

Ecuaciones para bombas y Motores:

$$\text{Caudal (lts/min)} = \frac{n \text{ (RPM)} \times \text{Cilindrada (cm}^3\text{/rev)}}{1000}$$

$$\text{Caudal (GMP)} = \frac{n \text{ (RPM)} \times \text{Cilindrada (in.}^3\text{)}}{231}$$

$$\text{Cilindrada (cm}^3\text{/rev)} = \frac{\text{Caudal (lts/min)} \times 1000}{n \text{ (RPM)}}$$

$$\text{N}^\circ \text{ de vueltas (RPM)} = \frac{\text{Caudal (lts/min)} \times 1000}{\text{Cilindrada (cm}^3\text{/rev)}} = \frac{\text{Caudal (GMP)} \times 231}{\text{Cilindrada (in.}^3\text{)}}$$

$$\text{Potencia (HP)} = \frac{\text{Presión (PSI)} \times \text{Caudal (GMP)}}{1714} = \frac{\text{Presión (bar)} \times \text{Caudal (lts/min)}}{450}$$

$$\text{Potencia (KW)} = \frac{\text{Presión (bar)} \times \text{Caudal (lts/min)}}{600}$$

$$\text{Presión (PSI)} = \frac{\text{Potencia (HP)} \times 1714}{\text{Caudal (GMP)}}$$

$$\text{Presión (bar)} = \frac{\text{Potencia (HP)} \times 450}{\text{Caudal (lts/min)}} = \frac{\text{Potencia (KW)} \times 600}{\text{Caudal (lts/min)}}$$

$$\text{Caudal (lts/min)} = \frac{\text{Potencia (HP)} \times 450}{\text{Presión (bar)}}$$

$$\text{Caudal (GMP)} = \frac{\text{Potencia (HP)} \times 1714}{\text{Presión (PSI)}}$$

Ecuaciones para Motores:

$$\text{Torque (daNm)} = \frac{\Delta \text{ (bar)} \times \text{Cilindrada (cm}^3\text{/rev)}}{628}$$

$$\text{Cilindrada (cm}^3\text{/rev.)} = \frac{\text{Torque (da Nm)} \times 628}{\Delta \text{ (bar)}}$$

$$\text{Potencia entregada (HP)} = \frac{\text{Torque (kgm)} \times n \text{ (RPM)}}{716,2}$$

$$\text{Torque (Kgm)} = \frac{\text{Potencia (HP)} \times 716,2}{n \text{ (RPM)}}$$

$$\text{N}^\circ \text{ de vuelta (RPM)} = \frac{\text{Potencia (HP)} \times 716,2}{\text{Torque (Kgm)}}$$

Ecuaciones para Cilindros Hidráulicos:

$$\text{Área del pistón (cm}^2\text{)} = \pi \times r_1^2$$

$$\text{Área del vástago (cm}^2\text{)} = \pi \times r_2^2$$

$$\text{Área diferencial (cm}^2\text{)} = (\pi \times r_1^2) - (\pi \times r_2^2)$$

$$\text{Fuerza de empuje (Kg)} = p \cdot (\pi \times r_1^2)$$

$$\text{Fuerza de tiro (Kg)} = p \cdot (\pi \times r_1^2) - (\pi \times r_2^2)$$

$$\text{Caudal necesitado (lts/min)} = \frac{\text{Vol} \times 60}{t}$$

$$\text{Velocidad (m/seg)} = \frac{\text{caudal (lts/min)} \cdot 10}{\text{área (cm}^2\text{)} \cdot 60}$$