List of symbols

$\bar{R}_i$ = Estimated value of resistance,

$c$ = Speed of light,

$\cos \phi$ = Power factor,

$f_e^*$ = External command frequency,

$f_R$ = Rated Value of line frequency,

$f_R$ and $f_e$ are the rated and line frequency in Hertz,

$l_0$ = No load current,

$I_1$ = Stator current (A),

$I_{im}$ = real component of rms stator current,

$I_2$ = Rotor current (A),

$I_2'$ = Rotor current referred to stator (A),

$I_m$ = Magnetizing branch current (A),

$\text{Im}(Z)$ = Imagery part of $Z$,

$I_p$ = peak value of current in ampere,

$I_n$ = Rated Value of stator current,

$I_s$ = rms current,

$L_2$ = Rotor leakage inductance referred to stator (H),

$L_c$ = Crucial length of cable,

$L_s$ = Stator leakage inductance (H),

$N$ = Rotor speed in rps

$P$ = Ohmic loss in watts,

$P_0$ = No load input power, $P_0$ and $l_0$ is no load input and current.

$P_{in}$ = Power input to the motor (W),

$P_{out}$ = Power output of the motor (W),

$P_R$ = Rated Value of power input.
\( \text{Re}(Z) = \text{Real part of } Z, \)

\( R_{fe} = \text{Magnetizing resistance (} \Omega \text{)}, \)

\( R_{fe} = \text{Resistance corresponds to core loss}, \)

\( R_l = \text{Load resistance}, \)

\( R_r = \text{Rotor resistance}, \)

\( R_s, R_2 = \text{Rotor resistance (} \Omega \text{)}, \)

\( R_s = \text{Stator resistance (} \Omega \text{)}, \)

\( R_{st} = \text{Stator winding resistance per phase}, \)

\( s = \text{Slip}, \)

\( S_R = \text{Rated Value of slip}, \)

\( t = \text{Temperature}, \)

\( T_g = \text{Gross torque developed by the motor}. \)

\( T_g = \text{Gross torque}, \)

\( T_R = \text{Rated Value of torque}. \)

\( t_{rise} = \text{Rise time of inverter's voltage pulses}, \)

\( U_{AV} = \text{Energy stored in magnetic field in Joules}, \)

\( v = \text{Wave velocity}, \)

\( V_0 = \text{No load voltage}, \)

\( V_{IR} = \text{Base (rated) rms phase voltage at base frequency}, \)

\( V_s = \text{Supply voltage (V)}, \)

\( X_m = \text{Magnetising branch reactance}, \)

\( X_m = \text{Magnetizing reactance (} \Omega \text{)}, \)

\( X_r = \text{Rotor leakage reactance (} \Omega \text{)}, \)

\( X_r = \text{Rotor reactance}, \)

\( X_s = \text{Stator leakage reactance (} \Omega \text{)}, \)

\( X_s = \text{Stator winding leakage reactance per phase}, \)

\( Y_t = \text{Actual (or observed) value of the random variable in period } t, \)

\( Y_t^* = \text{Estimated value of the random variable in period } t, \)
$Z = \text{Total impedance of motor circuit under blocked rotor condition,}$

$Z_0 = \text{Magnetizing Impedance (Ω),}$

$Z_{eq} = \text{Equivalent Impedance of the motor (Ω),}$

$Z_r = \text{Rotor Impedance (Ω),}$

$\varepsilon_0 = \text{Permittivity of free space,}$

$\varepsilon_r = \text{Relative permittivity of cable insulation material,}$

$E_t = \text{Random component (or noise) in period } t,$

$\eta_R = \text{Rated Value of efficiency,}$

$\omega = \text{Speed (radian per second),}$

$\rho = \text{Charge density,}$