$$Q_{Btu/Hr} = 500 \times Flow_{gpm} \times \left(t_{Entering,°F} - t_{Leaving,°F} \right)$$

Where:

$Q_{Btu/Hr}$ = Load in Btu/hr

500 = Units conversion constant, good for water between 30 and 200°F

$Flow_{gpm}$ = Flow through the heat exchanger in gallons per minute

$t_{Entering,°F}$ = Temperature entering the heat exchanger in °F

$t_{Leaving,°F}$ = Temperature leaaving the heat exchanger in °F