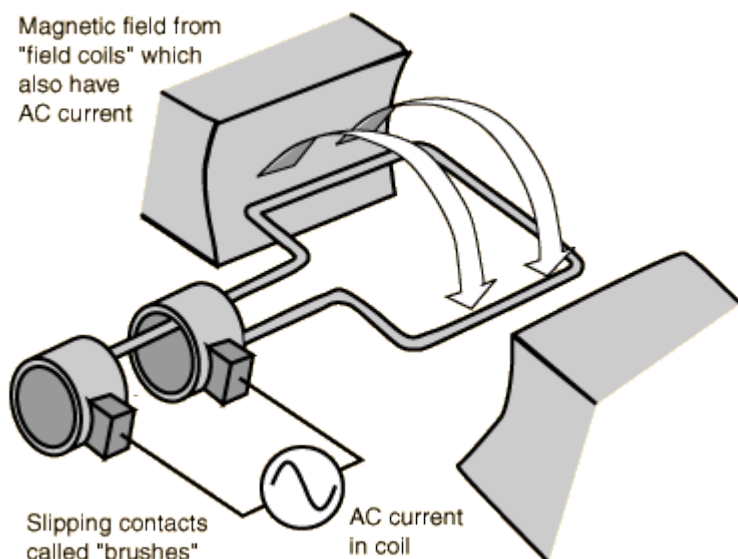


AC Motor



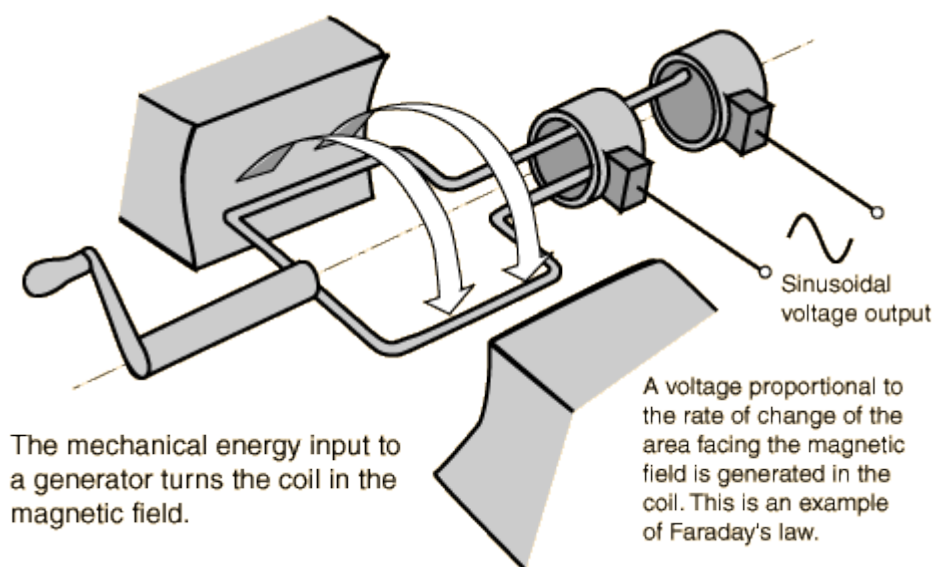
As in the [DC motor](#) case, a current is passed through the coil, generating a torque on the coil. Since the current is alternating, the motor will run smoothly only at the frequency of the sine wave. It is called a synchronous motor. More common is the [induction motor](#), where electric current is [induced](#) in the rotating coils rather than supplied to them directly.

One of the drawbacks of this kind of AC motor is the high current which must flow through the rotating contacts. Sparking and heating at those contacts can waste energy and shorten the lifetime of the motor. In common AC motors the magnetic field is produced by an electromagnet powered by the same AC voltage as the motor coil. The coils which produce the magnetic field are sometimes referred to as the "stator", while the coils and the solid core which rotates is called the "armature". In an AC motor the magnetic field is sinusoidally varying, just as the current in the coil varies.

[How does a motor work?](#) [AC Generator](#) [Generator and Motor](#) [DC Motor](#)

AC Generator

The turning of a coil in a magnetic field produces [motional emfs](#) in both sides of the coil which add. Since the component of the velocity perpendicular to the magnetic field changes sinusoidally with the rotation, the generated voltage is sinusoidal or AC. This process can be described in terms of [Faraday's law](#) when you see that the rotation of the coil continually changes the [magnetic flux](#) through the coil and therefore generates a voltage.



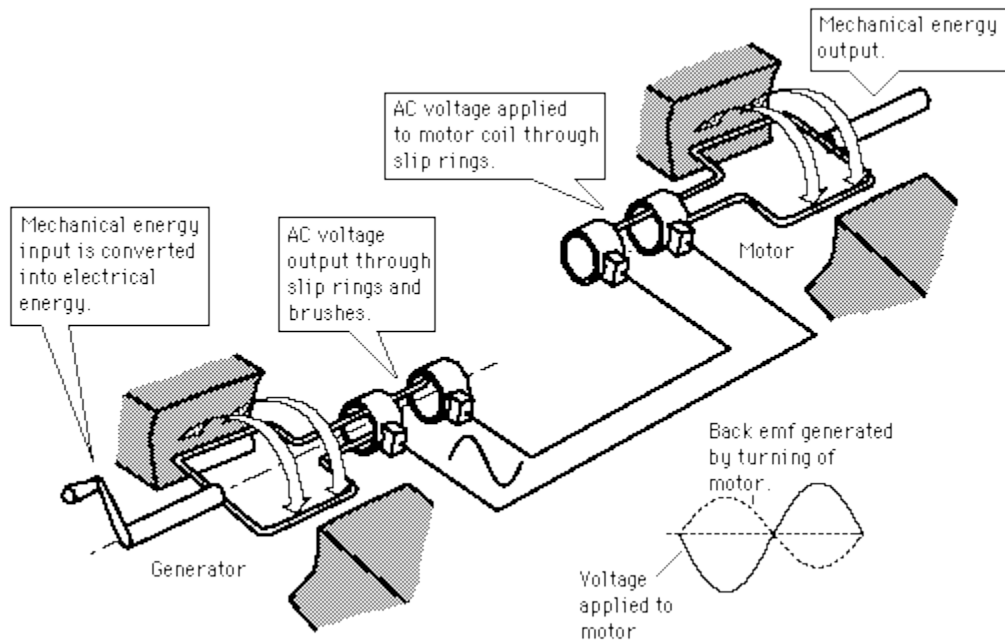
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Generator and Motor

A hand-cranked generator can be used to generate voltage to turn a motor. This is an example of energy conversion from mechanical to electrical energy and then back to mechanical energy.



[Demonstration](#) [AC Motor](#) [AC Generator](#) [DC Motor](#)