Starters for Forklifts

Forklift Starters - Today's starter motor is normally a permanent-magnet composition or a series-parallel wound direct current electrical motor with a starter solenoid installed on it. As soon as current from the starting battery is applied to the solenoid, basically through a key-operated switch, the solenoid engages a lever that pushes out the drive pinion that is located on the driveshaft and meshes the pinion utilizing the starter ring gear which is found on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, which begins to turn. When the engine starts, the key operated switch is opened and a spring in the solenoid assembly pulls the pinion gear away from the ring gear. This action causes the starter motor to stop. The starter's pinion is clutched to its driveshaft by an overrunning clutch. This allows the pinion to transmit drive in just a single direction. Drive is transmitted in this way via the pinion to the flywheel ring gear. The pinion continuous to be engaged, for example in view of the fact that the driver did not release the key as soon as the engine starts or if there is a short and the solenoid remains engaged. This causes the pinion to spin separately of its driveshaft.

The actions mentioned above will stop the engine from driving the starter. This significant step prevents the starter from spinning so fast that it would fly apart. Unless modifications were done, the sprag clutch arrangement will preclude the use of the starter as a generator if it was employed in the hybrid scheme mentioned prior. Typically a standard starter motor is designed for intermittent use which will preclude it being used as a generator.

Therefore, the electrical components are designed to be able to work for just about less than 30 seconds to avoid overheating. The overheating results from too slow dissipation of heat due to ohmic losses. The electrical components are designed to save cost and weight. This is really the reason the majority of owner's handbooks used for automobiles recommend the driver to pause for at least 10 seconds after every 10 or 15 seconds of cranking the engine, when trying to start an engine which does not turn over right away.

The overrunning-clutch pinion was introduced onto the marked in the early part of the 1960's. Previous to the 1960's, a Bendix drive was utilized. This drive system functions on a helically cut driveshaft that has a starter drive pinion placed on it. As soon as the starter motor starts spinning, the inertia of the drive pinion assembly allows it to ride forward on the helix, hence engaging with the ring gear. When the engine starts, the backdrive caused from the ring gear allows the pinion to exceed the rotating speed of the starter. At this point, the drive pinion is forced back down the helical shaft and therefore out of mesh with the ring gear.

During the 1930s, an intermediate development between the Bendix drive was developed. The overrunning-clutch design which was made and launched during the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive consists of a latching mechanism along with a set of flyweights within the body of the drive unit. This was much better as the average Bendix drive used to disengage from the ring once the engine fired, even though it did not stay running.

The drive unit if force forward by inertia on the helical shaft once the starter motor is engaged and begins turning. Afterward the starter motor becomes latched into the engaged position. When the drive unit is spun at a speed higher than what is achieved by the starter motor itself, like for instance it is backdriven by the running engine, and after that the flyweights pull outward in a radial manner. This releases the latch and permits the overdriven drive unit to become spun out of engagement, therefore unwanted starter disengagement can be avoided prior to a successful engine start.