

## IMPERIAL FORMULAE

**NOTE: These formulae are theoretical and an allowance for inefficiency in practice should be made. For example, for a 10% margin, multiply results by 1.1.**

<b>HORSE POWER</b>	HP = $\frac{\text{PSI} \times \text{US GPM}}{1714}$
	HP = $\frac{\text{PSI} \times \text{C.IN} / \text{REV} \times \text{RPM}}{1714 \times 231}$
	HP = $\frac{\text{IN/LBS} \times \text{RPM}}{63025}$
<b>PRESSURE</b>	PSI = $\frac{\text{HP} \times 1714}{\text{US GPM}}$
	PSI = $\frac{\text{HP} \times 1714 \times 231}{\text{C.IN} / \text{REV} \times \text{RPM}}$
<b>PUMP DISPLACEMENT</b>	C.IN/REV = $\frac{\text{HP} \times 1714 \times 231}{\text{PSI} \times \text{RPM}}$
<b>FLOW RATE</b>	US GPM = $\frac{\text{HP} \times 1714}{\text{PSI}}$
<b>TORQUE</b>	IN/LBS = $\frac{\text{HP} \times 63025}{\text{RPM}}$
	IN/LBS = $\frac{\text{PSI} \times \text{C.IN} / \text{REV}}{2 \times \pi}$
<b>SPEED</b>	RPM = $\frac{\text{HP} \times 63025}{\text{IN} / \text{LBS}}$
<b>MOTOR DISPLACEMENT</b>	C.IN/REV = $\frac{\text{IN} / \text{LBS} \times 2 \times \pi}{\text{PSI}}$

Area of a circle =  $\frac{\pi D^2}{4}$

Where  $\pi$  = 3.1416

D = Diameter

**CYLINDER DISPLACEMENT (PUSH AND PULL)** = (PISTON AREA x STROKE x 2) - (ROD AREA x STROKE)