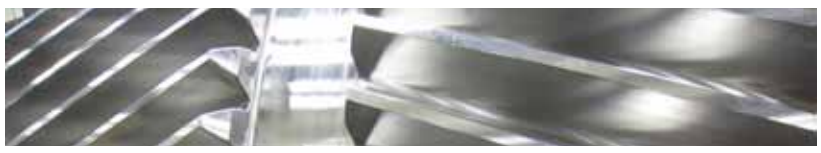
HORSBURGH & SCOTT

GEAR UP™



NEED TO FIND	GIVEN	FORMULA
Degrees Centigrade	Degrees Fahrenheit	C = .56 (F – 32)
Degrees Fahrenheit	Degrees Centigrade	F = 1.8 X C+ 32
Overhung Load	HP, RPM, Pitch DIA (IN), OHL Factor (F)	$OHL = \frac{126050 \times F \times HP}{PitchDIA \times RPM}$
Overhung Load	HP, RPM, Pitch Radius (IN), OHL Factor (F)	$OHL = \frac{Shaft\ Torque\ \frac{LB}{inches} \times F}{Pitch\ Radius\ (IN)}$

OVERHUNG LOAD (OHL) FACTORS (F)

Chain	Gear	V-Belt	Flat-Belt
1.00	1.25	1.50	2.50

CONVERSION FACTORS - ENGLISH TO METRIC

Weight

Short Tons x 0.91 = Metric Tons (T)

Pounds x 0.45 = Kilograms (KG)

Length

Inches x 25.40 = millimeters (MM)

Inches x .0254 = meters (M)

Power

Horsepower x 746 = Watts (W)

Horsepower x .75 = Kilowatts (KW)

Pound-Force x 4.4448 = Newtons (N)

Pound-Feet x 1.356 = Newton Meters (Nm)

RULES OF THUMB – approximation

- At 1800 RPM a motor develops 3 ft. lb. torque per HP.
- At 230 volts a 3 phase motor draws 2.5 amps per HP.
- At 230 volts a 1 phase motor draws 5 amps per HP.

} (1 HP = 746 Watts)

- Constant Torque is where required horsepower varies directly with speed.

NEED TO FIND	GIVEN	FORMULA
Ratio	High & Low RPM	$RATIO = \frac{HIGH\ RPM}{LOW\ RPM}$
FPM	DIA (inches) & RPM	FPM = .262 x DIA x RPM
RPM	FPM & DIA (inches)	$RPM = \frac{FPM}{.262 \times DIA}$
DIAMETER (inches)	FPM & RPM	$DIA = \frac{FPM}{.262 \times RPM}$
Belt Length	Sheave Diameters & Center Distance	(D + d) 1.57 + 2CD
Horsepower	Torque FT. LB. & RPM	$HP = \frac{T \times RPM}{5250}$
Torque FT. LB.	Horsepower & RPM	$T = \frac{HP \times 5250}{RPM}$
Torque In. LB.	Horsepower & RPM	$T = \frac{HP \times 63{,}025}{RPM}$
Horsepower	Torque In. LB. & RPM	$HP = \frac{T \times RPM}{63{,}025}$
Horsepower	Force (LBS) & FPM	$HP = \frac{F \times FPM}{33{,}000}$
Outside Diameter (OD)	Pitch DIA & Addendum (ADD)	OD=PD+2(ADD)
Circumference of a Circle	Diameter	C=3.1416 x D
Pitch Diameter	Number of Teeth (N) & Diametrical Pitch (DP)	$PD = \frac{N}{DP}$
PD	Outside Diameter (OD) & Diametrical Pitch (DP)	$PD = OD - \frac{2}{DP}$
Circular Pitch	Diametrical Pitch (DP)	$CP = \frac{3.1416}{DP}$
Diametrical Pitch	Number of Teeth (N) & Pitch Diameter	$DP = \frac{N}{PD}$