Starters for Forklifts

Forklift Starters - The starter motor these days is typically either a series-parallel wound direct current electric motor which has a starter solenoid, which is similar to a relay mounted on it, or it can be a permanent-magnet composition. As soon as current from the starting battery is applied to the solenoid, basically through 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 using the starter ring gear which is seen on the engine flywheel.

The solenoid closes the high-current contacts for the starter motor, that begins to turn. After 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 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 continuous to be engaged, like for instance because the operator did not release the key when 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 will prevent the engine from driving the starter. This significant step stops the starter from spinning really fast that it would fly apart. Unless adjustments were done, the sprag clutch arrangement would prevent utilizing the starter as a generator if it was employed in the hybrid scheme mentioned prior. Typically a regular starter motor is meant for intermittent utilization that will stop it being utilized as a generator.

The electrical parts are made so as to work for roughly 30 seconds to avoid overheating. Overheating is caused by a slow dissipation of heat is because of ohmic losses. The electrical parts are intended to save weight and cost. This is the reason most owner's manuals intended for vehicles suggest the driver to stop for a minimum of ten seconds after each 10 or 15 seconds of cranking the engine, when trying to start an engine which 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 used. The Bendix system functions by placing the starter drive pinion on a helically cut driveshaft. When the starter motor starts spinning, the inertia of the drive pinion assembly enables it to ride forward on the helix, thus engaging with the ring gear. As soon as the engine starts, the backdrive caused from the ring gear enables the pinion to exceed 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 which was made 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 within the body of the drive unit. This was a lot better since the standard Bendix drive used in order to disengage from the ring as soon as the engine fired, though it did not stay running.

When the starter motor is engaged and begins turning, the drive unit is forced forward on the helical shaft by inertia. It then becomes latched into the engaged position. Once the drive unit is spun at a speed higher than what is achieved by the starter motor itself, like for example it is backdriven by the running engine, and afterward the flyweights pull outward in a radial manner. This releases the latch and permits the overdriven drive unit to become spun out of engagement, hence unwanted starter disengagement could be avoided before a successful engine start.