CONVERSIONS AND USEFUL FORMULA

AREA
Sq Inch x 6.452 = Sq cm
Sq Ft x 0.0929 = Sq mtr

LENGTH
Inch x 25.4 = mm
Feet x 0.3048 = metre

MASS
Oz x 28.3495 = gram
lb x 0.4536 = kg
Ton UK x 1.016 = Tonne

POWER
kW x 1.341 = HP
HP x 0.7457 = kW
Met HP x 0.7355 = kW
Ton of Rfg x 3.517 = kW

PRESSURE
PSI x 0.0689 = Bar
Bar x 14.5 = PSI
inH_2O x 0.249 = kPa

TEMPERATURE
°C x 1.8 + 32 = °F

VELOCITY
Ft/s x 0.3048 = m/s
mph x 1.609344 = km/h
Knot UK x 1.853 = km/h

VISCOSITY
SSU x 4.6 = cSt

VOLUME
Gal (UK) x 4.546 = Litres
Gal (US) x 3.785 = Litres
Cu Ft x 28.32 = Litres

OTHER
BTU/hr x 0.293 = W
Kilocalorie x 4.1868 = kJ
CFM x 0.000472 = m^3/s

Power, Heat and Flow Relationships. ISO UNITS

$\Delta T\ °C = \frac{kW \times K}{L/min}$ $kW = \frac{L/min \times \Delta T\ °C}{K}$ $L/min = \frac{kW \times K}{\Delta T\ °C}$

Where L/min = Oil flow in Litres per minute
ΔT °C = Entering temp of oil minus exit temp of oil.
kW = Heat to be removed
K = 34.5 for Oil
K = 14.3 for Water

K factors above are typical only and will vary with density and temperature of fliud.

Heat Load Based on Temperature Rise Over Time ISO UNITS

$\text{Heat Load} = \frac{V \times Cp \times (t2-t1)}{T} = kW$

Where t1 = Initial oil temp (°C)
t2 = Final oil temp (°C)
T = Time for temp rise (seconds)
V = System oil volume (litres)
Cp = Oil heat capacity (kJ/L°C) -1.72 Typ for oil.

NO RESPONSIBILITY IS ACCEPTED FOR OMISSIONS VARIATIONS OR ERRORS