Forklift Differential

Differentials for Forklifts - A differential is a mechanical machine which is capable of transmitting rotation and torque through three shafts, often but not at all times using gears. It normally functions in two ways; in automobiles, it receives one input and provides two outputs. The other way a differential operates is to combine two inputs to create an output that is the sum, average or difference of the inputs. In wheeled vehicles, the differential enables all tires to rotate at different speeds while providing equal torque to all of them.

The differential is intended to drive a set of wheels with equivalent torque while enabling them to rotate at different speeds. While driving round corners, an automobile'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 that is driven by a simple chain-drive mechanism. The inner wheel must travel a shorter distance as opposed to the outer wheel when cornering. Without a differential, the outcome 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 required to move the car at whatever given moment depends on the load at that moment. How much friction or drag there is, the vehicle's momentum, the gradient of the road and how heavy the automobile is are all contributing elements. Among the less desirable side effects of a traditional differential is that it can limit grip under less than perfect situation.

The end result of torque being provided to each wheel comes from the transmission, drive axles and engine making use of force against the resistance of that grip on a wheel. Usually, the drive train would provide as much torque as required unless the load is very high. The limiting element is commonly the traction under each and every wheel. Traction can be interpreted as the amount of torque which could be generated between the road exterior and the tire, before the wheel begins to slip. The car will be propelled in the planned direction if the torque used to the drive wheels does not go over the threshold of traction. If the torque applied to each wheel does go beyond the traction limit then the wheels would spin constantly.