Differential for Forklifts

Forklift Differential - A mechanical tool capable of transmitting rotation and torque via three shafts is called a differential. Occasionally but not at all times the differential would utilize gears and would work in two ways: in automobiles, 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 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 designed to drive a set of wheels with equal torque while enabling them to rotate at different speeds. While driving round corners, an automobile's wheels rotate at different speeds. Certain vehicles like karts operate without using a differential and use an axle instead. Whenever these vehicles are turning corners, both driving wheels are forced to spin at the same speed, normally on a common axle that is driven by a simple chain-drive apparatus. The inner wheel has to travel a shorter distance as opposed to the outer wheel when cornering. Without using a differential, the effect is the outer wheel dragging and or the inner wheel spinning. This puts strain on drive train, causing unpredictable handling, difficult driving and deterioration to the roads and tires.

The amount of traction needed to move any vehicle would depend upon the load at that moment. Other contributing factors consist of momentum, gradient of the road and drag. Amongst the less desirable side effects of a traditional differential is that it could limit traction under less than ideal situation.

The torque supplied to 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 could usually supply as much torque as necessary except if the load is exceptionally high. The limiting element is usually the traction under each and every wheel. Traction could be interpreted as the amount of torque that could 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 utilized to the drive wheels does not go beyond the threshold of traction. If the torque applied to each and every wheel does go over the traction threshold then the wheels will spin incessantly.