Formules

$$\omega_m = n_m \cdot \frac{2\pi}{60}$$
$$P_m = \omega_m \tau_m$$

$$\tau_b = b\omega_m$$

$$\begin{aligned}\mathbf{S} &= \mathbf{V}\mathbf{I}^* \\ &= VI\cos\theta - jVI\sin\theta \\ &= P + jQ\end{aligned}$$

$$\begin{aligned}\phi &= BA \\ B &= \mu H \\ \mu &= \mu_0 \mu_r \\ \mu_0 &= 4\pi \times 10^{-7}\ \mathrm{H/m}\end{aligned}$$

$$\begin{aligned}\mathcal{F} &= Ni \\ \phi &= \frac{\mathcal{F}}{\mathcal{R}} \\ \mathcal{R} &= \frac{\ell}{\mu A}\end{aligned}$$

$$L = \frac{N^2}{\mathcal{R}}$$

$$e = \frac{N d\phi}{dt}$$

$$\begin{aligned}\mathbf{F} &= i(\mathbf{l} \times \mathbf{B}) \\ F &= i\ell B\end{aligned}$$

$$\begin{aligned}e_{\text{ind}} &= (\mathbf{v} \times \mathbf{B}) \cdot \mathbf{l} \\ e_{\text{ind}} &= v\ell B\end{aligned}$$

$$\begin{aligned}E_A &= K\phi\omega_m \\ \tau_{\text{ind}} &= K\phi I_A\end{aligned}$$

Formulas

$$P_{\text{conv}} = E_A I_A = \tau_{\text{ind}} \omega_m$$

$$n_{sm} = f_{se} \cdot 60 \cdot \frac{2}{\text{poles}}$$

$$\tau_{\text{ind}} = k\mathbf{B}_R \times \mathbf{B}_{\text{net}}$$

$$P_{\text{conv}} = \frac{3V_\phi E_A}{X_S} \sin\delta$$

$$\eta = \frac{P_{out}}{P_{in}} \times 100\%$$

$$\begin{aligned}\text{SR} &= \frac{n_{\text{m,nl}} - n_{\text{m,fl}}}{n_{\text{m,fl}}} \times 100\% \\ \text{VR} &= \frac{V_{\text{nl}} - V_{\text{fl}}}{V_{\text{fl}}} \times 100\%\end{aligned}$$

$$\begin{aligned}S_{3\phi,\text{base}} &= S_{3\phi,\text{rated}} \\ S_{1\phi,\text{base}} &= \frac{S_{3\phi,\text{base}}}{3} \\ V_{1\phi,\text{base}} &= \frac{V_{L,\text{rated}}}{\sqrt{3}} \\ I_{1\phi,\text{base}} &= \frac{S_{1\phi,\text{base}}}{V_{1\phi,\text{base}}} \\ Z_{\text{base}} &= \frac{V_{1\phi,\text{base}}}{I_{1\phi,\text{base}}}\end{aligned}$$

$$s = \frac{n_{\text{sync}} - n_m}{n_{\text{sync}}}$$

$$P_{\text{load|max}} \quad \text{when} \quad |\mathbf{Z}_{th}| = R_{load}$$

$$\begin{aligned}V_T &= DVs \\ V_T &= (2D-1)V_s\end{aligned}$$