

Application and Installation Instructions

20-gallon Buffer / Tempering Tank

Model BT-20

Buffer Application

Low mass boilers minimize standby losses caused by thermal drafts through the slack and poorly insulated jackets. With their low water content, they are ideal for cold start applications and rapid system heat-up.

Most low mass boilers have single input firing rates. As a result of this, provisions are required when applying them to systems consisting of more than three zones.

This provision may be in the form of simple, well-insulated buffer tank which is typically installed between the supply and return to serve as an added temporary storage load. This heat sink, while not subject to typical boiler standby losses, serves to lengthen the boiler 'on' cycle when a single small zone is operational. Additionally, when the boiler cycles off on its limit, the buffer serves as the heat source to the zone to lengthen the boiler 'off' cycle.

Tempering Application

A common application for low mass boilers is their utilization with low temperature radiant floor systems. The outlet water temperature for high-efficiency boilers is typically 160° to prevent undesirable condensing in the combustion chamber. As radiant applications typically require lower temperatures, a blending device or means is required in the piping. This is typically a self-contained or remotely controlled 3-way valve. If this valve is piped to allow close-off of the boiler discharge, and the valve becomes satisfied, short-cycling will occur.

Utilization and proper piping of a buffer/tempering tank eliminates the requirement of a tempering valve (and its potential for failure) and provides buffering for the low mass boiler as well.

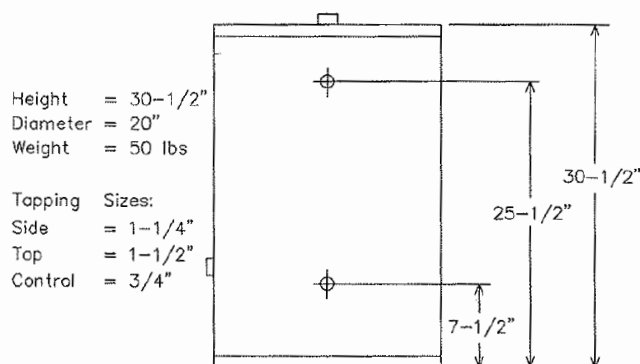
Product and Application

The model BT-20 consists of a 20-gallon insulated and jacketed steel tank with threaded outlet and inlet connections located top and bottom. A $\frac{3}{4}$ " coupling is provided for installation of a control or sensor well fitting.

The product may be utilized in a closed heating system only and should not be connected to systems employing oxygen permeable rubber or PVC type tubing.

Controls

The buffer tank well location is ideal for the system controller whether it be a staging control sensor, a system high limit or a reset control sensor. Always wire in series with the boiler T-T terminals and a second boiler start device such as a thermostat, end switch, or 65° cutout controller.

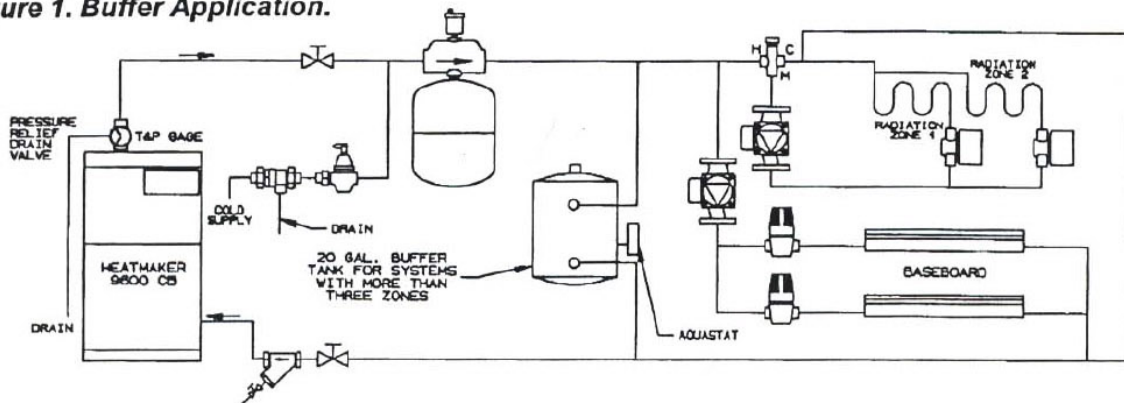


Buffer Application – Figure A

In primary / secondary systems the 20-gallon buffer is piped across the supply and return in place of the bypass. Depending on the number of zones open, direction of flow through the tank may be in either direction.

Buffer / Tempering Application – Figure B

This application is piped similar to a buffer except that the boiler 160° minimum outlet must be piped into the lower tank connection to provide thermal mixing and tempering.

Figure 1. Buffer Application.**Figure 2. Tempering Application.**