

Pinion for Forklifts

Forklift Pinion - The main pivot, referred to as the king pin, is found in the steering machinery of a lift truck. The first design was a steel pin wherein the movable steerable wheel was connected to the suspension. Able to freely revolve on a single axis, it restricted 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 accessible to designers. King pin suspensions are nevertheless utilized on some heavy trucks as they can carry much heavier cargo.

The newer designs of the king pin no longer restrict to moving like a pin. Nowadays, the term might 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 SAI or steering axis inclination. These terms describe the kingpin when it is positioned at an angle relative to the true vertical line as viewed from the front or back of the forklift. This has a major 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 peak point relative to the suspended body of the forklift. The vehicles' weight has the tendency 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 points coincide, the scrub radius is defined as zero. Even if a zero scrub radius is likely 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 much more sensible to slant the king pin and make use of a less dished wheel. This also supplies the self-centering effect.