List of symbols

$\widehat{R_1}$ = Estimated value of resistance,

c = Speed of light,

cos ϕ = 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,

I_0 = No load current,

I_1 = Stator current (A),

I_{1Re} = 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),

Im{Z} = Imagery part of Z,

I_p = peak value o current in ampere,

I_R = Rated Value of stator current,

I_s = rms current,

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

I_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 I_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,

$Re\{Z\}$ = Real part of Z,

R_{FE} = Magnetizing resistance (Ω),

R_{FE} = Resistance corresponds to core loss,

R_L = Load resistance,

R_r = Rotor resistance,

R_r, R_2 = Rotor resistance (Ω),

R_s = Stator resistance (Ω),

R_s = Stator winding resistance per phase,

s = Slip,

S_R = Rated Value of slip,

t = Temperature,

T_g = Gross torque developed by the motor.

T_g = Gross torque,

T_R = Rated Value of torque.

t_{rise} = Rise time of inverter's voltage pulses,

U_{AV} = Energy stored in magnetic field in Joules,

v = Wave velocity,

V_0 = No load voltage,

V_{1R} = Base (rated) rms phase voltage at base frequency,

V_s = Supply voltage (V),

X_m = Magnetising branch reactance,

X_m = Magnetizing reactance (Ω),

X_r = Rotor leakage reactance (Ω),

X_r = Rotor reactance,

X_s = Stator leakage reactance (Ω),

X_s = Stator winding leakage reactance per phase,

Y_t = Actual (or observed) value of the random variable in period *t*,

Y_t^* = Estimated value of the random variable in period *t*,

Z = Total impedance of motor circuit under blocked rotor condition,

Z_0 = Magnetizing Impedance (Ω),

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

Z_r = Rotor Impedance (Ω),

ε_0 = Permittivity of free space,

ε_r = Relative permittivity of cable insulation material,

ϵ_t = Random component (or noise) in period t,

η_R = Rated Value of efficiency,

ω = Speed (radian per second),

ρ= Charge density,