PEX water line connected between the air eliminator and expansion tank.
4. Filling/Purging air from the Boiler and radiant/radiator system as described below.

Filling the system & purging air

On panels equipped with a purge tee ball valve, close the purge tee valve on the primary loop (*see fig. 1). Open the pressure reducing valve bypass at the system fill/backflow prevention device to release full street pressure into the heating system.

Isolate each secondary loop with the isolation flange before the pump, and the ball valve with drain on the return leg. Water is now forced out through the first secondary loop, through the pump and PEX manifolds, and back to the return leg of the secondary loop. On the return leg, connect a garden hose (run to a bucket outdoors) to the ball valve with drain (*see fig. 2), divert the valve for purging, and open the small ball valve on the drain. Allow water to flow through the system until air bubbles no longer appear in the bucket.



When you are satisfied that no more air is trapped in the secondary loop (this can take quite a while depending on the number of circuits within the zone), shut the drain valve, move the hose to the next zone's ball valve with drain, and repeat the process on that zone. Systems with multiple zones should always be purged one zone at a time. This will allow the maximum flow through each circuit, forcing as much air out of the system as possible. Further isolation can be achieved at the manifold to purge each PEX circuit individually if trapped air persists in the system.

In systems with zone valves you will need to manually open each zone valve one at a time as you purge. In systems sub-zoned at the manifold using actuators, it is recommended to purge the system prior to connecting the actuators to the manifold.

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Filling the system & purging air (continued from page 1)

Once you have purged each circuit on a zone, it is time to move on to the next zone. After all zones have been purged, the boiler drain can now be closed. The pressure reducing valve at the backflow prevention device should be placed back into normal operation mode. Check to make sure the purge tee valves and ball valve drains are all placed back to their normal operating position as seen in fig. 1 and 2.

The last thing to do is set the system pressure at 12-15 PSI. If the system pressure is higher than you want, bleed some water through the boiler drain valve. Any small or dissolved air bubbles left in the system will be expelled by the air separating device located near the boiler. By following this simple procedure, you will have a quiet and smooth running system.

All hydronic systems must be properly purged for the system to function at 100% efficiency. The predominant number of the Boiler System related call backs received industry-wide are caused by residual air remaining in the system. Air left in a hydronic system can cause noises in piping, low flows, corrosion, uneven heat patterns, pump failure, and other issues.

Electrical wiring

The boiler, system control logic and thermostat wiring should be connected by a qualified technician as indicated in the manufacturers' wiring diagrams.

*Ensure that no power is applied to the boiler or controls until it is confirmed that the system is completely filled with water and the air is eliminated to avoid element burnout and control board or pump failure. This would be similar to filling a Hot Water heater with water before connecting electric power to it.

Starting and operating the boiler

Your boiler may come equipped with a built in outdoor reset control and sensor, this should be installed as an energy saving option to increase fuel savings during the shoulder heating season months.

Create a call for heat one zone at a time, by setting the area thermostat above the current room temperature and ensure proper flow and temperature to each zone.

With system zones **on**, verify that there is a normal temperature difference between the system supply and return. Typical ΔT (Delta T, or temperature differential) is 10-20°F. Keep in mind radiant heat can take some time to bring the area up to temperature especially when embedded in concrete.

With zones running under heat demand conditions the boiler should cycle ON and then OFF when demand is satisfied.

Congratulations, you system is now operational!

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