

Alternator for Forklift

Forklift Alternators - An alternator is a device that transforms mechanical energy into electric energy. This is done in the form of an electric current. In essence, an AC electrical generator could be labeled an alternator. The word typically refers to a small, rotating machine powered by automotive and other internal combustion engines. Alternators that are located in power stations and are powered by steam turbines are actually referred to as turbo-alternators. Most of these devices use a rotating magnetic field but sometimes linear alternators are also used.

A current is produced in the conductor if the magnetic field around the conductor changes. Generally the rotor, a rotating magnet, spins within a set of stationary conductors wound in coils. The coils are located on an iron core known as the stator. Whenever the field cuts across the conductors, an induced electromagnetic field otherwise called EMF is produced as the mechanical input causes the rotor to revolve. This rotating magnetic field generates an AC voltage in the stator windings. Usually, 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.

"Brushless" alternators - these use brushes and slip rings together with a rotor winding or a permanent magnet in order to induce a magnetic field of current. Brushless AC generators are most often found in larger machines like for instance industrial sized lifting equipment. A rotor magnetic field could be induced 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. This is done by varying the current in the rotor field winding. Permanent magnet machines avoid the loss due to the magnetizing current within the rotor. These machines are restricted in size because of the price of the magnet material. As the permanent magnet field is constant, the terminal voltage varies directly with the generator speed.