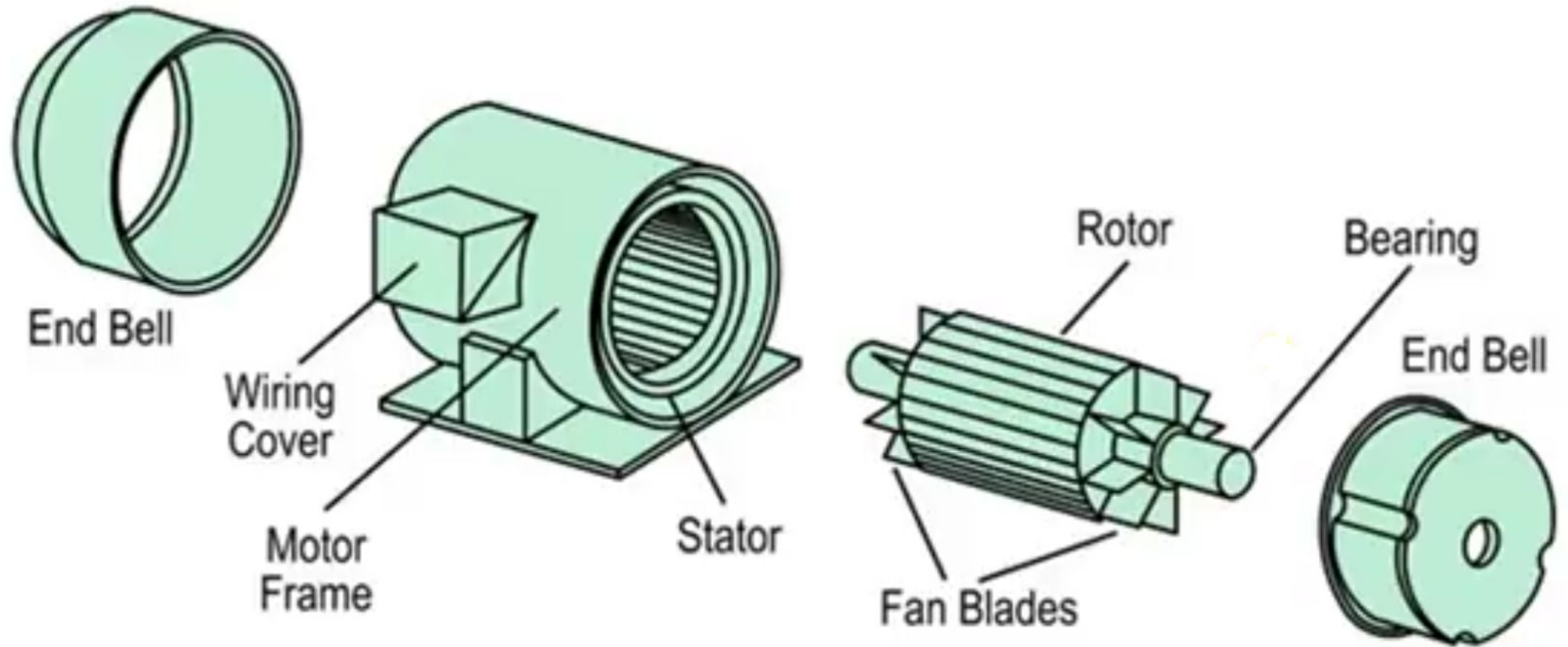


# 3 Phase Induction Motor

Prof. Vrishali Walanj

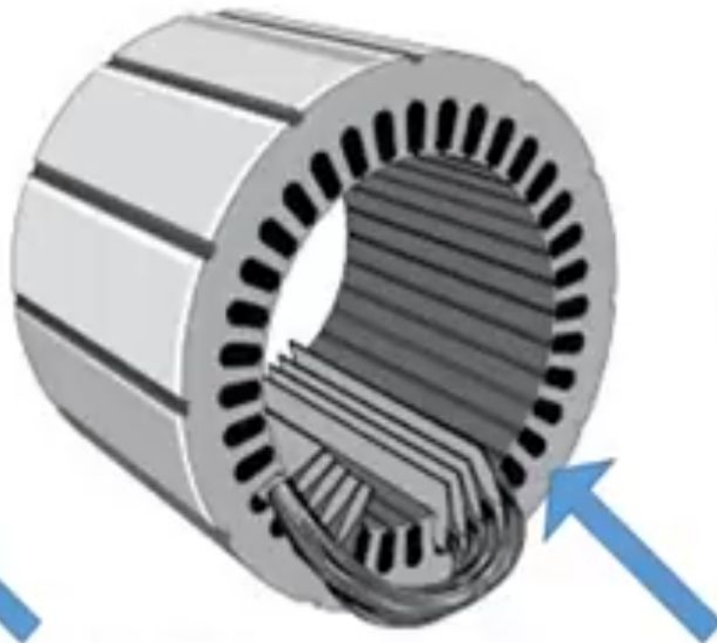
# Construction



# Stator



Frame



Stator core

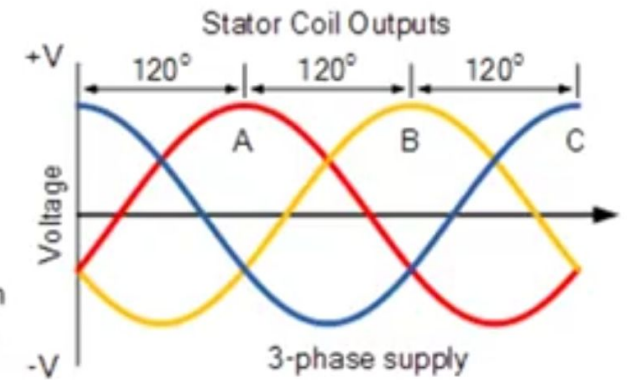
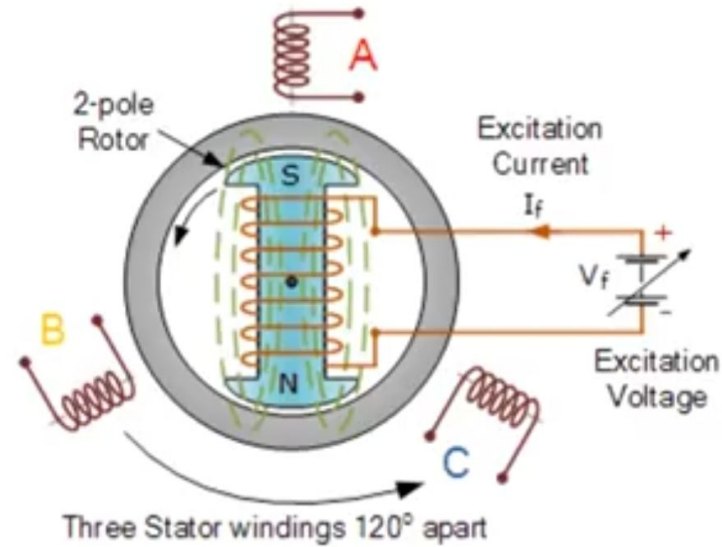
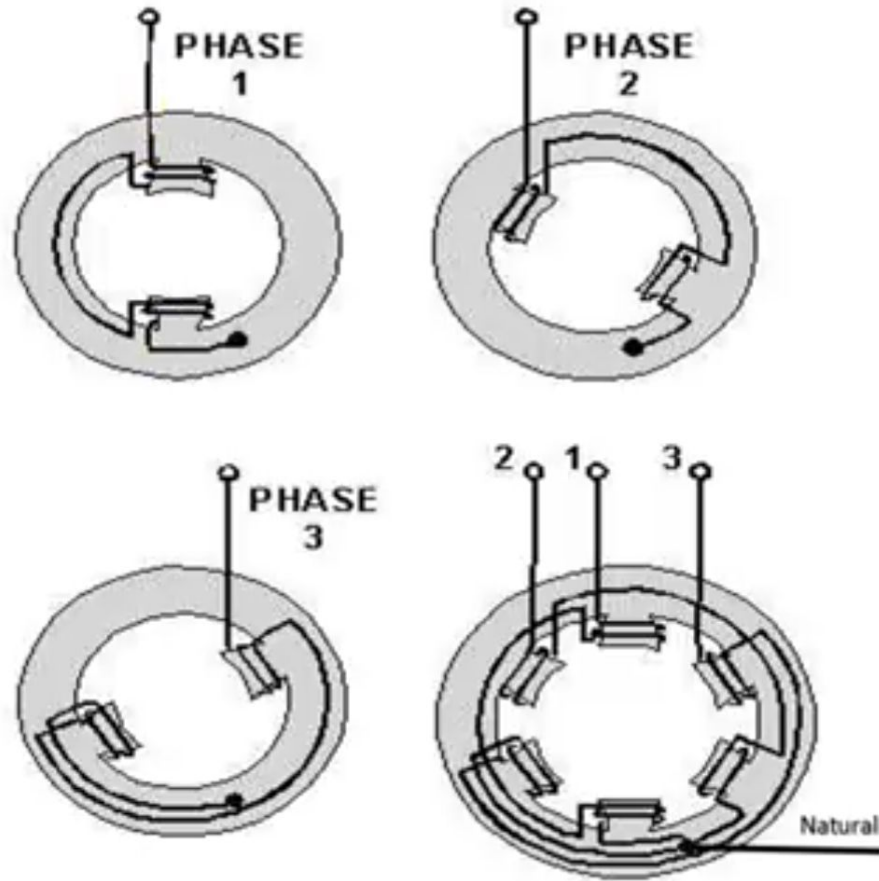


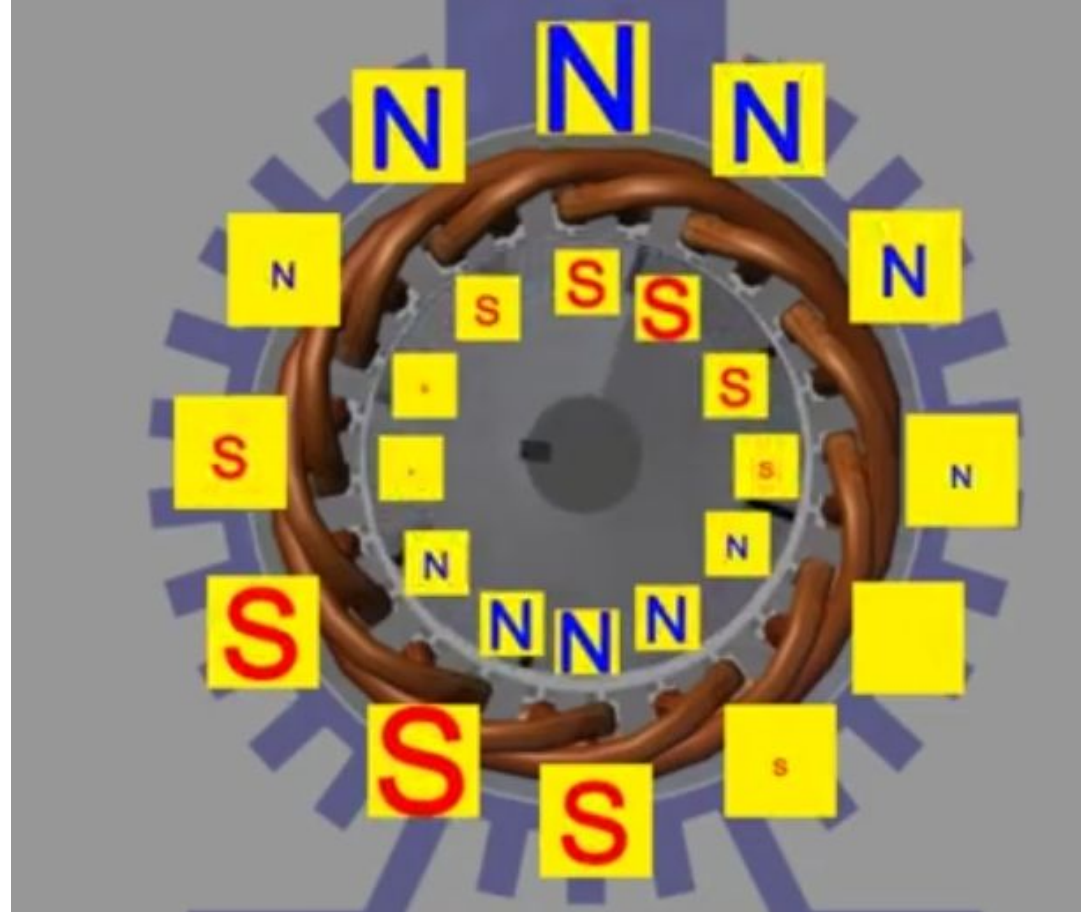
# Rotor

- Squirrel cage
- Slip ring

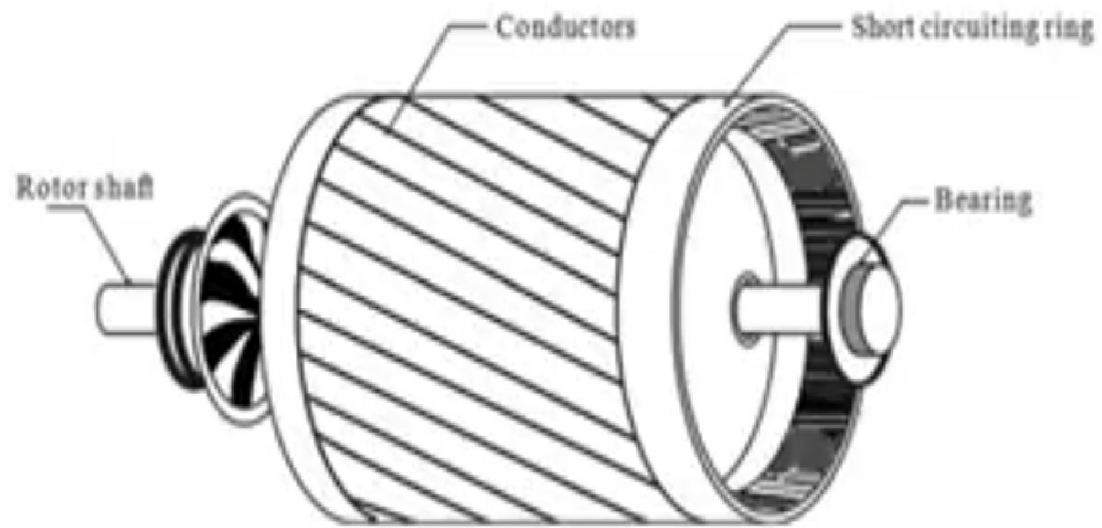


# Phase

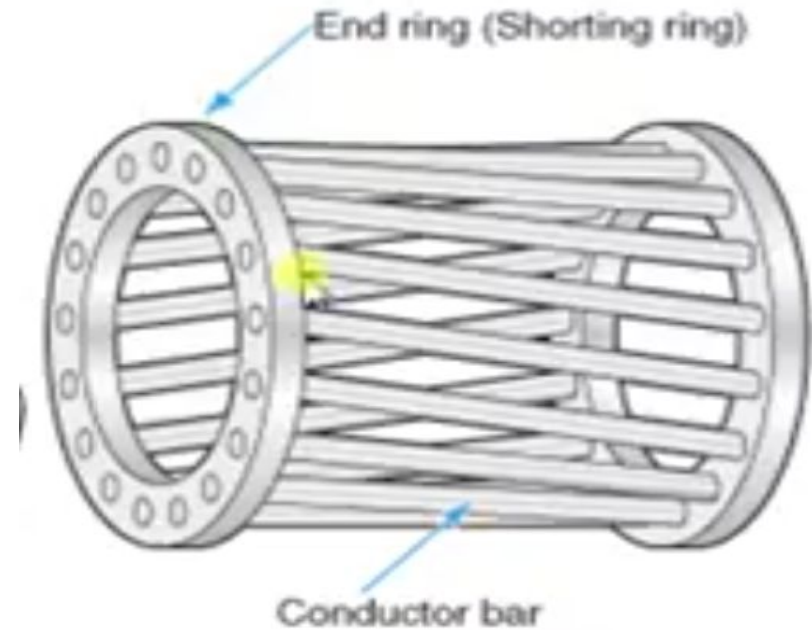




# Squirrel Cage rotor

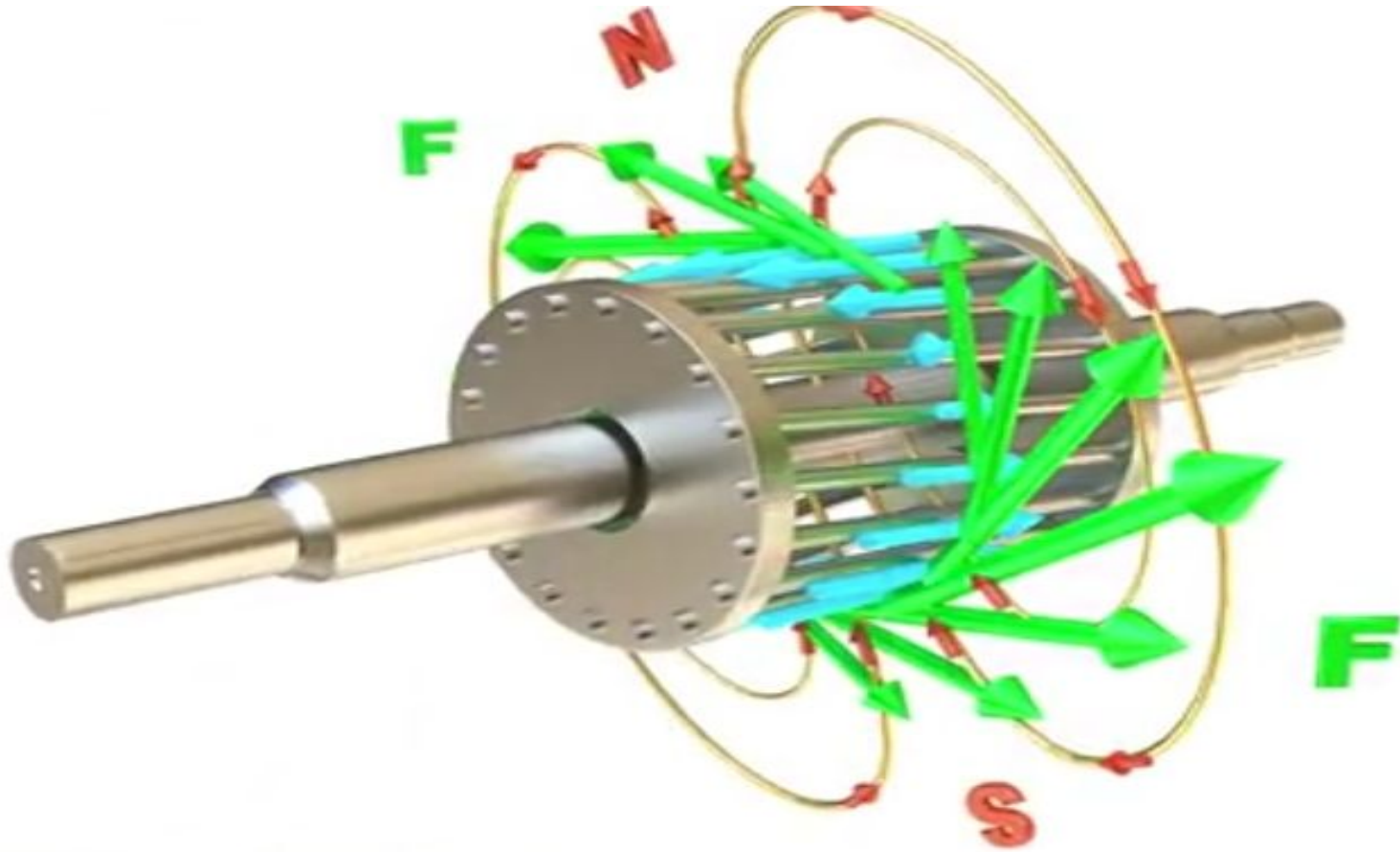


Rotor of Squirrel Cage Induction Motor

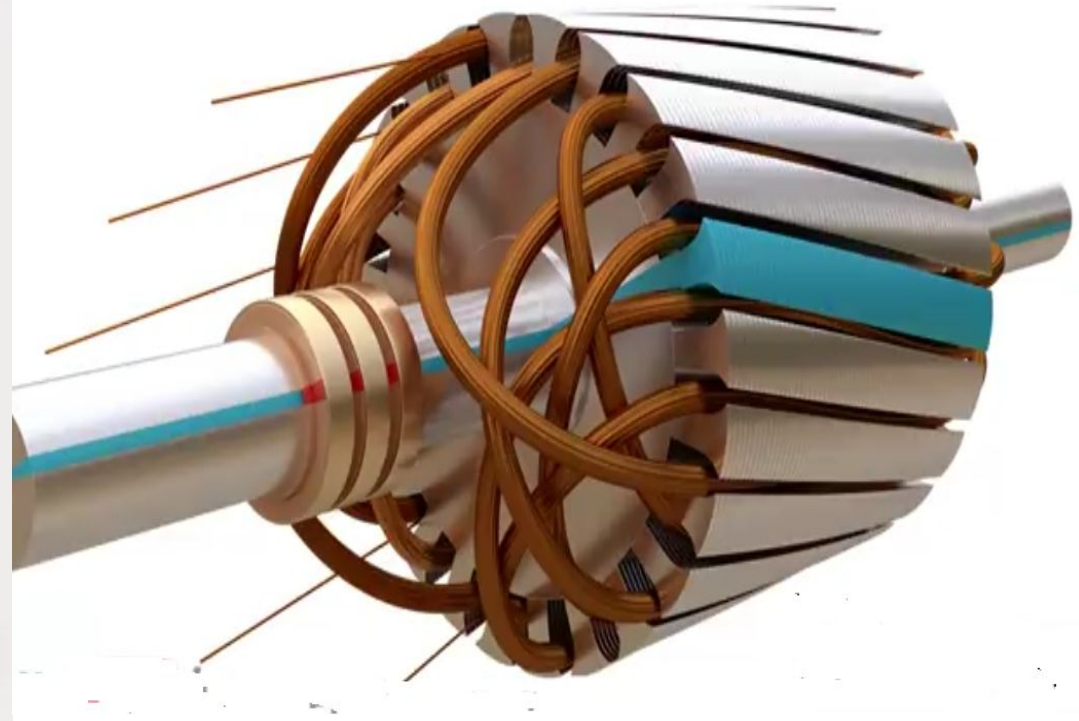
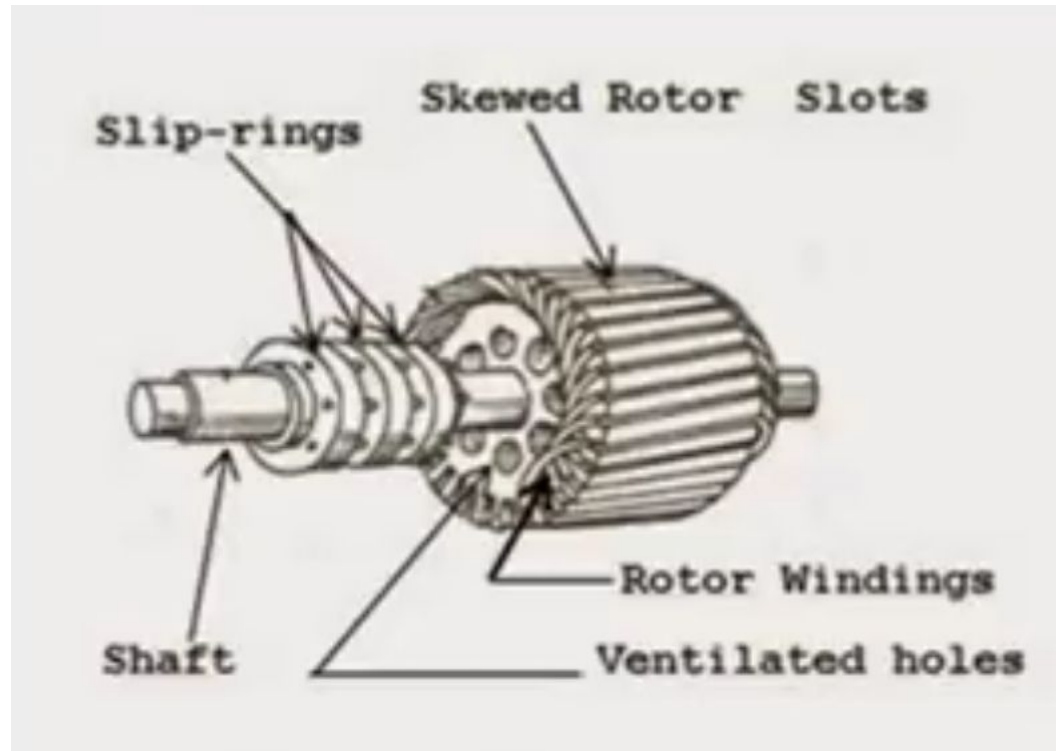


(b) Squirrel-cage conductor

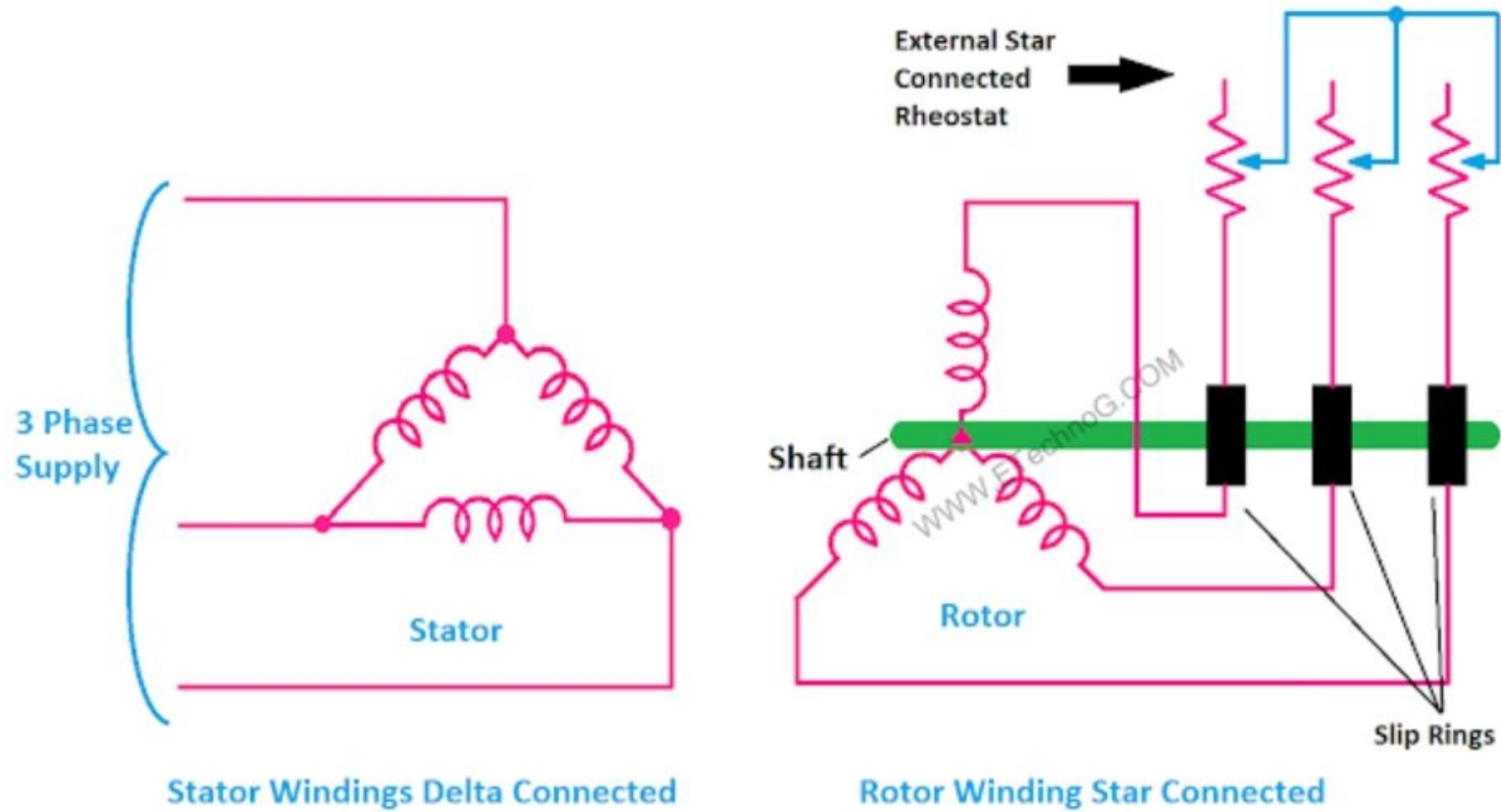
# Working



# Slip ring rotor



# Working

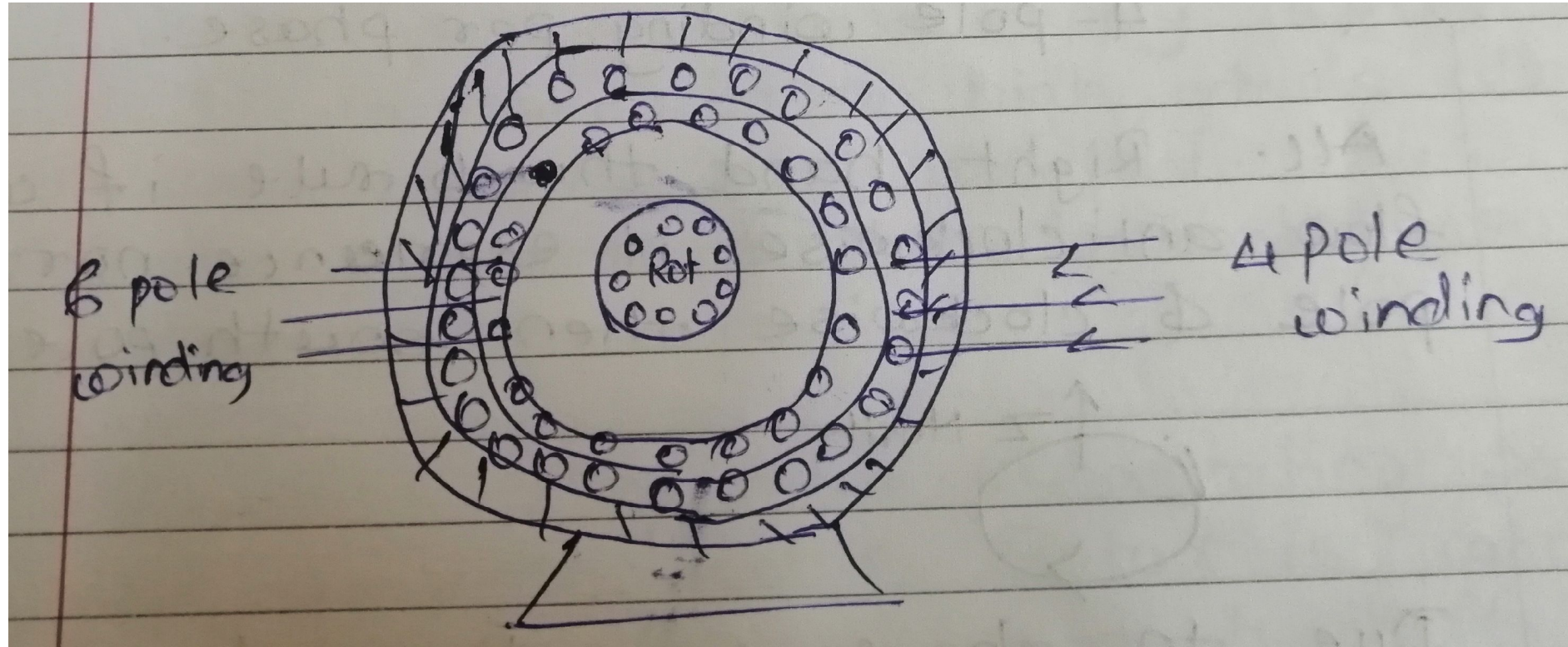


# Speed control methods

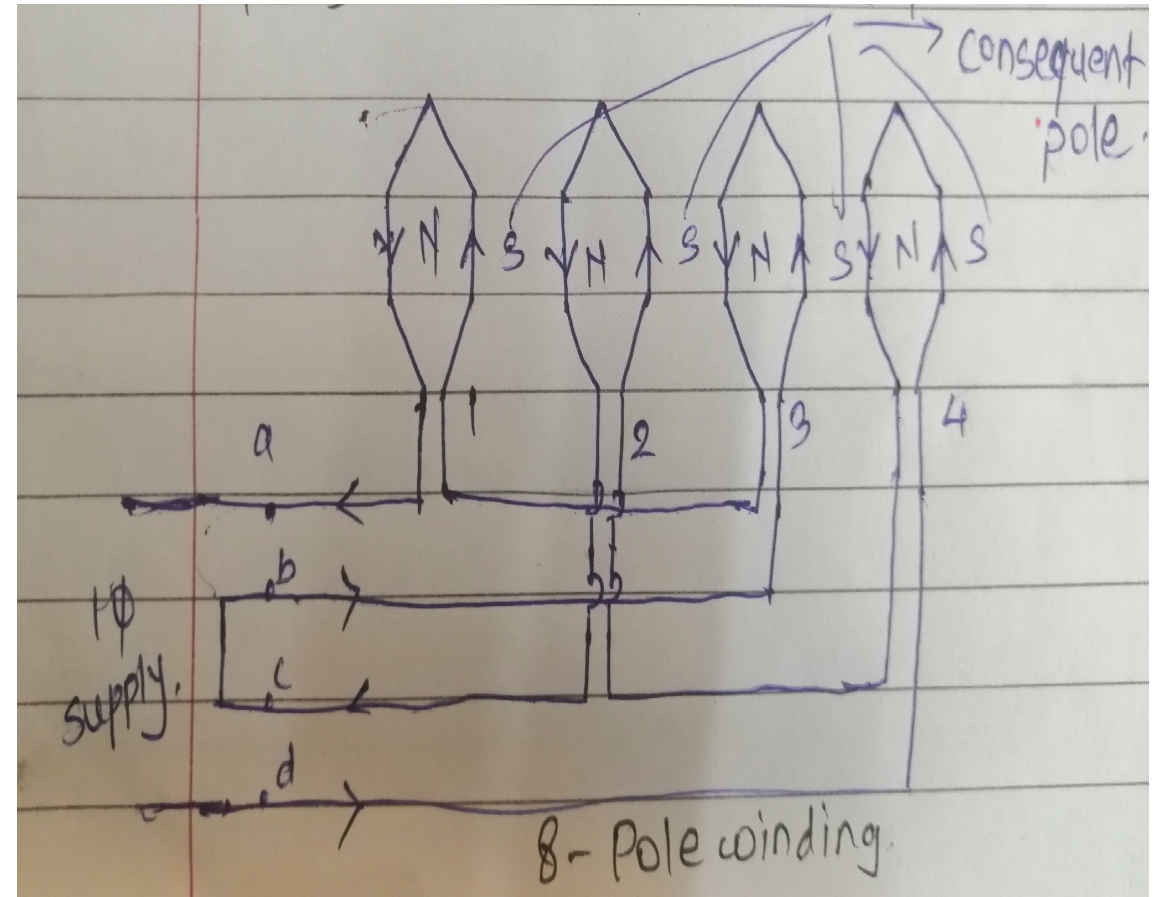
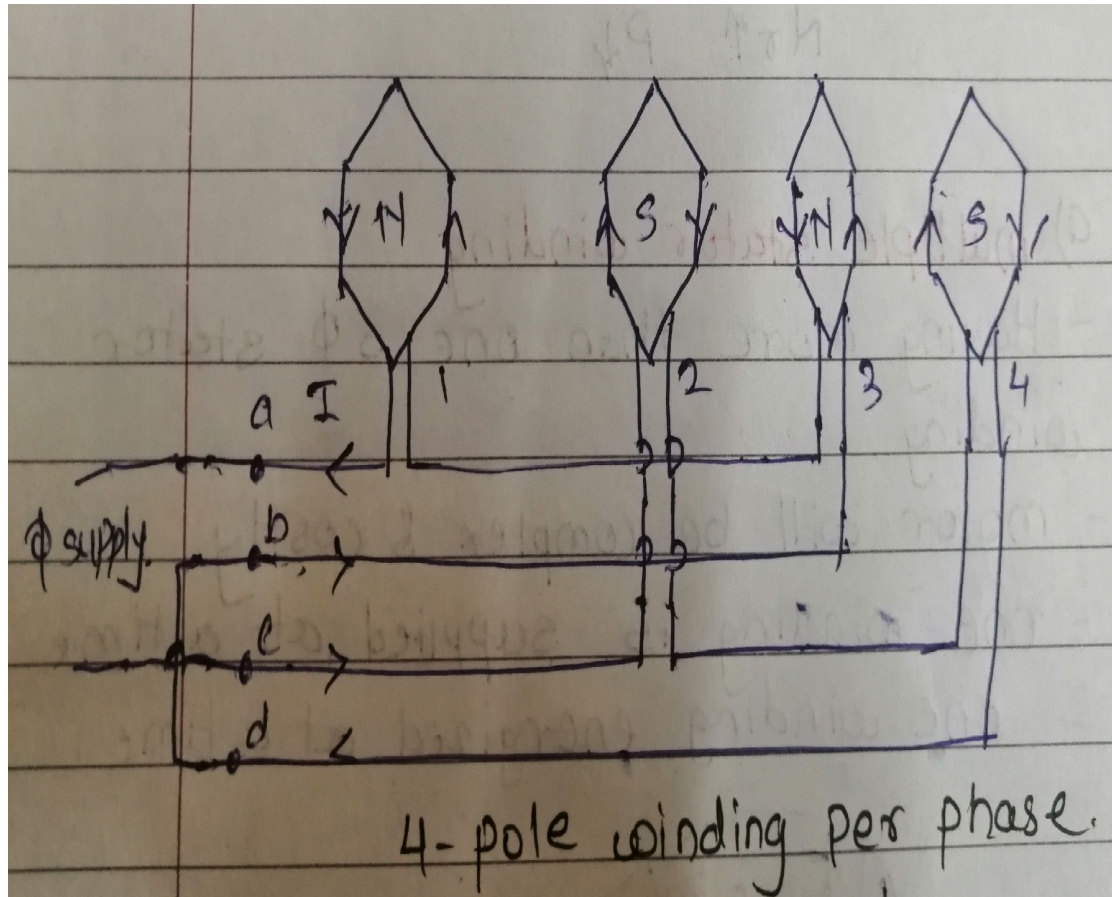
- Pole changing
- Stator voltage control
- Supply frequency control
- Rotor resistance control
- Slip energy recovery

# Pole changing method

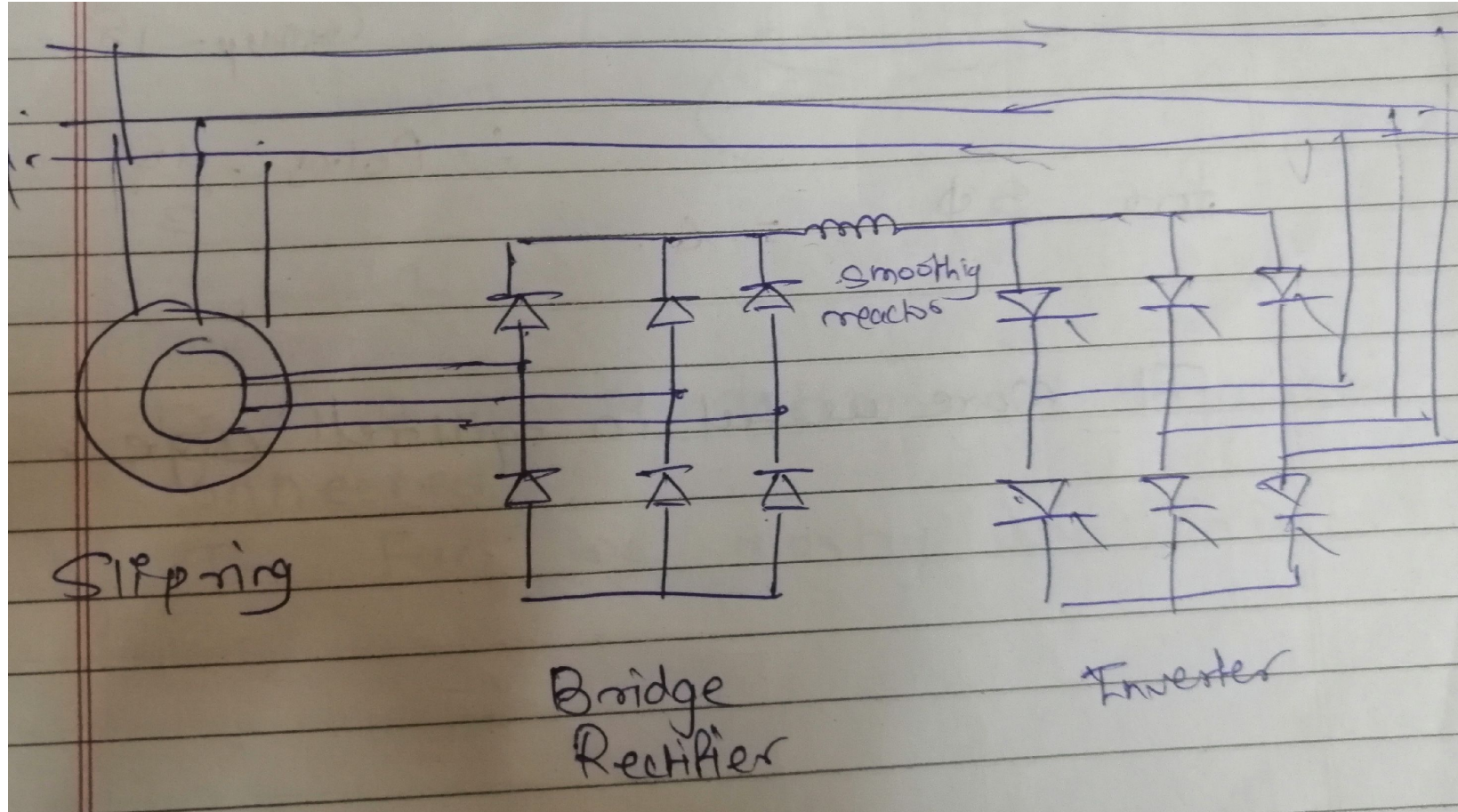
- a. Multiple stator winding
- b. Consequent poles



# Consequent pole



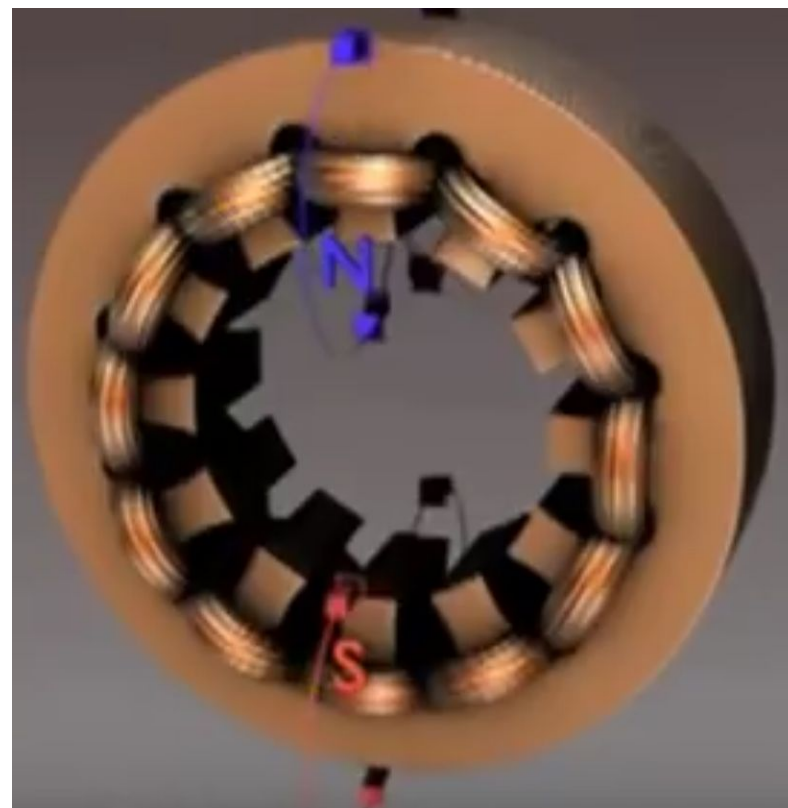
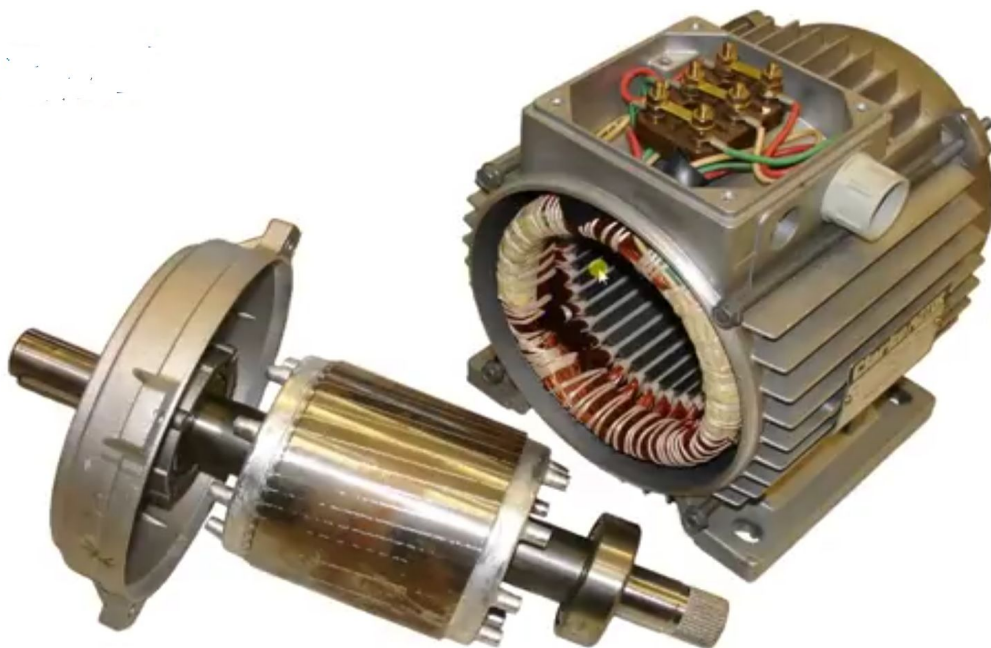
# Slip energy recovery



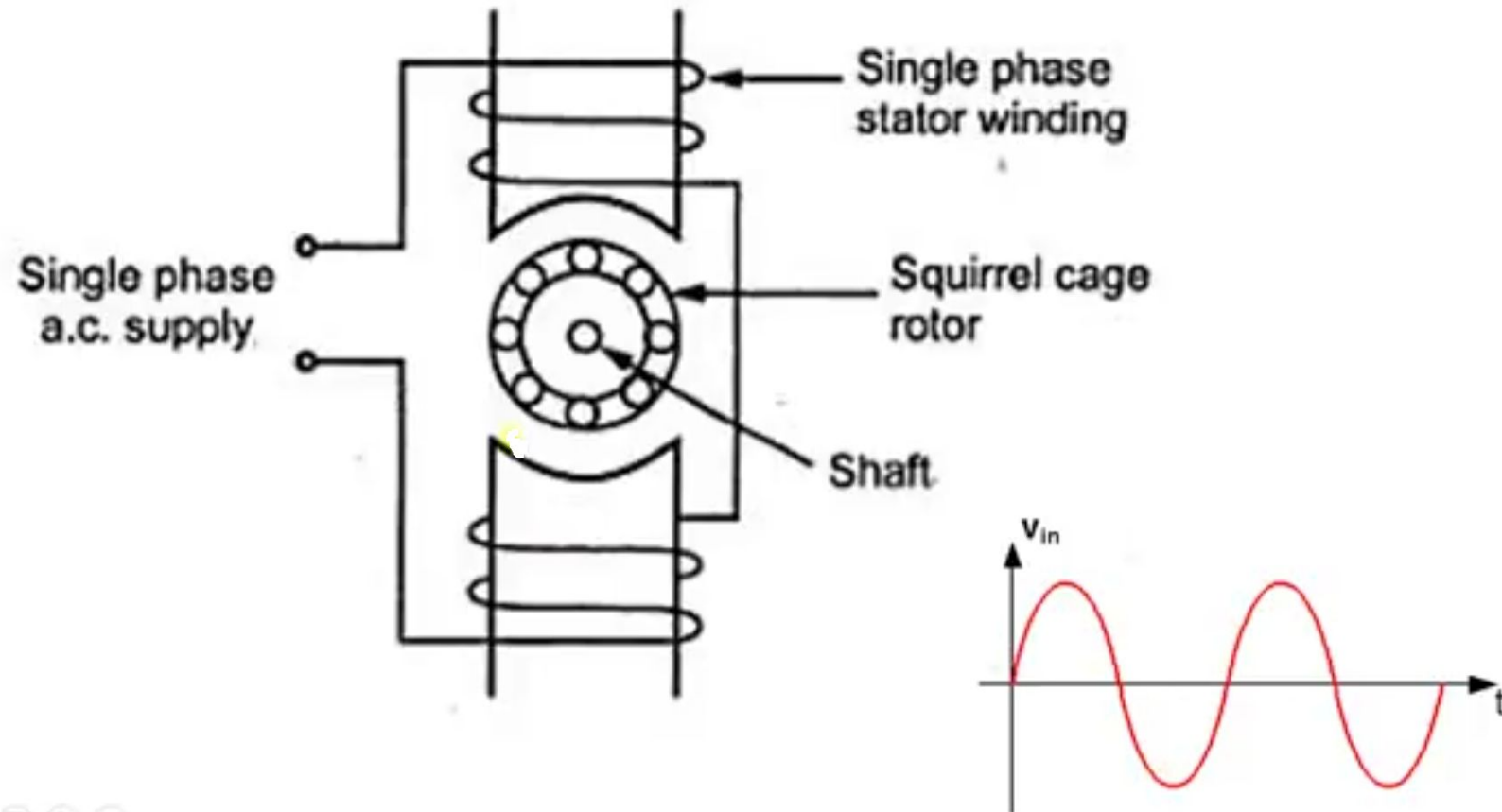
# Problem

- A 3 phase, 6 pole, 50hz induction motor has slip of 1 % at no load and 4% at full load calculate
  - a. No load speed
  - b. Full load speed
  - c. Synchronous speed
  - d. Frequency of rotor current at standstill
  - e. Frequency of rotor current at full load

# Single phase induction motor



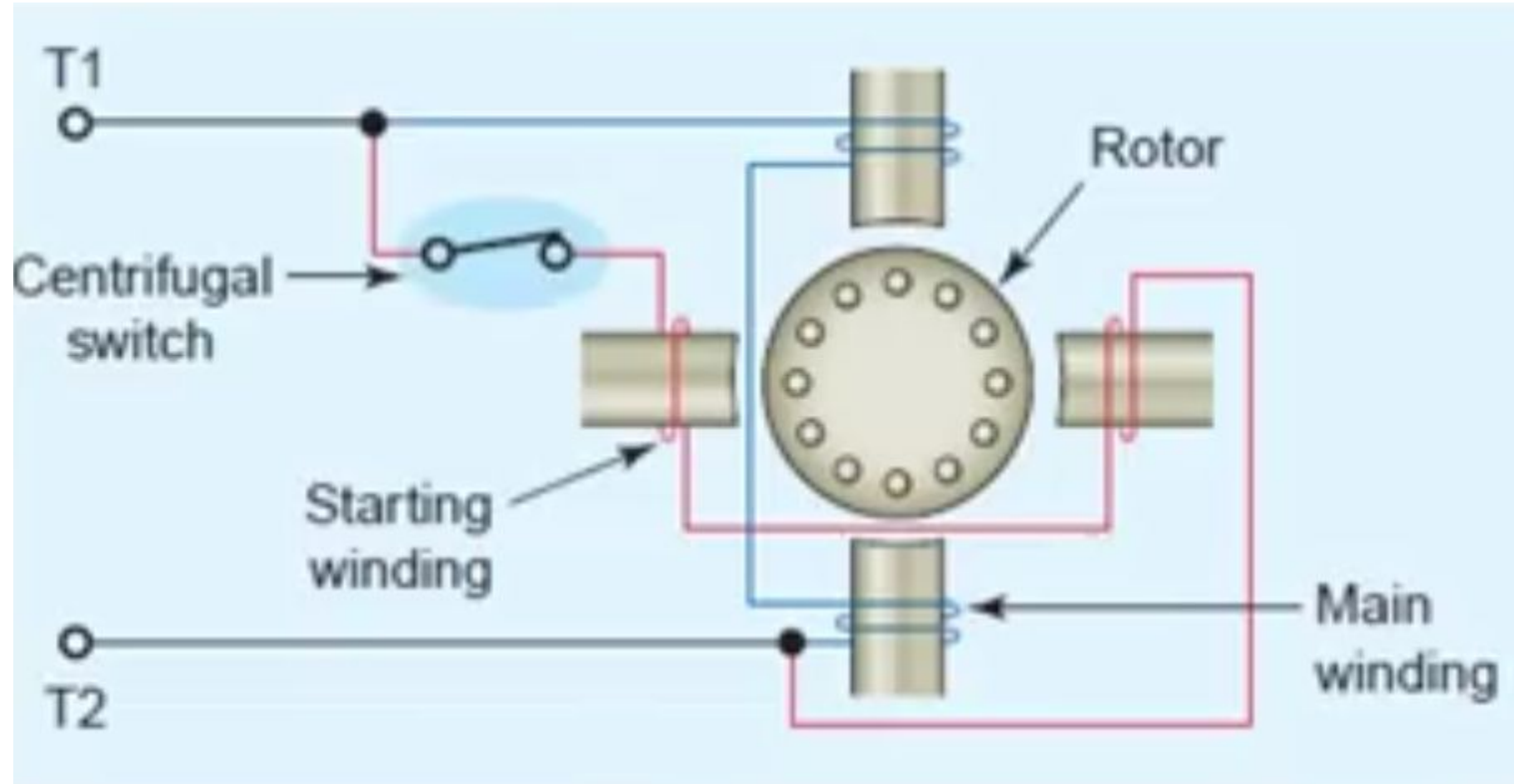
# Working principle



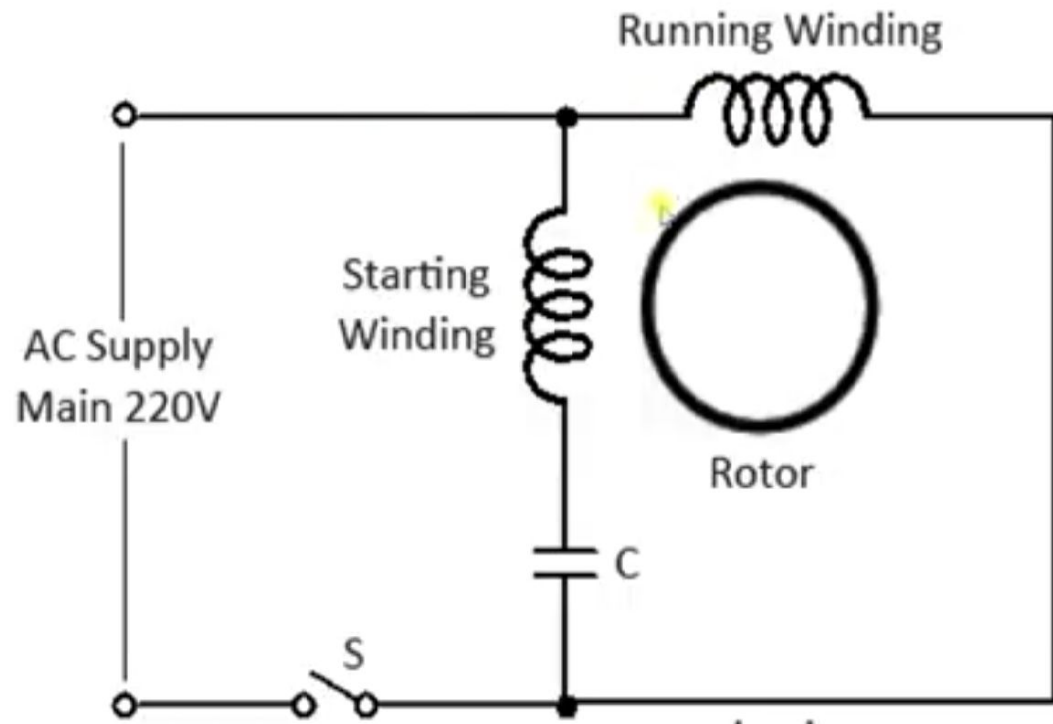
# Types

- Split phase induction motor
- Capacitor start induction motor
- Capacitor start capacitor run induction motor

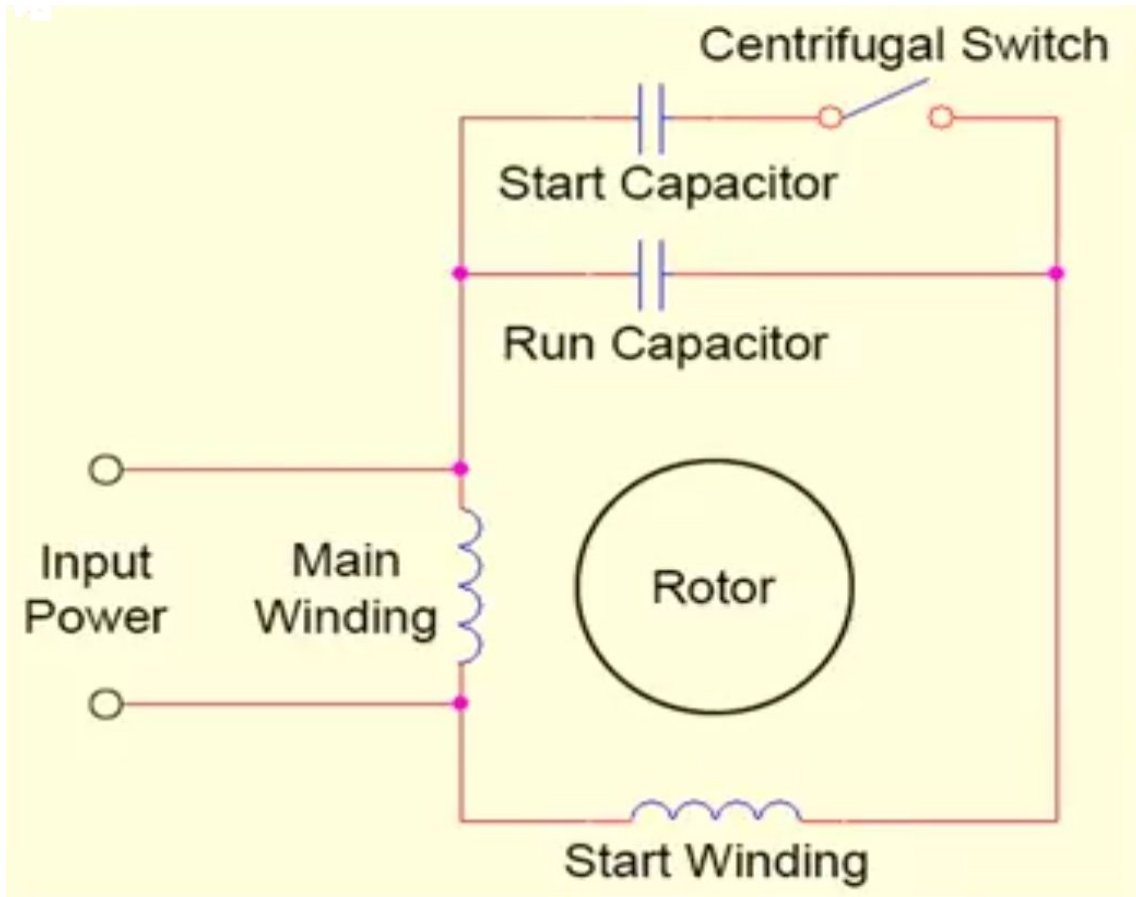
# Split phase motor



# Capacitor start motor



# Capacitor start capacitor run motor



# Shaded pole induction motor

