

## Forklift Differential

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

The differential is designed to power the wheels with equivalent torque while also allowing them to rotate at various speeds. If traveling around corners, the wheels of the cars will rotate at different speeds. Some vehicles such as karts work without utilizing a differential and make use of an axle instead. If these vehicles are turning corners, both driving wheels are forced to rotate at the identical speed, typically on a common axle which is powered by a simple chain-drive mechanism. The inner wheel must travel a shorter distance than 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 deterioration to the roads and tires.

The amount of traction required so as to move the vehicle at any 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 car is are all contributing elements. Among the less desirable side effects of a conventional differential is that it could limit grip under less than perfect situation.

The torque provided to each and every wheel is a result of the drive axles, transmission and engine applying a twisting force against the resistance of the traction at that specific wheel. The drive train could usually provide as much torque as needed except if the load is extremely high. The limiting factor is usually the traction under each wheel. Traction could be interpreted as the amount of torque which could be generated between the road surface and the tire, before the wheel starts to slip. The car will be propelled in the planned direction if the torque used to the drive wheels does not go over the limit of traction. If the torque applied to every wheel does exceed the traction limit then the wheels will spin constantly.