

Forklift Pinions

Forklift Pinion - The main axis, referred to as the king pin, is seen in the steering mechanism of a forklift. 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 degrees of freedom of movement of the remainder of the front suspension. In the 1950s, when its bearings were replaced by ball joints, more in depth suspension designs became available to designers. King pin suspensions are still utilized on several heavy trucks since they have the advantage of being capable of lifting a lot heavier weights.

The newer designs of the king pin no longer restrict to moving like a pin. Today, the term may not even refer to an actual pin but the axis where the steered wheels turn.

The kingpin inclination or otherwise called KPI is also referred to as the steering axis inclination or SAI. This is the definition of having the kingpin placed at an angle relative to the true vertical line on nearly all recent designs, as looked at from the back or front of the forklift. This has a major effect on the steering, making it likely to go back to the straight ahead or center position. The centre arrangement is where the wheel is at its peak point relative to the suspended body of the forklift. The motor vehicles weight has the tendency to turn the king pin to this position.

Another effect of the kingpin inclination is to fix 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 items coincide, the scrub radius is defined as zero. Though a zero scrub radius is possible 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 more practical to slant the king pin and utilize a less dished wheel. This also offers the self-centering effect.