Differential for Forklifts

Forklift Differentials - A differential is a mechanical tool which is capable of transmitting torque and rotation through three shafts, often but not at all times using gears. It normally operates in two ways; in vehicles, it provides two outputs and receives one input. The other way a differential functions is to put together two inputs to generate an output that is the sum, average or difference of the inputs. In wheeled vehicles, the differential enables all tires to be able to rotate at different speeds while providing equal torque to each of them.

The differential is designed to drive a set of wheels with equal torque while allowing them to rotate at various speeds. While driving round corners, a car's wheels rotate at various speeds. Several vehicles such as karts function without utilizing a differential and use an axle instead. When these vehicles are turning corners, both driving wheels are forced to rotate at the identical speed, typically on a common axle which is driven by a simple chain-drive apparatus. The inner wheel needs to travel a shorter distance than the outer wheel when cornering. Without utilizing 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 tires and the roads.

The amount of traction necessary to move the vehicle at whatever given moment is dependent on the load at that moment. How much drag or friction there is, the car's momentum, the gradient of the road and how heavy the automobile is are all contributing factors. One of the less desirable side effects of a traditional differential is that it could reduce traction under less than ideal conditions.

The torque supplied to each and 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 required except if the load is very high. The limiting factor is normally the traction under each wheel. Traction can be defined as the amount of torque which could be generated between the road exterior and the tire, before the wheel begins to slip. The automobile will be propelled in the planned direction if the torque utilized to the drive wheels does not go beyond the limit of traction. If the torque applied to every wheel does exceed the traction threshold then the wheels will spin incessantly.