

Pinions for Forklift

Forklift Pinion - The main pivot, called the king pin, is found in the steering mechanism of a forklift. The first design was a steel pin wherein the movable steerable wheel was attached to the suspension. Able to freely turn on a single axis, it restricted the degrees of freedom of motion of the remainder of the front suspension. In the 1950s, when its bearings were substituted by ball joints, more detailed suspension designs became available to designers. King pin suspensions are still featured on some heavy trucks since 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. Nowadays, the term may not even refer to an actual pin but the axis wherein the steered wheels turn.

The KPI or also known as kingpin inclination may also be known as the SAI or steering axis inclination. These terms define the kingpin if it is placed at an angle relative to the true vertical line as viewed from the back or front of the lift truck. This has a major impact on the steering, making it likely to go back to the centre or straight ahead position. The centre location is where the wheel is at its peak position relative to the suspended body of the forklift. The motor vehicles weight tends to turn the king pin to this position.

The kingpin inclination likewise sets the scrub radius of the steered wheel, which is the offset between projected axis of the tire's communication point with the road surface and 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 so as 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 make use of a less dished wheel. This likewise supplies the self-centering effect.