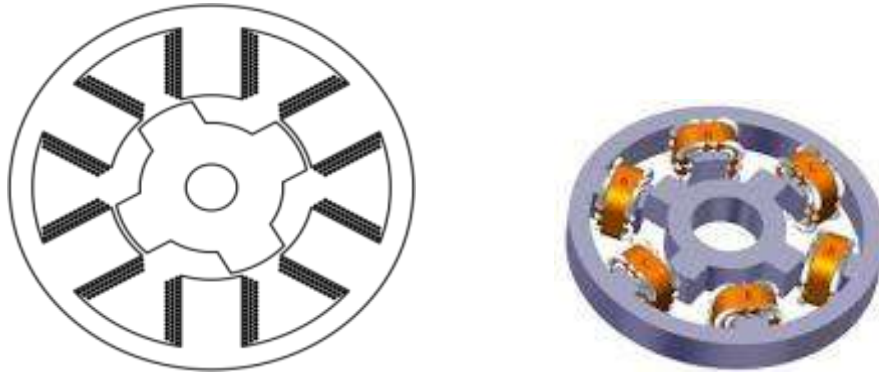


RELUCTANCE MOTOR

A reluctance motor is a type of electric motor that induces non-permanent magnetic poles on the ferromagnetic rotor. The rotor does not have any windings. It generates torque through magnetic reluctance the rotor does not have any windings. It generates torque through magnetic reluctance.



Reluctance Motors

Operating Principle

It consists of a stator of multiple electromagnetic poles while the rotor consists of strong magnetic materials.

When the rotor is equidistant from two adjacent stator poles, the rotor pole is said to be on the fully unaligned position. In the aligned position, 2 or more rotor poles is fully aligned with 2 or more stator poles when the stator pole is energized. The rotor torque is in the direction that will induce inductance. Thus, the nearest rotor pole is pulled from the unaligned position into alignment with the stator pole (i.e. position of less reluctance). In order to sustain rotation, the stator field must rotate in advance of the rotor pole, thus constantly pulling the stator pole along.

Types of Reluctance Motor

1. Synchronous reluctance motor
2. Variable reluctance motor
3. Switch reluctance motor
4. Variable reluctance stepping motor

Advantages of Reluctance Motors

1. Reluctance motors are simple to design
2. The rotors are very rugged
3. They are suitable for low cost
4. suitable for high speed application

Disadvantages of Reluctance Motor

1. Low torque capacity
2. They are generally noisy

Applications of reluctance Motor

Reluctance motors are used for constant speed applications such as in timing devices, signaling devices, recording instruments, control apparatus etc.

- Analog electric meters
- some washing m/c designs
- control rod drive mechanism of nuclear reaction
- Hard disk drive motor

