



A rotary step take place when one stator phase is deenergised and the next phase in sequence is energized ~~the~~ that creating a new position of minimum reluctance for the rotor.

(PM-STM)

Permanent Magnet Stepper Motor

A stepper motor using a permanent magnet in the rotor is called a PMSM. In this motor the rotor has no teeth as with VRM. The rotor is magnetized with alternating north and south poles situated in a straight line parallel to the rotor shaft. This magnetized rotor poles provide an increased magnetic flux intensity and because of this the PM exhibits improved torque characteristics as compared to VRM. The below figure shows the cross-sectional view of PM stepper motor

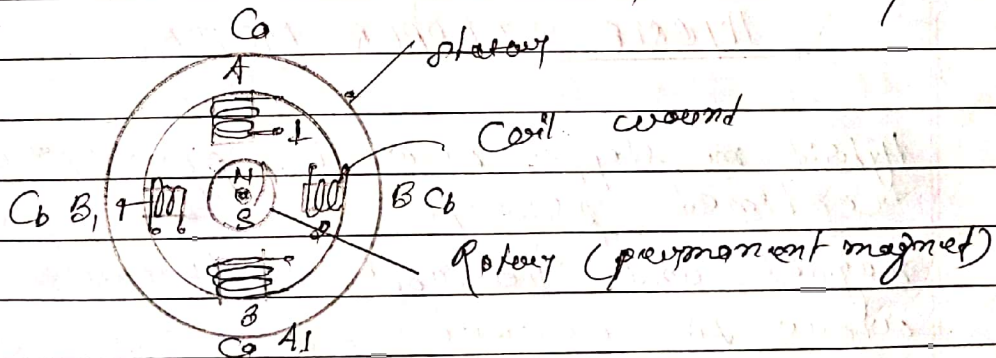


Fig: Cross-sectional view of permanent stepper motor

A PM stepper motor consists of a cylindrical PM as the rotor and power four poles in its stator. Two overlapping windings are wound on one winding on poles 1 and 3

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and these two windings are connected from ^{separated} each other at terminals to keep them as independent windings. The same is true for pole 2 and 4. The terminals marked C₁ or C₂ denote "Common" to be connected to the positive terminal of the power supply and remaining to the negative terminal. When the windings are excited by sequence A-B-A₁-B₁... the rotary will be driven in clockwise direction. If the no. of stator teeth and magnetic poles are doubled on the rotary, then a two phase motor with a step length of 1.5° will be realized.

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