MOTOR APPLICATION

$$\text{Torque (lb.-ft)} = \frac{\text{Horsepower} \times 5250}{\text{RPM}}$$

$$\text{Horsepower} = \frac{\text{Torque (lb.-ft)} \times \text{RPM}}{5250}$$

TIME FOR MOTOR TO REACH OPERATING SPEED (seconds)

$$\text{Seconds} = \frac{WK^2 \times \text{Speed Change}}{308 \times \text{Avg. Accelerating Torque}}$$

WK^2 = Inertia of Rotor + Inertia of Load (lb.-ft)^2

$$\text{Average Accelerating Torque} = \frac{[(FLT + BDT) / 2] + BDT + LRT}{3}$$

FLT = Full-Load Torque

BDT = Breakdown Torque

LRT = Locked-Rotor Torque

$$\text{Load } WK^2 \text{ (at motor shaft)} = \frac{WK^2 \text{ (Load)} \times \text{Load RPM}^2}{\text{Motor RPM}^2}$$

$$\text{Torque (lb.-in.)} = \frac{HP \times 63025}{RPM}$$

$$HP = \frac{T \text{ (lb.-in.)} \times RPM}{63025}$$

Belt Speed In FPM = .262 × RPM × Dia. (in.)

$$\text{Chain Tension (lbs.)} = \frac{33000 \times HP}{\text{Chain Speed (FPM)}}$$