Differentials for Forklifts

Forklift Differentials - A mechanical tool which could transmit rotation and torque via three shafts is referred to as a differential. At times but not at all times the differential will use gears and would function in two ways: in automobiles, it receives one input and provides two outputs. The other way a differential operates is to combine two inputs in order to generate an output that is the sum, average or difference of the inputs. In wheeled vehicles, the differential enables each of the tires to be able to rotate at various speeds while providing equal torque to all of them.

The differential is designed to drive a set of wheels with equivalent torque while allowing them to rotate at various speeds. While driving around corners, a car's wheels rotate at different speeds. Some vehicles such as karts function 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 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 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 damage to the tires and the roads.

The amount of traction needed to be able to move the automobile at whatever given moment is dependent 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. One of the less desirable side effects of a traditional differential is that it can reduce traction under less than perfect situation.

The torque supplied to each and 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 typically provide as much torque as necessary except if the load is extremely high. The limiting element is normally the traction under each and every wheel. Traction could be interpreted as the amount of torque which can be produced between the road surface and the tire, before the wheel begins 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 used to each and every wheel does exceed the traction limit then the wheels would spin constantly.