

Alternator for Forklift

Forklift Alternator - A machine used to transform mechanical energy into electrical energy is called an alternator. It could perform this function in the form of an electric current. An AC electric generator could in essence be referred to as an alternator. Then again, the word is usually used to refer to a small, rotating machine driven by internal combustion engines. Alternators that are located in power stations and are driven by steam turbines are actually called turbo-alternators. Most of these devices utilize a rotating magnetic field but from time to time linear alternators are also used.

A current is generated in the conductor whenever the magnetic field around the conductor changes. Usually the rotor, a rotating magnet, spins within a set of stationary conductors wound in coils. The coils are located on an iron core referred to as the stator. When the field cuts across the conductors, an induced electromagnetic field also called EMF is produced as the mechanical input causes the rotor to turn. This rotating magnetic field generates an AC voltage in the stator windings. Typically, there are 3 sets of stator windings. These are physically offset so that the rotating magnetic field produces 3 phase currents, displaced by one-third of a period with respect to each other.

"Brushless" alternators - these make use of brushes and slip rings with a rotor winding or a permanent magnet in order to generate a magnetic field of current. Brushless AC generators are usually found in bigger machines like industrial sized lifting equipment. A rotor magnetic field could be produced by a stationary field winding with moving poles in the rotor. Automotive alternators normally use a rotor winding which allows control of the voltage induced by the alternator. This is done by varying the current in the rotor field winding. Permanent magnet machines avoid the loss due to the magnetizing current in the rotor. These machines are restricted in size due to the price of the magnet material. The terminal voltage varies with the speed of the generator as the permanent magnet field is constant.