Differential for Forklifts

Forklift Differential - A differential is a mechanical tool which can transmit rotation and torque through three shafts, frequently but not always utilizing gears. It often works in two ways; in cars, it provides two outputs and receives one input. The other way a differential functions is to put together two inputs so as to produce an output that is the average, difference or sum of the inputs. In wheeled vehicles, the differential enables all tires to rotate at different speeds while supplying equal torque to each of them.

The differential is designed to drive the wheels with equivalent torque while also allowing them to rotate at different speeds. If traveling round corners, the wheels of the cars would rotate at various speeds. Some vehicles like for example karts work without using a differential and utilize an axle as a substitute. When these vehicles are turning corners, both driving wheels are forced to rotate at the same speed, normally 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 when cornering. Without a differential, the consequence 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 tires and the roads.

The amount of traction required to move whichever car would depend upon the load at that moment. Other contributing factors consist of gradient of the road, drag and momentum. One of the less desirable side effects of a traditional differential is that it could reduce grip under less than ideal conditions.

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 typically supply as much torque as needed except if the load is extremely high. The limiting element is usually the traction under every wheel. Traction could be defined as the amount of torque that could be generated between the road surface and the tire, before the wheel starts to slip. The automobile would be propelled in the planned direction if the torque utilized to the drive wheels does not exceed the limit of traction. If the torque used to every wheel does exceed the traction limit then the wheels will spin continuously.