



an **ANDUS** group company

## PPM Permanent Particle Magnet



# Armada Mobility

## Practical aspects of rails, metal particles, faults and service

Metal particles, caused by train wheels grinding against the rails and at points, are a source of faults and delays on the railway. These particles adhere to the rails, which are magnetised by voltage spikes and return currents.

On tracks equipped with electric separation joints, short circuits occur between the rails because metal particles act as conductors. Passing trains have the same effect, so the safety system thinks that the track section is occupied, resulting in faults and delays.

A large proportion of faults is caused by metal particles at electrical separation joints. Service teams sometimes have to go out every week to remove metal particles. This is a particularly tiresome problem in conditions of low rainfall in the summer, and in tunnels (e.g. the Schiphol Tunnel).

## Permanent particle magnets

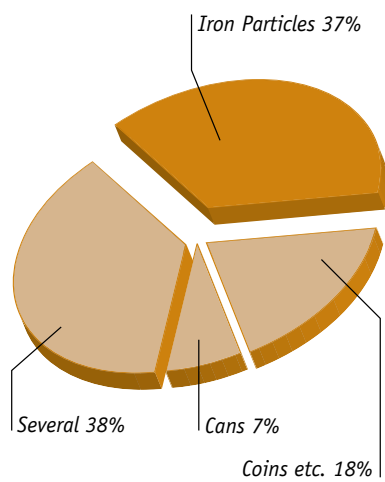
These are permanent magnets that capture loose metal particles. They are fitted on the wheel flange side of the rail, immediately before the fishplate of the electrical separation joint.

Each magnet is configured in such a way that only the side facing away from the rail is magnetic, with a capture zone that is 3 cm deep. In this way, the captured metal particles are prevented from causing short circuits at the electrical separation between the rails, and the nonetheless indispensable service gangs have easy access to the magnets for cleaning them with non-magnetic scrapers.



## Improvement

The number of faults on test routes has fallen appreciably. In the Haarlem region and in the Schiphol Tunnel, for example, there has been a reduction of over 90% in the number of faults attributable to this cause.



## Versions available

Permanent particle magnets can be supplied for NP 46, UIC 54 en UIC 60 rail profiles. They can be made suitable for other profiles on request; for instance for light rail or other specific applications.

### A modern solution

The Permanent Particle Magnet makes a contribution to the objective of more punctual transport by rail that should not be underestimated. The permanent particle magnet is a new product (patent number 1018155), invented by Volker Stevin Rail & Traffic in collaboration with Railinfrabeheer. It is produced exclusively by Armada Mobility BV.





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The ambition is clear: the Andus Group companies are always aiming to achieve maximum client satisfaction. This requires high quality, experienced and skilled project management and the use of innovative methods when designing, producing and realising projects. That is why Andus Group can continue to further strengthen their possibilities at the top of the different market segments.

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