

Hydronic Systems Product Selection Guide

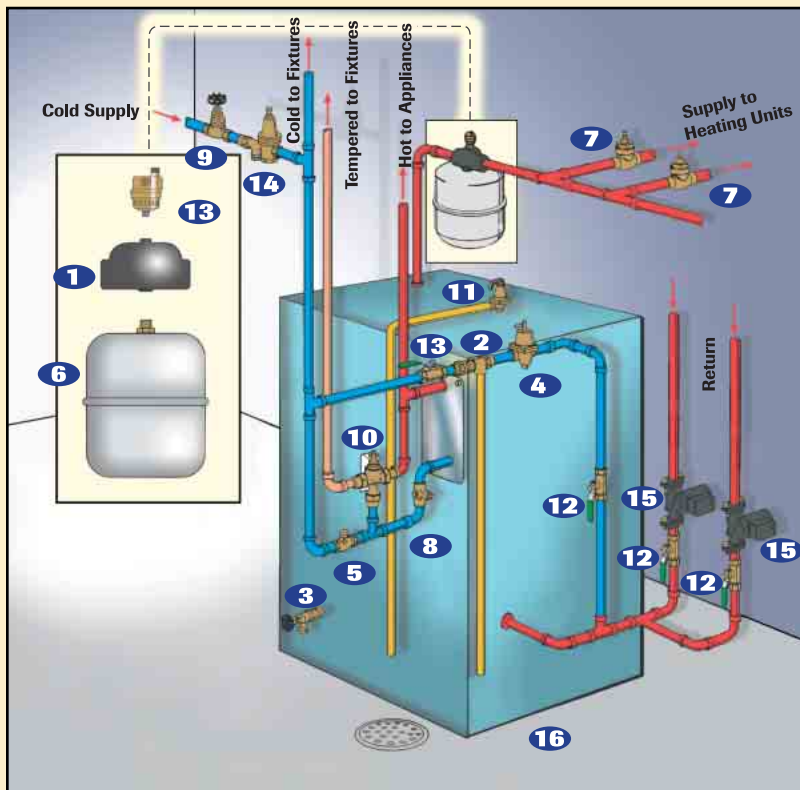


Diagram Element No.	Description
1	Air Purgers, Separators
2	Backflow Preventers
3	Boiler Drain Valves
4	Boiler Feed Valves
5	Swing Check Valves
6	Expansion Tanks
7	Flow Check Valves
8	Flow Control Valves
9	Gate and Globe Valves
10	Mixing/Tempering Valves
11	Boiler Safety Relief Valves
12	Ball Valves
13	Float Vent Valves
14	Water Pressure Reducing Valves
15	Circulator Pumps
16	Boiler

Pump Selection Guide for Closed- and Open-Loop Hydronic Circulating Systems

In closed-loop (hydronic heating) systems, the available oxygen in the water is quickly depleted; so cast-iron pumps are the ideal choice. In open-loop and potable water systems, bronze or stainless steel pumps should always be used, due to the high oxygen content in the water. When replacing a circulating pump on an existing boiler, it is best to replace "like with like." Check the nameplate on the pump for the model number and look on pages 3445 through 3450 for that model or an equivalent. When installing a new system or adding a heating zone with pump, the following are common rules:

- Determine the net heating load in BTUs per hour (BtuH). The required water flow rate is then: $\text{BtuH}/10,000 = \text{Gallons per Minute (GPM)}$ flow rate.
- Measure the longest run of pipe in feet (usually the main supply and return pipes) and multiply by 0.06. This is the minimum head, in feet, for the pump.
- Make sure the supply and return pipes (main and zones) are adequately sized: Refer to the circulating pump performance tables on pages 3445 through 3450. Select a model with at least the required feet of head at the desired flow rate in GPM.

Pipe Size (In.) (Copper)	Max. Flow Rate (GPM)	Heat Carrying Capacity (BtuH)
1/2	1½	15,000
3/4	4	40,000
1	8	80,000
1¼	14	140,000
1½	24	240,000
2	48	480,000
2½	80	800,000

EXAMPLE:

Consider a new building with a boiler rated at 130,000 BtuH net output. The 1¼" main supply and return pipes run the length of the building with 4 equal branch zones (¾") requiring circulators. Total main supply and return pipe length is approximately 100 feet.

Main boiler circulating sizing:
 $130,000 \text{ BtuH}/10,000 = 13 \text{ GPM}$,
 $100 \text{ ft.} \times 0.06 = \text{feet of head}$

Zone circulator sizing:
 $130,000 \text{ BtuH}/4 = 32,500 \text{ BtuH}$
 per zone = 32,500 GPM per zone

Note: At this low flow rate, required head will be very low.