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 mounted 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 which pushes out the drive pinion which is located on the driveshaft and meshes the pinion utilizing the starter ring gear which is seen on the engine flywheel.

The solenoid closes the high-current contacts for the starter motor, which 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 particular action causes the starter motor to stop. The starter's pinion is clutched to its driveshaft by means of an overrunning clutch. This allows the pinion to transmit drive in just a single direction. Drive is transmitted in this particular manner via the pinion to the flywheel ring gear. The pinion remains engaged, like for instance since the operator fails to release the key once 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.

This above mentioned action prevents the engine from driving the starter. This is an essential step as this type of back drive will allow the starter to spin very fast that it would fly apart. Unless adjustments were done, the sprag clutch arrangement would stop using the starter as a generator if it was employed in the hybrid scheme discussed earlier. Usually an average starter motor is intended for intermittent use which would stop it being utilized as a generator.

The electrical parts are made to be able to function for approximately thirty seconds so as to avoid overheating. Overheating is caused by a slow dissipation of heat is due to ohmic losses. The electrical components are intended to save weight and cost. This is the reason most owner's manuals meant for automobiles recommend the driver to pause for at least 10 seconds after every 10 or 15 seconds of cranking the engine, when trying to start an engine which does not turn over instantly.

The overrunning-clutch pinion was introduced onto the marked in the early 1960's. Previous to the 1960's, a Bendix drive was utilized. This particular drive system functions on a helically cut driveshaft that consists of a starter drive pinion placed on it. As soon as 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. As soon as the engine starts, the backdrive caused from the ring gear allows 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 therefore out of mesh with the ring gear.

During the 1930s, an intermediate development between the Bendix drive was made. The overrunning-clutch design that was made and introduced during the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive has a latching mechanism together with a set of flyweights in the body of the drive unit. This was better since the standard Bendix drive utilized in order to disengage from the ring as soon as the engine fired, although it did not stay running.

When the starter motor is engaged and starts turning, the drive unit is forced forward on the helical shaft by inertia. It then 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 instance 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 could be avoided previous to a successful engine start.