Differential for Forklifts

Forklift Differential - A differential is a mechanical tool which is capable of transmitting torque and rotation via three shafts, often but not all the time using gears. It often functions in two ways; in vehicles, it receives one input and provides two outputs. The other way a differential operates is to combine two inputs so as to produce an output that is the sum, average or difference of the inputs. In wheeled vehicles, the differential allows all tires to be able to rotate at various speeds while providing equal torque to all of them.

The differential is designed to drive a pair of wheels with equivalent torque while enabling them to rotate at various speeds. While driving around corners, an automobile's wheels rotate at different speeds. Several vehicles like karts operate without a differential and make use of an axle instead. When these vehicles are turning corners, both driving wheels are forced to rotate at the identical speed, usually on a common axle that is driven by a simple chain-drive apparatus. The inner wheel must travel a shorter distance compared to the outer wheel when cornering. Without a differential, the effect is the outer wheel dragging and or the inner wheel spinning. This puts strain on drive train, causing unpredictable handling, difficult driving and deterioration to the roads and tires.

The amount of traction necessary in order to move whichever automobile will depend upon the load at that moment. Other contributing factors comprise momentum, gradient of the road and drag. Among the less desirable side effects of a traditional differential is that it can reduce traction under less than perfect circumstances.

The torque provided to every wheel is a result of the transmission, drive axles and engine applying a twisting force against the resistance of the traction at that specific wheel. The drive train could normally supply as much torque as necessary except if the load is exceptionally high. The limiting element is normally the traction under each wheel. Traction could be defined as the amount of torque which could be produced between the road exterior and the tire, before the wheel starts to slip. The car would be propelled in the intended direction if the torque applied to the drive wheels does not exceed the limit of traction. If the torque applied to every wheel does exceed the traction threshold then the wheels would spin continuously.