Forklift Differential

Differential for Forklifts - A differential is a mechanical device that could transmit rotation and torque through three shafts, often but not all the time using gears. It usually works in two ways; in cars, it provides two outputs and receives one input. The other way a differential operates is to combine two inputs so as to produce an output that is the difference, sum or average 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 power the wheels with equal torque while also allowing them to rotate at various speeds. Whenever traveling round corners, the wheels of the cars would rotate at various speeds. Several vehicles like for example karts operate without using a differential and use an axle as a substitute. Whenever these vehicles are turning corners, both driving wheels are forced to spin at the same speed, typically on a common axle that is powered by a simple chain-drive apparatus. The inner wheel must travel a shorter distance as opposed to the outer wheel while cornering. Without a differential, the effect 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 necessary so as to move any vehicle will depend upon the load at that moment. Other contributing factors comprise momentum, gradient of the road and drag. One of the less desirable side effects of a traditional differential is that it can limit grip under less than perfect situation.

The torque provided to each wheel is a product of the drive axles, transmission and engine applying a twisting force against the resistance of the traction at that particular wheel. The drive train can normally provide as much torque as necessary unless the load is exceptionally high. The limiting factor is usually the traction under each and every wheel. Traction can be defined as the amount of torque that can be generated between the road surface and the tire, before the wheel starts to slip. The automobile will be propelled in the intended direction if the torque applied to the drive wheels does not exceed the threshold of traction. If the torque applied to each and every wheel does exceed the traction threshold then the wheels will spin incessantly.