Starter for Forklifts

Starter for Forklift - Today's starter motor is usually a permanent-magnet composition or a series-parallel wound direct current electrical motor together with a starter solenoid mounted on it. Once current from the starting battery is applied to the solenoid, basically via a key-operated switch, the solenoid engages a lever that pushes out the drive pinion that is situated on the driveshaft and meshes the pinion with the starter ring gear that is found on the engine flywheel.

When the starter motor starts to turn, the solenoid closes the high-current contacts. As soon as the engine has started, the solenoid consists of a key operated switch that opens the spring assembly to be able to pull 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 means of an overrunning clutch. This permits the pinion to transmit drive in just one direction. Drive is transmitted in this particular method through the pinion to the flywheel ring gear. The pinion remains engaged, like for example for the reason that the operator did not release the key as soon as the engine starts or if there is a short and the solenoid remains engaged. This actually causes the pinion to spin separately of its driveshaft.

The actions mentioned above would prevent the engine from driving the starter. This important step prevents the starter from spinning so fast that it can fly apart. Unless modifications were done, the sprag clutch arrangement will prevent using the starter as a generator if it was made use of in the hybrid scheme mentioned earlier. Normally an average starter motor is designed for intermittent use which will prevent it being used as a generator.

The electrical parts are made to operate for approximately 30 seconds in order to avoid overheating. Overheating is caused by a slow dissipation of heat is due to ohmic losses. The electrical components are designed to save cost and weight. This is truly the reason nearly all owner's instruction manuals intended for automobiles recommend the operator to pause for at least ten seconds right after every 10 or 15 seconds of cranking the engine, when trying to start an engine which does not turn over immediately.

The overrunning-clutch pinion was launched onto the marked during the early part of the 1960's. Previous to the 1960's, a Bendix drive was used. This particular drive system operates on a helically cut driveshaft that consists of a starter drive pinion placed on it. Once 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 enables the pinion to surpass the rotating speed of the starter. At this instant, 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 made. The overrunning-clutch design which was developed and launched in the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive has a latching mechanism together with a set of flyweights within the body of the drive unit. This was an enhancement because the standard Bendix drive used to be able to disengage from the ring as soon as the engine fired, even if it did not stay functioning.

The drive unit if force forward by inertia on the helical shaft as soon as 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 attained by the starter motor itself, like for example it is backdriven by the running engine, and then the flyweights pull outward in a radial manner. This releases the latch and enables the overdriven drive unit to become spun out of engagement, hence unwanted starter disengagement can be avoided previous to a successful engine start.