

ELECTRIC MOTORS

QUESTION

A motor with a 45kW rated capacity is drawing 30 kW of power at a given point of time. Calculate the motor loading at full load if the efficiency of the motor is 90%.

SOLUTION

Efficiency motor % = (Rated output at full load ÷ Rated input at full load) x 100

90 = (45 kW ÷ Rated input at full load) x 100

0.9 = 45 kW ÷ Rated input at full load

Rated input at full load = 45 kW / 0.9

Rated input at full load = 50 kW

Motor loading (%)

= (Measured kW ÷ Rated input kW) x 100

= (30 kW / 50 kW) x 100

= 60%