



Technical Bulletin TB231219BDE

Indirect Fired Storage Tanks using a “tank in tank” design:

While this tank design is suitable for many typical hydronic applications, Anesi does not recommend using this type of tank with the Anesi GHP system.

Anesi will support use of indirect fired storage tanks (IST) other than those that are part of the Anesi Gas-Fired Heat Pump (GHP) system **only** after internal review of the non-OEM tank by the technical support department.

For residential domestic hot water applications, the Anesi IST utilizes two sensors: A conventional “Aquastat” to generate a call for DHW, and a second, “Low tank” thermistor. The low tank thermistor allows our proprietary control system to optimize system performance and comfort. Use of an approved non-Anesi IST tank will supply acceptable overall performance, but performance will not be optimized as some of the Anesi control system features will be disabled.

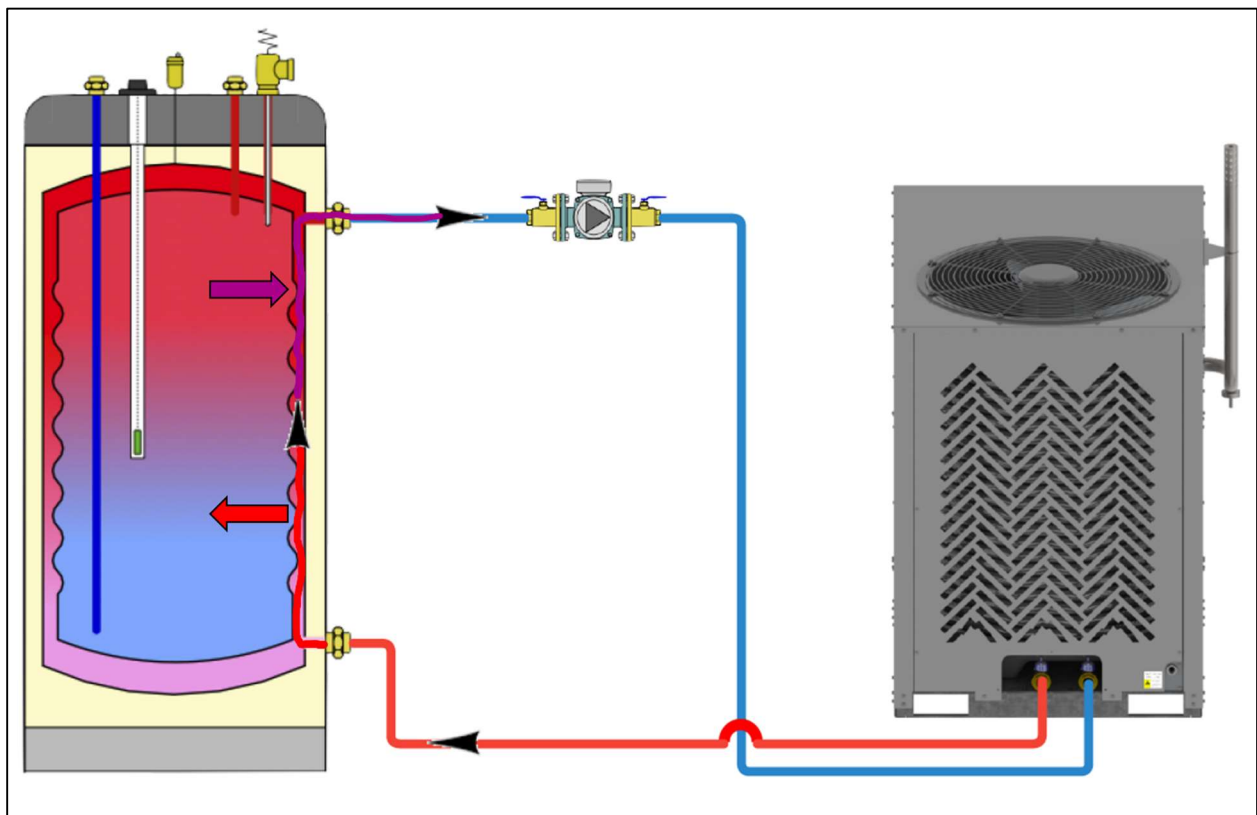
Certain IST designs will not work with the Anesi GHP system due to the design of the tank and the function and operation of an air to water gas-fired absorption heat pump. This technical bulletin addresses the “tank in tank” design.

- The total heat exchange surface area is adequate but the actual surface area that extends above the thermostat location is unusable; this design does not provide enough heat exchanger surface area to work with an Anesi heat pump.
- There is no provision for a low tank sensor within the design of a tank within a tank.
- The maximum hydronic side pressure of the tank is lower than the Anesi GHP hydronic relief valve setting of 60psi.
- The minimum flow rate required for these tanks for commercial applications is more than double the maximum flow rate for the Anesi GHP.
- The published minimum rating condition supply temperature of 160F is higher than the maximum supply temperature available by the Anesi GHP.

At the start of a heating cycle, the temperature of the heat pump supply will be lower than the DHW in the top half of the tank. This will cause transfer of heat to the bottom of the tank as hydronic flow on these tanks is supplied at the bottom and returned at the top.

Due to the piping configuration shown by the tank manufacturer with the heat source supplying the bottom of the water jacket and the return to heat source at the top, the return water is heated by hot water stratified in the top of the tank. This will increase the return temperature to the GHP resulting in poor heat pump performance. See figure 1.

Figure 1.



For review of non-OEM tanks in domestic and space heating applications, please contact techsupport@anesicomfort.com.

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