Thermal transmission (heat transferred per unit time) ..... q

$$q = \frac{Q}{t}$$

Thermal resistance (degrees per unit of heat transferred per unit time) ..... R

$$R = \frac{t_1 - t_2}{q} = \frac{L}{kA}$$

Thermal resistivity ..... $1/k$
Vaporization values at constant pressure, Differences between values for saturated vapor and saturated liquid at the same pressure ..... *Subscript* fg
Velocity V
Volume (total) V
Volume per unit time, Rate at which quantity of material passes through a machine, Quantity of heat per unit time, Quantity of heat per unit weight ..... q
Watt ..... w
Watthour ..... whr
Weight of a major item, Total weight ..... W
Weight rate, Weight per unit of power, Weight per unit of time ..... w
Work (total) ..... W

CONVERSION EQUATIONS

Heat, Power and Work

1 ton refrigeration = 12,000 Btu per hour = 200 Btu per minute
Latent heat of ice = 143.4 Btu per pound
1 Btu = 778.26 ft-lb = 0.293 whr = 252 mean calories
1 watthour = 2,655 ft-lb = 3.413 Btu = 3600 joules = 860 mean calories
1 kilowatthour = 3,413 Btu = 3.517 lb water evaporated from and at 212 F
1 kilowatt (1000 watts) = 1.341 hp = 56.88 Btu per minute = 44,253 ft-lb per minute
1000 mean calorie / 1 kilogram calorie = 3.969 Btu = 3087 ft-lb = 1.1627 whr
1 horsepower = 0.746 kw = 42.42 Btu per minute = 33,000 ft-lb per minute = 550 ft-lb per second
1 boiler horsepower = 33,475 Btu per hour = 9.808 kw

Weight and Volume

1 gal (U. S.) = 231 cu in. = 0.1337 cu ft
1 British or Imperial gallon = 277.42 cu in.
1 cu ft = 7.48 gal = 1728 cu in.
1 cu ft water at 60 F = 62.37 lb
1 cu ft water at 212 F = 59.83 lb
1 gal water at 60 F = 8.34 lb
1 gal water at 212 F = 7.998 lb
1 lb (avdp) = 16 oz = 7000 grains
1 bushel = 1.244 cu ft
1 short ton = 2000 lb

Pressure

1 lb per square inch = 144 lb per square foot = 2.0421 in. mercury at 62 F = 2.309 ft water at 62 F = 27.71 in. water at 62 F
1 oz per square inch = 0.1276 in. mercury at 62 F = 1.732 in. water at 62 F
1 atmosphere = 14.6959 lb per square inch = 2117 lb per square foot = 33.9 ft water at 62 F = 30 in. mercury at 62 F = 29.921 in. mercury at 32 F
1 in. water at 62 F = 0.03609 lb per square inch = 0.5774 oz per square inch = 5.196 lb per square foot
1 ft water at 62 F = 0.433 lb per square inch = 62.35 lb per square foot
1 in. mercury at 62 F = 0.491 lb per square inch = 7.84 oz per square inch = 1.131 ft water at 62 F = 13.58 in. water at 62 F

Metric Units

1 cm = 0.3937 in.
1 in. = 2.540 cm
1 m = 3.281 ft
1 ft = 0.3048 m
1 sq cm = 0.155 sq in.
1 sq in. = 6.452 sq cm
1 sq m = 10.76 sq ft
1 sq ft = 0.0929 sq m
1 cu cm = 0.06102 cu in.
1 cu in. = 16.39 cu cm
1 cu m = 35.31 cu ft
1 cu ft = 0.02831 cu m
1 liter = 1000 cu cm = 0.2642 gal
1 kg = 2.205 lb (avdp)
1 lb = 0.4536 kg
1 metric ton = 2205 lb (avdp)
1 gram = 0.002205 lb (avdp)
1 kilometer per hour = 0.6214 mph
1 gram per square centimeter = 0.02905 in. mercury at 62 F = 0.3944 in. water at 62 F
1 kg per sq cm (metric atmosphere) = 14.22 lb per square inch
1 gram per cubic centimeter = 0.03613 lb per cubic inch = 62.43 lb per cubic foot
1 dyne = 0.00007233 poundals
1 joule = 10,000,000 ergs = 0.7376 ft-lb
1 metric horsepower = 75 kg-m per second = 0.986 hp (U. S.)
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 = 1.452 Btu per sq ft per inch
1 gram-calorie per second per square centimeter for a temperature gradient of 1 deg C per centimeter = 2903 Btu per hour per square foot for a temperature gradient of 1 deg F per inch of thickness.