

Aim: V curves and inverted V curves Three phase Synchronous Motor

Apparatus:

Salient Pole Synchronous Motor

TPST Switch

Three -phase Auto Transformer

DPST Switch

- DC generator

- Resistive load bank

- Rheostat arrangement

- Voltmeter & Ammeter

Theory

Electromagnetic Devices require a magnetising current, which lags applied voltage by nearly 90° . A Synchronous motor is a double-excited machine, where the armature receives AC Supply AC Supply while the field winding is fed By DC.

At constant voltage, the resultant air gap flux remains unchanged and is established by both armature and field winding. If field current is just sufficient to maintain flux, the motor operates at unity power factor - this condition - this condition is called normal excitation

- Under - Excitation - Lagging power factor
- Over Excitation - Leading power factor

The V-curve represents how armature current varies with field current. The inverted V-curve shows the power factor's behaviour with changing excitation.