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

Overall coefficient of heat transfer, Thermal transmittance per unit area: heat transferred per (unit time) (unit area) (degree overall)..... U

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

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

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

Thermal resistance (degree 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
Viscosity, absolute..... μ
Viscosity, kinematic..... μ/ρ

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
Weight of a major item, Total weight..... W
Weight rate, Weight per unit of power, Weight per unit of time..... w
Work (total)..... W

THE GREEK ALPHABET

A α Alpha	I ι Iota	P ρ Rho
B β Beta	K κ Kappa	Σ σ s Sigma
Γ γ Gamma	Λ λ Lambda	T τ Tau
Δ δ Delta	M μ Mu	Υ υ Upsilon
E ϵ Epsilon	N ν Nu	Φ φ ϕ Phi
Z ζ Zeta	Ξ ξ Xi	X χ Chi
H η Eta	O o Omicron	Ψ ψ Psi
Θ ϑ θ Theta	Π π Pi	Ω ω Omega

CONVERSION EQUATIONS[5]

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	= 778.3 ft-lb = 0.2930 Int. whr = 252.0 I.T. calorie
1 Int. watthour	= 2656 ft-lb = 3.413 Btu = 3600 Int. joules = 860 I.T. calories
1 Int. kilowatthour	= 3,413 Btu = 3.517 lb water evaporated from and at 212 F
1 Int. kilowatt (1000 watts)	= 1.341 hp = 56.88 Btu per minute = 44,267 ft-lb per minute
1000 I.T. calories 1 I.T. Kilocalorie	= 3.968 Btu = 3088 ft-lb = 1.1628 Int. whr
1 horsepower	= 0.7455 Int. kw = 42.40 Btu per minute = 33,000 ft-lb per minute = 550 ft-lb per second
1 boiler horsepower	= 33,475 Btu per hour = 9.809 Int. 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	= 7.481 gal = 1728 cu in.
1 cu ft water at 60 F (in vacuo)	= 62.37 lb
1 cu ft water at 212 F (" ")	= 59.83 lb
1 gal water at 60 F (" ")	= 8.338 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 = 2.0360 in. mercury at 32 F = 2.0422 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

[5] Checked in 1944 by *National Bureau of Standards*. Abbreviations *Int.* and *I.T.* refer to *International* and *International (Steam) Table*, respectively.