Maurer Magnetic

Maurer Magnetic – Mobile Demagnetisation Systems

Albert Maurer (left, owner) and Christian Spiess (COO) with the three mobile demagnetisation systems: 'Maurer PRO mobile' © Thomas Entzeroth

Magnetised rails or magnetism of ferromagnetic train components can cause significant operational challenges in the railway industry.

As a leading global specialist in demagnetisation, Maurer Magnetic provides cutting-edge solutions to the railway sector and various other industries worldwide. Whenever magnetism becomes an issue, the Swiss experts at Maurer are ready with a solution. Since pioneering a groundbreaking new demagnetisation process back in the year 2000, customised for a zero-PPM TV screen demagnetisation in a fully automated production line, Maurer Magnetic has tackled demagnetisation challenges across various industries worldwide. Their latest innovation, the 'Maurer PRO mobile' demagnetisation system, enables precise and efficient demagnetisation for small or large individual components, as well as for complex assemblies, regardless of their location. With its patented technology, Maurer sets a new benchmark in industrial demagnetisation.

The Challenge: Residual Magnetism in the Railway Sector

Residual magnetism can lead to various problems in the railway industry. Magnetised tracks or magnetism in ferromagnetic components in rail vehicles can disrupt sensor signals or the signal transmission of railway

Residual magnetism in a rail, measured with the handheld M-Test LL gaussmeter

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safety systems. For example, when the magnetic field generated by magnetised parts of the chassis or other ferromagnetic steel components of the train overlaps with the magnetic field of track magnets. This interference prevents the train from detecting the track magnets when passing over them. A similar issue arises when rails become magnetised, often following when doing construction work on an existing rail network. To enhance process efficiency, rails are often handled using lifting magnets, which locally magnetise the areas where these magnets were attached. Or the rails become magnetised by welding current during the installation in the track.

Additionally, some production processes for train components require powerful and precise demagnetisation. Bearings, for instance, must be demagnetised before being eddy-current tested, and train brake discs require a demagnetisation before being electron beam welded – just two examples of where effective demagnetisation is essential.

The Solution: Maurer PRO Mobile Demagnetisation Machines

In late 2024, Maurer Magnetic introduced the new 'Maurer PRO mobile' demagnetisation system in three power classes: XL (70kW), L (50kW), S (30kW).

These modular and portable systems provide flexible, process-reliable demagnetisation solutions for industrial, construction, and railway applications. They enable on-site demagnetisation, regardless of component size or location. Additionally, installed components, such as rails on tracks, and assembled modules, like train bogies, can be demagnetised without removal or disassembly.

Advantages Over Conventional Demagnetisation Devices

Traditional demagnetisation systems often fail to fully penetrate large or assembled components or strongly magnetised materials. The 'Maurer PRO mobile' system overcomes this limitation in these ways:

- It has an exceptionally strong magnetic field to remove magnetism also from strongly magnetised parts and adjustable frequency to enable deep penetration into the material
- Its adaptable, flexible cable coils can be adjusted to complex geometries and large surfaces to ensure that the magnetic field of the demagnetiser is applied in the best possible way to the magnetised area of the parts
- Its modular, air-freight-compatible trolley system simplifies logistics and on-site handling

When Are Mobile Demagnetisation Systems Used?

For inline serial production, stationary demagnetisation systems remain the preferred solution. Maurer Magnetic offers a wide range of stationary systems, from compact standard units to large, customised high-performance demagnetisers.

However, for rail tracks or installed components in the train, mobile demagnetisation solutions are the only practical option. The Maurer PRO mobile system provides an optimal solution for:

- Demagnetisation of installed vehicle components or large assemblies
- Removing localised magnetisation on rails
- Long railway track demagnetisation

For frequent on-site applications, investing in a Maurer PRO mobile machine and building in-house expertise is recommended. For one-off requirements, rental units are available, along with Maurer Magnetic's expert demagnetisation services worldwide.

www.maurermagnetic.com

MAURER MAGNETIC®

Demagnetizing of installed rail tracks

Magnetism in rails causes:

- problems to detect track magnets
- malfunction of the train control system

Maurer Magnetic supplies solutions to demagnetize local magnetism in tracks or for larger track networks

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