Pinion for Forklift

Pinion for Forklift - The main pivot, referred to as the king pin, is seen in the steering device of a lift truck. The first design was a steel pin wherein the movable steerable wheel was mounted to the suspension. Able to freely rotate on a single axis, it limited the degrees of freedom of motion of the remainder of the front suspension. In the nineteen fifties, when its bearings were replaced by ball joints, more in depth suspension designs became obtainable to designers. King pin suspensions are still used on some heavy trucks because they can lift a lot heavier cargo.

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

The KPI or also known as kingpin inclination can likewise be called the steering axis inclination or SAI. 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 likely to go back to the centre or straight ahead position. The centre position is where the wheel is at its highest point relative to the suspended body of the forklift. The motor 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 possible without an inclined king pin, it needs a deeply dished wheel so as to maintain that the king pin is at the centerline of the wheel. It is more practical to incline the king pin and utilize a less dished wheel. This also provides the self-centering effect.