

Differential for Forklifts

Differential for Forklifts - A mechanical tool which can transmit torque and rotation through three shafts is known as a differential. Every so often but not all the time the differential would employ gears and will operate in two ways: in cars, it provides two outputs and receives one input. The other way a differential functions is to combine two inputs so as to produce an output that is the difference, sum or average of the inputs. In wheeled vehicles, the differential enables all tires to rotate at various 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 around corners, a car's wheels rotate at different speeds. Some vehicles such as karts function without using a differential and use an axle as an alternative. When these vehicles are turning corners, both driving wheels are forced to rotate at the same speed, usually on a common axle that is powered by a simple chain-drive apparatus. The inner wheel must travel a shorter distance than the outer wheel when cornering. Without 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 damage to the tires and the roads.

The amount of traction necessary in order to move whatever vehicle will depend upon the load at that moment. Other contributing factors comprise gradient of the road, drag and momentum. Amongst the less desirable side effects of a traditional differential is that it can reduce grip under less than perfect 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 particular wheel. The drive train could normally supply as much torque as required unless the load is exceptionally high. The limiting factor is usually the traction under every wheel. Traction could be interpreted as the amount of torque which could be generated between the road exterior and the tire, before the wheel starts to slip. The car would be propelled in the planned direction if the torque utilized to the drive wheels does not go over the limit of traction. If the torque applied to every wheel does exceed the traction threshold then the wheels would spin constantly.