

Alternator for Forklift

Forklift Alternators - An alternator is a device which converts mechanical energy into electrical energy. It does this in the form of an electric current. In essence, an AC electric generator could also be labeled an alternator. The word normally refers to a rotating, small machine powered by automotive and various internal combustion engines. Alternators which are placed in power stations and are powered by steam turbines are actually known as turbo-alternators. The majority of these machines use a rotating magnetic field but from time to time linear alternators are also utilized.

A current is generated in the conductor whenever the magnetic field surrounding the conductor changes. Normally the rotor, a rotating magnet, spins within a set of stationary conductors wound in coils. The coils are situated on an iron core known as the stator. If 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. Normally, there are 3 sets of stator windings. These are physically offset so that the rotating magnetic field generates 3 phase currents, displaced by one-third of a period with respect to each other.

In a "brushless" alternator, the rotor magnetic field can be caused by production of a permanent magnet or by a rotor winding energized with direct current through slip rings and brushes. Brushless AC generators are often located in larger machines compared to those utilized in automotive applications. A rotor magnetic field could be produced by a stationary field winding with moving poles in the rotor. Automotive alternators normally utilize a rotor winding that allows control of the voltage generated by the alternator. It does this by changing the current in the rotor field winding. Permanent magnet machines avoid the loss due to the magnetizing current within the rotor. These machines are limited in size because of the cost of the magnet material. The terminal voltage varies with the speed of the generator as the permanent magnet field is constant.