

HF-30-BT

HYDRONIC BUFFER TANKS



Heat-flo's Hydronic Buffer Tanks are designed to be used in closed loop heating systems with low-mass boilers, geothermal systems, and chilled water applications. Utilizing our hydronic buffer tanks improves system efficiency and can extend equipment life by reducing the wear and tear on chillers or boilers due to short cycling.

HF-30-BT

The HF-30-BT is designed with 4 – 1 ¼" NPT connections on top, and can be installed under a typical residential mod-con boiler to save space, piping, and labor. Two top connections are connected to the top of the tank, and two top connections direct water to the bottom of the tank via internal stainless steel dip tubes. A ½" connection is in the center of the tank for an air vent.

FEATURES & BENEFITS INCLUDE:

QUALITY DESIGN & CONSTRUCTION

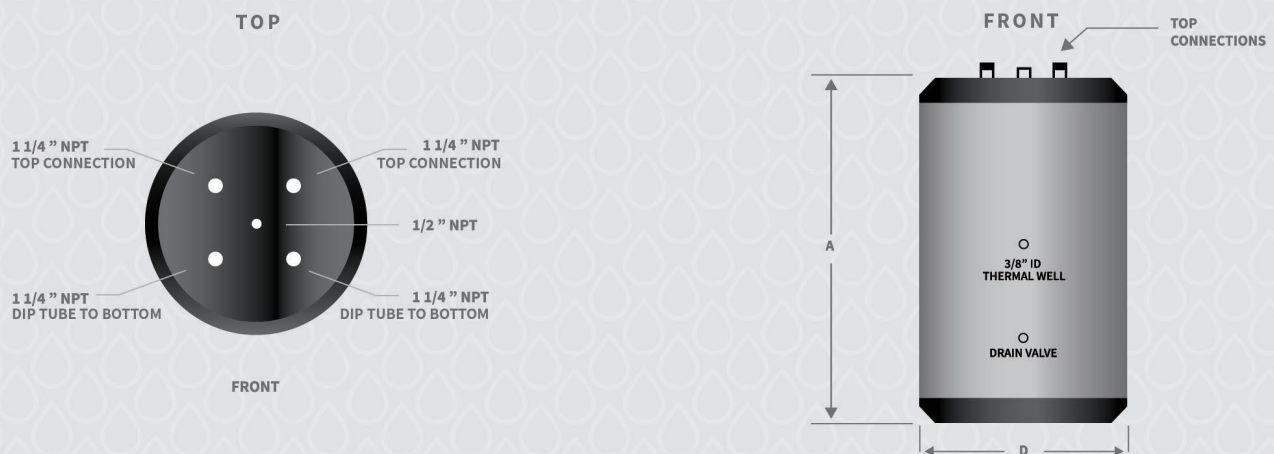
- All stainless steel.
- Over 2" of insulation, providing less than 1° / hr. heat loss.
- Flexible thermoplastic jacket that will not corrode and resists denting.

EASY INSTALLATION

- All pipe connections are on top for a neat, quick and clean installation.
- Brass drain and relief valves are factory installed.



SYSTEM CONNECTION CONFIGURATION & DIMENSIONS



HF-30-BT UNIT



Conforms to UL STD
174 and NSF/ANSI 372
Certified to CAN/CSA
STD C22.2 No. 110-94



RAISING THE STANDARD

DIMENSIONS & CAPACITIES

| MODEL | Storage Volume | Dimensions (Inches) | | | | Piping Connections | Max. Tank Working Pressure | Approx. Shipping Wt. |
|----------|----------------|---------------------|---|---|----------|--------------------|----------------------------|----------------------|
| | (Gal.) | A (Ht.) | B | C | D (Dia.) | (NPT) | (psi) | (Lbs.) |
| HF-30-BT | 30 | 34.0 | — | — | 23.5 | 1 1/4" | 60 | 77 |

BUFFER TANK SIZING: CALCULATING CAPACITY

The Heat-Flo buffer tanks are a simple, cost effective way to improve overall system efficiency by reducing unnecessary equipment short cycling. The recommended capacity or volume of a buffer tank is based on four variables:

1. The duration of the heating or cooling source "on time." (Minutes)

The desired length of "on time" for each run cycle depends on the type of equipment used. Heat pump and chiller manufacturers typically recommend a minimum of 5 to 10 minutes "on time," and boiler manufacturers may recommend a minimum of 10 minutes "on time." Check with your equipment manufacturer. Generally, the longer the "on time," the higher the overall operating efficiency.

2. The minimum rate of heat input. (BTU/ HR)

This is based on the heat pump or chiller output, or the boiler output at the minimum firing rate if the boiler has a variable input system that ramps input down as the demand decreases.

3. The minimum system load (BTU/ HR)

This is the demand place on the system with the smallest zone calling for heat.

4. The allowable tank temperature rise. (Deg. F)

This varies depending on the type of heating or cooling system used, and on the design of the distribution system. Chillers may require a tight (6 deg. F) differential to assure good dehumidification and prevent freezing; heat pumps may require a 10 deg. F differential to maintain a high COP; and boilers with hydronic heating distribution systems may require a differential anywhere between 10 to 40 deg. F depending on the application.

THE FOLLOWING FORMULA DETERMINES THE TANK VOLUME:

$$V = \frac{T \times (Q \text{ heat input} - Q \text{ min. heat load})}{\text{Tank temperature rise} \times 500}$$

V = Buffer Tank Volume (Gallons)

T = Desired Heat Source "on cycle" (Min.)

Q Heat Source = Heat Source Output to Minimum Load

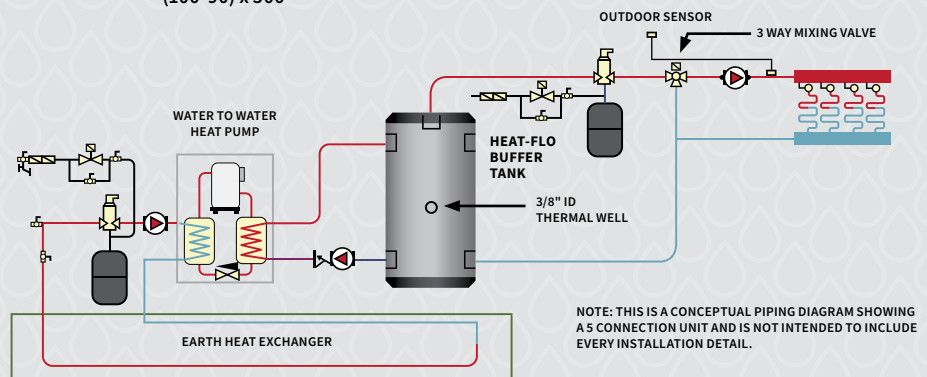
Q Min. Heat Load = Heat Output to Minimum Load

Tank Temp. Rise (deg. F)

WATER TO WATER HEAT PUMP EXAMPLE:

Town and Country Mechanical wants a minimum heat pump on time of 10 minutes. The heat pump output is 46,500 BTU/ HR. The smallest zone is a 7,000 BTU/ HR bathroom. The allowable temperature differential is 90 to 100 deg. F for the radiant heat zones.

$$V = \frac{10 \times (46,500 - 7,000)}{(100 - 90) \times 500} = 79.0 \text{ Gallons minimum volume. Choose the HF-80-BT buffer tank.}$$



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