

keep track

Rhomberg Sersa Rail Group Customer Magazine

2018 edition



// Growing together
as a Group, page 6

// Focus on the future:
Full speed ahead, pages 8_11

// IVES: the applications
are unlimited, pages 18_21

**RHOMBERG
SERSA**

**RAIL
GROUP**

INNOVATION

DIGITISATION

CLOUD(-BASED SOLUTIONS)

MACHINES



RAILWAY TECHNOLOGY
FULL-SERVICE PROVIDER

RAIL INFRASTRUCTURE

PROJECT MANAGEMENT

RAILWAY CONSTRUCTION

TRACK AND INFRASTRUCTURE

EARLY WARNING SYSTEMS

COLLABORATION



Switching tracks for the future

“We’re travelling into the future on the tracks of the past, and we’re missing all the signals”. These are the words of Matthias Horx, but his plan is to turn the situation completely around. He challenges us to take a chance on the future, to shape it with courage, determination and expertise.

The Rhomberg Sersa Rail Group (RSRG) has already taken up this challenge. Again and again, as a driver of innovation, we excite our customers with our efficient and economical solutions in the entire field of construction, operation and maintenance for railroad infrastructures worldwide. In this way we make sure that you never miss a connection!

Whether it is slab track construction in Switzerland (p. 32) or the United Kingdom (p. 21), track grinding (p. 23) in Canada, the Second Life System in the Netherlands (p. 22), traction power supply in Austria (p. 40) or the use of high performance machines in Australia (p. 25) or England (p. 24); whether for local transport (p. 15) or long-distance trains and freight traffic (p. 42) – you can count on RSRG as a highly professional, trustworthy and sound partner for your rail project; a reliable expert, keeping you on track and on time.

Wishing you a pleasant journey and an enjoyable read!

Your Owner Board

Konrad Schnyder (President), Hubert Rhomberg, Jürg Braunschweiler und Ernst Thurnher



Konrad Schnyder (2nd from right),
Hubert Rhomberg (2nd from left),
Jürg Braunschweiler (l.) and Ernst Thurnher (r.)

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 T +43 5574 403 0; Würzgrabenstrasse 5, 8048 Zürich/CH, T +41 43 32223 23, info@rhomberg-sersa.com, www.rhomberg-sersa.com
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 respective masculine. Often the masculine pronoun only is used, in order to simplify content.

Growing together as a Group

// Thomas Bachhofner joins RSRG as CEO, Frank Kirberg joins as CFO.



CEO Thomas Bachhofner (l) and CFO Frank Kirberg (r) join the RSRG management team.

With two new staff members, RSRG is well equipped for the future: Thomas Bachhofner has joined the Austrian/Swiss railway technology company as chief executive officer, Frank Kirberg as chief financial officer. For Hubert Rhomberg and Konrad Schnyder, this was “the logical next step in our development towards becoming the leading technology company in railway infrastructure”.

Bachhofner joins us from Andritz AG, where in recent years he worked as Senior Vice President in leading management roles.

In his last position, the mechanical engineer who worked at Andritz AG

for about 20 years, was responsible for the strategic division “Andritz Separation” with a turnover of 450 million euros, where he was in charge of 1800 members of staff. His main focus at RSRG will be strengthening the competitive range of services of the railway technology provider in its home markets of Germany, Austria and Switzerland as well as in its core markets Australia, Canada and the United Kingdom, by activating synergies within the group.

Kirberg worked previously at the Migros company Office World AG, likewise as CFO. He has also worked at VBH Vereinigter Baubeschlag Handel, Lidl Schweiz GmbH and has managed his own consulting company. He has

already gained experience in the railway sector in his position as CFO, Member of the Executive Board and Vice President Foundation Board of the collective foundation Symova at the “Schweizerische Südostbahn AG”. A graduate in business management and tax accountant, Kirberg will move RSRG forward especially in the field of finances, controlling and taxes. “In him,” Rhomberg says, “we gain a creative who will analyse our business, see the bigger picture and play a part in the company’s entrepreneurial approach to development .”

Rhomberg Sersa worldwide

// Rebranding for Group companies in North America and Germany.



RSRG is operating increasingly as an entity in its own name: Canadian subsidiary Sersa Total Track will be Rhomberg Sersa North America, the German companies for commercial track construction Sersa GmbH, RS Gleisbau GmbH and Klenk Gleis- und Tiefbau GmbH & Co. KG are merging to form Rhomberg Sersa Deutschland.

“But nothing else will change” Hubert Rhomberg explains. “Our customers can still count on our range of services, quality and our solution-focused approach.”

The background to these changes is a clear strategic orientation towards the needs of the local markets. From now on the German commercial track constructors of the Rhomberg Sersa Rail Group will therefore operate under one brand, but will continue to be managed as independent GmbHs. “This way we’ll become an even stronger partner for our customers and will build additional synergies for their benefit,” explains Georg Gabler, Managing Director of the German Group. “Now the two powerful names, Rhomberg and Sersa, are unified under this new brand in Germany too.” JumboTec GmbH, Rhomberg Bahntechnik GmbH und Rhomberg

Under a new flag, the logos of Rhomberg Sersa North America and Germany.

**RHOMBERG
SERSA** // DEUTSCHLAND

**RHOMBERG
SERSA** // NORTH AMERICA

Sersa Service GmbH, also located and active in Germany, will continue to operate under their strong and independent brands and will remain unchanged under commercial law.

”
We create synergies for our customers. “



Georg Gabler
CEO Rhomberg Sersa Deutschland

In North America the renaming is the result of the company’s long-term goal. “We want to be the leading provider in our core businesses of ‘new construction and maintenance of metro mainline railways and tramways’, ‘Customised technical solutions to optimise life-cycle costs’ as well as ‘high performance machines for the maintenance of ballasted tracks and for track treatment’, local Managing Director Michael Match sums up. Geographical expansion is part of the process. In addition to Canada, RSRG is increasingly also serving the United States . “We are already delighted to see positive early growth and increasing customer interest in the realigned divisions”, says Match.

”
We want to be the world’s best provider. “



Michael Match
CEO Rhomberg Sersa North America

Full speed ahead

// How RSRG makes sure that its customers stay in the driving seat.

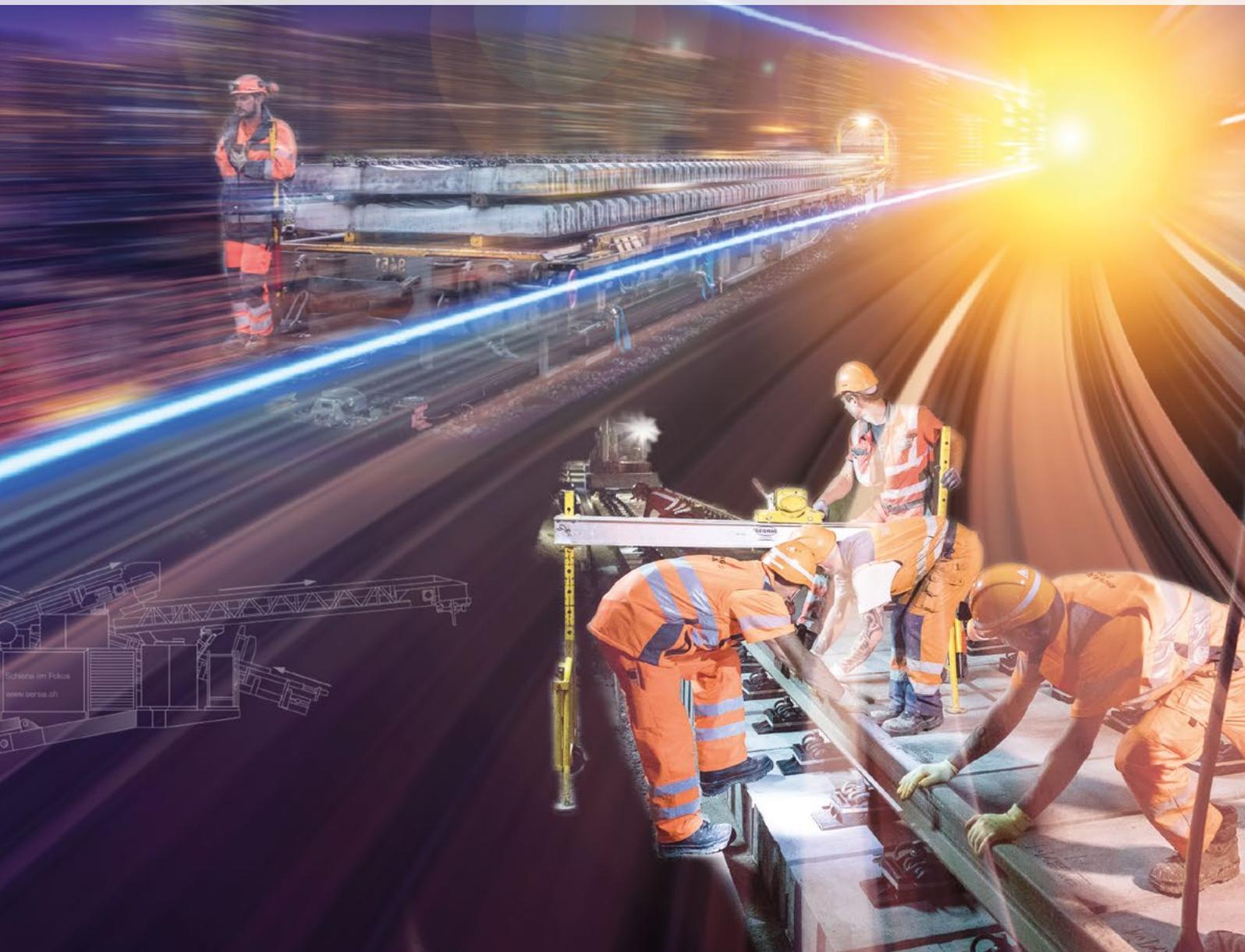
Our industry is currently undergoing a process of reorganisation: Private bus companies are trying to attract rail customers, autonomous driving promises equally comfortable mobility, and logistics service providers are using gigaliners to deliver goods to people by road.

New players are currently entering the mobility market, many of them

scrutinising people's needs and motives in order to launch new offers with speed and dexterity. Their goal is the more efficient use of existing resources and infrastructures, eco-friendly production using renewable energies, lower manufacturing costs and fewer accidents.

It's good that we're prepared and have the right solutions to support railway infrastructure operators in fending off

these attacks: in this way we enable our customers to streamline the use of infrastructure with the aid of new software solutions, to maintain it even more cheaply and to take care of it in an innovative way. How? The following three pages will show you.



Rail 4.0 – Digitisation of an international port’s rail network

// MR.pro® “ready to work”- package for bremenports

FACT BOX

With a “ready to work” package Rhomberg Sersa Service was awarded the contract for an attractive digitisation project for the Bremen ports. Port operator bremenports invited tenders for the procurement and implementation of an IT system for the digital management of its local track infrastructure. With the help of its information system MR.pro® and an inventory inspection, the rail infrastructures management specialist was able to secure the contract.

“The IT-System had to be designed in such a way as to provide practical support for the specialist harbour railway department in on-the-spot checks in order to maintain transport security and the safety of the facility,” recalls Andreas Marx, Managing Director of Rhomberg Sersa Service. Apart from technical analysis and evaluation of the tracks, fastenings,

sleepers and ballast, the main focus of the bidding was a rule-based definition of short-term priority measures and long-term investment planning. “The perfect task for our ‘ready to work’ package.”

Roll-out happened within a very short time while rail operations continued: in just seven months nearly 220 kilometres of track and the 673 switch points of the harbour railway in Bremen and Bremerhaven were recorded, inventoried, evaluated and processed in a two-dimensional MR.pro® data model with GIS functionality.

Marx firmly believes that “in this way bremenports set the course for future growth in transportation tasks and track loads”. “MR.pro® provides the necessary transparency for the realisation of the longest possible economically efficient operating life of Bremen’s valuable railway infrastructure.”

Bremen’s ports are among Europe’s most important universal ports. Whether containers, cars, piece or bulk goods, hazardous material or project cargo – terminals in Bremen and Bremerhaven handle nearly every kind of cargo. In addition this group of ports offers one of the most modern and efficient passenger terminals for cruise liners. Since its foundation in 2002, bremenports GmbH & Co. KG has managed the infrastructure of the Bremen /Bremerhaven group of ports. The harbour railway facility strategy is based on a mix designed for the long-term preservation of the quality of the facility; it’s a mix of both condition-based and preventive maintenance.

” bremenports sets course for the future. “



Andreas Marx
Managing Director
Rhomberg Sersa
Service



With MR.pro® our customer bremenports has a perfect overview of the railway infrastructure in the harbour of the Hanseatic city. The GIS viewer in MR.pro® displays all network database objects to scale. Every piece of information in the database can be mapped, parameterised and colour-coded: inventory and condition data, repair requirements, measures and projects.

Up in the cloud

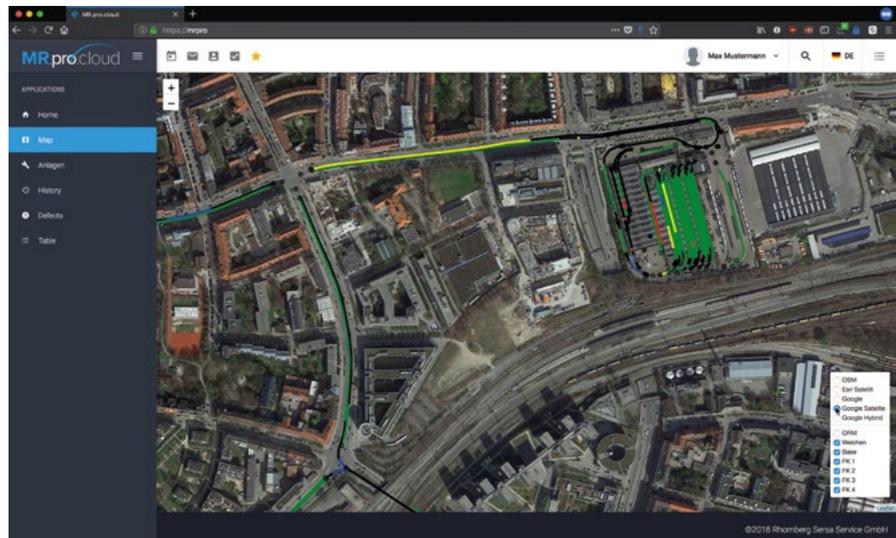
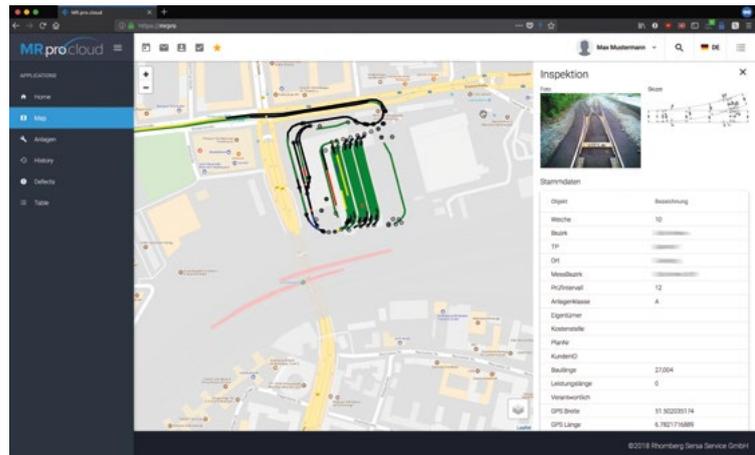
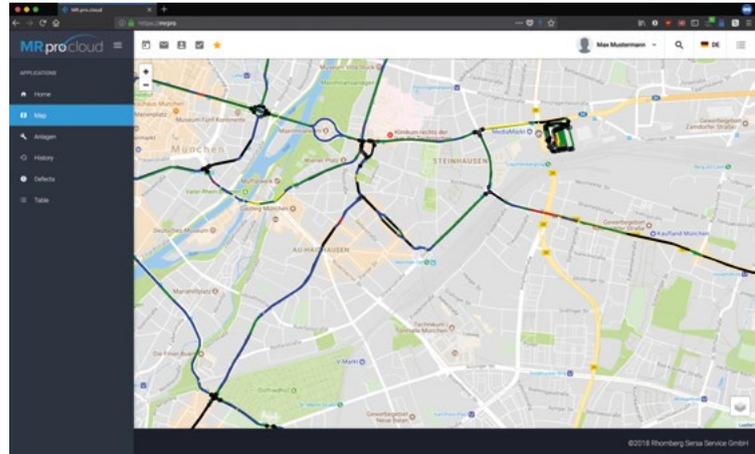
// New MRpro.cloud software puts maintenance and inspection management on a new level.

In the future our well-known Inspection and maintenance software MR.pro® will be available as a dedicated “Software as a service” -solution: MRpro.cloud allows, through web-based software via Internet browser, direct, demand-oriented access to the database. The advantages over traditional license purchase are as follows:

- Customer friendly and user friendly
- Access to the system any time, anywhere
- Low investment risk
- Outsourcing of IT process complexity including repair, updates, security
- Transparent IT costs
- Accelerated roll-out
- Highly mobile with focus on the core business
- Highest, current security standards

A combination of MR.pro® and MRpro.cloud will also be possible, with existing databases being kept both locally and in the cloud and available through the web application MRpro.cloud on every digital device.

Major advantages at a low price: RSRG's inspection and maintenance software is also available as a “SaaS” solution.



Dynamically optimised customer service

// Innovative maintenance concepts for railway vehicles

Sersa Schweiz also operates efficient maintenance workshops for railway vehicles, among others in Rümlang and Lonay near Lausanne.

They are certified according to the principles of the Europe-wide maintenance standard ECM (entity in charge of maintenance, all four levels)

and the VPI standard (Standard in the area of maintenance and servicing of freight wagons).

Maintenance jobs on railway vehicles will be carried out not only in Sersa-workshops but also upon request directly at the customer's premises. Traction vehicles – locomotives, freight wagons etc. – therefore do not

have to be transported into a Sersa maintenance workshop, but can be maintained or repaired on site instead. Sersa customers especially appreciate that these maintenance jobs can be done during railway vehicle downtimes (for example on Saturdays). This essentially raises vehicle availability in the interest of the customer.



Sersa's Rümlang maintenance workshop: Operation in the area of heavy-duty maintenance.

Heavy-duty maintenance: functional testing, lift at a customer's vehicle.



System W+ shortly before operation



The success story continues

// The WRM 205 cleaning machine for switches and ballast, developed in the East, makes way for the new generation.

” Our W+ has significantly shortened downtimes. “



Robert Kumpusch
Managing Director
Sersa Maschineller
Gleisbau

It all began with the WRM Cleaning Machine for Switches and Ballast. The machine was developed and built in 1989 in the former GDR as WRM 202 b. In 2004, the current Sersa Schweiz Burgdorf site purchased and fully restored a WRM before being used successfully in Switzerland – now as WRM 205 – completing 100 – 200 shifts per year. Between 2008 and 2015 it has worked 360 shifts in total for the points refurbishment division.

Construction projects involving points are especially challenging: time frames are narrow, engagement of large construction trains not very productive, the coordination of multiple individual services is difficult and complex. There

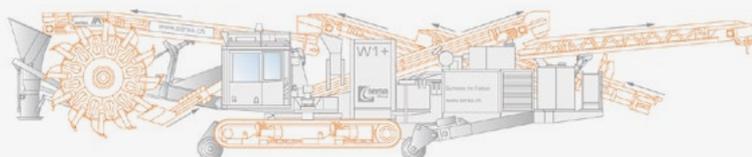
was an urgent need for a time and cost-efficient solution. Sersa, specialising in the analysis and implementation of economical operations, rose to the challenge and developed the innovative and economical system solution W+, enabling all track renovation work to be undertaken as a complete package, essentially shortening on-site operating time as well as downtimes. The powerful excavating performance of W+ requires well-planned and efficient transport of material across the AVES-transport line. The excavated material is transported on conveyer belts back to the ballast cleaning machine REINER+. From here cleaned ballast will simultaneously be returned to the W+ and new pre-ballasting begins.



WRM 205 during its last operation

FACT BOX

Division W+/Reiner+



W+

Excavation depths	max. excavation depth 1000 mm
Work progress	min. 60 m ³ /h - max 250 m ³ /h
Min. curve radius	60 m during operation
Min. round off radius	min. 2950 mm width
Excavation operations	max. 8500 mm width



Reiner+

Min. curve radius	120 m during operation
Min. round off radius	200 m during operation
Max. track twist	12,6 ‰
Max. speed	Bogie: 6 km/h , Crawler: 3 km/h
Content of Silo	30 m ³
Conveyer capacity belt	max. 500 m ³ /h
Distance between tracks for surrounding area	+/- 43° pivoted
Crawler cord	Length 2150 mm, Width 600 mm, Gauge width 1700 mm
Sieve	Performance < m ³ /h Granule size 30 - 70 mm

Compression of the excavation and ballast bed happens during the same process. The machine moves backwards with the result that, straight after compression, installation of new tracks can begin, making continuous uninterrupted progress possible. Each machine in the system is actuated with precision, each operation meshes with and builds on the one before it. In 2017 the system managed 59 reconstruction machines in total in complete points renovation and in 2016 the figure was 82.

For several years – depending on conditions – both WRM and the W+ system were in operation. In March 2018 finally the WRM was used for track reconstruction for the last time, handing the work over to the modern, time and cost-efficient W+ generation. In Switzerland Sersa is the market leader for this system which has evolved into a veritable success model; after all, tracks can be replaced completely during very short down times. But not only in Switzerland, in other European and international markets too, the W+ system could well cause a sensation.



Impressing right down the line

// Rhomberg Bahntechnik launches its successful employer branding campaign.

What makes Google, Adidas and Audi outstanding employers? How do they manage to secure the loyalty of both new and current employees alike long term? This and many more questions have preoccupied the Human Resources department of Rhomberg Bahntechnik over the past year. The answer was not hard to find: the creation of an attractive and authentic employer brand that reinforces the positive image of the company as a whole.



We show what makes us so attractive as employers.



Sandra Stadelmann
HR Representative

What this means for Rhomberg Bahntechnik: the company has to impress, not only by its outstanding performance in terms of its railway projects, but also by its “good name”. It is the employees who are responsible for the company’s success. Every one of them is an ambassador for the brand, lives out the company’s values and brings them to the outside world. Therefore employees too should represent Rhomberg Bahntechnik as role models.

The result: four top employers now enrich the job market. With an attractive and unusual image, demonstrating enthusiasm,

innovation and creativity to the outside world, Rhomberg Bahntechnik has achieved a unique position on the labour market. “With us, on track” is the slogan, combined with strong word combinations such as “Synergy-creators”, “Switching tracks for the future”, “Milestone-makers”, and the “Ideas driver”. That’s how employers attract project and construction managers who will steer projects to success with RSRG. The campaign’s first successes show that Rhomberg Bahntechnik is on the right track and it is planned to extend the employer branding throughout RSRG.

Finger on the pulse

In parallel, a profile has been created on the social media platform LinkedIn. Railway technology can already be evaluated on Kununu via the RSRG profile. There is an RSRG profile on Xing and Kununu. Potential employees can gain an insight into the world and behind the scenes of railway technology through interesting projects and content on social media. That creates a crucial advantage when it comes to transparency.

Successful strengthening

// Württemberg's local transport relies on Rhomberg Sersa Deutschland – Südwest.

“We want our work to contribute towards making regional railways and local transport in Baden-Württemberg even more attractive” says Reiner Morbach, Technical Branch Manager of Klenk Gleis- und Tiefbau in Mühlacker, now renamed Rhomberg Sersa Deutschland – Südwest. In addition to contracts for Deutsche Bahn, the RSRG subsidiary focuses on local transport providers.

“We support the rail operators in expanding and preserving railway infrastructure. We use our technical knowledge, for example concerning ancillary services, for the benefit of customers, saving both costs and resources”, Morbach explains.

This spring alone the company completed three such contracts worth 800,000 euros for Stuttgarter Strassenbahnen AG. Among them were the lowering of approximately 560 metres of track in the tunnel under Charlottenplatz while operations continued, and track renewal in Frankenstrasse and in Stuttgart-Möhringen. A contract for Albtal-Verkehrs-Gesellschaft mbH was valued at approximately the same amount: 1500 metres of ballast cleaning, renewal of the sleepers and 8500 metres of filling work on the Busenbach-Bad Herrenalb section of the Ettlingen railways district.

Rhomberg Sersa Deutschland – Südwest also worked and still works for the Zweckverband Schönbuchbahn (ZVS) transport association and for Württembergische Eisenbahn-Gesellschaft mbH (WEG). For ZVS the company is a subcontractor of Gottlob Brodbeck mbH & Co. KG respon-



The expertise, competence and flexibility of Rhomberg Sersa Deutschland – Südwest ensure customer satisfaction.

sible for the track construction of the new Böblingen depot and the track section between Böblingen railway station and the Danziger Straße station. The company is a contracting partner for WEG. “We act as a rapid response team when fast and efficient unplanned maintenance is needed on the Strohgäu, Schönbuch, Täles and Wieslauftalbahnen routes , ” is how Morbach describes the work of the track specialist and civil engineering company. Both contracts are ongoing until the end of 2018.

Recently Rhomberg Sersa Deutschland – Südwest, in collaboration with Carl Rossaro GmbH u. Co KG of the Go-Ahead Facility GmbH, future operator of the Rems-Fils and Franken-Enz routes, received a contract for track construction at the new maintenance base in Esslingen.

”
We gladly support local transport in becoming even more attractive.

“



Reiner Morbach
Technical Branch Manager
Rhomberg Sersa
Deutschland -Südwest

More opportunities

// Rhomberg Rail takes over EM-Rail, a Perth-based overhead line company.



With this acquisition, international rail technology full-service provider RSRG significantly expands its market presence in this service sector on the Western Australian market, reinforcing its strategy to offer a broad spectrum of complementary services and to position itself for further major projects. “From now on our customers from Auckland to Sydney and Perth benefit from track and overhead solutions from a single source. With the new partnership we can meet their needs even better”, Richard Morgan, Managing Director of Rhomberg Rail Australia, explains.

Single source: EM-Rail is now part of RSRG.

Down under, Rhomberg Rail Australia has acquired overhead line specialist EM-Rail.

Roads and the New-Perth-Stadium project.

”

This was a smart acquisition for Rhomberg Rail Australia. The company is well known throughout the sector.

“



Richard Morgan
Managing Director
Rhomberg Rail
Australia

Over the past 35 years, our team in Perth has made a name for itself among customers in the private and public sector in Australia and New Zealand providing services in the construction, operation and maintenance of overhead lines. As a modern and progressive company, EM-Rail provides proven processes and technologies as well as progressive solutions; and has under its belt many successfully completed and ongoing projects. The specialist was involved, for instance, among other companies, in infrastructure projects such as the Forrestfield Airport Link, the Mitchell Freeway Extension, the Reid Hwy Duplication, the Claisebrook Stow



Flying high: with this acquisition, Rhomberg Rail Australia is able to offer its expertise in overhead line construction more intensively in Western Australia (here: Aubin Grove Station).

Project S-CODE reaches the half-way point



// Optimised points design



RSRG is supporting this project as part of the “Shift2Rail” initiative in the EU programme “Horizon 2020 Research and Innovation”, contributing its expertise in the construction and maintenance of points and level crossings.

RSRG is proud to be taking part in this three-year “Shift2Rail” sponsorship project as an expert in the logistics and installation of completely new concepts in points systems.

A working party consisting of nine partners from business and academia are working on new methods and next-generation equipment that could have the potential to improve the railway system substantially.

The project has now reached its half-way point: now that

existing technologies (including from other spheres of industry) have been studied, “Phase 2” is up and running. The overarching aim now is to develop error-tolerant, low-maintenance wear parts and system components with reduced life-cycle costs and low CO2 emissions. This will be achieved by the use of new kinds of materials, processes, control systems, mechatronic development concepts and innovative electronics.

The results will be evaluated in the third phase of the project ending in October 2019. Then a decision will be made regarding uses and applications in future.

<https://shift2rail.org/project/s-code>
www.s-code.info

” We are proud to be able to take part in this project. “



Garry Thür
 CEO
 International and
 Projects



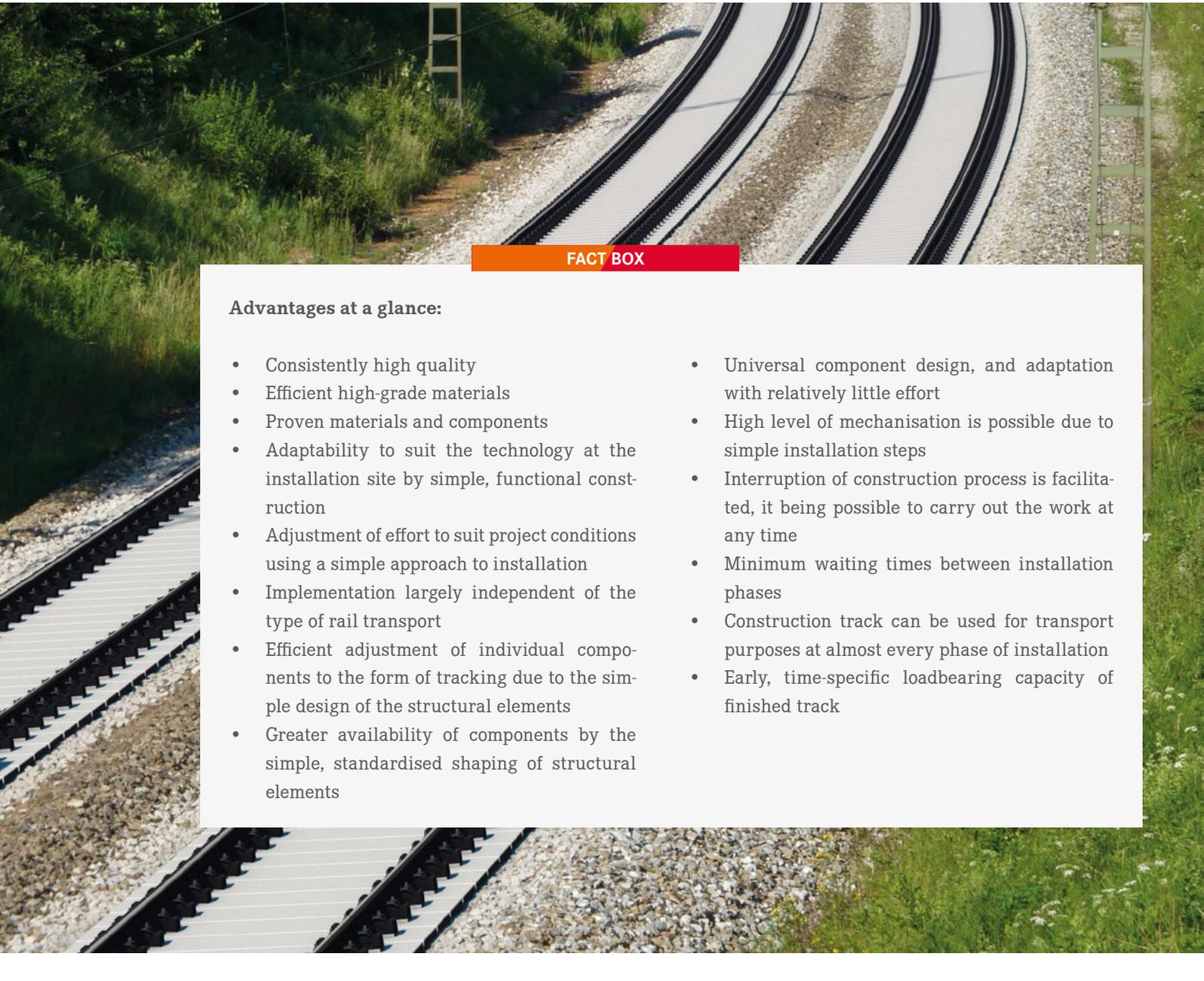
This project has been funded by the “Shift2Rail” consortium in the context of the EU “Horizon 2020” research and innovation programme under funding agreement No. 730849.

Intelligent, versatile, efficient and sound

// The IVES slab track system offers unlimited applications.

With the IVES slab track system, RSRG provides a successful alternative to ballastless track construction: one of the core ideas during its development was the efficient and effective use of components and materials the quality of which must meet the stresses to which it is subject. In order to increase

efficiency, production methods and relevant transport and construction procedures have also been taken into consideration. This results in components that can be produced, transported and processed quickly and easily.



FACT BOX

Advantages at a glance:

- Consistently high quality
- Efficient high-grade materials
- Proven materials and components
- Adaptability to suit the technology at the installation site by simple, functional construction
- Adjustment of effort to suit project conditions using a simple approach to installation
- Implementation largely independent of the type of rail transport
- Efficient adjustment of individual components to the form of tracking due to the simple design of the structural elements
- Greater availability of components by the simple, standardised shaping of structural elements
- Universal component design, and adaptation with relatively little effort
- High level of mechanisation is possible due to simple installation steps
- Interruption of construction process is facilitated, it being possible to carry out the work at any time
- Minimum waiting times between installation phases
- Construction track can be used for transport purposes at almost every phase of installation
- Early, time-specific loadbearing capacity of finished track

Towards a better future

// Experiences after one year of RailPAVE and IVES in Australia.

Last year, for the first time on the Australian continent, in the Hunter-Valley network of the Australian Rail Track Corporation ARTC, asphalt was officially used as the base layer of a ballastless track. Specifically, on a section for heavy duty traffic in Branxton, New South Wales, Rail-PAVE asphalt has been laid, with IVES as the slab track system. Time for an interim evaluation.

“Our system has worked as we had imagined and hoped it would”, Henrik Vocks, Manager Technical Services at Rhomberg Rail summarises the results. “The tracks are stable and both IVES and our V-TRAS modules for the smooth transition from slab track to ballasted track worked exactly as planned.” That means that even fully loaded coal transports with an axle load of 30 tonnes travel the route without problem. “Of course we continue our observations”, Vocks says, “but the results are very good – and incidentally to our customer’s complete satisfaction too.”

Review: in November 2017 during multiple full closures, each between 68 and 96 hours, the new slab track system was installed. Ahead of it both RailPAVE, as part of the base layer, and IVES, as part of the road slab, had been extensively tested. In addition both were subjected to an approval procedure by the client.

The innovative IVES track system has been developed especially for converting ballast road bed into slab track. In addition parts of the IVES system have been modified so that special weighbridges are able to deliver continuously accurate data about the axle loads of the moving trains even at high speeds. The system will also be used for monitoring rail vehicles during transit, for reporting necessary maintenance work at an early stage, significantly reduce downtime. RailPAVE asphalt was developed to meet the requirements of the track bed. It will be positioned under the IVES sleepers.

”

Our system worked the way we had imagined it would.

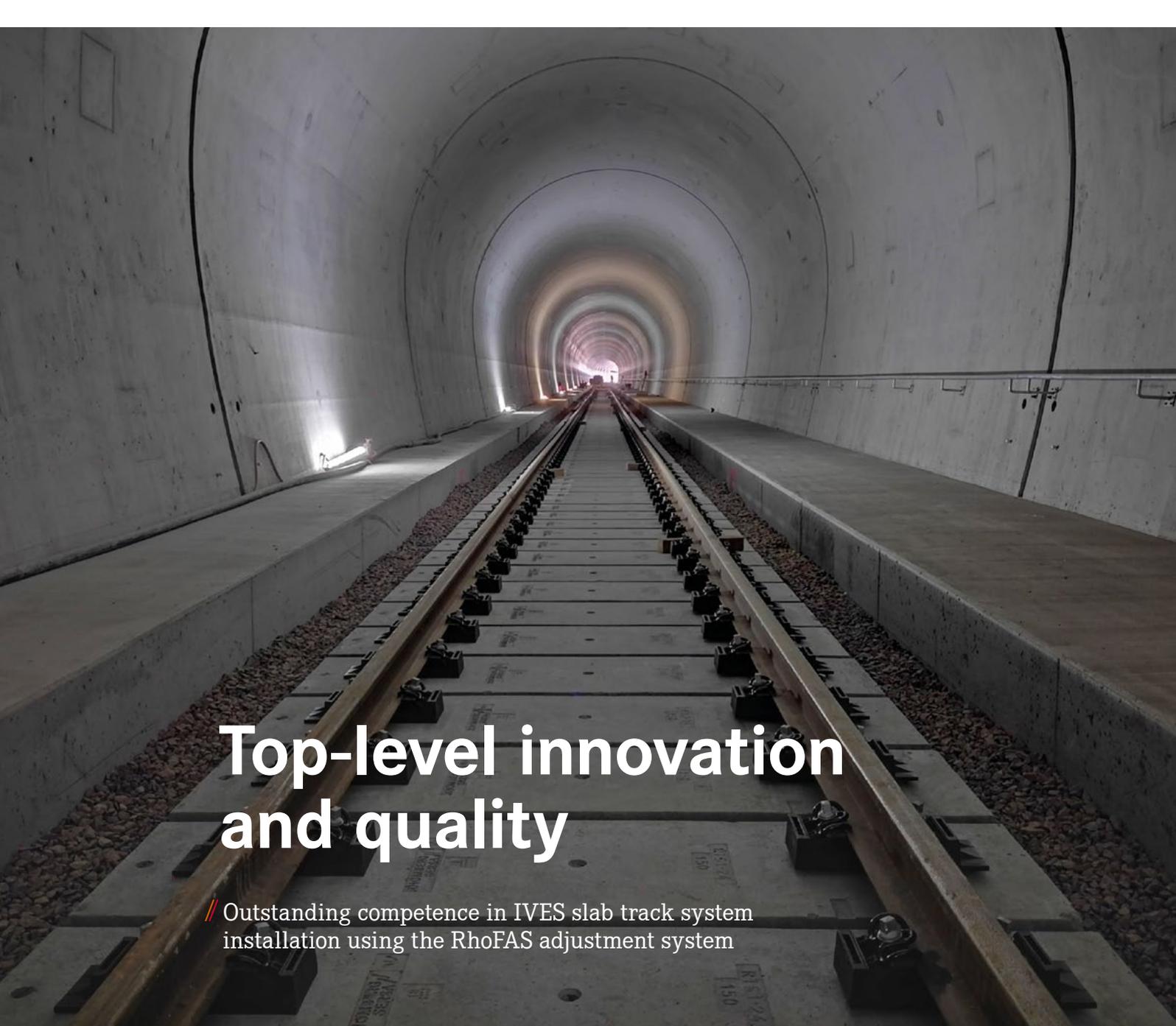
“



Henrik Vocks
Manager
Technical Services



Our system worked the way we had imagined it would.
Complete success: For the first time on the Australian continent, in Branxton, slab track laid on asphalt.



Top-level innovation and quality

// Outstanding competence in IVES slab track system installation using the RhoFAS adjustment system

The nearly 120-year-old Zierenberg tunnel of the Kurhessenbahn, west of Kassel (North Hesse) has technically reached the end of its useful life. It will be replaced by a single-track, 900 m long tunnel with slab track.

There must be very good reasons if a developer creates an opportunity for the installation of a new layered system at short notice. The arguments for IVES (the RSRG slab track system), raising the quality of a “bottom-up built road with top-down-quality” were convincing right down the line. RSRG employees of Rhomberg Rail Consult during planning and approval and RSRG employees of Rhomberg Bahntechnik during implementation accomplished the installation together.

Within just a few months, with exemplary teamwork among all participants, the project was successfully implemented. During this period, project plans were changed, approvals obtained and 1412 finished components using the DFF 304 base system were built into the tunnel.

Both patented grouting using a special mortar through the support plate (ULP) and the complete underfill of the bases required by the system proved an outstanding success. The finishing touch was provided by the RhoFas track alignment system which made faster and more efficient track alignment possible.

Bridge-building for IVES

// Initial application of the “IVES-plinth” slab track system.

The “Ordsall Chord” is a short railway line in Manchester, on which there is an old railway bridge at “New Bailey Street”. In the course of the bridge’s renovation, Rhomberg Sersa UK was commissioned as part of the Amey-Sersa “Northern Hub Project Team” to develop a low-height, low-weight slab solution. It was a contract the company gladly fulfilled, together with “Tony Gee & Partners” and “Vienna Consulting Engineers” as the planning companies.

The existing tracks on bridge timbers have been laid directly on top of the iron rail bearer and the “IVES-plinth” slab track system was used for the first time. According to the customer’s request to build as much as possible in advance and outside the construction area, replacing the foundation with a simple concept, pre-built modules with vertical reinforcement as anchoring were produced. These pre-built modules combined with grouting to fix the bridge’s foundation.



The greatest challenge during the construction phase was the core drilling of the highly reinforced deck slab. Once the IVES-elements are positioned they will be levelled and grouted with a fast-hardening grouting mortar; this fills the gaps between rail fastenings and the structural elements. Plexiglass windows ensure that a successful grouting operation with flawless surface quality has been accomplished.

One of the crossings was low enough for installation of the Rhomberg module V-TRAS. On both sides gabion ballast retaining walls ensuring lateral stability have been built.



The SLS success story continues

// Ingenious Swiss idea proves itself in the Netherlands.



Latest success for the Sersa patented Second Life System: after the introduction of the system to Pro-Rail, RSRG-subsidiary Rhomberg Sersa Deutschland - Südwest received a contract for repairs at the Waalhaven Botlek container terminal (Rotterdam, NL).



With the SLS Second Life System we are able to extend track service life by up to ten years. “



Norman Krumnow
Branch Manager

The task included 20 simple 190 switch points as well as 6 double 190 crossings, which had to be repaired in ten weekend closures. The contract value was approximately 600,000 euros and the contract was completed between December 2017 and May 2018. What made it special was that the group deployed RSRG employees to operate on site in the Netherlands, in order to take account of the higher safety regulations of the Dutch state railway (compared to the safety conditions of DB AG).

For the client it was crucial to keep CO2 emissions to a minimum, to provide optimum design in terms of techno-

FACT BOX

The Sersa patented Second Life System combines restoration of screwhole integrity and gauge recovery. The procedure reduces maintenance costs, avoids additional line closures and can extend the lifespan of track and switch systems up to ten years, as long as restoration is carried out in good time. The advantages in detail:

- Recovery of screwhole integrity
- Gauge restoration
- Adjustment after sleeper indentation
- Position correction of base plates
- Restoration of base plate to sleeper interface
- Service life can be extended by 5-10 years
- A 190 switch can be restored within six hours, ensuring rapid availability of the tracks.

logy and cost, and to make the track available as quickly as possible – the perfect job for RSRG which executed the contract together with Dutch company Strukton AG. As a result of the track system restoration work for Pro Rail in the Netherlands, both partners are now in close contact and it is their objective to meet the same requirements in every contract. The SLS Second Life System was the perfect project in this context. The procedure has been successful in Germany and Austria for more than 25 years, and for 40 years in Switzerland.

Making 2 out of 1, making 1 out of 2

// Rhomberg Sersa North America doubles grinding capacity.

The “Grail” gets support: From October, a new, technically identical rail grinding machine suitable for both road and track grinding and equipped with the latest technology will expand the Rhomberg Sersa North America vehicle fleet.

The “original” has been grinding rails very successfully for numerous large North-American transport networks for the past four years. Our most important customers include the Toronto Transit Commission (TTC), Streetcar Way & Scarborough Rapid Transit, OC Transport in Ottawa, VIA Rail Canada and the Edmonton Transit System (ETS).

“Grail 2” now enables RSRG to use two machines independently of each other or to combine them as a single unit providing double the grinding performance. As a tandem unit, the two “Grails” are able to engage twelve grindstones at once, thereby grinding the entire railhead in one process. Using calibrated rotating grindstones and wheels, they manage the re-profiling of the railhead as well as the removal of defects such as corrugations, squats, head checks or chipping, with the highest precision possible and in compliance with the highest tolerances.

In addition, the new “Grail 2” will be fitted with state-of-the-art grinding

technology, allowing machine grinding of switches and crossings in the urban environment as is currently being achieved by the same machine models in Germany and Switzerland.

“This enables us to meet our customers’ highest quality requirements”, Vice President Chris Grill smiles. “In addition the second unit allows us to offer an alternative in case our customers are in need of higher performance, with the use of additional grinding tools. At the same time, they benefit from machines, which operate reliably and quietly in an urban environment. “

”
With Grail we meet our customers’ highest quality requirements.

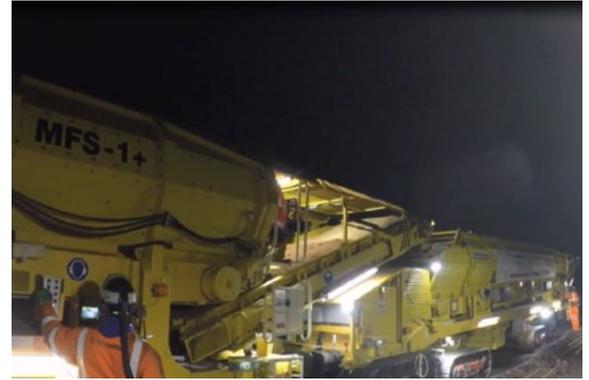
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Chris Grill
Vice President
Consulting & Sales



Working alone or together:
the “Grail” track grinding machines of
Rhomberg Sersa North America



Enhanced efficiency in the United Kingdom

// Northern Alliance used its innovative group of machines for the first time in the Liverpool Lime Street Project.

The Liverpool Lime Street Project was a very complex challenge. It involved the demolition and rebuilding of platforms, installation of new signal technology and catenaries as well as complete reconstruction of the ballast road bed and points.

Logistics were a crucial challenge in the project. The work took place in a terminus, the tracks leading to it running through various tunnels. What this meant for the operations team was that all material had to be delivered and discarded through single-lane tunnels. The regular method would have been the deployment of dumper trucks but this would have been too time-consuming and would have been problematic in view of the different platform radiuses.

For those at Northern Alliance responsible for points renewals with Network Rail, this was an ideal opportunity to put their new fleet of specialist machines through its paces, and at the same time to demonstrate the benefits of the MFS+ and UMH machines only recently introduced in the United Kingdom.

Ballast was supplied in 19 standard MFS waggons, one UMH machine and two MFS+-2-way machines. The MFS+s spread the ballast and were 3D-monitored throughout the process to reach the right ballast heights. Manoeuvring 60-tonne machines back and forth along curved platforms was a test of skill for their operators

In additional work shifts, the UMH machine spread the ballast in the railway station. One essential advantage of the UMH is its ability to spread ballast in different ways:

- Directly under the waggon and between the tracks
- Left or right of the waggon at the ends of sleepers
- From the MFS directly behind it into other waggons on the neighbouring track
- In a wider radius of up to six meters in between tracks

The deployment of MFS+ and UMH led to significant advantages in working methods, with the result that the project could be executed faster, and with greater safety and efficiency.

Pioneer Down Under
the SSP 303



Premiere in Down Under

// Rhomberg Rail puts SSP 303 into service.

The challenges were high for the newest member of the fleet.

The SSP 303 resurfacing machine from Plasser & Theurer met them all. Not only is it the first machine in Australia to have an extended driver's cabin, making better use of the available space on the frame and increasing operator comfort. It is also the first resurfacing machine in Australia with self-adjusting brakes, making manual brake adjustments after a brake-shoe change a thing of the past.

In addition, with its higher speeds, the machine ensures shorter transfer times. A broader range of brake components is available for the bigger 920-mm wheels. Remote monitoring makes maintenance planning and troubleshooting easier, reduces downtimes and ultimately increases reliability. Longer maintenance intervals mean lower maintenance costs, and series refuelling means that diesel fuel can be taken from the track tamping machine. This means that the smaller tank capacity of the SSP Series resurfacing machine is no longer a potential problem.

Testing of the resurfacing machine began in June 2018, and initial operation was at the beginning of July 2018.

The machine had to undergo rigorous testing in accordance with Australian standards. These included high-speed brake



tests, high-speed travel at 110 km/h and parking brake tests on Sydney Trains' rail network's steepest slope. Now the SSP 303 as a resurfacing machine for points complements the M865 UNIMAT 08/275 3S tamping machine on the east coast of Australia.



RS Gleisbau steps into the breach

// Track renewal at dizzying heights: tram bridge over the motorway.

”

The contract in Frankfurt an der Oder was both spectacular and challenging. It's the reason I'm in the railway business. “



Karsten Hähnel
Chief Construction
Manager

Tracklayers are engaged in another very special project for urban transport company Stadtverkehrsgesellschaft Frankfurt an der Oder (SVF). RS Gleisbau (now Rhomberg Sersa Deutschland) has enjoyed a close and successful collaboration with SVF over the years. So it was no surprise when the company was entrusted with this special assignment.

It isn't easy being the only German transport operator to own a tram bridge across a motorway. Property entails responsibility, and the historic tram bridge was no longer safe for traffic so its replacement was a matter of urgency. Interesting fact: usually bridges last for 70 to 100 years. In this case a progressive alkali-silica reaction (also known as concrete cancer) in the substructures reduced the bridge's

life to just 30 years. Another interesting fact: for the protection of the endangered local sand lizard population, a landscape gardener had to be engaged as part of the construction project's environmental supervision team.

New beginnings

This bridge has already made history: when the largest micro-electronics manufacturer in the German Democratic Republic became established in Markendorf in 1959, the extension of a new 5.5 km tram line was required. Its route took it over the motorway, a big construction challenge for the times. Incidentally, the four-lane A12 is one of the busiest motorways carrying border traffic between Germany and Poland.



Property entails responsibility: SVF is the only transport operator to own a tram bridge across a motorway.

Last December due to the demolition, the A 12 had to be closed completely for two days. This summer, during a full closure, spectacular scenes could be witnessed once again – the new bridge was delivered in one piece by heavy-duty transport and put into place by crane.



Right on track

Once the bridge was installed, RS track constructors donned their safety helmets: 3000 metres of type S49 rail, 1700 concrete sleepers and 270 FFU synthetic sleepers (SEKISUI) as well as 160 metres of check rail had to be put in place. The check rail is the derailment guard on the bridge. These operations, with an order value totalling approximately 1.15 million euros, include installation and delivery. Under an additional SVF contract, RS-Gleisbau, as a subcontractor of ARIKON, is replacing 1500 metres of cross sleeper track (750 meters of double track) with a gauge of 10000 millimetres. Once all operations are complete in December 2018, almost a year after construction started, the trams will roll across their new bridge and tracks.



On the right track

// Bahnbau Wels receives an extraordinary contract.



Impressions of the building of the track system for the ÖSWAG shipyard in Linz.



Last summer Bahnbau Wels (BBW) received a contract from ÖSWAG Werft Linz AG Nfg. GmbH & Co KG (abbreviated to ÖSWAG), to build a new 3dSC track system. No ordinary contract, especially as it involved track gauge changeovers inside a shipbuilding works.

The shipbuilding company ÖSWAG engaged the services of the railway construction professionals of Bahnbau Wels to create a rail connection in the newly built ÖSWAG shipbuilding hall. The said professionals completed the works in two (giant) steps: after building the track for the hall, they connected it up to the existing crossover. No easy endeavour, because three different gauges of 1000, 1435 and 1676 millimetres had to be reduced to a common denominator. The challenging operations on the multi-

lane track for the hall started with an initial gauge of 1435 millimetres. “Halfen” channels were used, screwed to precisely this gauge. Now, by the tracks, the desired gauges can be flexibly adjusted during operation.

Challenge met

On the one hand the surface of the halfen channel had to end exactly at the monolithic base plate and therefore had to be individually installed so that it could then be fixed at the exact track position at just the right height and alignment.

In this way the track was pre-assembled at an approximate height of 40 centimetres above the blinding concrete. The shipyard’s installations and reinforcement could not be put into place until completion and fixation of the track.

Moreover parts of the track in the three different gauges were assembly-pit tracks. Rail supports mounted on moving plates served to create these different gauges; indeed, at six metres long and 1.5 tonnes in weight, these supports could be described as "heavy duty ". They were then fixed and installed on pre-built welding base plates, and shrink-free concrete poured underneath. Even with all these special requirements, the BBW railway constructors were able to finish the track work on schedule and execute both further installations and concreting of the floor as planned.



Connected

The second part of the order involved connecting the new ÖSWAG-Shipbuilding Hall III with existing feeder track. A simple switch point with a radius of 140 metres as subsurface turnout on a ballast bed was built for the purpose then asphalted around. Now the newly built 50 metres of mat rail system form the connection of the switch point with the track in the hall. In addition, four grooved rail boxes on the mat rail system provide drainage and have been connected to the existing sewer system. Operations began in the new hall in November 2017. Due to good preparation and close cooperation with the customer, complex orders and requirements could be implemented within the agreed period. Our good memories of a contract with many high points and valuable experiences live on.



Cold-climate cross-border experiences

// “Jack Frost” often directs railway construction in the mountains. Sersa Schweiz put him in his place.



Switch renewal in Caillet (Chamonix-Montenvers)



Even big diesel locomotives may wheeze a bit as they carry construction material up to the peak (TMB Mont Lachat-Nid d'Aigle).



Schienenmontage auf Y-Schwellen

Chamonix-based Compagnie du Mont Blanc (CMB) is one of France's biggest regional corporations in the management of operating licences for cable transport facilities in the high mountains (ski lifts, nacelles, cable railways and cableways) and rack railways. The company owns, among other things, the world-famous Aiguille du Midi facilities (cable railway station 3842 meters above sea level), the Montenvers-Mer de Glace rack railway and the Tramway du Mont-Blanc.

Between 2012 and 2017, Sersa restored 8240 metres of the TMB route and 2670 metres of the Chamonix-Montenvers line. In 2018, three more operations in Saint Gervais measuring approximately 1500 metres in total, as well as a big 900 metre-long section in Chamonix are planned. In 2019 a new crossing point is to be built at the Bellevue winter sports railway station with the laying of a second track. Before, several

tracks will be renewed on different sections. For 2020 renewal of the final section on the Col de Voza is planned (mostly with adhesion drive). After completion of the approval process, construction of a terminal station on the Nid d'Aigle peak including line extension and the laying of a second track is planned for 2021. Also in 2021, the Chamonix-Kreuzung Planard valley station section will be refurbished; it will be completed in 2022 with the renovation of the building of the Montenvers mountain station.

Until now Sersa has met the expectations of its customer in full. And although it didn't hold back its criticisms of a few inconsistencies that did arise, the customer again and again praised Sersa for prioritising safety at all times, also praising the company for the quality of its services and for meeting the scheduled deadline. Everyone is happy and very proud that Sersa has been able to make its mark beyond its national borders.

Much to do and little space to do it in

// RSRG joins forces for Dresden transport.

The construction site where what is now Rhomberg Sersa Deutschland - Ost was working for Dresden transport operators Dresdner Verkehrsbetriebe this July, was “densely populated” in more ways than one. Not only is the new track loop including its nine switches located next to the heavily used Königsbrücker Landstrasse in the middle of the forested city district of Dresden. At the same time amphibians settled on the construction site and had to be protected. What is more, soil exchange was necessary in a large part of the construction site.

Still, within almost a year, the experts of Rhomberg Sersa in Germany overcame all the challenges. Our colleagues from the Halle and Schwarze Pumpe sites worked together in two-shift-operations, as did several other trades operating simultaneously on site in order to save time. Collaboration

with Wolff & Müller as part of the civil engineering consortium was excellent. Personnel-intensive “preliminary brainwork” proved to be a solid foundation for the work. Material for the upper structure and track ballast were delivered on small trucks, and major turnout components arrived overnight under police protection. Due to small track radiuses, tamping could be done only to a limited extent and had to be finished manually later. Major suction operations had to be done with the help of ZWB and TC 2 attachment . The result: the construction was handed over in time to a satisfied customer.



”
So far we have met the expectations of our customer in full. “



Torsten Schmidt
Senior Site Engineer

Rhomberg Sersa Deutschland built a challenging track loop in the middle of the forested city district of Dresden.



Fast completion

// Axen Tunnel: Phase 1 successfully completed

“Without the competence of the whole of RSRG as a single-source provider of railway technology, we could hardly have done it in such a narrow time frame”, Pius Jochum and Lukas Herburger agree.

”

Certainly not an ordinary project but a rewarding challenge. “



Pius Jochum
Construction Manager

The two construction managers from Rhomberg Bahntechnik were responsible for the restoration of the Axen Tunnel. After completion of its first construction phase they sum up

their progress as follows: We were able to hand over the first section of the project, ongoing until 2019, to our clients SBB as early as the spring of this year, after just two months’ construction.

Beforehand, after consortium partner Marti had repaired the tunnel, a 12-meter test stretch was built and 2000 meters of slab track installed using the LVT system, 50 metres of it

on open track. In addition there were 750 metres of ballasted track with concrete sleepers, two crossovers from ballast to slab track, and a guard rail system across a bridge. Since the Axen Tunnel is a single-lane tunnel, it was especially challenging that the concrete material had to be fed through a downpipe in the tunnel portal into transport containers. In addition the distribution of the railway sleepers was from the south portal to



When space is at a premium: Axen Tunnel restoration

the north. The pallets were handed over on wheeled loaders in the middle of the tunnel.

Both schedule and logistics were finely tuned as the various spheres of expertise meshed seamlessly together at RSRG. Installation of the slab track was carried out by Rhomberg Bahntechnik, with RTE Technologie taking charge of surveying track construction. Sersa Bau und

Produkte Ost were responsible for installing the ballast track, and Sersa Maschiner Gleisbau did the tamping and compression. Sersa Technik contributed welding and grinding services, SGS Zürich took care of logistics. Finally Sersa Bau und Produkte Mitte and Ost provided the track construction equipment.

” Without our expertise as a single-source service provider, we wouldn't have succeeded. “



Lukas Herburger
Construction Manager



Big Contribution for Major Project

// Rhomberg Rail builds 25.1 kilometres of slab track for Sydney Metro. 1.9 kilometres thereof with mass-spring system.

When final work at the double crossover at Castle Hill station was completed, peers at Rhomberg Rail Australia gave each other high-fives. Because with the conclusion of this final puzzle piece they celebrated an important milestone and at the same time the peak of their contribution to Sydney's largest public transport project. In practice the experts in railway technology delivered more than 25 kilometres of slab track, whereof nearly two kilometres rested on a mass-spring system. Rhomberg was responsible for track lifting and straightening, using RhoPPS and RhoFAS. Track surveying too was done by Rhomberg. In this case a monitoring car from Hergie provided precise services.

”
Our teams work around the clock to reach the goal. “



Richard Morgan
Managing Director
Rhomberg Rail
Australia

Due to both limited access to the tunnel and confined space, the project's biggest obstacle was to actually transport the material into the tunnels. Due to these limitations some sections have been built 3.5 kilometres away from the

nearest access point, which made the construction of the 2.2 kilometres long route take six months.

During construction the company employed more than 40 people on four different locations in tunnels which stretched over 30 kilometres, or two tracks. Rhomberg worked together with the NRT-Consortium, the construction companies John Holland and CPB, and a number of smaller contractors.

Sydney Metro is Australia's largest public transportation project. It represents the first complete underground network in Australia and Oceania – with altogether 31 metro stations and a railway line of more than 66 kilometres. The first section, Sydney Metro Northwest, is supposed to be opened in 2019 to relieve the existing network of Sydney Trains. Later, in 2024, the route should be extended through the city centre and run on a repurposed route of the suburban railway into southern regions of Sydney.

Think big

// With its participation in the “Newcastle light railway” urban development project, Rhomberg Rail for the first time ventures into the world of major contracts.

Core business: in recent months the people in charge of RSRG subsidiary Rhomberg Rail have succeeded in winning a series of contracts for track construction and infrastructure. Now for the first time they've won a really large contract.

In the course of the “Newcastle light rail” development project, the railway technology experts received an order to build 2.7 kilometres of double-tracked line – just 200 metres from Newcastle Beach. It also included track construction for the train station and maintenance facilities. The client is the company Downer EDI; assigned by the for NSW transport authority to manage the project.

Rhomberg Rail will build all regular and special tracks, including switch points, crossovers, point machines and insulated rail joints. The installation of all connections and moulded elements within the roadway slab forms part of the services. In addition Rhomberg Rail will execute all track-related concrete and reinforcement works, including delivery and installation. The company has three teams working on site with three teams and altogether 18 team members. There are also a number of project managers, engineers and administrative support. All teams are



Full commitment: 3 teams totalling 18 members build 70 meter of track per day.

committed to an objective of 70 metres of track per day. Rhomberg is using the Trelloborg Vector II system, specified by its customer, the most effective and efficient means of installing urban railway tracks.

The new light railway will follow the old rail corridor for approximately a third of

the route and then cross both Hunter Street and Scott Streets. At peak times the light railway service will run every 7.5 minutes and transport up to 1200 people per hour. This makes it one of the most important infrastructure projects for this industrial city in New South Wales.

”
With the Newcastle light railway urban development project we were able to win our first major urban environment contract.

“



Richard Morgan
Managing Director,
Rhomberg Rail
Australia



More Metro

// A new railway line is being created in Copenhagen, with help from the RSRG.

In a joint venture with Portuguese company Efacec Engenharia e Sistemas S.A., Rhomberg Bahntechnik takes over planning and construction of the railway infrastructure on the “Sydhavn” M4 harbour line

Signing the contract with Metroselskabet I/S at the end of March 2018 marked the start of this multi-annual general contractor project. The joint venture, under the leadership of Rhomberg Bahntechnik, is responsible for planning and constructing all the railway infrastructure, including slab track, traction power supply, the electromechanical infrastructure and the decentralised SCA-DA systems.

This major project, with a contract value of just over 30 million euros, extends Copenhagen’s metro network into the emerging urban development area of Sydhavn. The M4 Metro line,

running from Orientkaj in Nordhavn through the centre of Copenhagen via Cityringen, will be extended in the south to Ny Ellebjerg Station. Five new stations and a 4.5 kilometre tunnel are planned. Planning has been in progress since the spring of 2018, execution will be from the middle of 2021 to the beginning of 2023, and the system will go into initial operation in 2024.

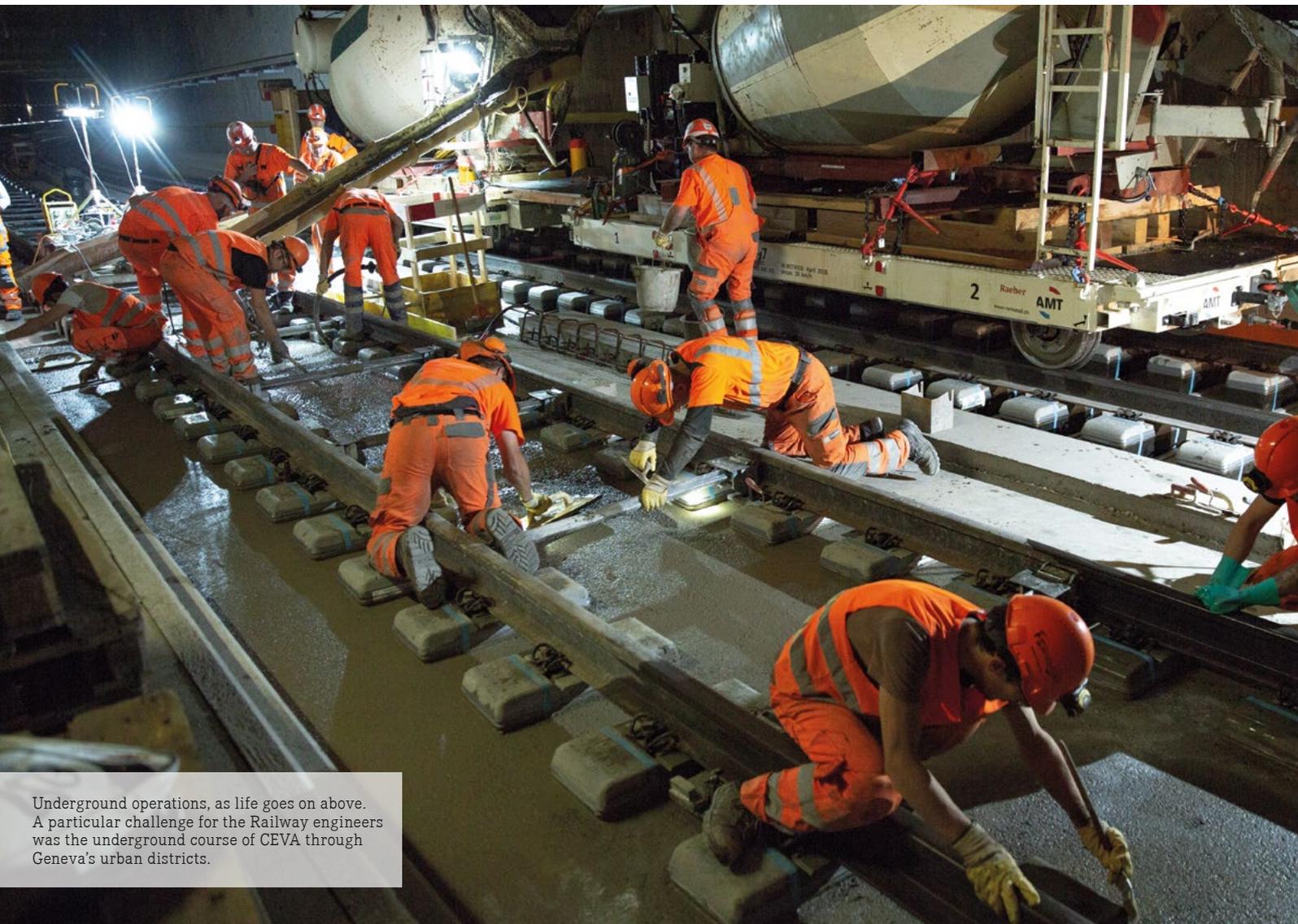
The project team includes experienced employees of both JV partners. The project management structure was organised with the customer during the course of the first weeks and months. Planning will be carried out in both home locations, Austria and Portugal. Several members of the team are also regularly on site. “Later on in the project we will use the local expertise of subcontractors and suppliers in Denmark and the rest of Europe”, explains project manager Frank Maier.

”
The construction of the Sydhavnsmetroen is a highly interesting and exciting project.



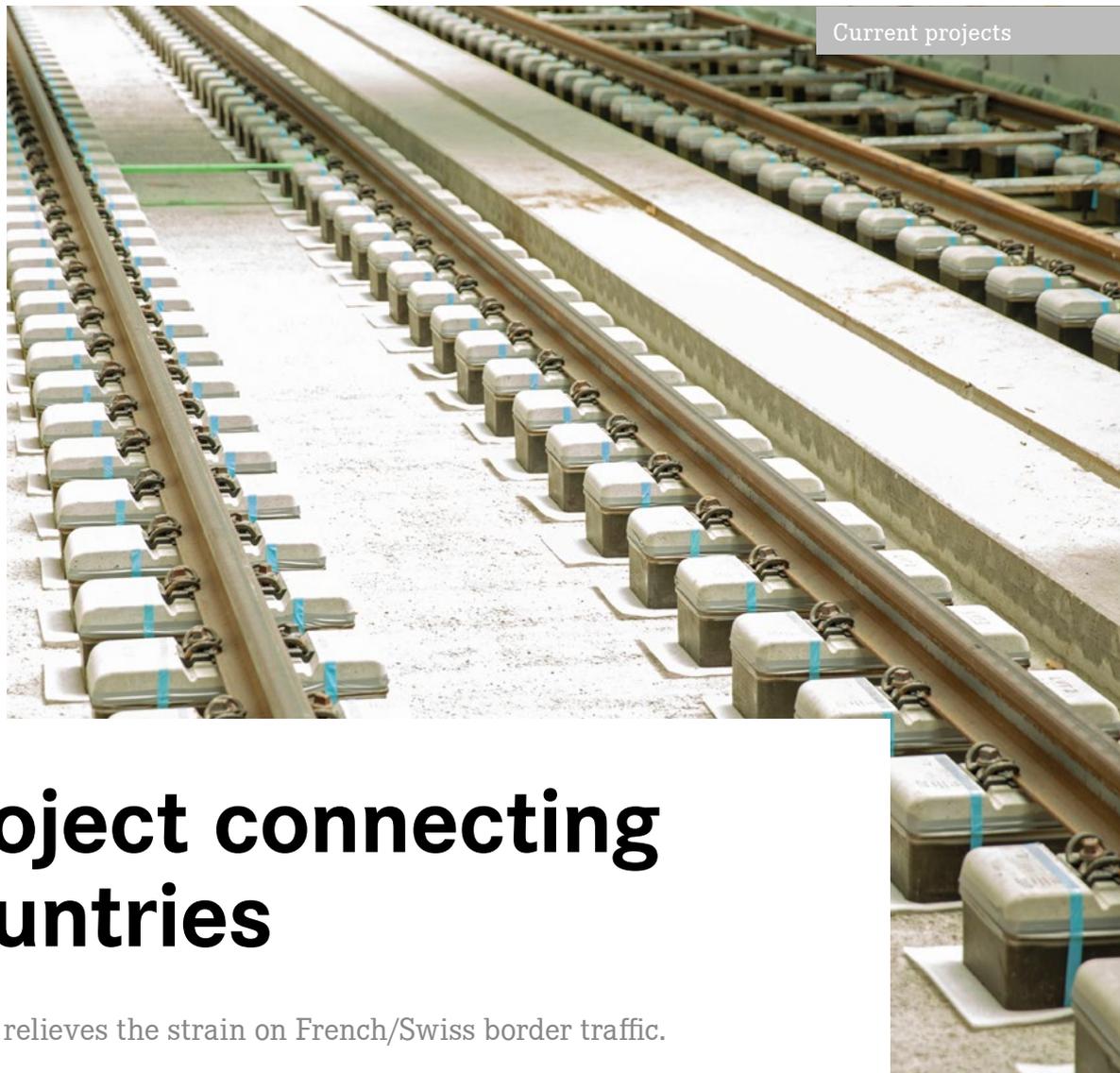
Frank Maier
Project Manager





Underground operations, as life goes on above. A particular challenge for the Railway engineers was the underground course of CEVA through Geneva's urban districts.





One project connecting two countries

// CEVA Geneva: RSRG relieves the strain on French/Swiss border traffic.

Every day on the “Route de Malagnou” between Geneva in Switzerland and Annemasse in France, there are major traffic bottlenecks. To relieve the situation, SBB has initiated project CEVA.

RSRG companies Sersa Group Schweiz and Rhomberg Bahntechnik, in a consortium with Swiss company Alpiq, have assumed full responsibility for the project “Cornavin – Eaux-Vives – Annemasse (CEVA)” comprising all railway equipment, including construction of the slab track.

Rhomberg Bahntechnik has the privilege of bringing Project CEVA to life with construction of slab track including spring-mass systems. Specifically, this is a double-track stretch of line around 16 kilometres in length, 9 kilometres of which are located in the tunnel connecting Geneva Cornavin Station with the station at Annemasse.

A particular challenge for the CEVA project is the underground course of the railway line through inhabited

areas of the city in western Switzerland. “To avoid disturbing inhabitants and the environment, a high degree of technical effort is required to meet the necessary restrictions”, project manager Dominko Bilic explains. “In parallel, we have to plan collaboration between several companies in the same section of tunnel.” A huge organisational and logistical task, because the team on site wants to ensure the smooth operation of this stretch of line.

Since start of construction in July 2017, 40000 m² mass-spring mats, 14000 m² precast concrete slabs, 1800 tonnes of steel armouring, 12000 m³ concrete have already been built into the tunnel together with 20000 LVT blocks as well as 148 pieces of rails each 108 metres long. With every component it installs, Rhomberg Bahntechnik helps Switzerland and France grow closer together, as well as improving the infrastructure of the growing international city of Geneva.

”

With all our experience and our fantastic team, we will make this happen.

“



Dominko Bilic
Project Manager

High-tension construction

// Rhomberg Fahrleitungsbau secures a significant part of the traction power supply for Koralmbahn.

Rhomberg Fahrleitungsbau, a specialist in the construction of overhead lines and electrotechnical facilities, earlier this year secured a major contract with Austrian Railways when it constructed the Grafenstein substation.

The company is responsible for planning, engineering and implementing the electrotechnical part of the project. The contract covers the production and construction, assembly and commissioning of the 15-kV traction current switchgear with all the necessary secondary and peripheral equipment such as control technology, protective devices, own consumption, power wiring, building and system technology for the Koralm Graz-Klagenfurt railway line currently under construction.

Rhomberg Fahrleitungsbau will use type-tested and certified medium-voltage interior single-phase traction-current switchgear for this project. This approved facility meets the test criteria specified by ÖBB (Austrian Railways). The railway electrification specialist had already installed this 15-kV switchgear in Auhof (supply for the Lainz Tunnel and Wienerwald Tunnel) and Werndorf at the eastern end of the Koralmbahn, und in the substations of Angern und Fritzens.

Long-standing, and excellent collaboration and successful realisation of many projects connects ÖBB and Rhomberg Fahrleitungsbau. From May 2018 to July 2020 the experienced team under project manager Johann Jungwirth will realise the construction project. The planning phase is currently ongoing, and assembly is due to begin in March 2019. Handover to the client ÖBB is planned for 2020.



A similar substation to this one in Fritzens will be built in Grafenstein.



The medium-voltage interior single-phase traction-current switchgear is the "heart" of the plant.



Urban light railway tunnel Kaiserstrasse – Karlsruhe

// Tight scheduling for electrical engineering infrastructure requires close collaboration between Teams Rhomberg Bahntechnik Essen and Bregenz.

Rhomberg Bahntechnik Deutschland will supply Karlsruher Schieneninfrastruktur Gesellschaft (KASIG) with a total of seven new underground stations, and an associated 3900 metres of tunnel. The work will progress at full speed ahead until the light railway goes into service in July 2020.

After finalising the planning phase, the train specialists have already completed all cable routing systems as well as the assembly of the lighting systems under the platforms of nearly all stations. The raised flooring installation, including the 400 square metres of technical rooms at the Durlacher Tor, was completed in May. Later, the team would turn Durlacher Tor into a “model station”: in close coordination with the customer, the operator and the energy provider,

opportunities for optimisation and the fulfilment of the requirements for the low and medium voltage system, including transformers, main and subdistributors would to be optimised. All other systems could then take the model station Durlacher Tor as their reference.

Underground teamwork

Currently the teams are working under high pressure. Through close and intensive collaboration and the expertise of the Essen and Bregenz teams, several top constructors, consisting of our own assembly personnel and subcontractors, are able to work on all the stations in parallel. The customer is always our highest priority – the Karlsruhe light railway will start service on schedule.

” Great benefits for the residents of Karlsruhe. The entire inner city will be without rail. The rails will all be underground.

“



Kai Ziegler
Managing Director
Rhomberg Bahntechnik
Deutschland

Speeding through the Swabian mountains

// The BSA Bahntechnik Schwäbische Alb consortium is connecting Ulm with Wendlingen.

”

We are very proud to be making our contribution to the success of this important infrastructure project.

“



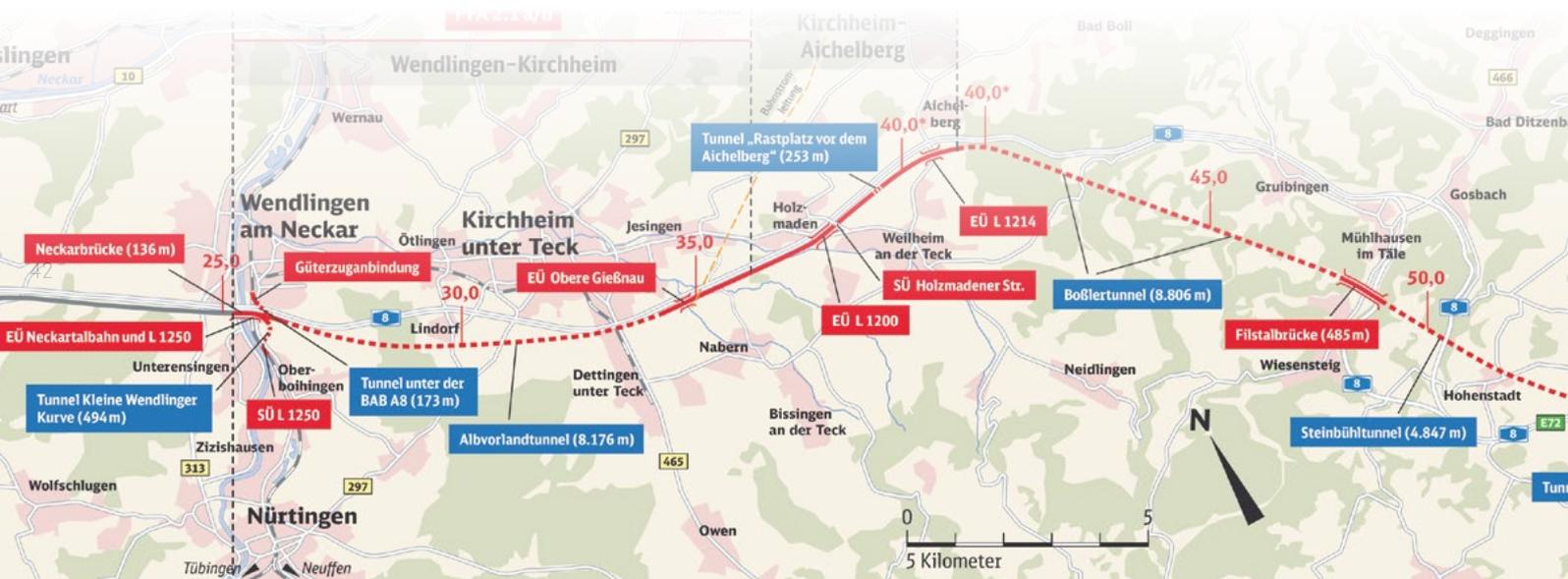
Garry Thür
CEO International
and Projects

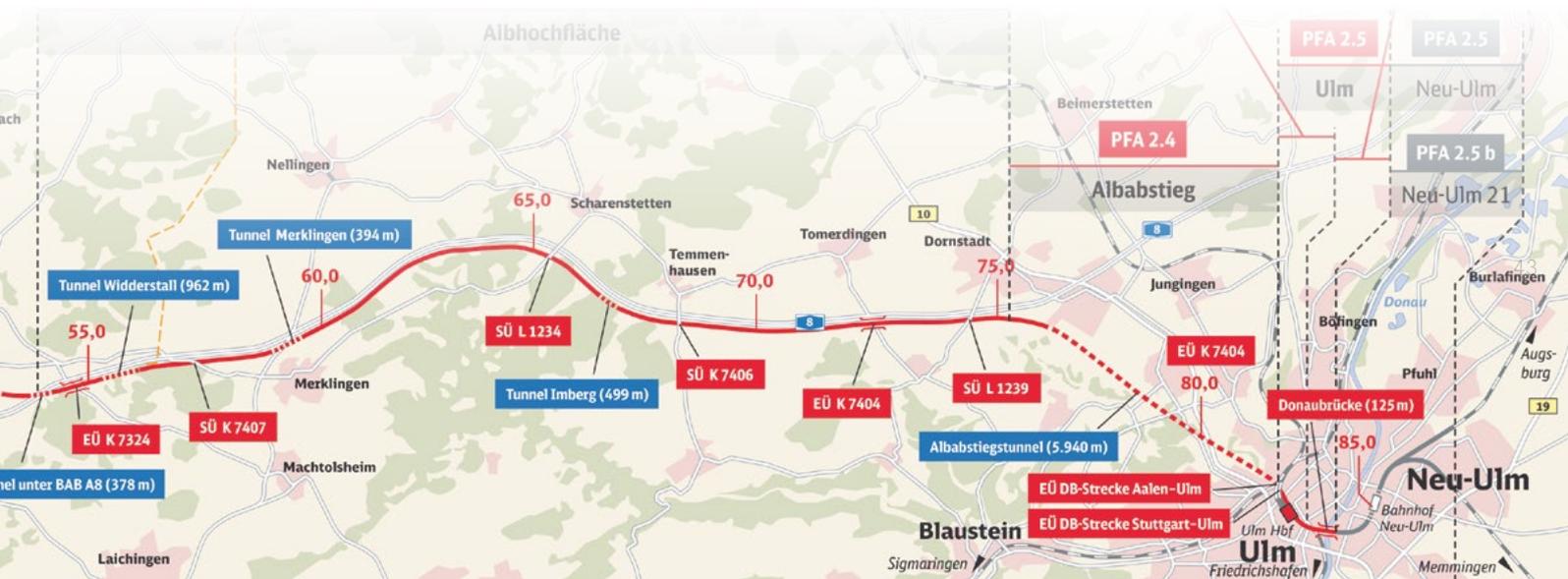
Rhomberg Bahntechnik, together with Swietelsky Baugesellschaft m.b.H., was awarded the contract for track construction and rail technology infrastructure for the new railway line from Wendlingen to Ulm – and set to work right away: immediately after the bid was won, planning began at the beginning of the year and various railway specialists have been working flat out ever since.

The challenge here is the extensive authorisation and approval process, which has to be successfully completed so that construction can start on schedule at the beginning of December. The first thing to do will be to install the temporary structures in the Albabstiegstunnel; this will be followed by installation of the slab track from Ulm to Stuttgart, and its engineering infrastructure. Overall

118 kilometres of slab track will be built in two batches, including 60 kilometres in the tunnel. In addition there will be 23 switch points as well as the construction of 50-HZ-, radio and telecommunications and traction-current systems, as well as 78 kilometres of illuminated hand rail. All this will be particularly good news to rail travellers: by the middle of 2022, among other things, overall travel time between Ulm and Stuttgart will have been reduced to nearly half.

In summer the team set up the control centre, located in the middle of the new railway line near Hohenstadt. Now all operations on site will be controlled and monitored from these site offices. There are also a number of smaller equipment and interim storage areas, the workshop and staff accommodation.





Rhomberg Sersa Rail Holding GmbH

info@rhombert-sersa.com

www.rhombert-sersa.com

Austria

Mariahilfstraße 29

6900 Bregenz

T +43 5574 403 0

Switzerland

Würzgrabenstrasse 5

8048 Zürich

T +41 43 322 23 23

