Electrical Science-2

Motors

Introduction

- Electrical to Mechanical
- DC
- AC

Types of motors

- Stepper motor
- BLDC
- Synchro
- servomotors

Stepper motor

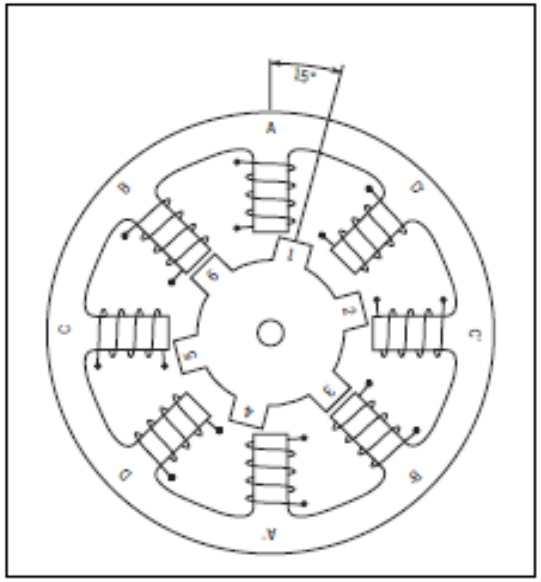


Figure 1. Cross-section of a variable-reluctance (VR) motor.

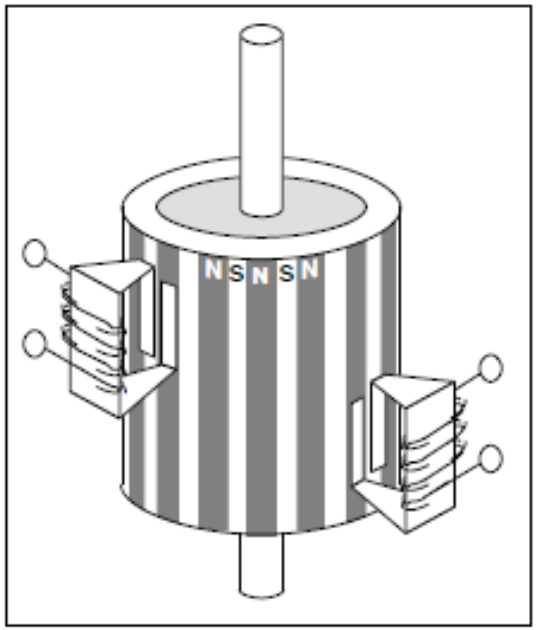


Figure 2. Principle of a PM or tin-can stepper motor.

Stepper motor

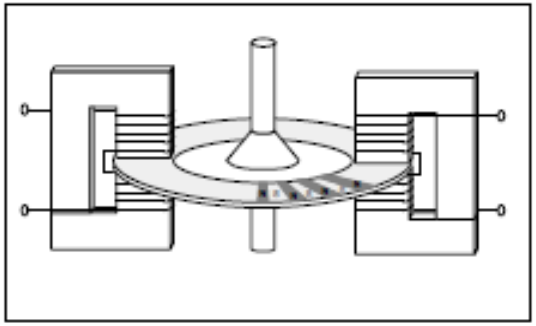
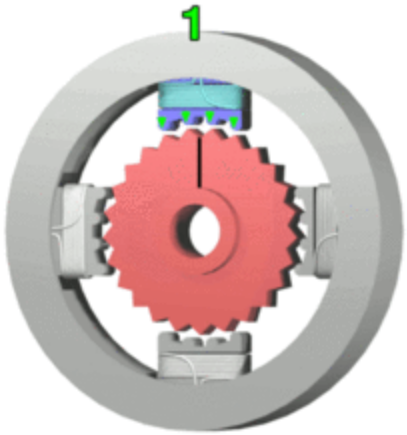


Figure 4. Principle of a disc magnet motor developed by Portescap.

Stepper motor



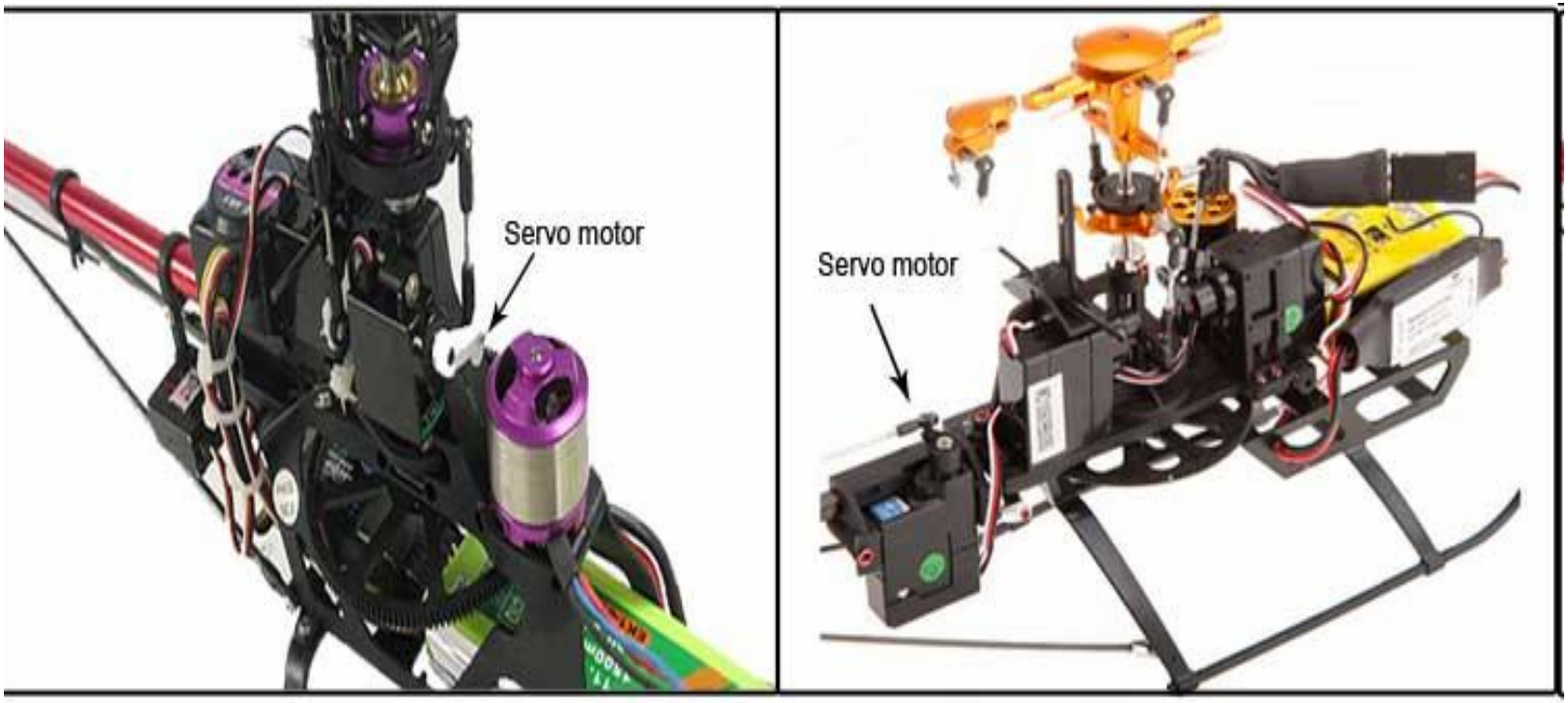
Synchro

- When electrically energized causes two shafts to rotate either independently or dependently
- Other names:- Selsyns or autosyns

Servomotor

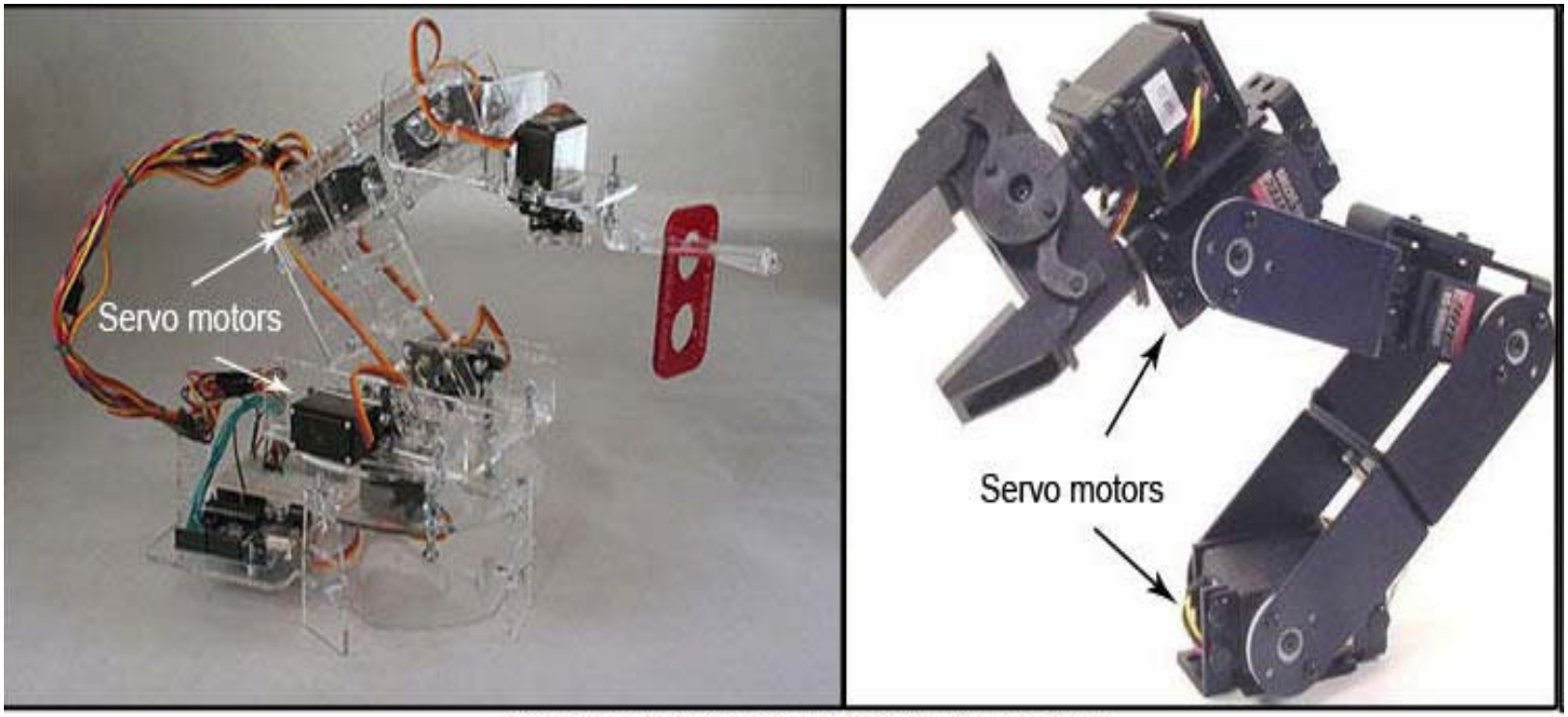
- No complete rotation as in DC motors
- An electrical input determines the position of the armature of a motor
- Servos are used extensively in robotics and radio-controlled cars, airplanes, and boats

Servomotor



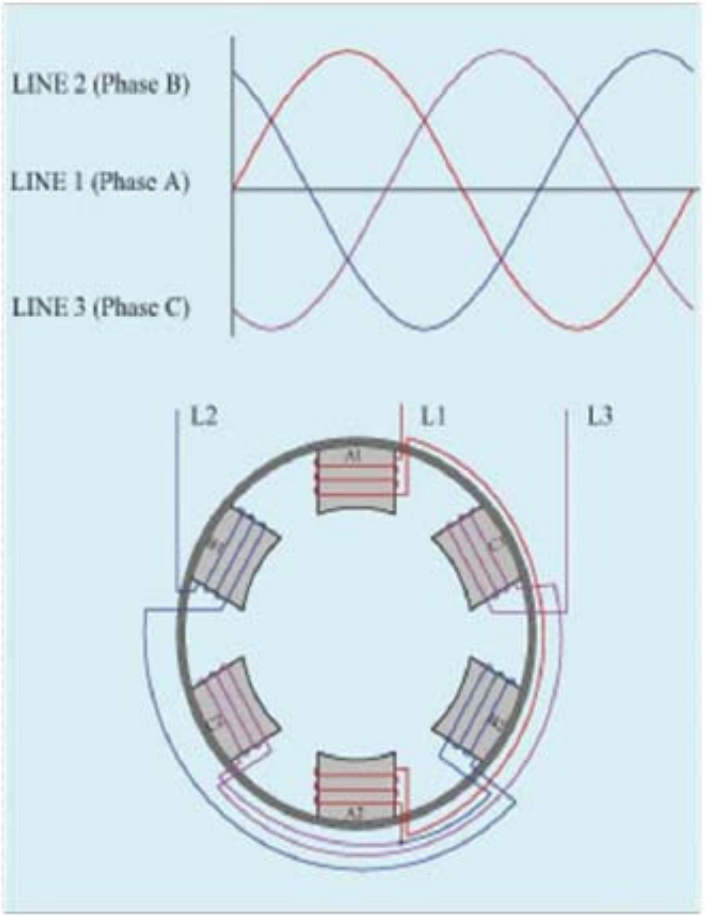
Servo motor used in RC Helicopters

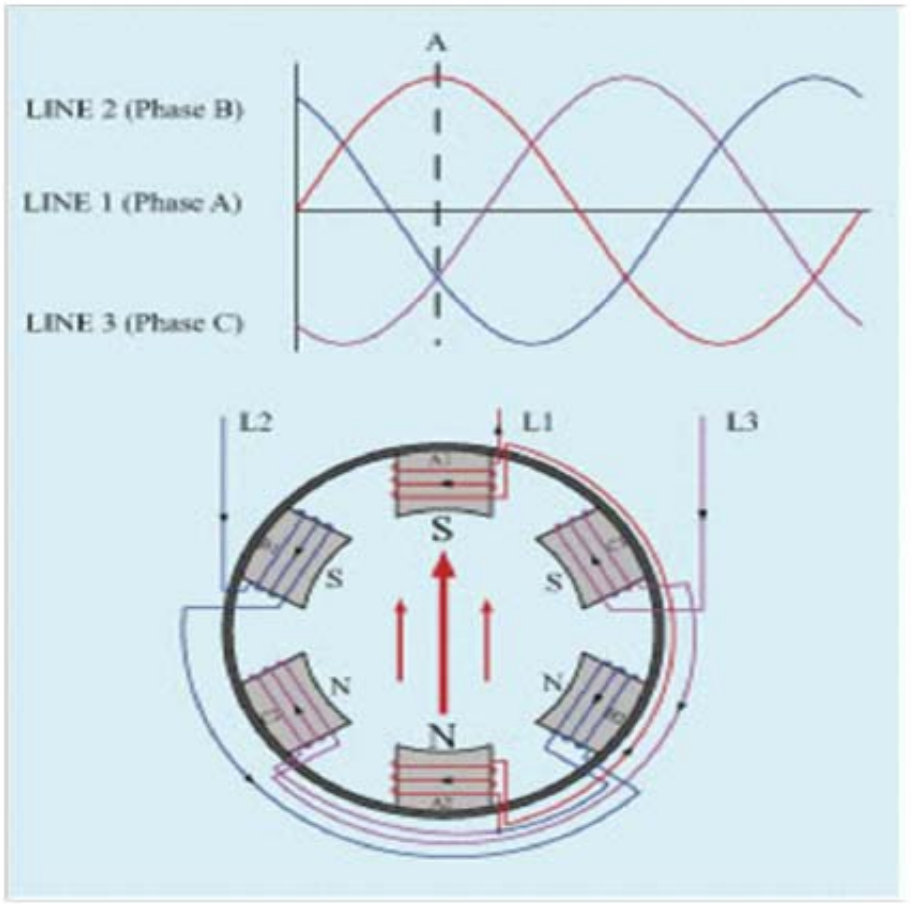
Servomotor



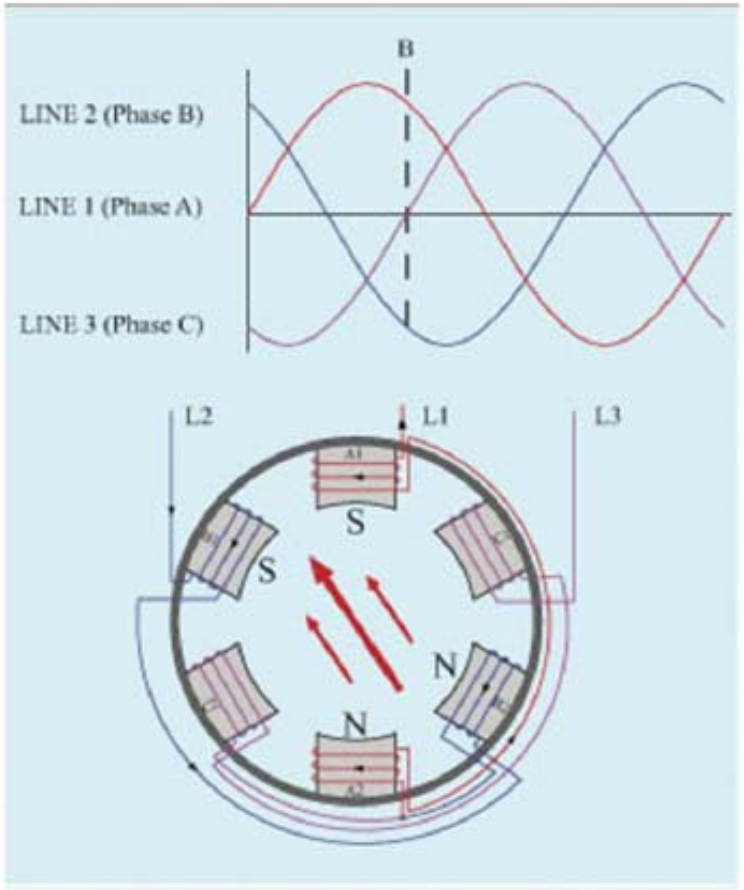
Robotic Arm made using Servo motors

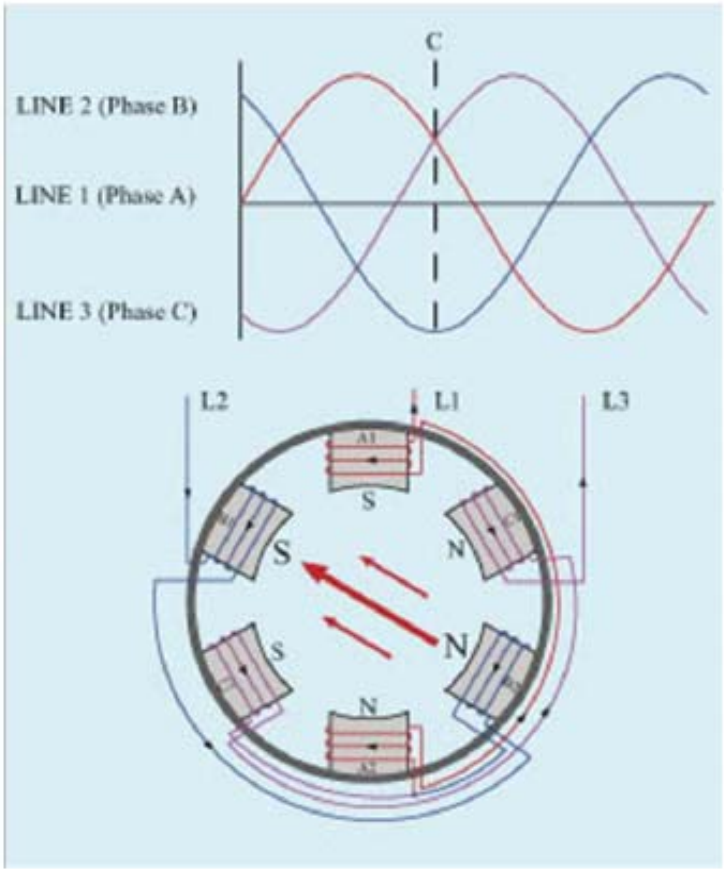
3 phase motor



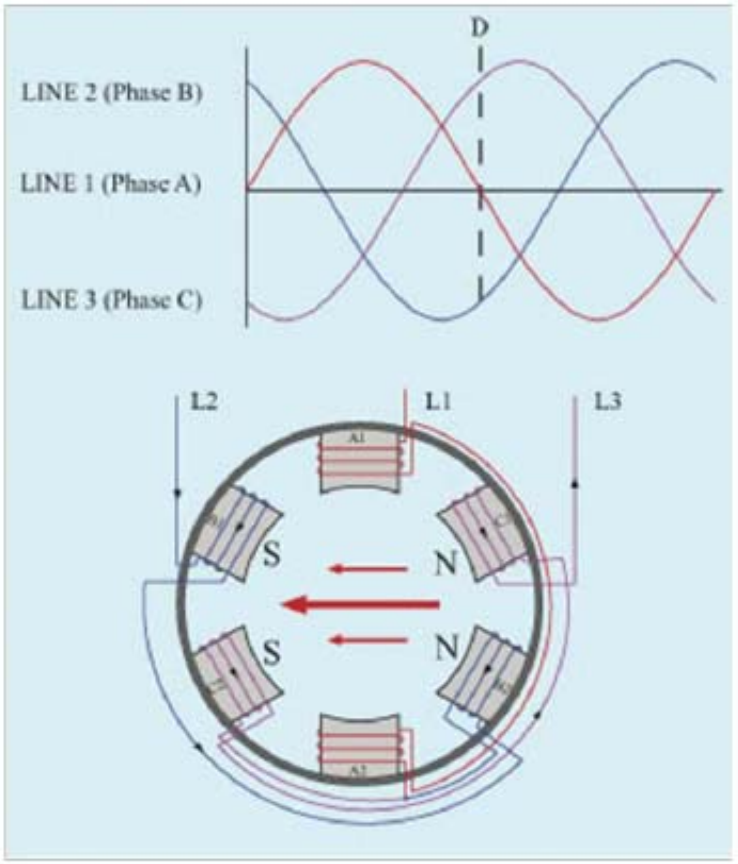


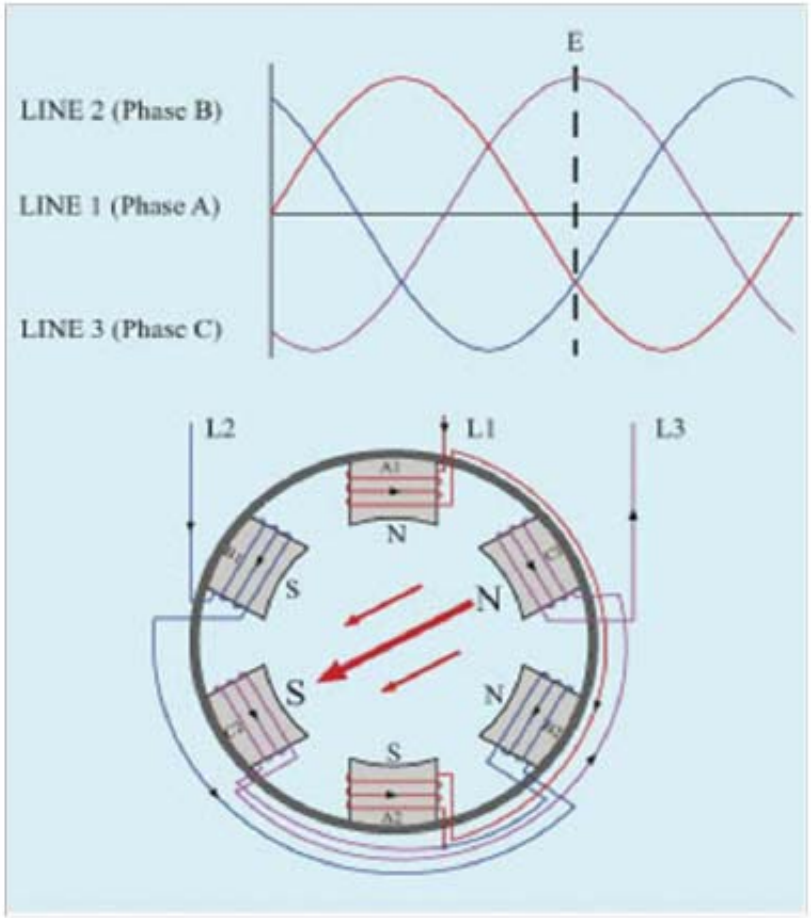
Rotary Motion



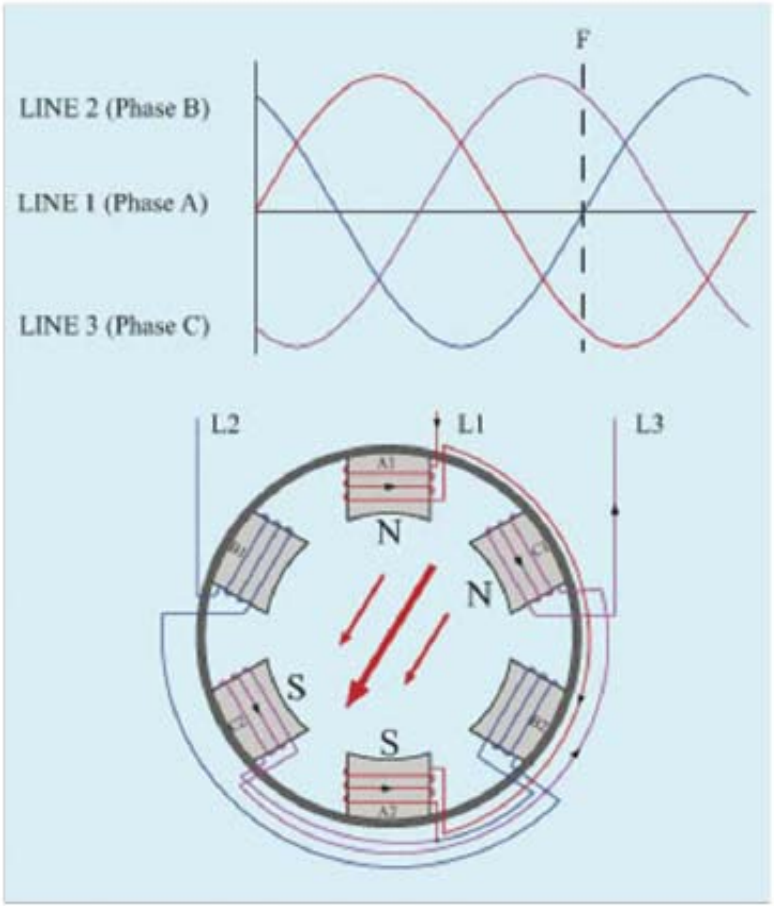


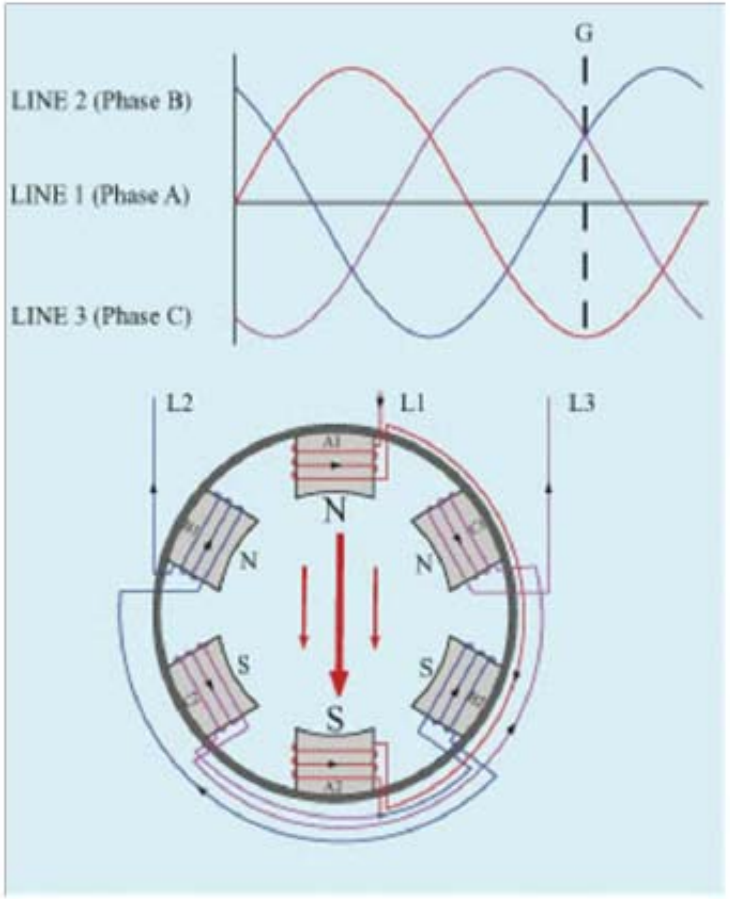
Rotary Motion





Rotary Motion





Rotary Motion