



Safety Kingpin

Know as soon as wear thresholds are reached or the kingpin cracks/fails

The *ais* Safety Kingpin features a self-checking system for articulated trailers/semi-trailers. *ais* combines its patented design with sensor technology to detect and alert when wear thresholds are reached, allowing preventative maintenance.

The system can also detect when a crack occurs, which would require the trailer to be placed out of service immediately.



Patent no: GB2596212

Benefits of the *ais* system

1. Mitigates haulage risk

Kingpins are subject to natural wear during operation and must be replaced as soon as wear limits are exceeded, or a crack occurs. This is important because the kingpin is the only part keeping a HGV trailer connected to the tractor unit.

Using the *ais* Safety Kingpin eliminates the risk of operating with a kingpin in an illegal and/or dangerous condition, which would jeopardise the operator licence.

Deficiencies in the kingpin may prejudice the safety of the vehicle/trailer, impact the environment, put other road users at risk and cause other significant non-compliances. In the worst-case scenario, kingpin deficiencies can lead to trailer detachment, constituting a direct and immediate risk to road safety and the environment.

Despite these risks, it is widely known in the haulage industry that the monitoring of kingpins is neglected (Transport Engineer, 2022).

2. Eliminates the need for and dependency on visual inspections

The *ais* Safety Kingpin eliminates the need for operators to conduct periodic visual inspections of the kingpin. The DVSA recommends these to be as often as every 4 weeks for arduous work or difficult conditions, and as infrequent as every 13 weeks for light conditions.

Avoiding periodic inspections is particularly important because inspecting the kingpin is time consuming and difficult, and often does not uncover serious defects. To be certain no excessive wear or cracks have occurred, the kingpin needs to be thoroughly cleaned and degreased but this in itself is an onerous, time-consuming task. Crack spray would also need to be applied to reveal any defects, and wear measured with a gauge, before new grease is applied ready for use.

Wear or crack alerts with the *ais* system can be via local display using a light system.

Kingpin inspections at two national fleet operators identified **15% as unroadworthy/illegal (*ais* 2022).**

3. Improves fleet performance

The *ais* Safety Kingpin helps keep an entire fleet operating within operational specifications. Excessively worn or cracked kingpins can affect fifth wheel performance and cause excessive wear and damage to the fifth wheel it feeds into (Transport Engineer, 2022). When this happens, worn kingpins can cause damage to a fleet that spreads like a virus. This is particularly problematic in sectors where trailers are hooked up and disconnected several times a day.

The worn kingpin damages each fifth wheel it gets married up to, and the consequently damaged fifth wheel will then go on to damage the next kingpin that feeds into it. Wear rate will always increase over time but a big wear variance between equipment will accelerate the speed of this wear and cause new components to fail prematurely.

4. Reduces costs and improves profitability

Widespread fleet damage arising from kingpin wear is costly. By facilitating preventative maintenance, the *ais* Safety Kingpin helps maximise the operational lifetime of components.

In particular, addressing potential failures (such as a very minor crack or up to the limit wear) is more cost-effective than incurring functional failure (such as exceeding the wear threshold and in turn damaging the rest of the fleet, or incurring an accident arising from total trailer detachment).

The *ais* Safety Kingpin also helps to reduce costs by eliminating the need for frequent fifth wheel kingpin inspections.

Safety is the priority

Investing in technology to improve vehicle safety is the biggest priority for operators who are driven by:

- Social responsibility
- Boosting productivity/efficiency
- Increasing staff motivation
- Reducing costs

(International Road Transport Union, 2020)



NEW *ais* Backing Plate

The *ais* Backing Plate is compatible with all standard kingpins and the *ais* Safety Kingpin. Orders are now being taken to allow retrospective Safety Kingpin fitting.



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