## Forklift Differentials

Forklift Differential - A differential is a mechanical device that is capable of transmitting rotation and torque through three shafts, often but not always utilizing gears. It normally functions in two ways; in vehicles, it receives one input and provides two outputs. The other way a differential operates is to put together 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 be able to rotate at different speeds while providing equal torque to each of them.

The differential is intended to drive a pair of wheels with equivalent torque while allowing them to rotate at different speeds. While driving round corners, an automobile's wheels rotate at various speeds. Some vehicles like karts work without utilizing a differential and use an axle instead. Whenever these vehicles are turning corners, both driving wheels are forced to rotate at the same speed, normally on a common axle which is driven by a simple chain-drive mechanism. The inner wheel needs to travel a shorter distance compared to the outer wheel while cornering. Without utilizing a differential, the consequence is the outer wheel dragging and or the inner wheel spinning. This puts strain on drive train, causing unpredictable handling, difficult driving and damage to the tires and the roads.

The amount of traction necessary to move the automobile at any given moment depends on the load at that moment. How much drag or friction there is, the vehicle's momentum, the gradient of the road and how heavy the car is are all contributing elements. One of the less desirable side effects of a conventional differential is that it could limit grip under less than perfect circumstances.

The end result of torque being supplied to each and every wheel comes from the drive axles, transmission and engine making use of force against the resistance of that grip on a wheel. Normally, the drive train would supply as much torque as required unless the load is extremely high. The limiting factor is usually the traction under each wheel. Traction can be defined as the amount of torque that can be produced between the road exterior and the tire, before the wheel starts to slip. The car will be propelled in the intended direction if the torque utilized to the drive wheels does not exceed the limit of traction. If the torque utilized to each wheel does go beyond the traction threshold then the wheels will spin constantly.