

Head.....	H or h
Heat content, Total heat, Enthalpy. (The capital should be used for any weight and the small letter for unit weight.).....	H or h
Heat content of saturated liquid, Total heat of saturated liquid, Enthalpy of saturated liquid, sometimes called heat of the liquid.....	h_f
Heat content of dry saturated vapor, Total heat of dry saturated vapor, Enthalpy of dry saturated vapor.....	h_g
Heat of vaporization at constant pressure.....	L or h_{fg}
Horsepower.....	hp
Horsepower-hour.....	hp-hr
Inch.....	in.
Inch-pound.....	in-lb
Indicated horsepower.....	ihp
Indicated horsepower-hour.....	ihp-hr
Internal energy, Intrinsic energy. (The capital should be used for any weight and the small letter for unit weight.).....	U or u
Kilogram.....	kg
Kilowatt.....	kw
Kilowatthour.....	kwhr
Length of path of heat flow, thickness.....	L
Load, total.....	W
Mass.....	m
Mechanical efficiency.....	e_m
Mechanical equivalent of heat.....	J
Melting point.....	mp
Meter.....	m
Micron.....	μ (mu)
Miles per hour.....	mph
Minute.....	min
Molecular weight.....	mol. wt
Mol.....	mol
Ounce.....	oz
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 t
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. (<i>Theta</i> is used preferably only when t is used for Time in the same discussion.).....	t or θ (<i>theta</i>)
Temperature (absolute) F abs or K. (Capital <i>theta</i> is used preferably only when small <i>theta</i> is used for ordinary temperature.).....	T or Θ (<i>capital theta</i>)
Thermal conductance ⁴ (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

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

⁴Terms ending *ivity* designate properties independent of size or shape, sometimes called *specific properties*. Examples are—conductivity and resistivity. Terms ending *ance* designate quantities depending not only on the material, but also upon size and shape, sometimes called *total quantities*. Examples are—conductance and transmittance. Terms ending *ion* designate rate of heat transfer. Examples are—conduction and transmission.

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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

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

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

Fahrenheit degrees = 9/5 centigrade degrees + 32.

Centigrade degrees = 5/9 (Fahrenheit degrees - 32).

Absolute temperature, expressed in Fahrenheit degrees = Fahrenheit degrees + 459.6. In heating and ventilating work, 460 is usually used.

Absolute temperature, expressed in centigrade degrees = centigrade degrees + 273.1.

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

$$= 143.33 \text{ Btu per pound}$$