

## Pinions for Forklift

Forklift Pinion - The king pin, normally made out of metal, is the main pivot in the steering mechanism of a motor vehicle. The original design was in fact a steel pin wherein the movable steerable wheel was connected to the suspension. As it could freely rotate on a single axis, it restricted the levels of freedom of movement of the rest of the front suspension. In the 1950s, the time its bearings were replaced by ball joints, more comprehensive suspension designs became obtainable to designers. King pin suspensions are nevertheless used on some heavy trucks as they have the advantage of being capable of carrying much heavier load.

The new designs of the king pin no longer limit to moving similar to a pin. Now, the term might not even refer to a real pin but the axis wherein the steered wheels turn.

The kingpin inclination or KPI is also referred to as the steering axis inclination or SAI. This is the explanation of having the kingpin placed at an angle relative to the true vertical line on nearly all recent designs, as looked at from the front or back of the forklift. This has a vital effect on the steering, making it tend to go back to the straight ahead or center position. The centre position is where the wheel is at its uppermost point 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 set the scrub radius of the steered wheel. The scrub radius is the offset between 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. Even though a zero scrub radius is likely 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 much more practical to slant the king pin and use a less dished wheel. This also supplies the self-centering effect.