

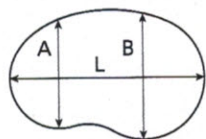


Heater Selection Guide

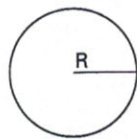
SELECTING THE CORRECT SIZE HEATER FOR POOLS & SPAS

Pool Sizing

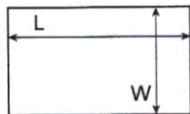
Determine your pool's surface area in square feet:



$$\text{Area} = (A+B) \times L \times .45$$



$$\text{Area} = R \times R \times 3.14$$



$$\text{Area} = L \times W$$

Locate in the desired table below, the surface area equal to or just greater than the pool's surface area, read to the left and select the appropriate heater.

For indoor pool installations divide the pool's surface area by 3.

Tables are based on a 30°F temperature rise, 3 1/2 MPH average wind velocity and elevation of up to 2,000 feet above sea level.

Recommended Universal H-Series for Swimming Pools

| Model | Surface Area |
|-------|--------------|
| H400 | 1200 |
| H350 | 1050 |
| H300 | 900 |
| H250 | 750 |
| H200 | 600 |
| H150 | 450 |

Recommended H100 Induced Draft Model for Above Ground Pools

H100 Induced Draft Heater will raise temperature of Above Ground Pool in 8 Hour period as follows:

| Temperature Rise in 8 Hours | | |
|-----------------------------|---------|--------------------|
| Pool Size | Gallons | Avg. Temp Rise (f) |
| 15' Round | 5,300 | 15.2° |
| 18' Round | 7,600 | 10.4° |
| 12' x 24' Rectangle | 8,600 | 9.6° |
| 21' Round | 10,000 | 8.0° |
| 24' Round | 13,500 | 5.6° |
| 27' Round | 17,000 | 4.8° |

We highly recommend that your Hayward Above Ground Pool heater be used in conjunction with a solar blanket to maximize your heating efficiency.

Example:

Rectangular pool: 20 feet x 30 feet:

$$20 \times 30 = 600 \text{ ft.}^2 \text{ Surface Area}$$

Recommended H-Series Model Heater – H200

Saving Money by Saving Energy

Selecting a high efficiency heater for your new installation, or replacing an older inefficient model can have a significant impact on your fuel bill. Here are some additional energy saving tips.



- Check your pool chemistry regularly to maintain top operating condition.
- Set your pool water's temperature between 78° to 82° for most applications
- Use a pool cover or thermal blanket on your pool when it's not in use. Evaporation accounts for 70% of heat loss from your pool.
- Add wind breaks to your pool. A 7-mph wind at the surface of a pool can increase energy consumption 300%!

Spa Sizing

Determine your spa capacity in gallons (Surface area x average depth x 7 1/2).

The reference tables list the time required in minutes to raise the temperature of the spa/hot tub by 30°F. Locate in the desired table below the spa/hot tub size in gallons equal to or just greater than the spa/hot tub size in gallons. Select the desired time to raise the spa/hot tub temperature 30°F, read to the left and select the appropriate heater.

This guide can be adjusted for other temperature rises. For example, if you desire a 15°F increase in temperature, simply divide the time for 30°F rise by the ratio of 30/15 = 2.

Note: Heat losses and/or heat absorbed by spa walls or other objects will add to heat-up time.

Spa sizing is based on an insulated and covered spa. Always cover your spa or hot tub when not in use to minimize heat loss and evaporation.

Recommended Universal H-Series for Spas/Hot Tubs

| Model | Spa/Tub Size in Gallons | | | | | | | | |
|-------|---|-----|-----|-----|-----|-----|-----|-----|------|
| | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
| | Time in minutes to Raise Spa/Tub Temperature 30°F | | | | | | | | |
| H400 | 9 | 14 | 19 | 23 | 28 | 33 | 37 | 42 | 47 |
| H350 | 11 | 16 | 21 | 27 | 32 | 37 | 43 | 48 | 54 |
| H300 | 12 | 19 | 25 | 31 | 37 | 44 | 50 | 56 | 62 |
| H250 | 15 | 22 | 30 | 37 | 45 | 52 | 60 | 67 | 75 |
| H200 | 19 | 28 | 37 | 47 | 56 | 66 | 75 | 84 | 94 |
| H150 | 25 | 37 | 50 | 62 | 75 | 87 | 100 | 112 | 125 |

Recommended H100 Induced Draft Model for Spas

| Model | Spa/Tub Size in Gallons | | | | | | | | |
|-------|---|-----|-----|-----|-----|-----|-----|-----|------|
| | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
| | Time in minutes to Raise Spa/Tub Temperature 30°F | | | | | | | | |
| H100 | 38 | 56 | 74 | 94 | 112 | 132 | 150 | 168 | 188 |

Recommended CSPaXI Models

| Model | Spa/Tub Size in Gallons | | | | | | | | |
|----------|---|-----|-----|-----|-----|-----|-----|-----|------|
| | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
| | Time in minutes to Raise Spa/Tub Temperature 30°F | | | | | | | | |
| CSPAXI55 | 160 | 240 | 320 | 400 | 480 | 560 | 640 | 720 | 800 |
| CSPAXI11 | 80 | 120 | 160 | 200 | 240 | 280 | 320 | 360 | 400 |

Example:

Want a 300 gallon spa to go from 70°F to 100°F in 120 minutes.

$$\begin{array}{r} 100^\circ\text{F} \\ \text{subtract} \rightarrow \quad 70^\circ\text{F} \\ \hline 30^\circ\text{F Requested Temperature Rise} \end{array}$$

Recommended CSPa Model Heater – CPAXI11

Heater Technical Information

GAS PIPE SIZING



Hayward heaters use a full gas fire design. To ensure adequate gas firing and proper performance, the following guidelines should be used to size gas piping.

1. Make sure the 1st and 2nd stage regulators are large enough to handle the BTU listed for each model.
2. Reduction of the gas supply pipe or tubing to the inlet of the valve must be made at the valve only – Natural or Propane.
3. Do not use flexible connectors on any gas connections.
4. If more than one appliance is installed on the gas line, contact your local gas company or Hayward for proper pipe size.
5. If you have any question concerning the installation of the proper gas line size, call Hayward before you install the line.

Low Pressure Natural Gas Pipe Sizing: (Based upon an inlet gas pressure of 0.5 psig or less at a pressure drop of 0.5 in-wc)

| Distance from gas meter to heater gas valve inlet | Model | H150 | H200 | H250 | H300 | H350 | H400 |
|---|---------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | BTU/hr input | 150,000 | 200,000 | 250,000 | 300,000 | 350,000 | 400,000 |
| | Line Material | Iron or Plastic Pipe | Iron or Plastic Pipe | Iron or Plastic Pipe | Iron or Plastic Pipe | Iron or Plastic Pipe | Iron or Plastic Pipe |
| 0 to 50 feet | | 3/4" | 1" | 1" | 1 1/4" | 1 1/4" | 1 1/4" |
| 50 to 100 feet | | 1" | 1" | 1 1/4" | 1 1/4" | 1 1/4" | 1 1/4" |
| 100 to 200 feet | | 1 1/4" | 1 1/4" | 1 1/4" | 1 1/2" | 1 1/2" | 1 1/2" |
| 200 to 300 feet | | 1 1/4" | 1 1/4" | 1 1/2" | 2" | 2" | 2" |

Low Pressure Propane Gas Pipe Sizing: (Based upon an inlet gas pressure of 11 in-wc at a pressure drop of 0.5 inch w.c.)

| Distance from tank regulator outlet to heater gas valve inlet | Model | H150 | | H200 | | H250 | | H300 | | H350 | | H400 | |
|---|---------------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|
| | BTU/hr input | 150,000 | | 200,000 | | 250,000 | | 300,000 | | 350,000 | | 400,000 | |
| | Line Material | Iron Pipe | Tubing | Iron Pipe | Tubing | Iron Pipe | Tubing | Iron Pipe | Tubing | Iron Pipe | Tubing | Iron Pipe | Tubing |
| 0 to 50 feet | | 3/4" | 7/8" | 3/4" | 7/8" | 1" | 1 1/8" | 1" | 1 1/8" | 1" | 1 1/8" | 1" | — |
| 50 to 100 feet | | 3/4" | 1 1/8" | 1" | 1 1/8" | 1" | 1 1/8" | 1" | — | 1 1/4" | — | 1 1/4" | — |
| 100 to 200 feet | | 1" | 1 1/8" | 1" | — | 1 1/4" | — | 1 1/4" | — | 1 1/4" | — | 1 1/4" | — |
| 200 to 300 feet | | 1" | — | 1 1/4" | — | 1 1/4" | — | 1 1/4" | — | 1 1/4" | — | 1 1/2" | — |

High Pressure "2-Stage" Systems

High Pressure Natural Gas Pipe Sizing "First Stage": (Based upon an inlet gas pressure of 2 psig at a pressure drop of 1 psi)

| Distance from outlet of 1st stage regulator to inlet of 2nd stage regulator | Model | H150 | H200 | H250 | H300 | H350 | H400 |
|---|---------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | BTU/hr input | 150,000 | 200,000 | 250,000 | 300,000 | 350,000 | 400,000 |
| | Line Material | Iron or Plastic Pipe | Iron or Plastic Pipe | Iron or Plastic Pipe | Iron or Plastic Pipe | Iron or Plastic Pipe | Iron or Plastic Pipe |
| 0 to 50 feet | | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" |
| 50 to 100 feet | | 1/2" | 1/2" | 1/2" | 1/2" | 3/4" | 3/4" |
| 100 to 150 feet | | 1/2" | 1/2" | 1/2" | 3/4" | 3/4" | 3/4" |

Low Pressure Natural Gas Pipe Sizing "Second Stage": (Based upon an inlet gas pressure of 10 in-wc at a pressure drop of 0.5 in-wc)

| Distance from outlet of 2nd stage regulator to heater gas valve inlet | Model | H150 | H200 | H250 | H300 | H350 | H400 |
|---|---------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | BTU/hr input | 150,000 | 200,000 | 250,000 | 300,000 | 350,000 | 400,000 |
| | Line Material | Iron or Plastic Pipe | Iron or Plastic Pipe | Iron or Plastic Pipe | Iron or Plastic Pipe | Iron or Plastic Pipe | Iron or Plastic Pipe |
| 0 to 10 feet | | 3/4" | 3/4" | 3/4" | 3/4" | 3/4" | 3/4" |

It is **VERY IMPORTANT** when installing a propane heater on a 2-stage regulation system to follow the gas line sizing chart below without exception.

High Pressure Propane Gas Pipe "First Stage": (Based upon an inlet gas pressure of 10 psig at a pressure drop of 1 psi)

| Distance from tank regulator outlet to heater gas valve inlet | Model | H150 | | H200 | | H250 | | H300 | | H350 | | H400 | |
|---|---------------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|
| | BTU/hr input | 150,000 | | 200,000 | | 250,000 | | 300,000 | | 350,000 | | 400,000 | |
| | Line Material | Iron Pipe | Tubing | Iron Pipe | Tubing | Iron Pipe | Tubing | Iron Pipe | Tubing | Iron Pipe | Tubing | Iron Pipe | Tubing |
| 0 to 50 feet | | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" |
| 50 to 100 feet | | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 5/8" | 1/2" | 5/8" |
| 100 to 150 feet | | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 1/2" | 5/8" | 1/2" | 5/8" | 1/2" | 5/8" |

Low Pressure Natural Gas Pipe Sizing "Second Stage": (Based upon an inlet gas pressure of 11 in-wc at a pressure drop of 0.5 in-wc)

| Distance from outlet of 2nd stage regulator to heater gas valve inlet | Model | H150 | | H200 | | H250 | | H300 | | H350 | | H400 | |
|---|---------------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|
| | BTU/hr input | 150,000 | | 200,000 | | 250,000 | | 300,000 | | 350,000 | | 400,000 | |
| | Line Material | Iron Pipe | Tubing | Iron Pipe | Tubing | Iron Pipe | Tubing | Iron Pipe | Tubing | Iron Pipe | Tubing | Iron Pipe | Tubing |
| 0 to 10 feet | | 1/2" | 5/8" | 1/2" | 5/8" | 1/2" | 3/4" | 3/4" | 3/4" | 3/4" | 7/8" | 3/4" | 7/8" |

Heating