Forklift Differentials

Differential for Forklifts - A differential is a mechanical machine that can transmit rotation and torque through three shafts, often but not all the time using gears. It normally functions in two ways; in automobiles, it provides two outputs and receives one input. The other way a differential operates is to combine two inputs in order to create an output that is the sum, average or difference of the inputs. In wheeled vehicles, the differential enables each of the tires to rotate at different speeds while supplying equal torque to all of them.

The differential is designed to drive a set of wheels with equivalent torque while allowing them to rotate at different speeds. While driving around corners, a car's wheels rotate at different speeds. Certain vehicles such as karts work without using a differential and use an axle as an alternative. If these vehicles are turning corners, both driving wheels are forced to spin at the identical speed, typically on a common axle which is powered by a simple chain-drive apparatus. The inner wheel must travel a shorter distance as opposed to the outer wheel when cornering. Without using a differential, the result is the outer wheel dragging and or the inner wheel spinning. This puts strain on drive train, resulting in unpredictable handling, difficult driving and deterioration to the roads and tires.

The amount of traction considered necessary to move whatever vehicle would 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 conventional differential is that it can reduce traction under less than perfect circumstances.

The end result of torque being provided to each wheel comes from the drive axles, transmission and engine applying force against the resistance of that traction on a wheel. Usually, the drive train would provide as much torque as needed unless the load is exceptionally high. The limiting factor is commonly the traction under each wheel. Traction could be defined as the amount of torque which could be generated between the road surface and the tire, before the wheel begins to slip. The car will be propelled in the intended direction if the torque applied to the drive wheels does not go over the limit of traction. If the torque applied to each wheel does go over the traction limit then the wheels would spin incessantly.