PU Bases used in EMTP-EMTPWorks for the asynchronous machine model

The base quantities with rms value of a p-pole, three phase induction machine with rated line-to-line rms voltage V_{rated}, rated value of angular frequency ω_b, and rated volt-ampere S_{rated}, are as follows :

- RMS line-to-line base voltage $V_b = V_{rated}$
- Base volt-ampere $S_b = S_{rated}$
- RMS Base current $I_b = \frac{S_b}{\sqrt{3}V_b}$
- Base impedance $Z_b = \frac{V_b^2}{S_b} = \frac{V_b}{\sqrt{3}\ I_b}$
- Base torque $T_b = \frac{p}{2}\frac{S_b}{\omega_b}$
- RMS Base flux $\Psi_b = \frac{V_b}{\omega_b}$

The voltage rating is line-to-line for wye-connections. For delta-connections it is necessary to multiply this voltage by $\sqrt{3}$ to assure that the base impedance Z_b is 3 times larger than in the wye-connection.