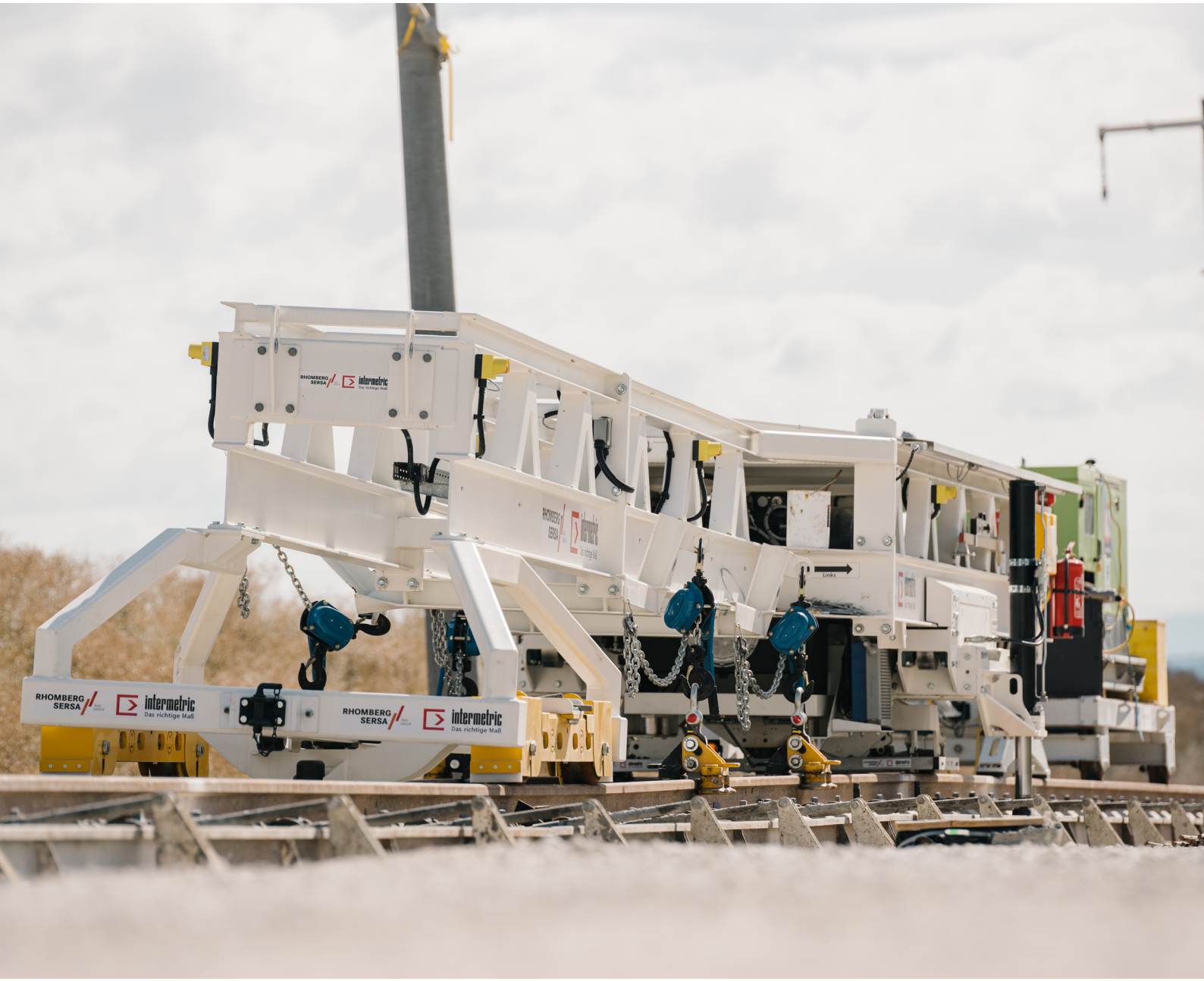


Semi-automated track alignment system – RhoMAT

Fast – Efficient – Flexible

RHOMBERG SERSA RAIL GROUP

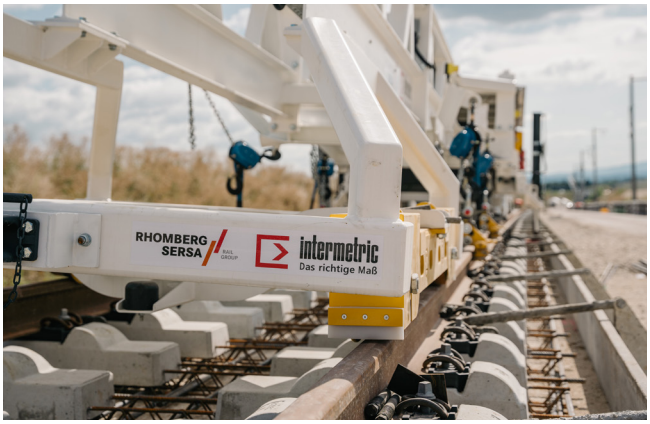
intermetric
Das richtige Maß

Semi-automated track alignment system – RhoMAT

Slab track construction comes with various organisational as well as technical challenges. The starting point is not automated and requires a lot of skilled manual labour. For this to work well, the personnel need to be well trained and have the necessary competence and experience. There are several key steps that progress the installation to the final, precise positioning of the rails: lifting (off the formation), rough alignment, and fine alignment. These steps require a lot of equipment, and a long, extended work site. Until now, the result of the rough alignment process is undocumented.
Low quality and accuracy in the lifting and rough alignment steps also lead to an unnecessarily high amount of work required in the fine alignment process. Localised areas of stress can arise in the immediate area of the lifting positions in the first steps that lead to slight reaction changes in the track position. This also leads to rework during the fine alignment.
The semi-automated track alignment system RhoMAT solves these problems. It combines several work steps while also increasing the achievable quality and does this with a considerably reduced number of staff. RhoMAT is a significant step forward in the field of slab track construction, bringing targeted mechanisation and automation to improve operation and experience. It enables greater output, efficiency, process reliability and ease of planning.

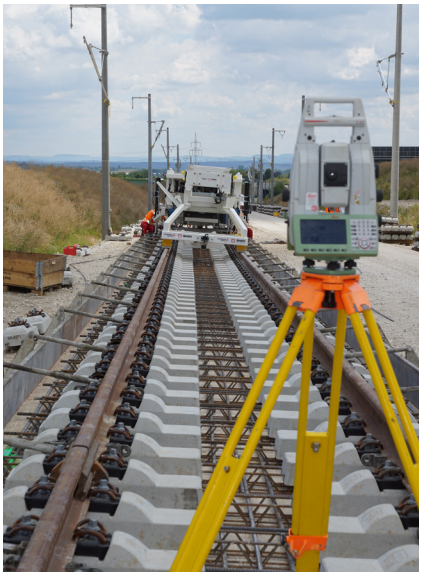
Development goals

- The RhoMAT system has a wide range of flexible applications
- Process documentation is generated
- Compatibility with most track systems (exception: pre-cast plate systems)
- Compatible with all good track adjustment systems used for rough and fine alignment
- Partially automated operation, to reduce complexity and potential for human error
- The work site extension is reduced due to an efficient combination of the work steps
- Reduced staff requirement
- Easy transportation



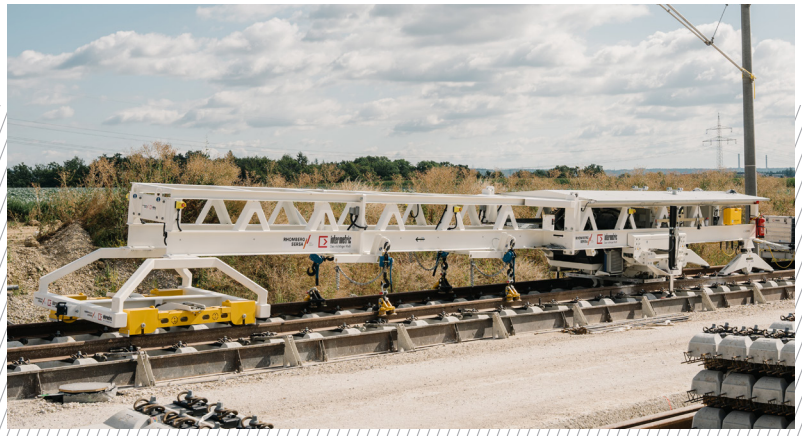
How it works

A skeleton track panel consisting of sleepers and rails is pre-assembled on the formation or sub-structure. Temporary gauge holders or the RhoFAS track adjustment system are needed to obtain a stable track panel in the case of unconnected baseplate or block systems. The RhoMAT system is then positioned on the pre-assembled skeleton track with the front bogie in the working direction and the rear part of the machine on a section already lifted and aligned. The RhoMAT then proceeds forwards, lifting and holding the track to a defined tolerance with the help of the iTL2 measuring system. This enables the two operators to install the temporary track support systems. After the control measurement recording, allowing quality documentation to be generated, it then moves automatically forward to the next lift point.



Features

- Tachometer-controlled lifting & alignment machine with results evaluated for quality documentation
- Requires only rails and gauge-fixed track equipment – is independent of slab track system and fine alignment/temporary works equipment
- Reduction of induced stress in the running rails and elimination of subsequent deformations in the track
- Section just straightened is reloaded by the weight of the machine during the alignment process of the new section; this means elimination of subsequent reverse deformations (uplift) in the track during progress of the alignment.
- Suitable for a wide range of operating conditions (track gauges, rail types, support spacing), by exchanging individual machine components
- Configurations, such as the overall length of the front-end cantilever frame, can be flexibly adjusted



The advantages at a glance:

Fast and efficient

- Lifting and coarse alignment process delivered by highly competent specialists
- Combines lifting and coarse alignment in one single operation
- Only two competent personnel are needed to operate the system
- Performance of up to 20m/h is possible
- Reduction of the number of sub-process steps and thereby reduction of complexity and dependencies
- Up to 20% reduction in the reserve quantity of temporary track support systems required to achieve the same performance

Quality

- Documentation of the track position achieved and with this the ability to forecast subsequent performance

Flexibility

- Adjustment process for both track panels as well as track sections with continuous rails can be set up
- No lead times required
- Easy to move locally by crane and lorry
- Can be used on main line track as well as light rail or metro
- Compatible with all known in-situ slab track systems equipped with running rails
- Can be used with all common temporary track support and adjustment devices
- Adaptable to different track gauges and rail types

All-electric operation via 400V 32A and therefore no local emissions

The specialists behind RhoMAT

The Rhomberg Sersa Rail Group operates internationally in the rail sector and has many years of theoretical and practical know-how in the design and construction of slab tracks.

As one of the few track surveying specialists in Germany, intermetric GmbH has continued to hone its track surveying methods for over 50 years and has surveyed and processed over 100,000 kilometres of railway track under geometric constraints.

The semi-automatic track lifting and alignment system RhoMAT was developed based on this unique combination of experience and expertise .

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