

Pinion for Forklifts

Forklift Pinion - The main pivot, called the king pin, is seen in the steering device of a lift truck. The very first design was a steel pin which the movable steerable wheel was attached to the suspension. Because it can freely turn on a single axis, it restricted the degrees of freedom of motion of the remainder of the front suspension. In the 1950s, the time its bearings were substituted by ball joints, more detailed suspension designs became available to designers. King pin suspensions are nevertheless used on some heavy trucks because they have the advantage of being capable of carrying a lot heavier load.

The newer designs of the king pin no longer limit to moving similar to a pin. Now, the term may not even refer to a real pin but the axis where the steered wheels revolve.

The KPI or also known as kingpin inclination can also be referred to as the steering axis inclination or SAI. These terms define the kingpin if it is set at an angle relative to the true vertical line as looked at from the front or back of the lift truck. This has a major impact on the steering, making it tend to return to the centre or straight ahead position. The centre arrangement is where the wheel is at its highest position relative to the suspended body of the forklift. The vehicles' weight tends to turn the king pin to this position.

The kingpin inclination also sets the scrub radius of the steered wheel, which is the offset among projected axis of the tire's communication point with the road surface and the steering down through the king pin. If these items coincide, the scrub radius is defined as zero. Even if a zero scrub radius is possible without an inclined king pin, it requires a deeply dished wheel so as to maintain that the king pin is at the centerline of the wheel. It is more practical to tilt the king pin and use a less dished wheel. This also supplies the self-centering effect.