

Starters for Forklift

Starter for Forklifts - A starter motor today is usually a permanent-magnet composition or a series-parallel wound direct current electrical motor along with a starter solenoid mounted on it. Once 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 located on the driveshaft and meshes the pinion with the starter ring gear that is found on the flywheel of the engine.

As soon as 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 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 one direction. Drive is transmitted in this manner via the pinion to the flywheel ring gear. The pinion continues to be engaged, for instance as the driver fails to release the key when the engine starts or if the solenoid remains engaged since there is a short. This causes the pinion to spin separately of its driveshaft.

This aforesaid action stops the engine from driving the starter. This is actually an essential step since this type of back drive would allow the starter to spin very fast that it could fly apart. Unless modifications were done, the sprag clutch arrangement would preclude utilizing the starter as a generator if it was employed in the hybrid scheme discussed earlier. Typically a standard starter motor is meant for intermittent utilization that will preclude it being utilized as a generator.

Hence, the electrical components are meant to operate for approximately less than 30 seconds to avoid overheating. The overheating results from very slow dissipation of heat because of ohmic losses. The electrical parts are designed to save cost and weight. This is actually the reason nearly all owner's guidebooks used for automobiles recommend the operator to pause for a minimum of 10 seconds right after every ten or fifteen seconds of cranking the engine, when trying to start an engine which does not turn over at once.

In 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. Once the starter motor begins spinning, the inertia of the drive pinion assembly allows it to ride forward on the helix, therefore 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 moment, the drive pinion is forced back down the helical shaft and thus 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 developed and launched in the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive has a latching mechanism together with a set of flyweights inside the body of the drive unit. This was an enhancement because the typical Bendix drive used to disengage from the ring once the engine fired, though it did not stay running.

The drive unit is forced forward by inertia on the helical shaft when the starter motor is engaged and begins turning. Next 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 afterward 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 avoided before a successful engine start.