Forklift Pinion

Forklift Pinion - The main pivot, called the king pin, is found in the steering mechanism of a forklift. The initial design was a steel pin wherein the movable steerable wheel was mounted to the suspension. Able to freely revolve on a single axis, it restricted the levels of freedom of motion of the rest of the front suspension. During the 1950s, when its bearings were substituted by ball joints, more detailed suspension designs became available to designers. King pin suspensions are nonetheless utilized on several heavy trucks since they have the advantage of being capable of lifting much heavier weights.

New designs no longer limit this apparatus to moving like a pin and these days, the term may not be utilized for an actual pin but for the axis in the vicinity of which the steered wheels turn.

The KPI or also known as kingpin inclination could also be known as the SAI or steering axis inclination. These terms describe the kingpin if it is positioned at an angle relative to the true vertical line as looked at from the front or back of the lift truck. This has a vital effect on the steering, making it likely to go back to the straight ahead or center 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 tends to turn the king pin to this position.

Another effect 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 though 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 slant the king pin and make use of a less dished wheel. This also supplies the self-centering effect.