

$$\begin{aligned}
 D_2 &= D_1 \times (\text{GPM}_2 / \text{GPM}_1) \\
 \text{RPM}_2 &= (\text{GPM}_2 / \text{GPM}_1) \times \text{RPM}_1 \\
 H_2 &= (\text{RPM}_2 / \text{RPM}_1)^2 \times H_1 \\
 H_2 &= (D_2 / D_1)^2 \times H_1 \\
 H_2 &= (\text{GPM}_2 / \text{GPM}_1)^2 \times H_1 \\
 \text{BHP}_2 &= (\text{RPM}_2 / \text{RPM}_1)^3 \times \text{BHP}_1 \\
 \text{BHP}_2 &= (D_2 / D_1)^3 \times \text{BHP}_1 \\
 \text{BHP}_2 &= (\text{GPM}_2 / \text{GPM}_1)^3 \times \text{BHP}_1
 \end{aligned}$$

PUMP LAWS

$$\begin{aligned}
 \text{CFM}_2 &= \text{CFM}_1 \times (\text{RPM}_2 / \text{RPM}_1) \\
 \text{CFM}_2 &= \text{CFM}_1 \times (D_2 / D_1) \\
 \text{SP}_2 &= \text{SP}_1 \times (\text{CFM}_2 / \text{CFM}_1)^2 \\
 \text{BHP}_2 &= \text{BHP}_1 \times (\text{CFM}_2 / \text{CFM}_1)^3
 \end{aligned}$$

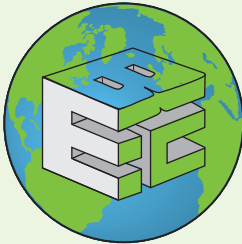
FAN LAWS

$$\begin{aligned}
 1 \text{ gal H}_2\text{O} &= 8.33 \text{ lbs.} \\
 1 \text{ ft}^3 \text{ H}_2\text{O} &= 62.5 \text{ lbs.} = 7.45 \text{ gal.} \\
 1 \text{ BoHP} &= 33,400 \text{ BTU/HR} = \frac{\text{HR}}{33.4 \text{ lbs.} \cdot 5 \text{ ftm}}
 \end{aligned}$$

CONVERSION FACTORS

$$\begin{aligned}
 \text{CFLA} &= \frac{\text{Measures Volts}}{\text{NPFLA} \times \text{NP Volts}} \\
 \% \text{OA} &= 100 \times [(T_{\text{RA}} - T_{\text{OA}}) / (T_{\text{RA}} - T_{\text{OA}})] \\
 \text{MAT} &= [(\% \text{OA} \times T_{\text{OA}}) + (\% \text{RA} \times T_{\text{RA}})] / 100 \\
 \text{Fan BHP} &= \frac{\text{Fan Eff.} \times 6356}{\text{Pump Eff.} \times 3960} \\
 \text{Pump BHP} &= \frac{\text{GPM} \times \text{Head (ft)}}{\text{CFM} \times \text{Fan S.P. (Total)}} \\
 \text{Tons} &= \frac{24}{\text{GPM} \times \Delta T \text{ (Chilled H}_2\text{O)}}
 \end{aligned}$$

USEFUL FORMULAE



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sustainability