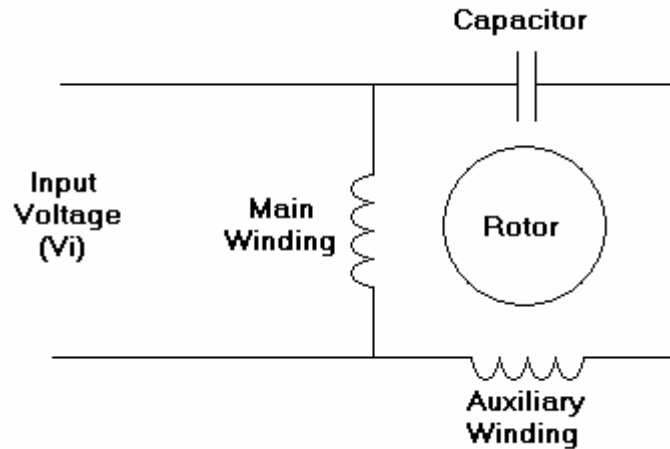


Motor Run



Voltage across the capacitor

The voltage across the capacitor can be estimated using the following formula:

$$V_c = V_i \cdot \sqrt{1+n^2} \quad (\text{Eqn 1})$$

Where V_i = input voltage.

n = turns ratio between the main winding and the secondary winding.

V_c = voltage across the capacitor.

Capacitor selection

When selecting a capacitor the capacitive reactance of the selected capacitor should be equal to the inductive reactance of the main winding under full load. Under no-load the power volt-amperes are approximately equal to the capacitive reactive-power.

$$V \cdot I_o = V_c^2 / X_c$$

Where V = no load voltage.

I_o = No current.

V_c = Voltage across capacitor.

X_c = Capacitive reactance.

Substituting Eqn 1 into the above you get

$$X_c = V(1+n^2)/I_o$$

and

$$X_c = 1/(2*\pi*f*C)$$

Or

$$C = I_o/[2*\pi*f*V*(1+n^2)]$$