

The base vector control equations:

$$m_m = \frac{3}{2} \cdot z_p \cdot \frac{L_m^2}{L_r} \cdot \Psi_{rd} \cdot i_{sq}$$

Motor Torque

Pole Pairs

Coupling Inductance

Rotor Flux

Torque producing stator current

Rotor Inductance

$$\Psi_{rd} = i_{sd} \cdot L_m \cdot (1 - e^{-t/T_r})$$

Rotor time base

Flux producing stator current

$$T_r = \frac{I_{sqN}}{\omega_{rN} \cdot I_{sdN}} \cdot 1.4$$

Nominal Slip

Nominal Field producing current I_{sd} (P117)

$$I_{sdN} = I_N \cdot \sqrt{1 - \cos \phi}$$

Nominal torque producing current I_{sq}

$$I_{sqN} = \sqrt{I_N^2 - I_{sdN}^2}$$

$$I_{sdN} = 34A = 98A \cdot \sqrt{1 - 0.88}$$