

Torque Converters for Forklifts

Forklift Torque Converter - A torque converter in modern usage, is normally a fluid coupling that is used to transfer rotating power from a prime mover, for example an electric motor or an internal combustion engine, to a rotating driven load. Same as a basic fluid coupling, the torque converter takes the place of a mechanical clutch. This allows 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 whenever there is a considerable difference between input and output rotational speed.

The most popular type of torque converter utilized in car transmissions is the fluid coupling kind. During the 1920s there was also the Constantinesco or also known as pendulum-based torque converter. There are various mechanical designs for continuously variable transmissions that can multiply torque. For instance, the Variomatic is one version that has a belt drive and expanding pulleys.

A fluid coupling is a 2 element drive that cannot multiply torque. A torque converter has an extra element which is the stator. This changes the drive's characteristics during times of high slippage and generates an increase in torque output.

There are at least three rotating elements within a torque converter: the turbine, which drives the load, the impeller, which is mechanically driven by the prime mover and the stator, which is between the turbine and the impeller so that it could change oil flow returning from the turbine to the impeller. Normally, the design of the torque converter dictates that the stator be stopped from rotating under whichever situation and this is where the term stator begins from. Actually, the stator is mounted on an overrunning clutch. This particular design prevents the stator from counter rotating with respect to the prime mover while still allowing forward rotation.

Changes to the basic three element design have been incorporated periodically. These adjustments have proven worthy particularly in application where higher than normal torque multiplication is needed. Most commonly, these modifications have taken the form of various stators and turbines. Every set has been meant to generate differing amounts of torque multiplication. Some examples include the Dynaflo which makes use of a five element converter to be able to produce the wide range of torque multiplication required to propel a heavy vehicle.

Various car converters consist of a lock-up clutch to lessen heat and to be able to improve the cruising power and transmission efficiency, although 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.