



HEATER SIZING

POOL HEATER SIZING CHART (24 Hr. Period)

Pool Size Sq. Ft.	Temperature Rise				
	10°	15°	20°	25°	30°
200	55,900	83,800	111,840	139,800	167,760
300	83,880	125,820	127,700	209,700	251,640
400	111,850	167,775	223,700	279,625	335,550
500	139,810	209,715	279,620	349,525	419,430
600-	167,770	251,655	335,540	419,435	503,310
700	195,720	293,595	391,460	489,325	587,190
800	223,690	335,535	447,380	559,225	671,070
900	251,650	377,475	503,300	629,125	754,950
1,000	279,610	419,415	559,220	699,025	838,830

Heat Loss = Required Heater Output (BTUs/Hour)

Note: Chart prepared by the Commercial Water Heating Sub-committee of the American Gas Association in Oct. 1995.

Figure 6

POOL MAINTENANCE HEATER SIZING CHART

(Outdoors, 3.5 mph Wind)

Pool Size Sq. Ft.	Temperature Rise				
	10°	15°	20°	25°	30°
200	21,000	31,500	42,000	52,500	63,000
300	31,500	47,300	73,000	78,800	94,500
400	42,000	63,000	84,000	105,000	126,000
500	52,500	78,800	105,000	131,000	157,000
600-	63,000	94,500	126,000	157,000	189,000
700	73,400	110,000	147,000	184,000	220,000
800	84,000	126,000	168,000	210,000	252,000
900	94,500	142,000	189,000	236,000	284,000
1,000	105,000	157,000	210,000	263,000	315,000

Heat Loss = Required Heater Output (BTUs/Hour)

Note: Chart prepared by the Commercial Water Heating Sub-committee of the American Gas Association in Oct. 1995.

Figure 7

Initial Heat Up Time

Figure 6 is an easy way to size a Heater for a swimming pool. Simply determine the surface area square footage and the desired temperature. Then refer to the chart for the amount of BTUs required to heat up the swimming pool.

Example:

A 400 sq. ft. pool with a Temperature rise of 20 degrees. The Heater Output per Hour needs to be at least 223,700 BTUs to heat up the swimming pool in 24 hours.

To calculate the heat up time, use the following formula.

Pool Gallons x 8.33 (the weight of 1 gal of water) x Temp. Rise = Output BTUs needed to achieve desired water temp. in a 24 hour period.

Example:

20,000 gal. pool with a 20° temperature rise
 $20,000 \times 8.33 \times 20 = 3,332,000$ Output BTUs needed.
 $3,332,000 \div 24 \text{ hours} = 138,833$ BTU Heater.

If a heater has already been selected, the heat up time can be determined using the same formula and dividing the required BTUs to heat up the pool or spa in 24 hours by the Output BTUs of the heater.

Example:

Using the previous example, the number of BTUs required to heat up the swimming pool in 24 hours is 3,332,000 BTUs. Divide this number by the Output BTUs of the chosen Heater.

$$3,332,000 \div 340,000 \text{ BTU} = 9.8 \text{ hrs.}$$

To maintain the heat in normal conditions, use the chart in Figure 7 Using the above example, it would take 84,000 BTUs per hour to maintain the desired temperature.

SPA SIZING

MODEL	SPA VOLUME (Gallons)									
	200	300	400	500	600	700	800	900	1000	
	Minutes for 30°F Temperature Rise (Heater Input in 1000 BTU/HR)									
E-053-005	18	27	35	44	53	62	71	80	89	
E-053-010	11	16	21	27	32	37	43	48	53	
E-053-015	9	13	18	22	27	31	35	40	44	

Note: The chart is based on a 30°F (1°C) temperature rise, discounting losses and only based on heat required to raise temperature in minutes and are based on the best weather conditions. Considerations must be made for weather such as wind and attitudes that would interfere with the heaters working efficiency. It is times it is recommended to oversize rather than undersize when selecting a heater.