

Starters for Forklifts

Starter for Forklift - A starter motor today is typically 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, mainly through 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 found on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, which starts to turn. When the engine starts, the key operated switch is opened and a spring within 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 only a single direction. Drive is transmitted in this way via the pinion to the flywheel ring gear. The pinion remains engaged, for example because the driver fails to release the key when the engine starts or if the solenoid remains engaged since there is a short. This actually causes the pinion to spin independently of its driveshaft.

The actions discussed above would stop the engine from driving the starter. This important step stops the starter from spinning so fast that it can fly apart. Unless adjustments were made, the sprag clutch arrangement will stop making use of the starter as a generator if it was employed in the hybrid scheme discussed earlier. Typically an average starter motor is designed for intermittent utilization which will preclude it being used as a generator.

The electrical components are made in order to operate for more or less thirty seconds so as to stop overheating. Overheating is caused by a slow dissipation of heat is because of ohmic losses. The electrical parts are meant to save cost and weight. This is actually the reason nearly all owner's guidebooks used for vehicles suggest the driver to pause for a minimum of 10 seconds after every ten or fifteen seconds of cranking the engine, if trying to start an engine which does not turn over immediately.

The overrunning-clutch pinion was launched onto the market during the early part of the 1960's. Prior to the 1960's, a Bendix drive was used. This particular drive system works on a helically cut driveshaft which has a starter drive pinion placed on it. Once the starter motor starts turning, the inertia of the drive pinion assembly enables it to ride forward on the helix, hence engaging with the ring gear. Once 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 hence 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 in the body of the drive unit. This was better since the typical Bendix drive used in order to disengage from the ring when the engine fired, even though it did not stay running.

Once 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. When the drive unit is spun at a speed higher than what is achieved 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 could be avoided previous to a successful engine start.