

Differential for Forklifts

Forklift Differential - A differential is a mechanical device that can transmit rotation and torque through three shafts, frequently but not at all times employing gears. It often operates in two ways; in cars, it provides two outputs and receives one input. The other way a differential operates is to combine two inputs to be able to generate an output that is the difference, sum or average of the inputs. In wheeled vehicles, the differential allows each of the tires to be able to rotate at different speeds while providing equal torque to each of them.

The differential is intended to drive a pair of wheels with equivalent torque while allowing them to rotate at various speeds. While driving round corners, a car's wheels rotate at various speeds. Certain vehicles like for example karts work without utilizing a differential and make use of an axle in its place. If these vehicles are turning corners, both driving wheels are forced to spin at the same speed, usually on a common axle that is powered by a simple chain-drive apparatus. The inner wheel needs to travel a shorter distance than the outer wheel when cornering. Without a differential, the consequence 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 roads and tires.

The amount of traction considered necessary to move whatever automobile will depend upon the load at that moment. Other contributing elements include gradient of the road, drag and momentum. One of the less desirable side effects of a conventional differential is that it could reduce traction under less than ideal circumstances.

The effect of torque being supplied to every wheel comes from the drive axles, transmission and engine applying force against the resistance of that traction on a wheel. Commonly, the drive train will supply as much torque as needed except if the load is extremely high. The limiting factor is normally the traction under each and every wheel. Traction can be interpreted as the amount of torque that can be generated between the road surface and the tire, before the wheel starts to slip. The automobile would be propelled in the intended direction if the torque used to the drive wheels does not exceed the threshold of traction. If the torque applied to every wheel does go beyond the traction threshold then the wheels would spin incessantly.