

Differential for Forklifts

Forklift Differential - A differential is a mechanical machine which can transmit torque and rotation via three shafts, often but not always utilizing gears. It normally works in two ways; in vehicles, it provides two outputs and receives one input. The other way a differential operates is to combine two inputs in order to produce an output that is the difference, sum or average of the inputs. In wheeled vehicles, the differential enables each of the tires to rotate at different speeds while providing equal torque to all of them.

The differential is intended to power the wheels with equivalent torque while likewise enabling them to rotate at various speeds. If traveling round corners, the wheels of the automobiles would rotate at various speeds. Some vehicles such as karts operate without 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 which is driven by a simple chain-drive mechanism. The inner wheel needs to travel a shorter distance than the outer wheel when cornering. Without utilizing 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 deterioration to the roads and tires.

The amount of traction considered necessary so as to move the car at whichever given moment is dependent on the load at that moment. How much drag or friction there is, the vehicle's momentum, the gradient of the road and how heavy the vehicle is are all contributing factors. One of the less desirable side effects of a conventional differential is that it can reduce traction under less than perfect circumstances.

The effect of torque being provided to each wheel comes from the transmission, drive axles and engine applying force against the resistance of that traction on a wheel. Normally, the drive train would provide as much torque as needed unless the load is extremely high. The limiting factor is commonly the traction under every wheel. Traction could be defined as the amount of torque which could be produced between the road exterior and the tire, before the wheel begins to slip. The vehicle will be propelled in the planned direction if the torque applied to the drive wheels does not go over the limit of traction. If the torque used to each and every wheel does exceed the traction limit then the wheels will spin constantly.