

Forklift Differentials

Forklift Differential - A mechanical device which can transmit rotation and torque through three shafts is known as a differential. Every so often but not all the time the differential will employ gears and would operate in two ways: in automobiles, it provides two outputs and receives one input. The other way a differential functions is to combine two inputs to be able to create an output that is the difference, sum or average of the inputs. In wheeled vehicles, the differential enables all tires to rotate at different speeds while providing equal torque to each of them.

The differential is designed to drive a pair of wheels with equal torque while allowing them to rotate at various speeds. While driving round corners, a car's wheels rotate at different speeds. Certain vehicles like karts operate without using a differential and make use of an axle instead. When 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 has to travel a shorter distance than the outer wheel while cornering. Without using a differential, the effect is the outer wheel dragging and or the inner wheel spinning. This puts strain on drive train, causing unpredictable handling, difficult driving and damage to the roads and tires.

The amount of traction required to be able to move the vehicle at whatever given moment is dependent on the load at that moment. How much friction or drag there is, the vehicle's momentum, the gradient of the road and how heavy the car is are all contributing elements. One of the less desirable side effects of a traditional differential is that it can limit traction under less than ideal circumstances.

The torque supplied 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 particular wheel. The drive train could usually provide as much torque as necessary except if the load is very high. The limiting factor is normally the traction under every wheel. Traction could be interpreted as the amount of torque that could be generated between the road exterior and the tire, before the wheel begins to slip. The car would 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 wheel does go beyond the traction limit then the wheels will spin constantly.