

**NEW
ELEC**

MOTOR PROTECTION & CONTROL TECHNOLOGY

Useful Electrical Formulae

A South African Company to be Proud of

A South African Company to be Proud of

$$\text{active kW} = \text{kVA} \times \text{PF} \text{ or } \frac{\text{line amps} \times \text{line volts} \times 1,732 \times \text{PF}}{1000}$$

$$\text{rated kW} = \text{kVA} \times \text{PF} \times \text{eff} \text{ or } \frac{\text{line amps} \times \text{line volts} \times 1,732 \times \text{PF} \times \text{eff}}{1000} \text{ or } \text{HP} \times 0,746$$

$$\text{rated Hp} = \frac{\text{active kW} \times \text{eff}}{0,746} \text{ or } \frac{\text{line amps} \times \text{line volts} \times 1,732 \times \text{PF} \times \text{eff}}{746}$$

$$\text{apparent kVA} = \frac{\text{rated kW}}{\text{eff} \times \text{PF}} \text{ or } \frac{\text{HP} \times 0,746}{\text{eff} \times \text{PF}} \text{ or } \frac{\text{line amps} \times \text{line volts} \times 1,732}{1000}$$

$$\text{line amps} = \frac{\text{rated kW} \times 1000}{\text{line volts} \times 1,732 \times \text{PF} \times \text{eff}} \text{ or } \frac{\text{rated HP} \times 746}{\text{line volts} \times 1,732 \times \text{PF} \times \text{eff}}$$

$$\text{rated torque (Nm)} = \frac{9,55 \times \text{rated kW} \times 1000}{\text{rated speed of motor (r/min)}}$$

$$\text{rated kW} = \frac{\text{rated torque (Nm)} \times \text{rated speed of motor (r/min)}}{9,55 \times 1000}$$

$$\text{rated slip \%} = \left[\frac{\text{synchronous speed minus rated speed}}{\text{synchronous speed}} \right] \times 100$$

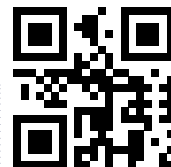
$$\text{starting time (s)} = \frac{\text{total inertia kg m}^2 \text{ (WR}^2\text{)} \times \text{working speed (r/min)}}{9,55 \times \text{mean acceleration torque (Nm)}}$$

$$\text{synch. speed (r/min)} = \frac{\text{frequency (Hz)} \times 60}{\text{number of pairs of poles}}$$

PF : Power Factor
eff : Efficiency
rated kW : Mechanical power delivered by motor shaft
active kW : Input power

NEW ELEC

MOTOR PROTECTION & CONTROL TECHNOLOGY



Certificate Number : 8707QM5001

Physical Address: 298 Soutter Street, Pretoria West

Tel: 083 454 6949, +27 12 327 1729 Fax: +27 (0)12 327 1733 Toll Assist: 0860 10 30 41

www.newelec.co.za sales@newelec.co.za