



## POWER, TORQUE, FORCE, ENERGY, LOADING

1 kg	= 2.205 lb
1 pound(=1 lb)	= 4.448 N = 0.453 kg = 7,000 grains = 16 OZ
1 pound foot	= 1.355 N.m = 1.355 W
1 PS	= 632.5 Kcal / hr = 542.5 ft - lb = 75 kg. m/s = 0.7355 KW : France power
1 HP	= 550 ft - lbf/s = 76 kg.m/s = $7.457 \times 10^2$ J. : English power = 1.013866 CV = 641.6 kcal/hr = 33,000 ft - ib/min = 1.0138 PS = 0.7457 KW x 42.4 Btu/min
1 KJ	= 0.9478 Btu
1 J	= 1W = 1 N.m = $10^5$ dyne x $10^2$ cm = $10^7$ erg = 1 kg.m <sup>2</sup> /s <sup>2</sup> = $3.777 \times 10^{-7}$ Psh = $2.388 \times 10^{-4}$ kcal = $9.478 \times 10^{-4}$ Btu = $2.778 \times 10^{-7}$ kwh = 0.7376 ft.lb
1 W	= 1 J/S = 0.738 ft - lbs = 3.4 Btu/h = $10^7$ ergs/sec = 1 N. m/s = 3.4 Btu/h
1 KW	= 102 kg.m/s = 1,000 N. m/s = 1.341 HP = 1,000 J = 860 kcal/h = 1.36 PS
1 KW.h	= 860 Kcal = $3.6 \times 10^6$ J
1 PS.h	= 632 Kcal
1 Kcal	: (물 1g 을 온도 1°C 올리는데 필요한 열량) = $1.55 \times 10^{-3}$ Hph = 4,187 J = 3.969 Btu = $1.163 \times 10^{-3}$ KWh = $1.581 \times 10^{-3}$ Psh = 426 kg.m = 3,087 ft.lb
1 Slug	= 14.59 kg = 32.174 lbm = 1 lbf sec <sup>2</sup> /ft
1 BTU (= British Thermal Unit)	= 1,055J = 0.1752 KW = 0.25 Kcal = 107.6 Kg.m = 778 ft - lb = 0.293 watt-hr = 0.555pcu (pound centigrade unit) = 1.055 KJ (= KW.S) = $3.931 \times 10^{-4}$ Hp-hr = $3.984 \times 10^{-4}$ psh = $2.931 \times 10^{-4}$ kwh (1 lb 의 물을 1 °F 올리는데 필요한 열량)
1 N.m	= 8.85 ln-lb = 0.737 ft - lb
1 Kcal / h	= 0.7455 KW
1 ft.lb/s	= 1.356 W
1 BTU/s	= 1.055 KW
1 kip	= 1,000 lb = 4,448 kN
1 ft - lb	= 1.36 N.m
1 in - lb	= 0.113 N.m

## SPECIFIC HEAT (비열)

$$1 \text{ kcal} / \text{kg}^\circ\text{C} = 1 \text{ Btu} / \text{lb}^\circ\text{F} = 1 \text{ pcu/lb}^\circ\text{C} = 4.187 \text{ kj/kg.k}$$

## 열량

1 kcal/kg	= 1.8 Btu/lb
1 kcal/m <sup>2</sup>	= 0.3687 Btu/ft <sup>2</sup>
1 kcal/m <sup>3</sup>	= 0.1124 Btu/ft <sup>3</sup>