

Torque Converters for Forklifts

Forklift Torque Converter - A torque converter in modern usage, is usually a fluid coupling that is used to transfer rotating power from a prime mover, like for example an internal combustion engine or an electrical motor, to a rotating driven load. Like a basic fluid coupling, the torque converter takes the place of a mechanized clutch. This enables the load to be separated from the main power source. A torque converter could offer the equivalent of a reduction gear by being able to multiply torque when there is a considerable difference between input and output rotational speed.

The most popular type of torque converter utilized in automobile transmissions is the fluid coupling kind. In the 1920s there was likewise the Constantinesco or likewise known as pendulum-based torque converter. There are different mechanical designs used for continuously changeable transmissions that can multiply torque. For example, the Variomatic is a type that has a belt drive and expanding pulleys.

A fluid coupling is a 2 element drive which is incapable of multiplying torque. A torque converter has an additional element which is the stator. This alters the drive's characteristics during times of high slippage and generates an increase in torque output.

There are a minimum of three rotating elements in a torque converter: the turbine, which drives the load, the impeller, which is mechanically driven by the prime mover and the stator, that is between the turbine and the impeller so that it can change oil flow returning from the turbine to the impeller. Traditionally, the design of the torque converter dictates that the stator be prevented from rotating under any condition and this is where the term stator originates from. In point of fact, the stator is mounted on an overrunning clutch. This particular design stops the stator from counter rotating with respect to the prime mover while still permitting forward rotation.

Modifications to the basic three element design have been incorporated periodically. These adjustments have proven worthy especially in application where higher than normal torque multiplication is required. Usually, these alterations have taken the form of several stators and turbines. Every set has been designed to generate differing amounts of torque multiplication. Various examples comprise the Dynaflo which utilizes a five element converter so as to generate the wide range of torque multiplication considered necessary to propel a heavy vehicle.

Various car converters consist of a lock-up clutch so as to reduce heat and so as to improve the cruising power and transmission effectiveness, even if it is not strictly component of the torque converter design. The application of the clutch locks the impeller to the turbine. This causes all power transmission to be mechanical which eliminates losses associated with fluid drive.