BURNHAM Commercial Boilers
AMERICA'S BOILER COMPANY

SYSTEM HOT WATER CIRCULATION RATES IN USGPM
BASED ON AVERAGE SYSTEM TEMPERATURE OF 170F

| Boiler Output | | System Temperature Drop (Delta T) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HP | MBH | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 |
| 10 | 335 | 69 | 34 | 23 | 17 | 14 | 11 | 10 | 9 | 8 | 7 | 6 |
| 15 | 502 | 103 | 51 | 34 | 26 | 21 | 17 | 15 | 13 | 11 | 10 | 9 |
| 20 | 670 | 138 | 69 | 46 | 34 | 28 | 23 | 20 | 17 | 15 | 14 | 13 |
| 25 | 837 | 172 | 86 | 57 | 43 | 34 | 29 | 25 | 22 | 19 | 17 | 16 |
| 30 | 1,004 | 207 | 103 | 69 | 52 | 41 | 34 | 30 | 26 | 23 | 21 | 19 |
| 40 | 1,339 | 276 | 138 | 92 | 69 | 55 | 46 | 39 | 34 | 31 | 28 | 25 |
| 50 | 1,674 | 344 | 172 | 115 | 86 | 69 | 57 | 49 | 43 | 38 | 34 | 31 |
| 60 | 2,009 | 413 | 207 | 138 | 103 | 83 | 69 | 59 | 52 | 46 | 41 | 38 |
| 70 | 2,343 | 482 | 241 | 161 | 121 | 96 | 80 | 69 | 60 | 54 | 48 | 44 |
| 80 | 2,678 | 551 | 276 | 184 | 138 | 110 | 92 | 79 | 69 | 61 | 55 | 50 |
| 100 | 3,348 | 689 | 344 | 230 | 172 | 138 | 115 | 98 | 86 | 77 | 69 | 63 |
| 125 | 4,184 | 861 | 430 | 287 | 215 | 172 | 143 | 123 | 108 | 96 | 86 | 78 |
| 150 | 5,021 | 1033 | 517 | 344 | 258 | 207 | 172 | 148 | 129 | 115 | 103 | 94 |
| 175 | 5,858 | 1205 | 603 | 402 | 301 | 241 | 201 | 172 | 151 | 134 | 121 | 110 |
| 200 | 6,695 | 1378 | 689 | 459 | 344 | 276 | 230 | 197 | 172 | 153 | 138 | 125 |
| 250 | 8,369 | 1722 | 861 | 574 | 430 | 344 | 287 | 246 | 215 | 191 | 172 | 157 |
| 300 | 10,043 | 2066 | 1033 | 689 | 517 | 413 | 344 | 295 | 258 | 230 | 207 | 188 |
| 350 | 11,716 | 2411 | 1205 | 804 | 603 | 482 | 402 | 344 | 301 | 268 | 241 | 219 |
| 400 | 13,390 | 2755 | 1378 | 918 | 689 | 551 | 459 | 394 | 344 | 306 | 276 | 250 |
| 500 | 16,738 | 3444 | 1722 | 1148 | 861 | 689 | 574 | 492 | 430 | 383 | 344 | 313 |
| 600 | 20,085 | 4133 | 2066 | 1378 | 1033 | 827 | 689 | 590 | 517 | 459 | 413 | 376 |
| 700 | 23,433 | 4822 | 2411 | 1607 | 1205 | 964 | 804 | 689 | 603 | 536 | 482 | 438 |
| 800 | 26,780 | 5510 | 2755 | 1837 | 1378 | 1102 | 918 | 787 | 689 | 612 | 551 | 501 |
| 900 | 30,128 | 6199 | 3100 | 2066 | 1550 | 1240 | 1033 | 886 | 775 | 689 | 620 | 564 |
| 1000 | 33,475 | 6888 | 3444 | 2296 | 1722 | 1378 | 1148 | 984 | 861 | 765 | 689 | 626 |

BTU/HR = DELTA T x (FLOW RATE, LBS/HR)

BTU/HR = DELTA T x (GPM x LBS/GAL x 60 MIN/HR)

$$\text{DELTA T} = \frac{\text{BTU/HR}}{\text{FLOW RATE, LBS/HR}}$$

$$\text{FLOW RATE, LBS/HR} = \frac{\text{BTU/HR}}{\text{DELTA T}}$$

$$\text{GPM} = \frac{\text{BTU/HR}}{\text{DELTA T x (LBS/GAL) x 60 MIN/HR}}$$

WATER WEIGHTS

| Temp F | LBS/GAL |
|---|---|
| 200 | 8.03 |
| 180 | 8.1 |
| 160 | 8.16 |
| 140 | 8.21 |
| 120 | 8.25 |
| 100 | 8.29 |
| 80 | 8.31 |
| 60 | 8.33 |

Propylene Glycol = 8.77 lbs/gas @ 60F
*Ethylene Glycol = 9.42 lbs/gas @ 60F
* most common