

UNIT CONVERSIONS

FLOW

1 gpm	= 0.134 cu. ft. per min = 500 lb. per hr. x sp. gr.
500 lb. per hr.	= 1 gpm / sp. gr.
1 cu. ft. per min. (cfm)	= 448.8 gal. per hr. (gph)

POWER

1 Btu per hr.	= 0.293 watt = 12.96 ft. lb. per min. = 0.00039 hp
1 ton refrigeration (U.S.)	= 288,000 Btu per 24 hr. = 12,000 Btu per hr. = 200 Btu per min. = 83.33 lb. ice melted per 24 hr. from & at 32°F. = 2,000 lb. ice melted per 24 hr. from & at 32°F
1 hp	= 550 ft. lb. per sec. = 746 watt = 2,545 Btu per hr.
1 boiler hp	= 33,480 Btu per hr. = 34.5 lb. water evap. per hr. from & at 212°F = 9.8 kw.
1 kw.	= 3,413 Btu per hr.

MASS

1 lb. (avoir.)	= 16 oz. (avoir.) = 7,000 grain
1 ton (short)	= 2,000 lb.
1 ton (long)	= 2,240 lb.

PRESSURE

1 lb. Per sq. in.	= 3.13 ft. water at 60°F = 2.04 in. hg at 60°F
1 ft. water at 60°F	= .433 lb. per sq. in. = .884 in. hg at 60°F
1 in. Hg at 60°F	= .49 lb. per sq. in. = 1.13 ft. water at 60°F
1 lb. Per sq. in.	= lb. per sq. in. gauge (psig)
Absolute (psia)	= 14.7

TEMPERATURE

°C	= (°F-32) x 5/9
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VOLUME

1 gal. (U.S.)	= 128 fl. oz. (U.S.) = 231 cu. in. = .833 gal. (Brit.)
1 cu. ft.	= 7.48 gal. (U.S.)

WEIGHT OF WATER

1 cu. ft. at 50°F.	= 62.41 lb.
1 gal. at 50°F.	= 8.34 lb.
1 cu. ft. of ice	= 57.2 lb.
1 cu. ft. at 39.2°F.	= 62.43 lb.

Note: Water is at its greatest density at 39.2°F

WEIGHT OF LIQUID

1 gal. (U.S.)	= 8.34 lb. x sp. gr.
1 cu. ft.	= 62.4 lb. x sp. gr.
1 lb.	= .12 U.S. gal. / sp. gr. = .016 cu. ft. / sp. gr.

WORK

1 Btu (mean)	= 778 ft. lb. = .293 watt hr. = $\frac{1}{180}$ of heat required to change temp of 1 lb. water from 32°F to 212°F
1 hp-hr	= 2545 Btu (mean) = .746 kw hr
1 Kw hr	= 3413 Btu (mean) = 1.34 hp-hr