Micron ..... μ (mu)
Miles per hour ..... mph
Millimeter ..... mm
Minute ..... min
Molecular weight ..... mol. wt
Mol ..... mol
Ounce ..... oz
Pound ..... lb
Power, Horsepower. Work per unit time ..... P
Pressure, Absolute pressure, Gage pressure, Force per unit area ..... p
Quantity (total) of fluid, water, gas, heat; Quantity by volume; Total quantity of heat transferred ..... Q
Quality of steam, Pounds of dry steam per pound of mixture x
Revolutions per minute ..... rpm
Saturated liquid at saturation pressure and temperature, Liquid in contact with vapor ..... *Subscript* f
Second ..... sec
Specific gravity ..... sp gr
Specific heat ..... sp ht or c
Specific heat at constant pressure ..... c_p
Specific heat at constant volume ..... c_v
Specific volume, Volume per unit weight, Volume per unit mass v
Square foot ..... sq ft
Square inch ..... sq in.
Temperature (ordinary) F or C. (*Theta* is used preferably only when t is used for Time in the same discussion) ..... t or θ (*theta*)
Temperature (absolute) F abs or K. (Capital *theta* is used preferably only when small *theta* is used for ordinary temperature). ..... T or Θ (*capital theta*)
Thermal conductance[3] (heat transferred per unit time per degree) C

$$C = \frac{1}{R} = \frac{kA}{L} = \frac{q}{t_1 - t_2}$$

Thermal conductance per unit area, Unit conductance (heat transferred per unit time per unit area per degree) ..... C_a

$$C_a = \frac{C}{A} = \frac{1}{RA} = \frac{q}{A(t_1 - t_2)} = \frac{k}{L}$$

Thermal conductivity (heat transferred per unit time per unit area, and per degree per unit length) ..... k

$$k = \frac{\frac{q}{A}}{\frac{(t_1 - t_2)}{L}}$$

Surface coefficient of heat transfer, Film coefficient of heat transfer, Individual coefficient of heat transfer (heat transferred per unit time per unit area per degree) ..... f

$$f = \frac{\frac{q}{A}}{t_1 - t_2}$$

(In general f is not equal to k/L, where L is the actual thickness of the fluid film.)

Over-all coefficient of heat transfer, Thermal transmittance per unit area (heat transferred per unit time per unit area per degree over-all) ..... U

$$U = \frac{\frac{q}{A}}{t_1 - t_2}$$

[3]Terms ending *ivity* designate properties independent of size or shape, sometimes called *specific properties*. Examples: conductivity, resistivity. Terms ending *ance* designate quantities depending not only on the material, but also upon size and shape, sometimes called *total quantities*. Examples: conductance, transmittance. Terms ending *ion* designate rate of heat transfer. Examples: conduction, transmission.

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