

Forklift Pinions

Forklift Pinion - The main axis, known as the king pin, is seen in the steering machinery of a lift truck. The initial design was a steel pin which the movable steerable wheel was connected to the suspension. Able to 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 in depth suspension designs became available to designers. King pin suspensions are nonetheless used on various heavy trucks because they could carry a lot heavier cargo.

The new designs of the king pin no longer limit to moving like a pin. These days, the term might not even refer to a real pin but the axis where the steered wheels turn.

The KPI or also known as kingpin inclination can also be called the SAI or steering axis inclination. These terms describe the kingpin when it is positioned at an angle relative to the true vertical line as looked at from the back or front of the forklift. This has a vital effect on the steering, making it likely to return to the centre or straight ahead position. The centre position is where the wheel is at its peak position relative to the suspended body of the lift truck. 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 between 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. Even if a zero scrub radius is likely without an inclined king pin, it needs a deeply dished wheel so as to maintain that the king pin is at the centerline of the wheel. It is much more practical to tilt the king pin and use a less dished wheel. This also supplies the self-centering effect.