Differentials for Forklifts

Forklift Differential - A mechanical tool which can transmit torque and rotation via three shafts is referred to as a differential. Sometimes but not all the time the differential will employ gears and would work in two ways: in vehicles, it receives one input and provides two outputs. The other way a differential operates is to combine two inputs to be able to produce 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 various speeds while supplying equal torque to all of them.

The differential is intended to drive a set of wheels with equal torque while enabling them to rotate at different speeds. While driving round corners, an automobile's wheels rotate at different speeds. Several vehicles such as karts operate without utilizing a differential and utilize an axle instead. If these vehicles are turning corners, both driving wheels are forced to spin at the same speed, typically on a common axle which is driven 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 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 damage to the tires and the roads.

The amount of traction considered necessary so as to move the car at any given moment depends 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 vehicle is are all contributing elements. Among the less desirable side effects of a traditional differential is that it can limit grip under less than ideal circumstances.

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 could typically supply as much torque as necessary unless the load is extremely high. The limiting factor is usually the traction under each and every wheel. Traction could be defined as the amount of torque that could be produced between the road surface and the tire, before the wheel begins to slip. The vehicle will be propelled in the planned direction if the torque applied to the drive wheels does not exceed the limit of traction. If the torque used to each and every wheel does go beyond the traction limit then the wheels will spin constantly.