Formulas

HP VS KW

1HP=0.746KW
1KW=1.34HP

OHMS

Ohms = Volts ÷ Amperes
Amperes = Volts ÷ Ohms
Volts = Amperes x Ohms

POWER– A.C. CIRCUITS

Power Factor = Watts ÷ (Volts x Amperes)
Three Phase Kilowatts = (Volts x Amperes x Power Factor x 1.732) ÷ 1000
Three Phase Volt-Amperes = Volts x Amperes x 1.732
Three Phase Amperes = (746 x Horsepower) ÷ (1.732 x Volts x Efficiency x Power Factor)
Single Phase Kilowatts = (Volts x Amperes x Power Factor) ÷ 1000
Single Phase Amperes = (746 x Horsepower) ÷ (Volts x Efficiency x Power Factor)

POWER – D.C. CIRCUITS

Watts = Volts x Amperes
Amperes = Watts ÷ Volts
Horsepower = (Volts x Amperes x Efficiency) ÷ 746

MOTORS FORMULAS

Torque (lbs.-ft.) = (Horsepower x 5250) ÷ RPM
Shaft Stress (lbs. per sq. inch) = (Horsepower x 321000) ÷ (RPM x Shaft Diam3)

PUMPS

Horsepower = (GPM x Head in Feet x Specific Gravity) ÷ (3960 x Efficiency of Pump)

VENTILATION

Horsepower = (CFM x Pressure (lbs. per sq. ft.)) ÷ (33000 x Efficiency)

SPEED

Synchronous RPM = (Hertz x 120) ÷ Poles
Percent Slip = (Synchronous RPM – Full Load RPM) ÷ Synchronous RPM x 100