

Pinions for Forklift

Forklift Pinions - The king pin, normally made out of metal, is the major axis in the steering device of a vehicle. The original design was in fact a steel pin wherein the movable steerable wheel was mounted to the suspension. Able to freely turn on a single axis, it limited the degrees of freedom of movement of the rest of the front suspension. In the 1950s, when its bearings were substituted by ball joints, more comprehensive suspension designs became available to designers. King pin suspensions are nonetheless featured on various heavy trucks because they can lift much heavier load.

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

The KPI or kingpin inclination can also be known as the steering axis inclination or SAI. These terms define the kingpin when it is positioned at an angle relative to the true vertical line as viewed from the back or front of the forklift. This has a vital impact on the steering, making it likely to go back to the centre or straight ahead position. The centre location is where the wheel is at its highest position relative to the suspended body of the forklift. The motor vehicles weight tends to turn the king pin to this position.

One more effect of the kingpin inclination is to arrange the scrub radius of the steered wheel. The scrub radius is the offset among the tire's contact point with the road surface and the projected axis of the steering down through the king pin. If these points 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 in order to maintain that the king pin is at the centerline of the wheel. It is more sensible to slant the king pin and use a less dished wheel. This also offers the self-centering effect.