Starters for Forklifts

Forklift Starters - A starter motors today is usually a permanent-magnet composition or a series-parallel wound direct current electrical motor together with a starter solenoid installed on it. As soon as 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 using the starter ring gear that is seen on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, which begins to turn. Once 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 means of an overrunning clutch. This permits the pinion to transmit drive in just one direction. Drive is transmitted in this particular way through the pinion to the flywheel ring gear. The pinion continuous to be engaged, like for example for the reason that the operator 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.

This above mentioned action stops the engine from driving the starter. This is actually an important step in view of the fact that this particular kind of back drive would allow the starter to spin so fast that it can fly apart. Unless modifications were made, the sprag clutch arrangement will prevent the use of the starter as a generator if it was employed in the hybrid scheme mentioned earlier. Typically a regular starter motor is designed for intermittent utilization that would prevent it being used as a generator.

Hence, the electrical parts are meant to be able to work for just about under thirty seconds so as to prevent overheating. The overheating results from very slow dissipation of heat due to ohmic losses. The electrical components are intended to save cost and weight. This is really the reason the majority of owner's manuals intended for automobiles suggest the operator to stop for a minimum of ten seconds right after every ten or fifteen seconds of cranking the engine, if trying to start an engine that does not turn over immediately.

During the early 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Before that time, a Bendix drive was used. The Bendix system works by placing the starter drive pinion on a helically cut driveshaft. As soon as the starter motor starts turning, the inertia of the drive pinion assembly allows it to ride forward on the helix, hence engaging with the ring gear. As soon as the engine starts, the backdrive caused from the ring gear enables the pinion to go beyond the rotating speed of the starter. At this moment, the drive pinion is forced back down the helical shaft and thus out of mesh with the ring gear.

The development of Bendix drive was made in the 1930's with the overrunning-clutch design called the Bendix Folo-Thru drive, developed and launched in the 1960s. The Folo-Thru drive consists of a latching mechanism together with a set of flyweights inside the body of the drive unit. This was much better because the average Bendix drive utilized to be able to disengage from the ring when the engine fired, 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 begins turning. Then 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, for example it is backdriven by the running engine, and after that the flyweights pull outward in a radial manner. This releases the latch and allows the overdriven drive unit to become spun out of engagement, hence unwanted starter disengagement can be prevented before a successful engine start.