

Pinion for Forklifts

Forklift Pinion - The main axis, referred to as 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. Able to freely turn on a single axis, it limited the levels of freedom of motion of the remainder of the front suspension. During the 1950s, when its bearings were replaced by ball joints, more detailed suspension designs became available to designers. King pin suspensions are still featured on some heavy trucks as they could lift a lot heavier cargo.

The new designs of the king pin no longer restrict to moving like a pin. Now, the term might not even refer to a real pin but the axis where the steered wheels pivot.

The kingpin inclination or KPI is also known as the steering axis inclination or otherwise known as SAI. This is the explanation of having the kingpin placed at an angle relative to the true vertical line on most new designs, as looked at from the back or front of the forklift. This has a major impact on the steering, making it tend to go back to the centre or straight ahead position. The centre location is where the wheel is at its uppermost position relative to the suspended body of the forklift. The vehicles' weight tends to turn the king pin to this position.

Another impact of the kingpin inclination is to arrange the scrub radius of the steered wheel. The scrub radius is the offset among the projected axis of the steering down through the kingpin and the tire's contact point with the road surface. If these items coincide, the scrub radius is defined as zero. Although a zero scrub radius is possible without an inclined king pin, it needs a deeply dished wheel in order to maintain that the king pin is at the centerline of the wheel. It is a lot more sensible to slant the king pin and make use of a less dished wheel. This likewise provides the self-centering effect.