Starters for Forklifts

Forklift Starters - The starter motor these days is usually 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. Once current from the starting battery is applied to the solenoid, mainly via a key-operated switch, the solenoid engages a lever which pushes out the drive pinion which is positioned on the driveshaft and meshes the pinion with the starter ring gear which is seen on the flywheel of the engine.

Once 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 particular 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 only one direction. Drive is transmitted in this way via the pinion to the flywheel ring gear. The pinion remains engaged, like for example in view of the fact that the driver fails to 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 independently 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 can fly apart. Unless modifications were made, the sprag clutch arrangement would stop making use of the starter as a generator if it was utilized in the hybrid scheme mentioned earlier. Usually a regular starter motor is designed for intermittent use that will stop it being utilized as a generator.

Hence, the electrical components are intended to be able to operate for more or less 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 intended to save cost and weight. This is actually the reason the majority of owner's handbooks for automobiles suggest the driver to pause for a minimum of ten seconds after each and every 10 or 15 seconds of cranking the engine, whenever trying to start an engine that does not turn over instantly.

In the early 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Prior to that time, a Bendix drive was utilized. The Bendix system functions by placing the starter drive pinion on a helically cut driveshaft. When the starter motor begins spinning, the inertia of the drive pinion assembly enables 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 thus out of mesh with the ring gear.

In the 1930s, an intermediate development between the Bendix drive was made. The overrunning-clutch design that was developed and introduced in the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive consists of a latching mechanism along with a set of flyweights in the body of the drive unit. This was an enhancement since the average Bendix drive utilized to disengage from the ring as soon as the engine fired, even though it did not stay functioning.

The drive unit if force forward by inertia on the helical shaft when the starter motor is engaged and starts turning. After that 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, for instance 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, thus unwanted starter disengagement can be prevented previous to a successful engine start.