

Hyster Alternators

An alternator is a device which transforms mechanical energy into electric energy. This is done in the form of an electric current. In principal, an AC electric generator can be labeled an alternator. The word usually refers to a small, rotating device powered by automotive and other internal combustion engines. Alternators that are located in power stations and are driven by steam turbines are known as turbo-alternators. Nearly all of these machines make use of a rotating magnetic field but every now and then linear alternators are also utilized.

Whenever the magnetic field around a conductor changes, a current is generated within the conductor and this is actually how alternators produce their electrical energy. Normally the rotor, which is actually a rotating magnet, revolves within a stationary set of conductors wound in coils situated on an iron core which is referred to as the stator. When the field cuts across the conductors, an induced electromagnetic field likewise called EMF is generated as the mechanical input causes the rotor to revolve. This rotating magnetic field produces an AC voltage in the stator windings. Usually, there are 3 sets of stator windings. These physically offset so that the rotating magnetic field induces 3 phase currents, displaced by one-third of a period with respect to each other.

"Brushless" alternators - these use slip rings and brushes together with a rotor winding or a permanent magnet in order to produce a magnetic field of current. Brushless AC generators are most often located in larger devices such as industrial sized lifting equipment. A rotor magnetic field can be generated by a stationary field winding with moving poles in the rotor. Automotive alternators normally make use of a rotor winding which allows control of the voltage generated by the alternator. It does this by changing the current in the rotor field winding. Permanent magnet devices avoid the loss because of the magnetizing current inside the rotor. These devices are restricted in size because of the price of the magnet material. The terminal voltage varies with the speed of the generator as the permanent magnet field is constant.