

Power, Heat, and Work

1 ton refrigeration	=	$\begin{cases} 12,000 \text{ Btu per hour} \\ 200 \text{ Btu per minute} \end{cases}$
Latent heat of ice	=	143.33 Btu per pound
1 Btu	=	$\begin{cases} 777.5 \text{ ft-lb} \\ 0.293 \text{ watthours} \\ 252.02 \text{ mean calories} \end{cases}$
1 watthour	=	$\begin{cases} 2,655.2 \text{ ft-lb} \\ 3.415 \text{ Btu} \\ 3600 \text{ joules} \\ 860.648 \text{ mean calories} \end{cases}$
1 kilowatthour	=	$\begin{cases} 3,415 \text{ Btu} \\ 3.52 \text{ lb water evaporated from} \\ \text{and at 212 F} \\ 34.15 \text{ lb water raised 100 F} \end{cases}$
1 mean calorie	=	$\begin{cases} 0.003968 \text{ Btu} \\ 3.085 \text{ ft-lb} \\ 0.0011619 \text{ watthours} \end{cases}$
1 kilowatt (1000 watts)	=	$\begin{cases} 1.3405 \text{ horsepower} \\ 56.92 \text{ Btu per minute} \\ 44,252.7 \text{ ft-lb per minute} \end{cases}$
1 horsepower	=	$\begin{cases} 0.746 \text{ kilowatt} \\ 42.44 \text{ Btu per minute} \\ 33,000 \text{ ft-lb per minute} \\ 550 \text{ ft-lb per second} \end{cases}$
1 boiler horsepower	=	$\begin{cases} 33,471.9 \text{ Btu per hour} \\ 9.80 \text{ kw hr} \end{cases}$

Weight and Volume

1 gal (U. S.)	=	$\begin{cases} 231 \text{ cu in.} \\ 0.13368 \text{ cu ft} \end{cases}$
1 British or Imperial gallon	=	277.274 cu in.
1 cu ft	=	$\begin{cases} 7.4805 \text{ gal} \\ 1728 \text{ cu in.} \end{cases}$
1 cu ft water at 60 F	=	62.37 lb
1 cu ft water at 212 F	=	59.76 lb
1 gal water at 60 F	=	8.34 lb
1 gal water at 212 F	=	7.99 lb
1 lb (avdp)	=	$\begin{cases} 16 \text{ oz} \\ 7000 \text{ grains} \end{cases}$
1 bushel	=	1,244 cu ft
1 short ton	=	2000 lb
1 long ton	=	2240 lb

Pressure

1 lb per square inch	=	$\begin{cases} 144 \text{ lb per square foot} \\ 2.0416 \text{ in. mercury at 62 F} \\ 2.309 \text{ ft water at 62 F} \\ 27.71 \text{ in. water at 62 F} \end{cases}$
1 oz per square inch	=	$\begin{cases} 0.1276 \text{ in. mercury at 62 F} \\ 1.732 \text{ in. water at 62 F} \end{cases}$

1 atmosphere	=	$\begin{cases} 14.7 \text{ lb per square inch} \\ 2116.3 \text{ lb per square foot} \\ 33.974 \text{ ft water at 62 F} \\ 30 \text{ in. mercury at 62 F} \\ 29.921 \text{ in. mercury at 32 F} \end{cases}$
1 in. water at 62 F	=	$\begin{cases} 0.03609 \text{ lb per square inch} \\ 0.5774 \text{ oz per square inch} \\ 5.196 \text{ lb per square foot} \end{cases}$
1 ft water at 62 F	=	$\begin{cases} 0.433 \text{ lb per square inch} \\ 62.355 \text{ lb per square foot} \end{cases}$
1 in. mercury at 62 F	=	$\begin{cases} 0.491 \text{ lb per square inch} \\ 7.86 \text{ oz per square inch} \\ 1.131 \text{ ft water at 62 F} \\ 13.57 \text{ in. water at 62 F} \end{cases}$

Metric Units

1 cm	=	0.3937 in.
1 in.	=	2.54 cm
1 m	=	3.281 ft
1 ft	=	0.3048 m
1 sq cm	=	0.155 sq in.
1 sq in.	=	6.45 sq cm
1 sq m	=	10.765 sq ft
1 sq ft	=	0.0929 sq m
1 cu cm	=	0.061 cu in.
1 cu in.	=	16.39 cu cm
1 cu m	=	35.32 cu ft
1 cu ft	=	0.0283 cu m
1 liter	=	1000 cu cm = 0.264 gal
1 kg	=	2.2046 lb
1 lb	=	0.4536 kg
1 metric ton	=	2205 lb (avdp)
1 gram	=	980.59 dynes = 0.002205 lb
1 kilometer per hour	=	0.6214 mph
1 gram per square centimeter	=	$\begin{cases} 0.0290 \text{ in. mercury, at 0 deg C} \\ 0.394 \text{ in. water, at 15 C} \end{cases}$
1 kg per square centimeter (metric atmosphere)	=	14.22 lb per square inch
1 gram per cubic centimeter	=	$\begin{cases} 0.03614 \text{ lb per cubic inch} \\ 62.43 \text{ lb per cubic foot} \end{cases}$
1 dyne	=	0.00007233 poundals
1 joule	=	$\begin{cases} 10,000,000 \text{ ergs} \\ 0.73767 \text{ ft-lb} \end{cases}$
1 metric horsepower	=	$\begin{cases} 75 \text{ kg-m per second} \\ 0.986 \text{ hp (U. S.)} \end{cases}$
1 kilogram-calorie (large calorie)	=	$\begin{cases} 1000 \text{ gram-calories (small} \\ \text{calorie)} \\ 3.97 \text{ Btu} \end{cases}$
1 kilogram-calorie per kilogram	=	1.8 Btu per pound
1 gram-calorie per square centimeter	=	3.687 Btu per square foot
1 gram-calorie per square centimeter per centimeter	=	1.451 Btu per square foot per inch
1 gram-calorie per second per square centimeter for a temperature graduation of 1 deg C per centimeter	=	$\begin{cases} 2903 \text{ Btu per hour per square foot} \\ \text{for a temperature graduation of} \\ 1 \text{ deg F per inch of thickness.} \end{cases}$