



Navfree Pty Ltd  
 ABN 98 003 738 387  
**Power Beyond Hydraulics**  
 15 Francis Street / PO Box 106  
 Narrabri NSW 2390  
 Phone: 02 6792 1298  
 Fax: 02 6792 4280  
 www.powerbeyond.com.au

## Useful Imperial Formula

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

|                           |          |   |  |
|---------------------------|----------|---|--|
| <u>Horsepower</u>         | HP       | = | $\frac{PSLXUSGpm}{1714}$                                 |
|                           | HP       | = | $\frac{PSI \times C.IN/REV \times RPM}{1714 \times 231}$ |
|                           | HP       | = | $\frac{IN/LBS \times RPM}{63025}$                        |
| <u>Pressure</u>           | PSI      | = | $\frac{HP \times 1714}{US GPM}$                          |
|                           | PSI      | = | $\frac{HP \times 1714 \times 231}{C.IN/REV \times RPM}$  |
| <u>Pump Displacement</u>  | C.IN/REV | = | $\frac{HP \times 1714 \times 231}{PSI \times RPM}$       |
| <u>Flow Rate</u>          | US GPM   | = | $\frac{HP \times 1714}{PSI}$                             |
| <u>Torque</u>             | IN/LBS   | = | $\frac{HP \times 63025}{RPM}$                            |
|                           | IN/LBS   | = | $\frac{PSI/C.IN/REV}{2 \times \pi}$                      |
| <u>Speed</u>              | RPM      | = | $\frac{HP \times 63025}{IN/LBS}$                         |
| <u>Motor Displacement</u> | C.IN/REV | = | $\frac{IN/LBS \times 2 \times \pi}{PSI}$                 |

\*\*\*\*\*

|                       |       |   |  |
|-----------------------|-------|---|--|
| Area of a circle      |       | = | $\frac{\pi D^2}{4}$                              |
| Where                 | $\pi$ | = | 3.1416   |
|                       | D     | = | Diameter   |
| Cylinder Displacement |       | = | (Piston Area x Stroke x 2) – (Rod Area x Stroke) |