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

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

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	T 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.