Differential for Forklifts

Forklift Differential - A differential is a mechanical machine which can transmit torque and rotation through three shafts, frequently but not all the time employing gears. It normally works in two ways; in vehicles, it provides two outputs and receives one input. The other way a differential works is to put together two inputs so as to generate an output that is the average, difference or sum of the inputs. In wheeled vehicles, the differential allows all tires to be able to rotate at various speeds while supplying equal torque to all of them.

The differential is intended to drive a pair of wheels with equivalent torque while enabling them to rotate at different speeds. While driving around corners, a car's wheels rotate at different speeds. Several vehicles such as karts operate without using a differential and make use of an axle in its place. When these vehicles are turning corners, both driving wheels are forced to spin at the same speed, typically on a common axle which is powered by a simple chain-drive apparatus. The inner wheel should travel a shorter distance as opposed to the outer wheel while 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 deterioration to the roads and tires.

The amount of traction needed in order to move whatever vehicle will depend upon the load at that moment. Other contributing factors consist of gradient of the road, drag and momentum. Among the less desirable side effects of a conventional differential is that it could reduce traction under less than ideal situation.

The torque provided to every wheel is a result of the transmission, drive axles 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 except if the load is exceptionally high. The limiting element is normally the traction under each and 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 vehicle would be propelled in the planned direction if the torque applied to the drive wheels does not exceed the threshold of traction. If the torque used to every wheel does exceed the traction limit then the wheels would spin continuously.