

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.

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

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

Where π = 3.1416

D = Diameter

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