

Zoning Made Easy Rules of Thumb

$$\frac{\text{Net Btuh Load}}{10,000} = \text{Flow Rate}$$

Maximum Flow Rate

Pipe Size {Copper}	Maximum Flow Rate
1/2"	1-1/2 GPM
3/4"	4 GPM
1"	8 GPM
1-1/4"	14 GPM

Maximum Flow Rate & Heat Carrying Capacity

Pipe Size {Copper}	Maximum Flow Rate	Heat Carrying Capacity
1/2"	1-1/2 GPM	15,000 Btuh
3/4"	4 GPM	40,000 Btuh
1"	8 GPM	80,000 Btuh
1-1/4"	14 GPM	140,000 Btuh

Based on a 20-degree temperature drop across the system

Maximum Length Of Fin-Tube Baseboard Loop

Baseboard Size In Copper	Typical Btuh Per Linear Foot	Maximum Length of Baseboard Loop
1/2"	600	25 Feet
3/4"	600	67 Feet
1"	770	104 Feet
1-1/4"	790	177 Feet

Based on 180 F average water temperature and a 20 F temperature drop across the system

Pump Head

1. Measure the longest run in feet
2. Add 50% more to this
3. Multiply that by .04 and that's the pump head

Total Convectors A Pipe Can Serve

Pipe Size	Maximum Btuh Capacity of Pipe	Total Convectors {6" X 36" X 24" 5,100 Btuh each}
1/2"	15,000	3
3/4"	40,000	8
1"	80,000	16
1-1/2"	140,000	27

Based on 180 F average water temperature and a 20 F temperature drop across the system

Shared Piping Size

Pipe Size	Max Flow Rate
1/2" copper	1-1/2 GPM
3/4" copper	4 GPM
1" copper	8 GPM
1-1/4" copper	14 GPM
1-1/2" copper	22 GPM
2" copper	45 GPM
1-1/4" steel pipe	17 GPM
1-1/2" steel pipe	25 GPM
2" steel pipe	50 GPM

Zone-Circulator Sizing for Heating Zones

Zone Supply Pipe Size in Copper	Bell & Gossett Circulator to Use
1/2"	Little Red or Series 100
3/4"	Little Red or Series 100
1"	Little Red or Series 100
1-1/2"	Series HV



Circulator Sizing For Systems with Zone Valves

1. A Little Red can be used with:

- a. Up to three 3/4" heating zones or
- b. Two 3/4" heating zones and one 1" zoned domestic water storage tank

2. A Series 100 can be used with:

- a. Up to five 3/4" heating zones, or
- b. Three 3/4" heating zones and one 1" domestic water storage tank