

Pinions for Forklift

Forklift Pinion - The king pin, typically made out of metal, is the main pivot in the steering device of a motor vehicle. The original design was in fact a steel pin wherein the movable steerable wheel was attached to the suspension. Since it can freely rotate on a single axis, it restricted the degrees of freedom of motion of the remainder of the front suspension. In the nineteen fifties, when its bearings were substituted by ball joints, more comprehensive suspension designs became available to designers. King pin suspensions are still used on several heavy trucks as they can lift much heavier weights.

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

The KPI or kingpin inclination may also be called the SAI or steering axis inclination. These terms describe the kingpin when it is placed 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 return 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.

Another 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. Although a zero scrub radius is likely without an inclined king pin, it needs 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 tilt the king pin and use a less dished wheel. This likewise supplies the self-centering effect.