

Differential for Forklifts

Forklift Differential - A differential is a mechanical tool that could transmit torque and rotation through three shafts, often but not all the time employing gears. It usually works in two ways; in cars, it receives one input and provides two outputs. The other way a differential functions is to put together two inputs so as to create an output that is the sum, average or difference of the inputs. In wheeled vehicles, the differential allows all tires to be able to rotate at different speeds while providing equal torque to all of them.

The differential is designed to drive a set of wheels with equal torque while enabling them to rotate at various speeds. While driving around corners, a car's wheels rotate at different speeds. Some vehicles like for example karts work without a differential and utilize an axle in its place. Whenever these vehicles are turning corners, both driving wheels are forced to spin at the same speed, usually on a common axle which is powered by a simple chain-drive apparatus. The inner wheel must travel a shorter distance compared to the outer wheel while cornering. Without using 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 considered necessary to be able to move any car will depend upon the load at that moment. Other contributing elements consist of drag, momentum and gradient of the road. Among the less desirable side effects of a conventional differential is that it can limit grip under less than perfect situation.

The torque supplied to each and every wheel is a product of the drive axles, transmission and engine applying a twisting force against the resistance of the traction at that specific wheel. The drive train can normally supply as much torque as required unless 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 which can be generated between the road exterior and the tire, before the wheel starts to slip. The automobile will be propelled in the intended direction if the torque utilized to the drive wheels does not go beyond the threshold of traction. If the torque applied to each wheel does exceed the traction threshold then the wheels will spin continuously.