

Forklift Pinion

Forklift Pinion - The king pin, typically made out of metal, is the major pivot in the steering mechanism of a motor vehicle. The original design was in fact a steel pin wherein the movable steerable wheel was attached to the suspension. Able to freely turn on a single axis, it limited the levels of freedom of motion of the rest of the front suspension. In the nineteen fifties, when its bearings were substituted by ball joints, more detailed suspension designs became available to designers. King pin suspensions are nonetheless used on various heavy trucks since they can carry much heavier weights.

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

The kingpin inclination or KPI is also called the steering axis inclination or also known as SAI. This is the definition of having the kingpin set at an angle relative to the true vertical line on nearly all modern designs, as viewed from the front or back of the forklift. This has a vital effect on the steering, making it tend to return to the straight ahead or center position. The centre location is where the wheel is at its uppermost position relative to the suspended body of the forklift. The motor vehicles weight tends to turn the king pin to this position.

One more 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 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 a lot more practical to tilt the king pin and utilize a less dished wheel. This also supplies the self-centering effect.