

**SUPPLY CONDITIONS :**

Voltage	: 415 V $\pm$ 10%
Frequency	: 50 Hz $\pm$ 5%
Combined variation	: $\pm$ 10%
Ambient	: 50 <sup>o</sup> C
Duty	: S1
Insulation	: Class "F"
Protection (Enclosure)	: IP 55
Cooling	: IC 0141

**Effect of Voltage and Frequency Variation on the Characteristics of the Motor.**

A. C. Induction Motors				
Characteristics	Voltage		Frequency	
	110%	90%	105%	95%
Torque* Starting and Maximum running	Increase 21%	Decrease 19%	Decrease 10%	Increase 11%
Speed ** Synchronous Full Load Percent slip	No Change Increase 1% Decrease 17%	No Change Decrease 1.5% Increase 23%	Increase 5% Increase 5% Little Change	Decrease 5% Decrease 5% Little Change
Efficiency : Full Load 3/4 Load 1/2 Load	Increase 0.5 to 1% Little Change Decrease 1 to 2%	Decrease 2% Little Change Increase 1 to 2%	Slight Increase -do- -do-	Slight Decrease -do- -do-
Power Factor : Full Load 3/4 Load 1/2 Load	Decrease 3% Decrease 4% Decrease 5 to 6%	Increase 1% Increase 2 to 3% Increase 4 to 5%	-do- -do- -do-	-do- -do- -do-
Current : Starting Full Load	Increase 10 to 12% Decrease 7%	Decrease 10 to 12% Increase 11%	Decrease 5 to 6% Slight Increase	Slight decrease Slight Increase
Temperature rise	Decrease 3 to 4%	Increase 6 to 7%	-do-	-do-
Maximum overload capacity	Increase 21%	Decrease 19%	-do-	-do-
Magnetic noise	Slight Increase	Slight decrease	-do-	-do-

\* The starting and maximum running torque of A.C. induction motors will vary as the square of the voltage.

\*\* The speed of A.C. induction motors will vary directly with the frequency.