

Alternator for Forklift

Forklift Alternators - A machine used in order to convert mechanical energy into electric energy is referred to as an alternator. It could perform this function in the form of an electric current. An AC electric generator can in principal be referred to as an alternator. However, the word is normally used to refer to a rotating, small device driven by internal combustion engines. Alternators which are placed in power stations and are driven by steam turbines are actually referred to as turbo-alternators. Nearly all of these machines use a rotating magnetic field but sometimes linear alternators are also used.

If the magnetic field around a conductor changes, a current is induced within the conductor and this is how alternators generate their electrical energy. Normally the rotor, which is a rotating magnet, turns within a stationary set of conductors wound in coils situated on an iron core which is known as the stator. When the field cuts across the conductors, an induced electromagnetic field or EMF is produced as the mechanical input makes the rotor to turn. This rotating magnetic field produces an AC voltage in the stator windings. Typically, 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 brushes and slip rings with a rotor winding or a permanent magnet so as to induce a magnetic field of current. Brushless AC generators are most often found in bigger machines such as industrial sized lifting equipment. A rotor magnetic field can be produced by a stationary field winding with moving poles in the rotor. Automotive alternators usually make use of a rotor winding which allows control of the voltage produced 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 inside 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.