Starter for Forklifts

Forklift Starters - The starter motor of today is normally either a series-parallel wound direct current electric motor which consists of a starter solenoid, which is similar to a relay mounted on it, or it can be a permanent-magnet composition. When 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 which is situated on the driveshaft and meshes the pinion using the starter ring gear which is seen on the flywheel of the engine.

As soon as the starter motor starts to turn, the solenoid closes the high-current contacts. When the engine has started, the solenoid consists of a key operated switch that opens the spring assembly so as 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 an overrunning clutch. This permits the pinion to transmit drive in only a single direction. Drive is transmitted in this particular method via the pinion to the flywheel ring gear. The pinion remains engaged, like for example since the driver fails to release the key when 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 prevent the engine from driving the starter. This important step stops the starter from spinning really fast that it could fly apart. Unless modifications were made, the sprag clutch arrangement will stop utilizing the starter as a generator if it was used in the hybrid scheme mentioned prior. Normally an average starter motor is intended for intermittent use that will prevent it being used as a generator.

Hence, the electrical parts are intended to operate for roughly less than thirty seconds to be able to avoid overheating. The overheating results from very slow dissipation of heat due to ohmic losses. The electrical parts are meant to save weight and cost. This is actually the reason most owner's guidebooks utilized for automobiles suggest the driver to stop for a minimum of 10 seconds right after each 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 launched onto the marked in the early 1960's. Previous to the 1960's, a Bendix drive was used. This particular drive system functions on a helically cut driveshaft that has a starter drive pinion placed on it. Once the starter motor begins spinning, the inertia of the drive pinion assembly allows it to ride forward on the helix, thus engaging with the ring gear. Once 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 developed. The overrunning-clutch design that was developed and introduced during the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive consists of a latching mechanism together with a set of flyweights in the body of the drive unit. This was an enhancement for the reason that the typical Bendix drive used to be able 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 as soon as the starter motor is engaged and starts turning. After that the starter motor becomes latched into the engaged position. As soon as the drive unit is spun at a speed higher than what is attained by the starter motor itself, for example it is backdriven by the running engine, and afterward 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 could be prevented prior to a successful engine start.