

keep track

2019

THE RHOMBERG SERSA RAIL GROUP CUSTOMER MAGAZINE

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OPENNESS, HONESTY, PATIENCE AND COMMITMENT

These are the values by which I have lived my personal and professional life ever since, 33 years ago, I took over the management of what was then the Sersa Group. It was these values that were a decisive factor in helping me turn a 30-man operation into a company of more than 1,500 employees. These values continue to serve me, after more than three decades and the merger with Rhomberg Bahntechnik to form the Rhomberg Sersa Rail Group in 2012. Reliability and safety are just as important to Hubert Rhomberg as they are to me. We both lay great emphasis on respecting these values and living them out in our family-run business.

Values, however, are of no value whatsoever if we do not take them to heart and put them into practice. That is why it has been and still is a concern of mine to show at all times a high degree of commitment, to promote entrepreneurial spirit and action and, as a service provider and contractor as well as an employer, to offer reliability and safety. Consistently living out and acting in accordance with these principles have led to our tireless commitment to developing and implementing innovative ideas for our clients, ideas the efficiency and cost effectiveness of which have benefited all sides.

We will continue along this path together. As a full-service supplier in railway engineering, we will succeed in using new technical and digital capabilities to create even more benefits for our clients – and by that we mean you!

**I hope you will be excited by
what you read in this magazine.**

Yours
Konrad Schnyder
Präsident Owner Board



THE VALUE OF CRAFTS- MANSHIP

“Sustainability” and “innovation” – these two values are paid a great deal of attention in the corporate culture of Rhomberg Sersa Rail Group and we value them, quite literally, extremely highly. For example, we act as a reliable, forward-thinking partner for our clients, and are an initiator and a driving force in the development of new procedures, products and system technologies. In every respect we take into account ecological, economic and social feasibility. We are aware that values cannot be taught, but they can be lived out. That is what we do, day after day, we the people on the tracks and in the offices, and the company’s owners.

The term “value” however, encompasses so much more than “just” the culture of a company. It not only stands for a purely monetary number upon which to base products and services, but also social standards, the basis of human society. It therefore permeates everything we do – for you: We are working in a value-added chain that is as consistent as possible, so that we can offer you all the services associated with rail construction and railway engineering from a single source. We are developing new products and services, and are continuously improving those which we have already developed. In our collaborations, we are always mindful of the greatest challenges facing you and how we can resolve them on your behalf. Mutual appreciation means a great deal to us. Only in this way can we make contributions of outstanding value to your projects and achieve the best possible results for you.

That is why we decided to make “Values” our main theme for the current issue of “keep track”, the Rhomberg Sersa Rail Group customer magazine. After all, we share many values – such as those listed on the first page – with many of you and probably with all of you. This is what makes values so binding upon us – precisely because values bind people together.

**I hope you will really enjoy
reading this magazine**

Yours
Thomas Bachhofner
CEO Rhomberg Sersa Rail Group

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INNOTRANS 2020

Follow us to Berlin.

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VAL UES

THE VALUE OF VALUES

How Rhomberg Sersa Rail Group does valuable work for its customers – in compliance with its own corporate guidelines.

THE MORE CLEARLY AND MORE RELIABLY COLLABORATION IS REGULATED, THE MORE EFFECTIVE IT WILL BE. AND THE MORE SUCCESSFUL WILL THE PARTNERS BE AS A TEAM. THAT IS WHY RHOMBERG SERSA RAIL GROUP PLACES SUCH A HIGH VALUE ON VALUES. RIGHT FROM THE START.

Did you know that “Value” is actually purely an economic indicator? The Duden German dictionary describes the term “Wert” (value) first and foremost as nothing more than “A quality that is inherent in something, on the basis of which that thing is desirable to a certain extent (and is saleable or marketable)”. Those in positions of responsibility at the railway engineering group’s offices in Bregenz and Zurich, however, think considerably more deeply than this:



**“TRUE VALUE
MAY BE HIDDEN,
BUT IT
WILL NEVER
REMAIN COMPLETELY
CONCEALED.”**

Seneca
Roman Philosoph

V
A
U
E



Thomas Bachhofner, CEO Rhomberg Sersa Rail Group

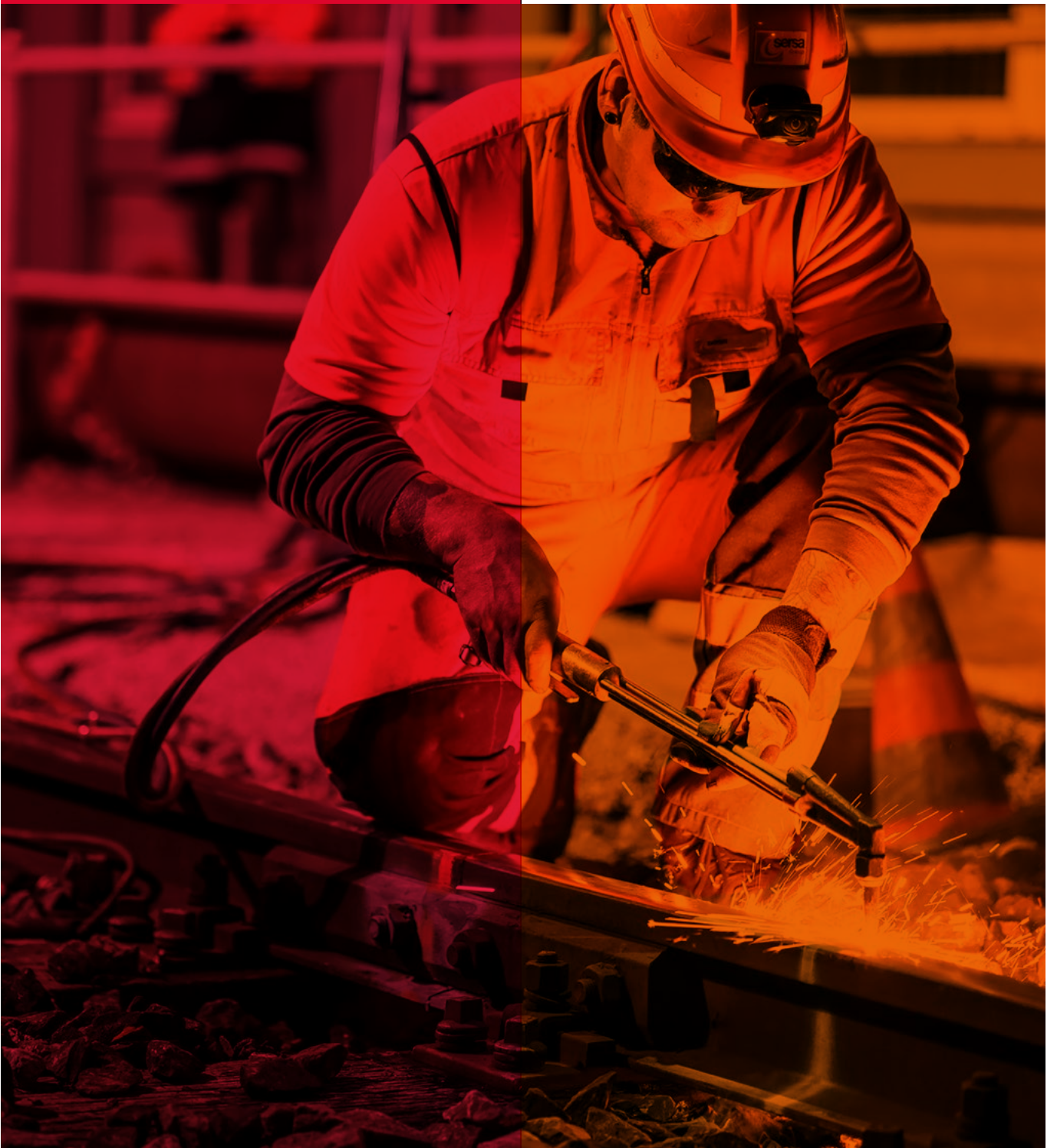
“Values regulate our lives together and give us a binding framework in which to operate safely and reliably” explains Thomas Bachhofner, Group CEO. “Not only in business, but also in society as a whole”. Values appropriated by a company must, in his opinion, therefore, be clearly based on such standards. “At Rhomberg Sersa we map this using our own ‘Code of Conduct’ which covers transparency and fairness, courage and innovation just as much as reliability, trust or humanity ... or valuing one another.

Such common clear values reassure everyone involved, customers, consortium partners, subcontractors and, not least, our own employees. The more specific the terms in which these underlying conditions are laid out, the easier it is for colleagues on location and for partners and subcontractors to make the right decisions using this framework. And

the greater the assurance to customers that their contract will be completed to the highest possible standards. “That is what it is about for us ultimately” explains Bachhofner. “We want to achieve for our clients the greatest possible benefits and stand alongside them as far as we possibly can in their own value-creation efforts”.

01

COMPANY NEWS



NEW FACES AND OLD HANDS

HR decisions in Bregenz,
Zurich and Berlin.

GARRY THÜR WILL BECOME CTO FOR THE ENTIRE GROUP, ROBERT KUMPUSCH MANAGING DIRECTOR OF RHOMBERG BAHNTECHNIK. THE NEW MANAGING DIRECTOR OF SERSA MASCHINELLER GLEISBAU AG IS MIRKO SENNHAUSER. MARCUS KERN WILL BE TAKING RHOMBERG SERSA GERMANY INTO THE FUTURE AS TECHNICAL MANAGER.

GARRY THÜR



In his new role, Thür will manage technical development and product development for the Austrian/Swiss railway engineering specialists. “It is part of our strategic decision-making, by targeted investment, sustainably to strengthen and develop our position as technology leaders in our segment” explains RSRG CEO Thomas Bachhofner.

ROBERT KUMPUSCH



Robert Kumpusch is transferring as a managing director within the Rhomberg Sersa Rail Group to Rhomberg Bahntechnik in Bregenz. He was in the same role for SMG AG in Switzerland. “This move will enable

MIRKO SENNHAUSER



Mirko Sennhauser comes into the Group as managing director of SMG AG. A native of Switzerland, he brings with him an extensive network in the rail sector and can draw on a high level of project and transformation experience. “This will enable us to address customer requirements in a well-targeted way” says Bachhofner enthusiastically.

MARCUS KERN



As the new technical business unit manager, Marcus Kern leads the businesses of Group subsidiary Rhomberg Sersa Deutschland. “We are pleased that Kern will be using his business management background and his expertise in the sphere of track construction for our company” says delighted managing director Georg Gabler. “He will help us to keep our promise to our clients to offer the best in reliable, high quality, cost effective work into the future”.

FULL SPEED AHEAD TO THE ISLAND OF IRELAND

Rhomberg Sersa Rail Group has secured a 40 million euro contract to maintain the Irish rail network.

RHOMBERG SERSA RAIL GROUP IS CROSSING THE WATER TO THE ISLAND OF IRELAND: THE RAILWAY ENGINEERING COMPANY HAS WON THE TENDER TO PROVIDE TECHNICAL AND ENGINEERING SERVICES FOR IARNRÓD ÉIREANN IRISH RAIL. THE EMPHASIS OF THE WORK IS ON THE MAINTENANCE OF THE TRACK SUPERSTRUCTURE OF THE ENTIRE IRISH STATE RAILWAY NETWORK. THE CONTRACT IS AN INITIAL SUCCESS FOR THE GROUP'S NEWLY FOUNDED IRISH SUBSIDIARY, RHOMBERG SERSA IRELAND.

The objective of the collaboration is to ensure safety, speed, shorter travel times and passenger comfort. To fulfil the contract, Rhomberg Sersa Ireland will take over the entire machinery fleet from the client for track maintenance work. The contractor's employees will be supported in their work by specialists from Iarnród Éireann Irish Rail in the spheres of logistics, planning, health and safety, environment and quality. In addition, the company is expected to collaborate with SOLAS and Kildare County Council in the training of machine operators and engineers.

THE IRISH RAIL NETWORK

2,259 km in total
1,919 km in the 26 southern counties
340 km in the 6 counties of Northern Ireland
Broad gauge 1,600 mm
Start of operations 1834





Rhomberg Sersa has set up the site office in the Iarnród Éireann Irish Rail depots in Kildare and Portlaoise and in their own offices in Kildare.

Don Cunningham, Director of Infrastructure Management at Iarnród Éireann Irish Rail says “We are delighted, after a very competitive tendering process, to have the opportunity to begin working together with Rhomberg Sersa on the maintenance of our track superstructure. The combined expertise of our two companies and their staff will ensure that our infrastructure assets will have the best possible maintenance ensuring longevity and value for money”. Thomas Bachhofner, CEO of the Rhomberg Sersa Rail Group, shares his enthusiasm: “By working on the front line of railway technology development in Austria, Switzerland and Germany as well as in the English-speaking world in Great Britain, Australia and Canada, Rhomberg Sersa Rail Group has gained a broad range of competencies on an international level. We want to use this know-how in working towards increasing efficiency and cost effectiveness for our clients”.

“THE CONTRACT IS A FIRST STEP TOWARDS SHOWING THAT WE ARE THE RIGHT LONG-TERM TECHNOLOGY PARTNER FOR IRISH RAIL”.

Garry Thür
CTO Rhomberg Sersa Rail Group



NEW ERA FOR RAIL MILLING IN NORTH AMERICA



THE TORONTO TRANSIT COMMISSION (TTC) HAS AWARDED A “3+2” FRAME- WORK CONTRACT FOR THE MILLING OF ITS UNDERGROUND RAILS TO RHOMBERG SERSA CANADA.

For the first time a mobile milling unit will be used to reprofile rail under a contract throughout North America – a source of great pride to Rhomberg Sersa Canada.

TTC had put the work out for tender at the end of 2017 as the maintenance of the subway network could not be accomplished by grinding technology alone. The work will be carried out in partnership with Linmag, a sister company of the Linsinger milling train manufacturer.

Depending on the machinery used, the milling system can take off between 0.1 and 1.5 mm in just one pass and automatically create a surface finish of 5 microns maximum, providing the rail with a perfect finish. One major advantage of milling is the “planing” process which – by comparison with the grinding system – generates neither dust nor sparks. This eliminates the high fire risk, in particular when working in tunnels, wooded and dry rural areas or in the city.

The milling unit from Austria is currently on its way to Toronto. Milling is expected to start in December after an initial test phase.



GOOD REASON TO CELEBRATE

70 years of Sersa Group AG (Switzerland) and Sersa Maschineller.



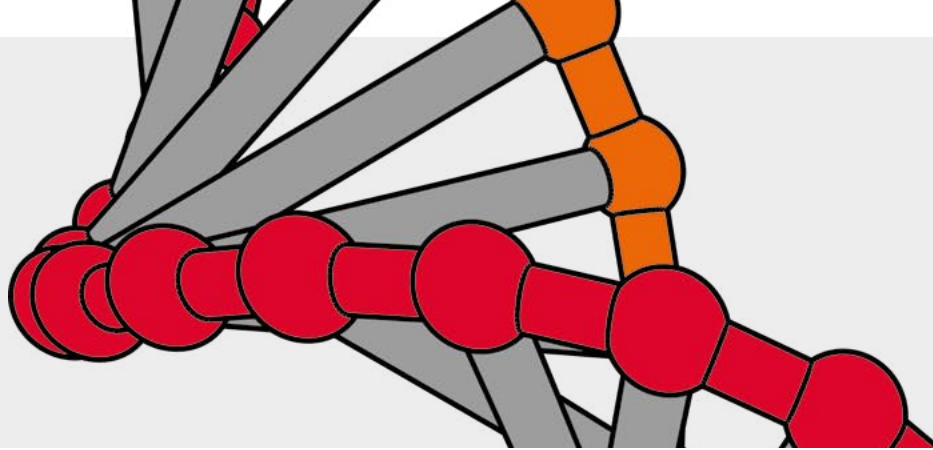
“I name this engine Koni”



THE 7 DECEMBER 2018 ANNIVERSARY CELEBRATION ON LAKE LUCERNE WAS A COMPLETE SUCCESS. THOSE PRESENT, ATTENDING FROM ALL OVER SWITZERLAND, HAD ONLY POSITIVE THINGS TO SAY ABOUT AN OCCASION THAT WAS A RESOUNDING SUCCESS FROM ORGANISATION RIGHT DOWN TO THE WEATHER - SUNNY AS ORDERED!

The naming ceremony of the new track maintenance engine in Lucerne duly launched the festivities in blazing sunshine. No less than Chairman of the Owner Board, Konrad Schnyder did the honours, naming the track maintenance engine “Koni”, after a short retrospective over the history of Sersa locomotives.

Then it was time to take to the waters of Lake Lucerne and celebrate on board the MS Diamant and the DS Uri. In his anniversary report, Konrad Schnyder reflected on the history of Sersa Group AG (Switzerland) and Sersa Maschineller Gleisbau AG, seasoning his talk with anecdotes from past times. Everyone present fully enjoyed both the trip on Lake Lucerne and some culinary delights in a relaxed get-together. Over the course of the evening, many Sersa employees celebrating 10 to 45 years of service with the company were honoured and those employees retiring during the course of the year were also commended.



A WEALTH OF OPPORTUNITY AHEAD: HUMAN RESOURCES 4.0

TURBO-DRIVEN EFFICIENCY INTO THE FUTURE: TRENDS SUCH AS DEMOGRAPHIC CHANGE AND THE CATALYST OF DIGITISATION OFFER MAJOR OPPORTUNITIES IN THE SPHERE OF HUMAN RESOURCES MANAGEMENT. ANYONE WHO HAS UNDERSTOOD THIS AND WHO IS DETERMINED TO ACHIEVE A SMART COMBINATION OF TECHNOLOGY, DATA EVALUATION AND AGILE PERSONNEL PLANNING AND ORGANISATION, IS ONTO A WINNER.

CONNECT WITH US:



PROVIDING INSPIRATION

However, we should start at the beginning: At RSRG, the basis for the future and a shared understanding of personnel management lies in the “HR DNA”. Essentially it is this that shapes the identity, the working culture and the strategic direction of the corporate Group. Melissa Wilmanns, Head of Corporate Human Resources and member of Group Management at Rhomberg Sersa explains “We see ‘people’ as the key to everything, and are convinced that social transformation comes before digital transformation. Only good, contented employees will provide high quality work for our customers”.

And how is the journey on the digital train to the future progressing? The answer lies in social interaction: the digital talents of tomorrow are directly addressed by the use of social media and a transparent and fast application process (“candidate experience”). And existing employees will be picked up and carried along too. In addition to an aptitude for digital transformation, self-organised, collaborative learning and working are also on the itinerary.

PROFESSIONAL ARRIVALS AND GROWING TOGETHER

You can grow accustomed to many things: experience or challenges faced, for example. Employees in traditional, family-run company groups, in addition to a safe and international working environment, also find great opportunities for growth. The companies of RSRG offer their employees locally customised, sound professional training and career development opportunities. Market-specific employer branding concepts resonate very positively on the recruitment market, attracting the attention of new talent (potential employees). Moreover, international internships, such as those in Australia, are being offered for qualified and motivated graduates, career starters and young professionals.

THE POWER LIES IN THE LEADERSHIP: RSRG LEADERSHIP ACADEMY

Strong leaders support their employees through processes of change. Rhomberg Sersa Corporate Human Resources in an internal empirical study is raising the requirements for both present and future leaders “We are switching tracks and heading for the future – and we will succeed if we are all pulling on the same lever” Wilmanns concludes.

STRONG TOGETHER

Vossloh and Rhomberg Sersa are strengthening their infrastructure competence in a joint venture.

VOSSLÖH AND RHOMBERG SERSA CREATE A JOINT VENTURE TO STRENGTHEN THEIR INTEGRAL APPROACH TOWARDS OPTIMISING THE LIFE CYCLE MANAGEMENT OF THE RAILWAYS. THE CONTRACT WAS SIGNED IN BERLIN AT THE END OF 2018 AT INNOTRANS, THE WORLD'S LEADING RAILWAY TRADE FAIR.

The joint venture operating under the name "Rhomberg Sersa Vossloh GmbH" specialises in switch servicing and diagnosis i.e. the railway superstructure maintenance of switches and tracks. It offers a broad range of services for the value-retaining management of the entire railway infrastructure. In addition to the reliable and economically efficient maintenance of the railways, the focus is on long-term asset preservation with an outstanding cost/benefit ratio. Rhomberg Sersa Vossloh GmbH has its headquarters in Foehren near Trier, in the Rhineland Palatinate.

With MR.pro® software established on the market and developed by Rhomberg Sersa, the new company has a professional inspection and monitoring tool for recording, assessing and evaluating the con-

dition of infrastructure, and identifying suitable maintenance measures. In addition, the "BahnWege®" seminars have become established as pioneering in the field of railway superstructure engineering. "We are delighted that, together with our partner Vossloh, we are able to pool our services and expertise and so are able to offer our customers flawless solutions" says Thomas Bachhofner, CEO Rhomberg Sersa Rail Group.

Both partners anticipate extensive synergies within the joint venture with their own service businesses and integral life-cycle management solutions. The joint venture is designed to make valuable contributions towards ensuring maximum availability and safety of track and switch systems at an optimised budget. "Cooperation enhances the product and services portfolio of each partner ideally" says Marcel Taubert, managing director of Vossloh Rail Services.



3 INTO

RHOMBERG SERSA DEUTSCHLAND CLOSES RANKS WITH A UNIFIED CORPORATE NAME

Just a year after the grouping of all track-construction companies of the Rhomberg Sersa Rail Group in Germany into Rhomberg Sersa Deutschland (RSD), the regional companies of the business division are drawing ever closer: the three companies RSD – Ost GmbH, RSD – Südost GmbH and RSD – Südwest GmbH & Co. KG henceforth will dispense with regional suffixes and sign themselves uniformly simply as Rhomberg Sersa Deutschland GmbH, “After the successful 2018 merger, this was the only logical next organisational step towards strengthening our presence as a joint brand and towards benefiting from our synergies in commercial track construction even further” explains managing director Georg Gabler. “Otherwise, nothing else will change – either for our employees or for our partners and clients”.

1 WILL GO



GEORG GABLER

Managing Director Rhomberg
Sersa Deutschland GmbH

02

MARKETS



SWEET FREIGHT FOR SWITZERLAND

Sersa secures transport contract from sugar manufacturer Schweizer Zucker AG

SCHWEIZER ZUCKER AG HAS ITS HEAD-QUARTERS IN AARBERG (BE). IN ITS TWO PLANTS IN AARBERG AND FRAUENFELD, IT PROCESSES SUGAR BEET INTO A WIDE VARIETY OF SUGAR PRODUCTS. SINCE THE AUTUMN OF 2018, AROUND HALF OF THE SUGAR BEETS FOR THE AARBERG PLANT ARE SUSTAINABLY TRANSPORTED TO IT AS SOON AS THEY ARE HARVESTED BY TRAIN, COURTESY OF SERSA.



■ The Sersa sugar beet shuttle

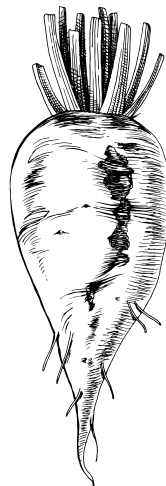
Between the end of September and the end of December 2018, railway technology specialist Sersa transported entire trains of sweet freight between a total of 21 loading stations and the Aarberg sugar factory. The task had to overcome many challenges:

- Seasonal transport with very high volumes transported per day and a high level of weather impact on the harvesting process,
- Short preparation times for transport organisation
- Integration of certain loading stations by shuttle.

The actual loading and transporting period lasted from 28 September until 15 December. During that time, 510 trains and 816 shuttle journeys conveyed 450,000 tonnes of sugar beet. The loading station calling points were distributed across the whole of Western Switzerland: from Geneva via Saint-Triphon

and Chavornay (the largest loading station handling 140,000 tonnes of sugar beet alone) as far as Uetendorf near Thun in the Bernese Oberland.

For Sersa, it was clear from the outset that this project could only be accomplished successfully with the help of strong partners. The most important partners were SBB Cargo and BLS Cargo for main-line traction, Travys for shunting services at the major station Chavornay, and WRS. Launching this new transport was a huge challenge. However, all freight was delivered to Aarberg on time by mid-December. After intensive preparations, the 2019 sugar beet season is already successfully under way.



SWISS SUGAR BEET IN FIGURES

7,000 farmers
Approx. 18,5000 hectares under cultivation
200,000 tonnes of sugar



PROCESS **START**

CONTINUOUS PROCESS

Track replacement using
the SERSTAR system

THE INDIVIDUAL PROCESSES OF WELDING, NEUTRALISATION AND TRACK REPLACEMENT USING THE EXCAVATOR ARE COMBINED BY THE SERSTAR SYSTEM INTO ONE CONTINUOUS INTEGRATED, COST-EFFECTIVE WHOLE WITH OPTIMISED SYNERGIES.

SERSTAR mobile two-way rail-welding system

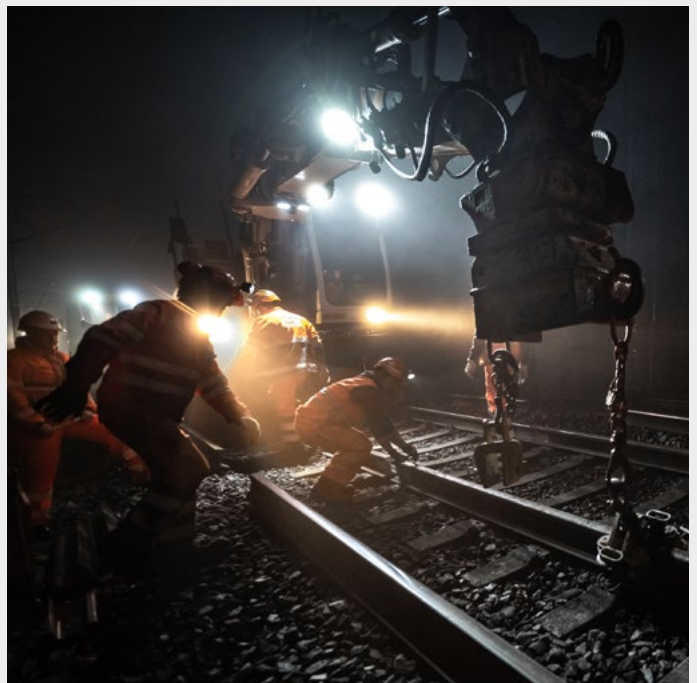
With this system, flash butt welding is usually carried out directly on installed rails. However, it can also be carried out “semi-stationary” on site or on the track before installation onto the railway. The mobile flash butt welding machine is designed as a two-way road/rail vehicle which gives it a particularly high level of flexibility. For rail replacement and movement, the Liebherr A 900 C ZW two-way excavator is used.

REMOVAL OF INSTALLED RAILS

The rails are cut out at the start and end of a reconstruction phase. Rail separations in between are carried out by flame cutting. The distance corresponds to the length of the long rails (108 or 120 m) to be changed.

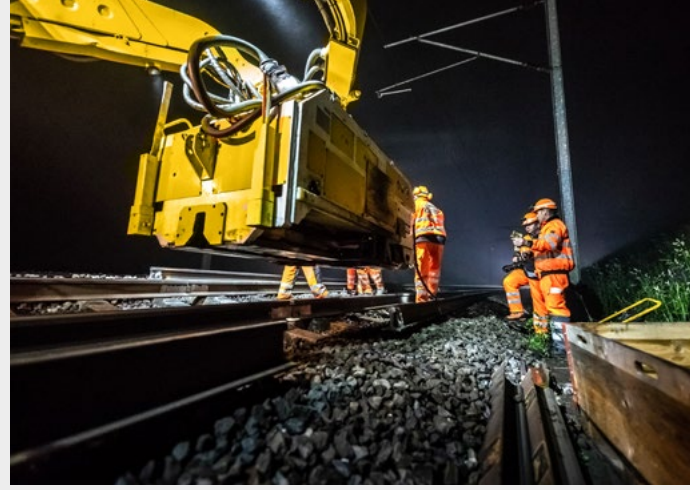
LOOSENING OF RAIL FASTENINGS

Rail fastenings are to be loosened both for flame butt welding and for neutralisation and rail replacement. These three process units are carried out in synergy. Conventionally four to six sleeper screwdrivers are needed. After the removal of the old rails, separation and installation of the new rails are repeated until all rails have been replaced.



**RAIL REPLACEMENT USING
TWO-WAY EXCAVATOR**

After the removal of the old rails, separation and installation of the new rails are repeated until all rails have been replaced.



**ASSEMBLY OF
RAIL FASTENINGS**

The rail fastenings are placed to the side manually and installed into the new rails.

**RAIL
NEUTRALISATION**

Before the mobile welding system moves on to the next welding point, the newly welded rails 108 or 120 m in length are heated using one or two motorised heating wagons. The even backward and forward motion enables the application of constant heat by which the rails are expanded to the necessary length.

**RAIL
WELDING**

The mobile rail welding system is positioned precisely to approx. 20 cm using radio remote control. Then the “Supra Lift” lifting system is placed over the rail ends to be welded and is precision aligned. Immediately after welding, coarse grinding is carried out.

FINE GRINDING

After the welds have cooled down, the rail surface and edges are fine ground in accordance with the required finish tolerances. Rail head grinding machines are used for this purpose.

FINISHING WORK

Insertion of rail coupons with start and end welding (aluminothermic welding process).



**PROCESS
END**



VERKEHRS- BETRIEBE GLATTAL (VBG)

Sersa Schweiz is responsible for maintenance of the entire track system.

SERSA WAS AWARDED THE CONTRACT FOR THE MAINTENANCE OF THE ENTIRE TRACK SYSTEM INCLUDING DRAINAGE. THE CONTRACT INCLUDES SYSTEMS OVER THE 12.7 KM (25.4 TRACK KILOMETERS) NETWORK “TRADE FAIR/ HALL STADIUM/AIRPORT FREIGHT AND GLATTPARK STATION STETTACH”.

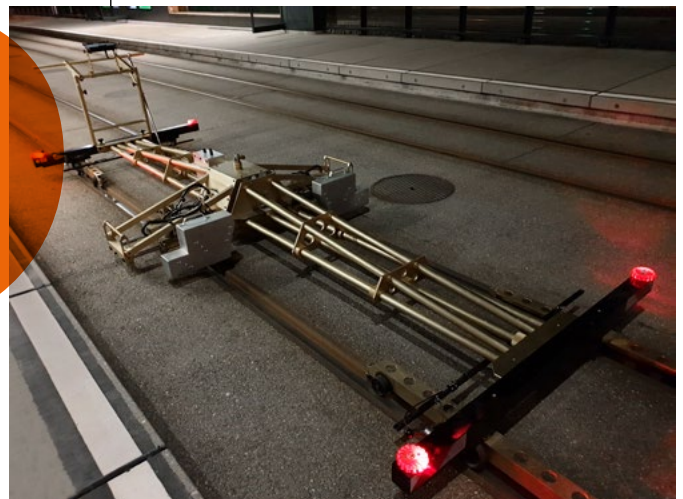


The entire contract is divided into eight service packages consisting of different specialist sectors, intellectual services and conventional work services:

1

BASELINE ANALYSIS

Primary analysis of system condition: the findings serve VBG and Sersa as a basis for all maintenance cycles.



Track measurement and visual inspection of actual condition

2

MONITORING

In periodic monitoring (condition and functional checks, inspections and observations), defects are identified and changes in state as a result of the use of the track system and environmental influences are determined. Monitoring is divided into three parts:

- **Inspection:** a line walker makes a visual assessment of the entire rail system.
- **Data acquisition:** formalised, periodic recording of actual condition. Decision-relevant information is systematically procured using suitable measuring devices by on-site track inspections or measuring runs.
- **Data entry:** data is stored in a machine-readable form on data media. As a rule, checking methods are linked to formal correctness.

3

DATA ANALYSIS

Primarily this is a question of developing hypotheses or questions from existing data. This service package too is divided into various parts:

- **Data preparation:** this includes verifying data sets and the manner of acquisition. It is checked whether data acquisition has been technically specific and the data corresponds to the precise situation.
- **Evaluation of the situation:** assessment of current condition and the trend in the key parameters entered over a specific period of time.
- **Forecast:** the forecast includes determination of future damage development, the derivation of the duration of useful life of system groups, forecast changes in future damage and condition of individual sections of line and system groups and forecast future replacement requirements.



Elimination of individual faults in Auzelg

4

PLANNING OF MEASURES

This includes all work for the short, medium and long-term optimum selection and coordination of measures, aims to minimise overall costs and shows the effects (change in condition, additional costs etc.) of a derivation from the optimum selected measure. The planning of measures is divided into the following three sections:

- **Selection of measures:** evaluation of condition and forecast form the basis for the appropriate maintenance measures over a specific period of time.
- **Analysis:** The (technical and economic) options for action are analysed in detail and required measures defined with VBG.
- **Site planning:** This includes the coordination of the time and place of the selected safeguarding measures on specific sections of the track system.

5

SAFEGUARDING MEASURES

These include all measures to ensure operating and construction safety and the safeguarding of system infrastructure and the system value of the track system, and are subdivided as follows:

- **Operating maintenance:** measures to ensure operating safety of the track and road traffic system before cleaning, upkeep, maintenance, servicing and small repairs.
- **Structural maintenance:** structural and technical measures to ensure structural safety, the maintenance of system infrastructure and system function.
- **Changes:** single structural and technical measures.

6

COORDINATION

Sersa coordinates its own subcontractors and other companies commissioned by VBG

7

SAFETY

Sersa is responsible for the coordination of all work by all companies working in the area of the track. It also monitors compliance with safety rules.

8

DATA MANAGEMENT

Data management is the responsibility of Sersa.

The work in the context of this demanding mission has been successful until now. All challenges have been overcome thanks to stable teamwork between VBG and Sersa. The potential of this total maintenance project is recognised and Sersa has used the opportunity to optimise its performance in all areas on a daily basis.

Sersa, of course, is also following with great interest the preliminary project "Kloten Glattal railway extension" (Zurich airport to "Grindel" at the city border at Bassersdorf) expected to be completed by the end of 2019. Next comes the application to Federal Government for an infrastructure licence as well as an application for a further planning budget from the Canton. Once approval has been obtained, the construction project can be developed and the level of the necessary construction budget determined. Provided that the necessary authorisations are granted, construction can start in 2024. This means that the Kloten Glattal railway extension will come into service in time for the December timetable change.



■ Exposure of the track supporting layer on a private line (ballast and grass)

IMPROVED EFFICIENCY AND RELIABILITY WITH SMART TRACK-BOUND CRANES

Investment in the crane monitoring system.

TRACK-BOUND CRANES ARE COMPLEX TRACK CONSTRUCTION MACHINES AND PLAY A CENTRAL ROLE IN THE CONSTRUCTION PROCESS. THEREFORE, A FAULT CAN HAVE A DEVASTATING EFFECT ON THE WORK ON SITE. FAULT FINDING AND TROUBLESHOOTING ON SITE IS OFTEN NOT POSSIBLE DUE TO THE PRESSURE OF TIME, OTHERWISE IT TAKES TOO LONG. THAT IS WHY SERSA MASCHINELLER GLEISBAU AG HAS INVESTED IN A PROFESSIONAL CRANE MONITORING SYSTEM FOR ITS TWO STANDARD-GAUGE AND ITS TWO METER-GAUGE CRANES.

This solution means that multiple measurement variables can be read from the cranes and uploaded into Cloud data storage continuously. With the use of in-house developed algorithms and a data display system, specialists can observe crane operations. For example, changes in components and assemblies can be identified at an early stage. This information enables experienced Sersa employees to check welded wear parts and structural parts before a shift, change them and so ensure smooth construction operations.

Other advantages: The monitoring data enables fast comparison of site planning with the actual construction site, which enables verification of time sequences and optimises the planning of future construction operations. The results are also used in training and therefore improve application. The data from the track-bound cranes is also an extremely important source of information for the future procurement of such cranes. Together with the manufacturer, the next-generation crane can be customised to load conditions on the Swiss rail network.



A SERSA CORE STRENGTH

Connection welding
of railway lines and
switch components.



■ Aluminothermic welding at switches

UP TO THE MIDDLE OF THE LAST CENTURY, RAILS WERE LAID THROUGHOUT THE WORLD WITH JOINTED TRACK. THESE ARE BOLTED WITH FISHPLATES WITH A TEMPERATURE-DEPENDENT INSTALLATION GAP AT THE RAIL JOINT. THIS MEANS THAT THEY CAN EXPAND OR CONTRACT WHEN TEMPERATURES CHANGE.

In order to comply with ever-increasing requirements (safety, drive comfort, speed, higher frequencies), tracks, over time, have been ever more frequently welded using long rails. Sersa played a major role in this development. Welding of rail joints was initially accomplished using electrical rail joint welding. Due to higher requirements, this procedure is no longer permitted on many railways.

At the end of the 1970s, aluminothermic welding increasingly replaced electric welding. Flash butt welding, introduced after the turn of the millennium using mobile systems, creates a high quality, high strength welded joint. Highly qualified Sersa weld specialists, equipped with high-tech equipment, are ready to carry out perfect welding work at all times.

ELECTRICAL RAIL JOINT

WELDING

- Narrow gap welding process with copper bath protection (Innershield process) for vignole, grooved and crane railway lines.
- The welded joint is created using rod electrodes or flux-core welding wires.
- Used also for transition weld, grooved or vignole rails.
- Especially suitable in the case of confined spaces with low-alloy rails and at locations that are topographically difficult to access.
- Now only used on sidings or industrial tracks.
- Not 100% weld-safe on high-alloy or head-hardened rails.

ALUMINOTHERMIC

WELDING

- Aluminothermic fusion welding with crucible, specially developed for railway lines.
- Two large process manufacturers: Elektro-Thermit, Germany and Pandrol, France.
- Vignole, grooved and crane railway lines can be welded using the aluminothermic method.
- Welding portions are matched to the size and quality of the rail profiles and steel qualities.
- Moulds for all rail profiles including as transition forms to larger or smaller profiles.
- Also suitable for high-alloy and head-hardened vignole and grooved rails and for special applications such as thick butt welds, broad gap (up to 75 mm) and head repair welds.
- Various procedures PLA, SmW-F, SoW-5, SkV-Elite and SRZ.
- Future: digitisation in monitoring the weld process and in demonstrating the quality of manufacturing tolerances.

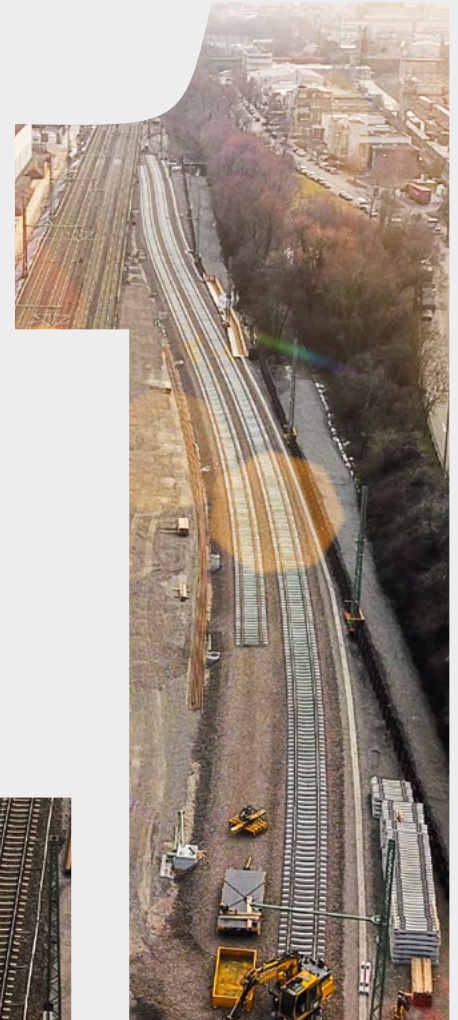


■ Flash butt welding with SERSTAR

FLASH BUTT

WELDING

- Stationary and mobile systems are in use all over the world.
- Heating of rail ends by electrical resistance and compression of rails that are still glowing.
- No weld filler required.
- Top quality welding of railway lines as the welding process is fully automatic.
- During the welding process, a diagram is produced for each weld which displays the force (kN), the distance (mm) and the strength of electrical current (A).
- Mainly long rails are welded with a maximum height difference of 2 – 3 mm.
- The latest mobile systems also weld grooved rails.
- With high upsetting forces (up to 200 t), welds can also be carried out on new systems – by retightening the rails – also neutralisation welds can be carried out.



THE COMPLETE PROJECT STUTTGART 21

**Underground transit station with 8 tracks
Total construction project line length: 57 kilometres
10-kilometre-long tunnel**

PUNCTUAL COMMISSIONING FOR STUTTGART 21

Impressive complex
construction project by
Rhomberg Sersa

THE CONTRACT TO CREATE THE OBER-TÜRKHEIM CONSTRUCTION DETOUR WHICH INCLUDED, IN ADDITION TO THE SUPERSTRUCTURE ITSELF, THE EARTHWORKS, DRAINAGE, UNDERGROUND CABLEWAYS, CABLING AND WASTE REMOVAL, WAS SUCCESSFULLY ACCOMPLISHED BY THE RHOMBERG SERSA DEUTSCHLAND TEAM IN THE FACE OF DIFFICULT CHALLENGES.

Over a total construction period lasting from October 2018 to August 2019, during four weekend rail traffic stoppages, old tracks were replaced over 800 metres, the pivoted sections created, linked to the existing ones and taken into operation.

The laying of the current four tracks of the long-distance Stuttgart-Ulm line and the Stuttgart-Plochingen urban light rail (S-Bahn) were necessary as the construction area for the creation of the mouth of the future Obertürkheim tunnel to link the Neckartal with the underground station had to be cleared and at the same time rail operations continued.

Construction supervisor Mathias Mengelkoch of RSD's Mühlacker branch looks back proudly over the progress of the work: "After successful implementation of the preliminary projects in the same S21 section, 1.6a, demolition of the old Imweg railway flyover

and removal of the provisional bridges over the new Imweg railway flyover, in particular due to outstanding preparation work on the highly complex operation by our quantity surveyor Andreas Rössner, we were able to secure this enormously important contract for RSD. Due to the intensive preparation work, the outstanding commitment of our logistics coordinator Hans-Jürgen Thiele and the meticulous work under the management of our construction supervisor Thomas Doehler from the Berlin branch, and our foreman Tomislav Panov, we succeeded in completing the construction within the challenging weekend traffic stoppages and 42 tight night-time traffic stoppages without any delays or incidents."

The project engineer responsible for the DB project Stuttgart-Ulm GmbH, Anna Antipova, also draws a thoroughly positive conclusion of the collaboration: "Rhomberg-Sersa Deutschland GmbH, has proved a reliable partner able to respond quickly to project-specific changes in a constructive manner and was able to help us as the client to find solutions to deliver the project on time and to a high quality. We should highlight in particular the smooth progress of the rail logistics which was something that no one involved had been looking forward to."

Rhomberg Sersa Deutschland has proved that it has the expertise of a first-rate contractor for major projects too.



EXPERTISE, PERFORMANCE, FLEXIBILITY

How Rhomberg Sersa
Deutschland impresses
its clients long term.



■ Safe on the move with Rhomberg Sersa: LEAG locomotive

SINCE 1998 – THAT IS TO SAY, FOR MORE THAN 20 YEARS – RHOMBERG SERSA RAIL GROUP AND ITS PREDECESSORS HAVE BEEN RESPONSIBLE FOR THE MAINTENANCE OF THE TRACK SYSTEMS OF LAUSITZ ENERGIE KRAFTWERKE AG/ LAUSITZ ENERGIE BERGBAU AG. THE TRACK-CONSTRUCTION SPECIALISTS AND THE SECOND-LARGEST GERMAN POWER GENERATOR CONCLUDED A FRAMEWORK CONTRACT FOR THE WORK, RENEWED EVERY THREE YEARS. “KEEP TRACK” ASKED TORSTEN SCHARNETKI, HEAD OF TRACK INFRASTRUCTURE AT LEAG, ABOUT THE REASONS FOR THIS LONG-TERM PARTNERSHIP.

WHAT IS THE MOST IMPORTANT THING TO YOU ABOUT THE MAINTENANCE OF TRACK SYSTEMS WHEN YOU ARE AWARDING A CONTRACT TO AN EXTERNAL FIRM?

Aspects such as competence, in the sense of expertise, performance, flexibility, trustworthiness, commitment and reliability are essential to us when collaborating with contractors. We need partners who will commit wholeheartedly to our extensive track systems.

WHAT ARE THE ASPECTS THAT CAUSE YOU THE GREATEST CONCERN, AND WHAT ARE THE ASPECTS THAT PERHAPS REQUIRE YOU TO BE LESS HANDS-ON?

In terms of construction operations, we must “keep at it all the time”, so to speak. For example, I should mention the issue of safety here. Such things can only ever be achieved jointly.

In the preparation of a construction project, we can rely on our partners. In this respect we trust in the expertise that is available and we are there in support at every stage.



HOW DO YOU EVALUATE THE SERVICES OF ALL THE COMPANIES WHO WORK FOR YOU IN GENERAL? ARE THERE MAJOR DIFFERENCES IN RELIABILITY/PERFORMANCE?

In principle we are satisfied with the contractors who work for us. There are indeed differences in terms of performance, commitment and specialist knowledge, but we get to know one another over the years so well that we know where we will need to pay special attention.

WHAT DO YOU PARTICULARLY VALUE ABOUT COLLABORATING WITH RHOMBERG SERSA? WHAT ARE THE BENEFITS IT GIVES YOU, WHAT INPUT DO YOU HAVE, BECAUSE YOU ARE WORKING WITH US?

As I have already mentioned: competence in the sense of expertise, performance, flexibility, trustworthiness, commitment and reliability are particularly important to us. Rhomberg Sersa Deutschland fulfils such criteria.

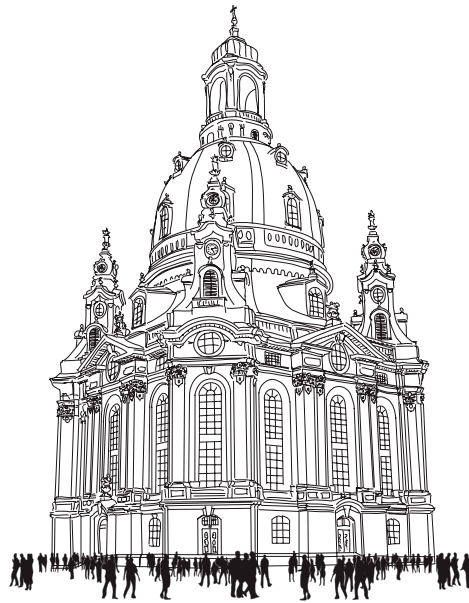
A long-term collaboration based on trust has developed between us which forms a very good foundation for succeeding in any difficult tasks that we might have to face.

We also perceive that Rhomberg Sersa Deutschland is more diverse than other competitors, for example the “digital track and points inspections” by Rhomberg Sersa Vossloh GmbH in Föhren.

“LONG-TERM COLLABORATION BASED ON TRUST HAS DEVELOPED BETWEEN US WHICH FORMS A VERY GOOD FOUNDATION FOR SUCCEEDING IN ANY DIFFICULT TASKS THAT WE MIGHT HAVE TO FACE.”

Torsten Scharnetzki
LEAG





TOTAL COMMITMENT

In Dresden, two young construction supervisors had the opportunity to undertake an extremely demanding project – with success.

THE CONTRACT AWARDED BY DRESDNER VERKEHRSBETRIEBE AG (DVB) WAS AS FOLLOWS: WITHIN JUST THREE WEEKS IN OCTOBER 2018 COLLEAGUES AT RHOMBERG SERSA DEUTSCHLAND (RSD) HAD TO REPLACE THREE TWO-TRACK BRANCH LINES, A QUADRUPLE CROSSING AND A TURNOUT, INCLUDING ROAD WORKS, RIGHT IN THE MIDDLE OF THE CAPITAL CITY OF SAXONY. “THE PERFECT JOB FOR TWO OF OUR BEST YOUNG CONSTRUCTION SUPERVISORS” SAYS NORMAN KRUMNOW, DRESDEN BRANCH MANAGER.

The outstanding feature of this contract was the constricted space. Noise emission reduction regulations in the inner city residential area also had to be strictly adhered to. Important DVB tram and private transport links would be interrupted by the works. This meant that the track work had to be carried out with a high level of coordination, dedication and efficiency.

“We decided relatively quickly to put our two up-coming talents Shadi Lalo and Florian Glässer to work on the job” recalls Krumnow. “They had already shown in the past that they were capable of leading well-organised and well-coordinated construction operations. We also assigned to them Dieter Walter, one of our most experienced and competent senior construction supervisors”. With this decision, RSD was fulfilling its mission to train and further develop its own experts. And the decision proved to be the right one: “Not only did Lalo and Glässer become familiar with the execution and implementation of inner-city tram construction works under highly challenging conditions”, says Krumnow, “They completed the project on time and to budget”. In future Rhomberg Sersa Deutschland will therefore have two more experts able to take responsibility for implementing this kind of project.



THE DRESDEN TRAM NETWORK

Line length: 134.3 kilometres
Gauge: 1,450 millimetres
1893: first electric tram
600 V DC overhead wire
259 tram stops



RGRG: A STRONG PARTNER FOR DEUTSCHE BAHN

By Gerald Saremba,
Infrastructure Procurement,
Head of Policy and Supplier
Management at Deutsche
Bahn AG.

WITH ITS NEW BUSINESS STRATEGY “GERMANY NEEDS STRONG RAIL”, DEUTSCHE BAHN AG IS TAKING ITS RESPONSIBILITY SERIOUSLY AND STRENGTHENING ITS RAILWAY NETWORK IN GERMANY – FOR CLIMATE, PEOPLE, THE ECONOMY AND FOR EUROPE. INFRASTRUCTURE PROCUREMENT SUPPORTS THE STRATEGY BY PROVIDING STRONG PURCHASING SERVICES FOR THE RAILWAYS. FOR THIS WE NEED SUPPLIERS TO BE STRONG PARTNERS WHO WILL SUPPORT US IN ACHIEVING OUR OBJECTIVES.

When selecting collaborators, Deutsche Bahn AG therefore pays attention in particular to specialist knowledge, performance and reliability. One such strong partner is Rhomberg Sersa Rail Group (RSRG), with whom we enjoy a very successful relationship working together in the interest of our corporate values.

Back in 2017, we focused our Infrastructure Procurement prequalification procedures even more strongly on sustainability, i.e. consideration of environmental issues, conditions of employment and climate objectives. In the wake of this we introduced evidence of an ecoVadis CSR rating into the evaluation procedure. For the pilot phase, we had deliberately

opted to cooperate with RSRG. RSRG, even before we included the sustainability rating in our evaluation procedure, had an “Advanced” level ecoVadis rating and was listed among the top five percent, so automatically met our criteria. Without hesitation, Rhomberg Sersa Deutschland’s pioneering managing directors Georg Gabler and Andreas Forster and their teams were ready to pilot the application of the new processes with us. This work happened in the context of a very successful collaboration which was carried along at all times by mutual appreciation and effort to achieve the best possible benefits for both partners. In this way we and our partner RSRG have contributed to combating climate change.

RSRG also shows remarkable flexibility in the way it supports Deutsche Bahn in the interests of its customers. When rapid, unbureaucratic response is required in challenging situations, we can rely on RSRG. When, in October 2018, one of our ICE trains caught fire at Montabaur and damaged tracks, overhead wires and signalling systems, time was of the essence. The high-speed line between Cologne and Frankfurt had to be restored to operation as fast as possible. Within a very short space of time, personnel and machinery were assembled on site to repair the line. RSRG showed impressive flexibility in its support for Deutsche Bahn, coming to the aid of human beings and business.

This is all the more remarkable as the collaboration, when viewed objectively, might not seem to have got off to a good start. It all began at the end of 2016 with the self-managed insolvency of RSRG subsidiary RS Gleisbau in Germany. This was a legacy which the company had to deal with after its takeover of a competitor’s track construction division. Not only was this process concluded very quickly before the beginning of April 2017, those responsible kept us informed from the start openly, extensively and transparently, thereby ensuring that the construction projects affected could continue almost without hitch. With this attitude of openness, RSRG laid a sound foundation stone for a collaboration based on trust, and is now a strong partner to Deutsche Bahn Procurement Infrastructure, helping it to achieve its business objectives.

03

PRODUCTS



THE FUTURE OF URBAN MOBILITY

A look back over the
15th International Urban
Transit Forum in Trier.

INFO

Public transport is developing increasingly in Germany into the mainstay of mobility. Citizens across the population travel by bus or rail 138 times per year on average (DV survey 2018). 43% of public transport customers travel in the 20 largest German cities.

140 years ago, the electric tram was the pioneer of e-mobility in Germany.

In the German-speaking world there are:
57 transport companies in Germany
5 transport companies in Austria
6 transport companies in Switzerland
1 transport company in Luxembourg



Wonderful atmosphere at the 15th international urban transit forum.

IN THE 15TH YEAR OF WHAT HAS BECOME THE MOST ADVANCED FORUM FOR THE SECTOR, 180 EXPERTS AND MANAGERS FROM MUNICIPAL TRANSPORT COMPANIES MET TO DISCUSS CURRENT DEVELOPMENTS AND TRENDS WITH SCIENTISTS, ACADEMICS AND EXPERTS FROM INDUSTRY.

Why choose Trier for the event, many participants may wonder. The reason – as many will guess – was, in fact, not the revival of the Trier tramway which ceased operation in 1951, even if there has been a resurgence of the concept everywhere in the world since the 1990s. The reason lies more in its proximity to Luxembourg. Here, Luxtram has been operational since November 2017. It is an attractive modern tram that has been growing in popularity and, from 2020, like the other public transport services across the country, can be used free of charge. Luxtram was the destination for the excursion on the second day of the conference.

In addition to Luxtram, attention was focused this year on the Bergen tramway, 3D presentations on improvements in construction safety, a practical test of driverless vehicles in Mainz, the maintenance of track systems in the face of growing traffic volumes, electromagnetic compatibility of overhead contact lines, resilient rail bearings to minimise noise and vibration, the use of synthetic sleepers on local transit systems and, not least, safety at work from a management perspective. The next urban transit forum will take place on 5 and 6 May 2020 in Frankfurt am Main.

11.04.19 LUCERNE



A LOOK BEHIND THE SCENES

Informative Sersa Schweiz
customer conference

THE SERSA SCHWEIZ CUSTOMER CONFERENCE HAS TAKEN PLACE FOR THE SECOND TIME. CUSTOMERS AND STAFF WERE GIVEN THE OPPORTUNITY TO LEARN ABOUT SELECTED PRODUCTS AND SERVICES. TWO KEYNOTE SPEAKERS AND A CONCLUDING PODIUM DISCUSSION ROUNDED OFF THE DAY.

Sersa Schweiz once more invited customers to a conference at the Verkehrshaus der Schweiz, the Swiss Museum of Transport in Lucerne on 11.4.2019. Customers and staff heard presentations on products and services for balastless track, tunnel renovation, IVES, V-TRAS, ZOKA, SRS, metre gauge conversion, BIM, logistics, EVU, maintenance, SERSTAR rail replacement (including welding), SLS, special machines, electrical systems/overhead contact lines, diagnostic and measuring systems. The conference also provided an ideal platform for exchanges with experts from the sector and networking.

In parallel to the product presentations, Konrad Schnyder, Chairman of the Owner Board of Rhomberg Sersa Rail Group, delivered a specialist lecture on “Digital working yesterday and today”. In his talk, he took his audience on a journey back through time, starting in 1994, the year when the digital age began for Sersa with the development of the absolute track measuring system PALAS. Christian Schreiber, managing director of Sersa Group AG (Switzerland), talked on the subject of “Building Information Modelling”.

The conference was rounded off with a podium discussion on the theme of “The function of the human in the digital age” moderated by Konrad Schnyder. Andreas Bass, head of HR at Rhätische Bahn AG; Martin Candinas from the National Council for Grisons; Franziska Jermann, Head of Personnel at BLS AG; Andreas Streit, Category Manager Fahrweg SBB Infrastructure Purchasing; Martin von Känel, Managing Director of Transport de Martigny et Régions SA and Thomas Bachhofner, CEO Rhomberg Sersa Rail Group took part in the discussions.

A drinks party, right next to our Sersa display “Bahnbau macht mobil” (Rail construction mobilises) in the Rail Transport hall, concluded the conference on a happy note. The next customer conference will take place in 2021.



Lively discussion on the podium at the Sersa Customer Conference



BUILD YOUR OWN CONSTRUCTION TRAIN

Customer inquiries made easy:
The Sersa Schweiz machine

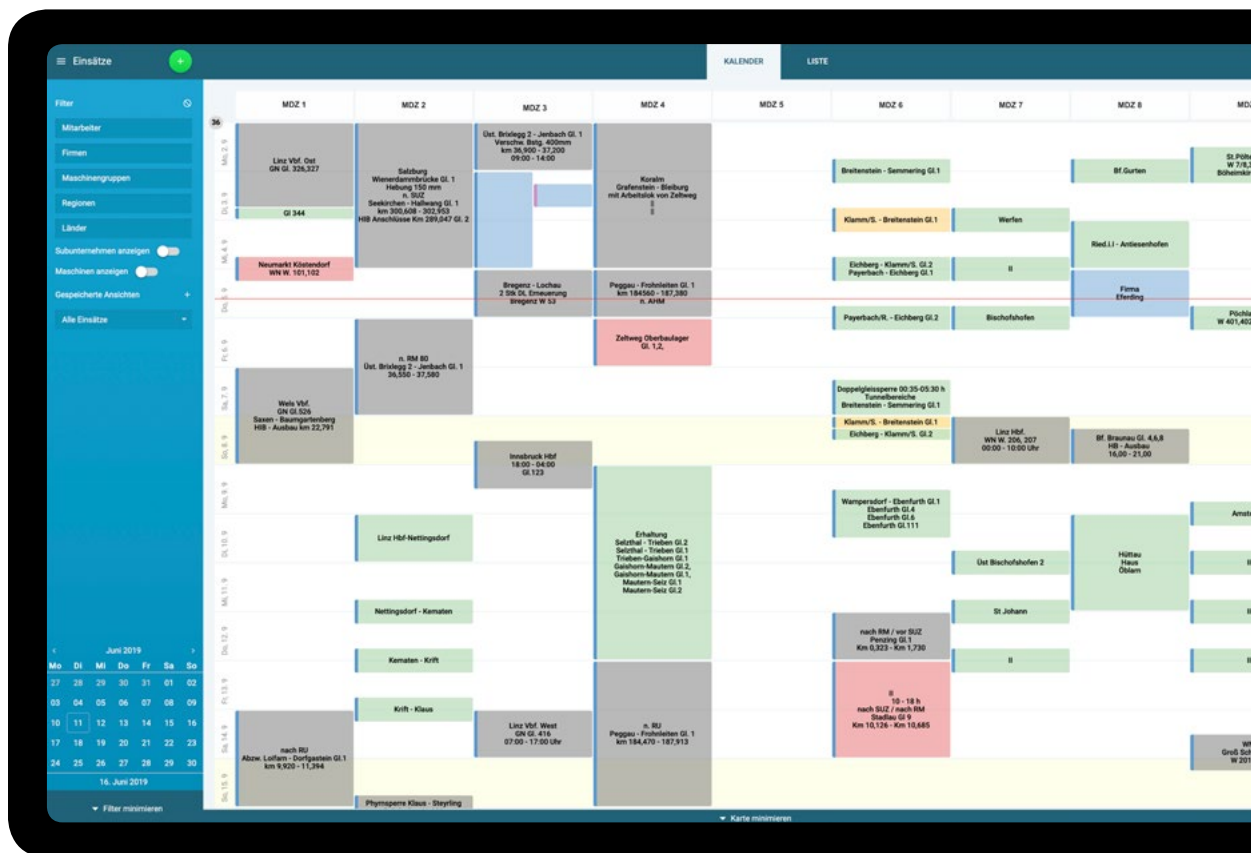


CUSTOMERS CAN NOW ACCESS THE CONSTRUCTION PLATFORM BAUZUG. INFO TO ASSEMBLE A CONSTRUCTION TRAIN, QUICKLY AND EASILY THAT IS CUSTOMISED TO THEIR SPECIFIC PROJECT, AND REQUEST AN APPROPRIATE QUOTATION FROM SERSA SCHWEIZ.



The configurator clearly presents the available machines, including their technical specifications. Currently you will find on the platform 17 different machine types – from locomotives through to various wagons and modules, both standard gauge and meter gauge. The client can first choose their machine and then drag and drop to configure it. After inputting the place and time of use and their contact details, they can send off their inquiry and receive an offer within a very short time. Quick and easy!





THE TRACK CONSTRUCTION PLATFORM OF THE FUTURE

Rhomberg Sersa Rail Group launches Railium.

DIGITISATION MADE EASY: WITH A NEW ONLINE PLATFORM, RHOMBERG SERSA RAIL GROUP PRESENTS AN INDEPENDENT SOLUTION FOR TRACK CONSTRUCTION, RAIL TECHNOLOGY AND RAILWAY TRANSPORT COMPANIES THAT PROVIDES INTERNATIONAL EFFECTIVE SUPPORT WITH PERSONNEL AND MACHINE MANAGEMENT AND WITH ORDER ENTRY. ITS NAME IS RAILIUM.

The “self-hosted” software enables companies to optimise workflows and to combine logistics, EVU

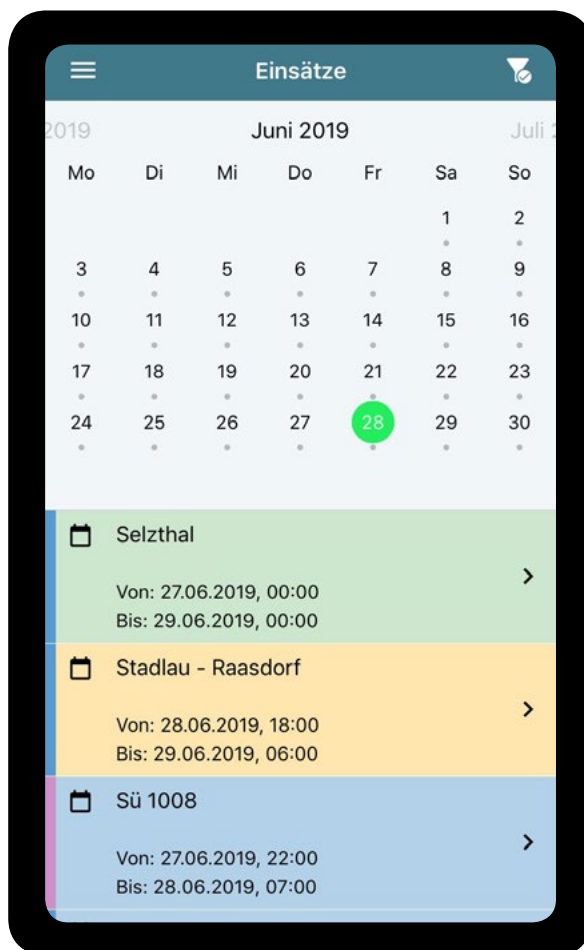
(railway transport companies) and ECMs (Entity in Charge of Maintenance) safely in a single system. The system has a browser-based web platform and a mobile app for iOS and Android. The Rhomberg Sersa Rail Group is developing the system with an independent partner in order to guarantee a high level of data security and service.

Whether resource or operational planning: thanks to clear data management and simple, intuitive drag-and-drop functions, work processes are optimised quickly and easily.



Florian Maletzky
Assistant Corporate Function
Machine management

**“WE COULDN'T
IMAGINE DAILY
LIFE DEALING
WITH TRACK CON-
STRUCTION IN OUR
COMPANY WITH-
OUT RAILIUM”.**



Vehicle availabilities are managed in the internal matching system using interfaces with ECM software. Calendar view gives a rapid overview of operational planning of machines and availabilities of employees using validity matching of operations documents by user-specific file management. A machine database provides specific vehicle information to assist the user. By automated processes such as:

- automated entry of additional and activity certification,
- recording and management of journey assignments with function-specific matching of authorisations and entitlements of scheduled personnel,
- journey progress and generation of journey-specific forms at the end of the journey using the mobile app

sequences are better structured, better coordinated and more efficient.

Everything in real time: Internal system chats enable rapid communication within various sections of the company; continuous monitoring is made easier with the evaluation function. Route and location finding are recorded and mapped using the mobile app.

The mobile app also improves planning and communications between employees – with operations preview for several months and data upload functions.

RAILIUM is uncomplicated to use and can be rolled out very quickly. We also offer the option of a test phase – possible at any time without investment risk. The “RAILIUM DISPO” module has already been in use for one year. Release of the “RAILIUM EVU” and “RAILIUM ECM” modules is scheduled for the end of 2019.

04

MACHINES



B40UM-5



Suitable for very narrow radiuses (≥ 40 m)

Gradients up to 70 ‰

Special relative measurement system NEMO®

PALAS absolute management system

NEW B400UM-5 NAMED “SÄNTIS”

The most recent addition to the successful new machinery generation was named on 19 August 2019 in Appenzell.

REPRESENTATIVES FROM APPENZELL RAILWAYS, POLITICS AND PUBLIC BODIES, REGIONAL MEDIA AND SPECIALIST PUBLICATIONS, THE RHOMBERG SERSA RAIL GROUP AND SERSA SCHWEIZ WERE ALL PRESENT TO WITNESS THE NAMING OF THE LATEST TAMPING MACHINE B40UM-5.

In 1997 the first large universal tamping machine, the B40UM-1 took up service on meter gauge lines. Since then, around five such machines have been developed, each an improved version of its predecessor. The requirements for meter gauge railways in Switzerland with radiuses of 45 metres and gradients up to 70 ‰ represent major challenges to rolling stock as well as measuring and operational technology. The new B40UM-5 is a logical development in this generation of machines. Firstly, it has electromagnetic rail brakes for safe travel on gradients exceeding 60 ‰, and spring-loaded brakes to park the vehicle in safety. Also, the ZSI127 train control system has been installed into a meter gauge track construction

machine for the first time. This is the future standard for all meter gauge railways in Switzerland. One particular challenge was the assembly of antennae in the machine as in cogwheel railways, the balises are set to one side in the track. The Rhomberg Sersa Rail Group PALAS absolute guidance system and NEMO, the latest generation system from Matisa SA provide the measuring technology.

Mirko Sennhauser, managing director of Sersa Maschineller Gleisbau AG is pleased: “With the B40UM-5, we have a first-rate machine for meter gauge. The reduced height and the compact structure, coupled with the latest technologies and up-to-the-minute safety standards such as electromagnetic rail brakes and train warning system, enable efficient operations on the rails with outstanding results for our customers.”

MTW 100.216



A low-emission engine

Large cabs with 2 driving stations and workshop space

Triple lifting platform

Loading crane with working cage

Track play compensation overhead wire measuring system

IN LINE WITH THE TIMES

Bahnbau Wels invests in
a modern vehicle fleet

THE MACHINERY SPECIALIST IN THE RHOMBERG SERSA RAIL GROUP WILL BE ABLE TO SUPPORT ITS CUSTOMERS EVEN MORE EFFECTIVELY WITH THE HELP OF TWO NEW “COLLEAGUES”: THE UNIVERSAL TAMPER 4.0 S7 PLS 16 4.0-S FROM SYSTEM 7 RAIL SUPPORT AND THE MTW 100.216 FROM PLASSER & THEURER, USEFUL RECENT ADDITIONS TO THE GROUP’S VEHICLE POOL.

“It is our aim to keep in line with the times with the new machines” explains managing director Andreas Kiesenhofer. “Furthermore, we are continuously making every effort to optimise the maintenance of tracks and switches”. With the universal tamper, additional parameters such as compacting force or data about ballast condition in the track and switch area can be collected. The company is also setting standards of sustainability with this machine in terms of noise reduction. Condition monitoring of working units, a new opti-

cal measurement system and Industry 4.0 methods complete the package of features. “At the end of the day, there has to be added value for the customer” stresses Andreas Kiesenhofer.

The new “MTW 100.215” motor tower vehicle will be used in catenary assembly work by Rhomberg Fahrleitungsbau, a track construction subsidiary of Bahnbau Wels. With this new addition, the catenary construction and electrotechnical systems specialist can offer its clients another modern working vehicle for efficient and safe operations on overhead wires. A four-axle working vehicle, the MTW has a wide range of uses. With the three-part column lift, three independent working platforms are available which enable simultaneous working at different heights and in different areas. A working cage can be mounted on the hydraulic loading crane. In addition to loading materials, this enables assembly work on the catenary system. By comparison with its predecessor model, an outstanding feature of the new

UNIVERSAL TAMPER 4.0



A new optical measurement system

Industry 4.0 methods

Noise reduction

Measurement of compacting force and direction

Equipment condition monitoring

MTW is its improved cab arrangement and new design and the addition of track play compensation for the catenary system.

**“AT THE END OF
THE DAY, THERE
HAS TO BE VALUE
ADDED FOR THE
CUSTOMER”.**

Andreas Kiesenhofer
Managing director



M580



Faster travel speeds, up to 100km/h

Single-pass regulating technology

Increased ride stability

Improved ballast carrying and transfer technology

A STRONG PROFILE

Rhomberg Rail's new M580 boosts efficiency

A NEW M580 BALLAST REGULATOR ENTERS SERVICE IN AUSTRALIA: RHOMBERG RAIL'S M580, SINCE ENTERING SERVICE ABOUT SEVEN MONTHS AGO, HAS ALREADY CLOCKED UP ALMOST 1000 HOURS OF OPERATION AND HAS REGULATED AN ENORMOUS VOLUME OF TRACK, WITH MINIMAL OPERATIONAL ISSUES.

The machine completed its final high-speed tests in July, making it the only ballast regulator in Australia certified for 100km/h. This shortens transfer times as, now coupled with the M865, the M580 as a complete maintenance train, can travel at the majority of track speeds within the networks.

The Rhomberg Rail team members have embraced the M580 and have enjoyed quickly discovering and mastering the small differences with our other SSP series machines. Our next step is to carry the new Rhomberg Rail Australia colour scheme across the fleet to provide a consistent look to our clients.

“Working with Rhomberg Rail Australia’s resurfacing team enables us to have track maintenance completed effectively and efficiently. We know that the work will be completed on time and to a high standard, regardless of the conditions” – the words of a satisfied client.

UMH 120



More efficient loading of excavation

Optimised loading of new material sideways

Ballast for tamping

Automated material flow using MFS/AVES

Can be used in Switzerland and England

THE UNIVERSAL SWISS ARMY KNIFE OF SITE LOGISTICS

Sersa Maschineller Gleisbau AG develops its special wagons.

In mechanical track and switch replacement, site logistics is one of the most important factors in the smooth running of construction operations. The removal of extracted material and the bringing in of new material such as ballast and sand and gravel for the subgrade protection layers have to mesh precisely with construction activities. MFS (material supply and silo) units from manufacturer Plasser & Theurer of Linz have for many years played a vital role in site logistics. MFS are capable of transporting and conveying large quantities of material efficiently. Depending on the task, at the end of an MFS chain, a special wagon is required for transshipment or unloading. Until now, a different wagon had to be provided for each task. This change could only be carried out by machine operators. This restricted the flexibility of an MFS group.

In 2016, Sersa Maschineller Gleisbau AG developed the UMH (universal material handling wagon) for Switzerland and England. The company Plasser & Theurer built these special wagons.

The wagons can be used for the following work:

- Transshipment of extracted material onto transport wagons in the neighbouring track or onto lorries.
- Unloading of new ballast and sand and gravel onto the construction site on the neighbouring track.
- Placing ballast on the track using a ballast tube
- Ballasting the track with ballast distribution flaps.
- Protective wagon for MFS.

A group of MFS with a UMH can take on a different role in each construction operation without the group of wagons having to be altered. This enables very efficient, flexible planning of the use of such a wagon group for site logistics.

Rhomberg Sersa Rail Group operates three UMH type wagons in England and in Switzerland.

05

ON LOCATION & PROJECTS





“WE OFFER OUR CUSTOMERS SOLUTIONS TO THEIR PROBLEMS”

Ronald Höfler
Senior construction
management at FVK

SOLUTION SEEKERS

Rhomberg Fahrleitungsbau GmbH completes challenging major project for ÖBB.

TO BE ABLE TO KEEP PACE WITH FUTURE REQUIREMENTS, THE COMPLETE POWER SUPPLY TO WIENER NEUSTADT STATION WILL BE OVERHAULED. THE ADAPTATION OF ALL FEEDER LINES FOR TRACTION POWER TO THE RAILWAYS IS COMBINED WITH THE INSTALLATION OF A NEW SUBSTATION.

Rhomberg Fahrleitungsbau has been awarded the contract to adapt the power lines and the catenary system. All work has to be carried out with minimal disruption to rail operations.



The Rhomberg Fahrleitungsbau assembly team delivering peak performance

“With such a complex project, there are, of course, always challenges to be faced” explains our site manager Ronald Höfler. Different trades working at the same time requires a high level of planning, synchronisation and coordination.

The solutions to these challenges lay in particular in sophisticated construction management. Take mast erection work, for instance: in two main construction phases, initially in January with the assistance of mast positioning equipment, the masts for track 1 and then in May the masts for track 2 were erected. The key feature was that before and between the main construction phases, parts of the feeder or return conductors were already raised, connected to the existing stock to ensure power supply.

The pre-assembly work in which a total of 11 tonnes of iron fittings were installed, took place on the rails as did the assembly work for the catenary system. Finally there was the earthing work for the new substation in which an aluminium instead of a copper conductor was installed within arm’s reach as anti-theft measure.

“By the outstanding collaboration and support of ÖBB project management, the tasks could be carried out under the best possible conditions. We owe particular thanks to our assembly colleagues who delivered peak performance. Such an achievement is only possible by a strong team” says Ronald Höfler.

INTER-
VIEW

THE CUSTOMER'S PERSPECTIVE

Project manager Werner Weilhammer discusses the ongoing oil terminal project.

WITH THE CONTRACT FOR THE TRACK CONSTRUCTION WORKS IN THE COURSE OF THE OIL TERMINAL PROJECT, BAHNBAU WELS ONCE AGAIN THIS YEAR IS GRANTED THE OPPORTUNITY TO UNDERTAKE A PROJECT FOR BAYERNHAFEN AT ITS REGENSBURG LOCATION. THE CONTRACT INCLUDES THE CREATION OF AN EMBEDDED TRACK WITH GROOVED RAILS AND BALLAST TRACKS INCLUDING SUBGRADE. FURTHERMORE, THE INSTALLATION OF SWITCHES, TRACK STOPS AND LEVEL CROSSINGS ARE PART OF THE PLAN. WE TOOK THE OPPORTUNITY TO INTERVIEW OUR CUSTOMER BAYERNHAFEN, AN ACTIVE MODERATOR FOR THE DEVELOPMENT OF LOGISTICS SOLUTIONS AND NETWORKS, ABOUT THE CURRENT PROJECT.

HOW, IN YOUR VIEW, IS THE CURRENT TRACK CONSTRUCTION PROJECT AT THE OIL TERMINAL PROGRESSING?

The building of the track systems at the oil terminal is a major step forward in achieving the objective

of turning previously leased land into an attractive transshipment area complying with WHG for combined transport in the port area, thereby creating new facilities for logistics companies and at the same time – as is already the case with the rolling road – transfer the majority of heavy traffic from road onto the railways.

In addition to detailed expert planning and strict coordination of the schedule, it is in particular the outstanding willingness of the specialist firms involved that will ultimately lead to the accomplishment of the planned concept. In regular scheduled discussions and in the daily briefings between everyone involved, project progress updates between trades are optimally coordinated so that both track construction and the entire project remain on schedule. At the beginning of September 2019, the first train rolled in and the first transshipment took place.

WHAT CAN YOU REPORT ON THE COLLABORATION WITH BAHNBAU WELS SO FAR?

We had already successfully developed close collaboration in past projects based on partnership and solution finding.



“BAHNBAU WELS MEETS ALL ITS CUSTOMERS’ REQUIREMENTS IN THE INDUSTRIAL RAIL SECTOR”

Michael Wolfsteiner
Construction supervisor and
company representative



■ **Werner Weilhammer, project engineer, infrastructure at bayernhafen**

Bahnbau Wels has always taken short-term changes to plan and operations-dependent adjustments in its stride. The collaboration also benefitted from lively discussions on alternative routes to a solution and methods of execution. To sum up, bayernhafen can report a positive cooperation which continues to date.

CAN YOU OFFER US A GLIMPSE INTO THE FUTURE? WHAT PROJECTS ARE IN THE PLANNING?

In the six bayernhafen locations, we are continually responding to current developments and requirements among our customers. One major effort by bayernhafen is then to implement customer-focused measures quickly. This is only possible by highly effective port construction and planning departments the sphere of influence of which is continually being developed in line with the increasing range of tasks at the port. We intend to take on more staff in future accordingly. In particular this is also because bayernhafen wants to promote and make more attractive the foundations for future-oriented and efficient transport and transshipment facilities in the sphere of rail and inland waterways transport.

CAN YOU IMAGINE FUTURE COLLABORATIONS ON PROJECTS WITH BAHNBAU WELS?

Due to the maximisation of capacities in the entire “track construction” sector, it will become increasingly difficult to implement projects at short notice. That is why we need not only a reliable partner, but also quality and performance as the basis for lasting cooperation. Bayernhafen has found such a partner in Bahnbau Wels and hopes that we will be working successfully together on future track construction work at our locations.



■ The Joint venture construction office at the eastern mouth of the Steinbühl Tunnel

ONCE WE'VE GONE, THE TRAIN CAN GO.

Track construction is progressing on the high-speed line between Ulm and Windlingen.

Catenary masts

22 km

Hydraulically-bound sub-base

14 km

Cable duct

15 km

Ballastless track

3,5 km

(last updated June 2019)

60 KILOMETERS OF TRACK, 11 TUNNELS, 243 MILLION EUROS OF INVESTMENT VOLUME, JUST 52 MONTHS OF CONSTRUCTION TIME: WHEN RHOMBERG BAHNTECHNIK LAST YEAR, TOGETHER WITH JOINT VENTURE PARTNER SWIETELSKY BAUGESELLSCHAFT MBH, WAS APPOINTED GENERAL CONTRACTOR FOR THE WENDLINGEN – ULM NEW LINE, THE NEWS ATTRACTED A GREAT DEAL OF ATTENTION. CONSTRUCTION IS NOW UNDERWAY.

The “hot phase” for Rhomberg and Swietelsky started quite specifically on 3 December 2018 when a stretch of 28 kilometres was taken over. Before that could happen, within just 11 months, a completely new team had to be formed from two different companies, to carry out all the advance planning for the first construction operations and to set up and occupy the central site construction area in Hohenstadt in Schwäbische Alb with 100 office workstations and several base camps to house up to 160 employees.

Since then, as at June 2019, catenary masts have been erected over a clear stretch off around 22 kilometres and on one side the hydraulically-bound sub-base has been completed over approximately 14 kilometres. Over a further 15 kilometres, the cable duct has been installed and in the Alb descent tunnel, measuring almost 6 kilometres in length, the levelling layer has been concreted in both directions. In mid-May 2019, work started on the construction of ballastless track using an own-designed concrete paver and up to now approximately 3.5 kilometres of line has been made. In all areas – in the tunnel, on bridges and on the open stretches, the Rheda 2000 ballastless track system has been used with individual reinforced Biblock sleepers cast in situ.

The Ulm – Wendlingen high-speed line is part of the Paris to Budapest “Magistrale for Europe”. The maximum line speed is 250 km/h. The Rhomberg Bahntechnik and Swietelsky Baugesellschaft joint venture is responsible for the complete railway superstructure – from bare tunnel to travelling train.

ARTC EXTENDS PERWAY CONTRACT

Rhomberg's commitment to the Australian Hunter Valley network is praised by satisfied clients

RHOMBERG RAIL AUSTRALIA WON THE TENDER TO DELIVER ARTC'S ANNUAL WORKS PLAN (AWP) WHICH INCLUDES A LARGE PERWAY COMPONENT COMPRISED OF TURNOUT REPLACEMENT AND MAINTENANCE WORKS, AS WELL AS A RANGE OF MISCELLANEOUS MINOR WORKS TO FACILITATE PROJECT DELIVERY. WHEN COMPLETE, THE WORK WILL CONTRIBUTE TO THE RELIABILITY OF TRACK PERFORMANCE WITHIN ARTC'S HUNTER VALLEY NETWORK.

As part of the contract, Rhomberg Rail Australia supply all resources, plant and equipment necessary to undertake the program which encapsulates a wide ranging scope including:



Manual labour: Rhomberg Rail using muscle power in the service of ARTC

REPLACEMENT OF TURNOUT STEELWORK, TIMBERS AND ASSOCIATED COMPONENTS

During the 2018-2019 financial year, the Perway team has replaced a total of 42 switch and stock rail assemblies and 45 turnouts, including fabricated crossings, compound manganese nose crossings, fabricated swing nose crossings, rail-bound manganese crossings and a spring wing crossing, all in the Hunter Valley.

More than 300 timber sleepers have been replaced and multiple partial re-sleeping of concrete sleepers as well as yard and siding rehabilitation works have been undertaken, and an inspection carried out of the entire line with partial re-sleeping.

Multiple GIJs have been replaced and spoil removed from various sites. During the first year, 500 welds were completed with only 2 defect welds installed. The Perway team assists on an ongoing basis with removing defect welds and repairing broken rails at short notice. The Perway team has assisted in repairing 2 derailments in the Hunter Valley over this period.

Collaborating with ARTC has cemented what was already a sound working relationship between Rhomberg Rail Australia and its principle client. "Working with the Rhomberg team enables us to have continued efficiencies across the track. We know the maintenance and upgrades are completed on time and to a high standard regardless of the scope. The project has been extended due to the success of the partnership" reports James Haasnoot of ARTC .

TREND

BIM – THE FUTURE IS DIGITAL

RSRG is driving the implementation of digital applications forward.

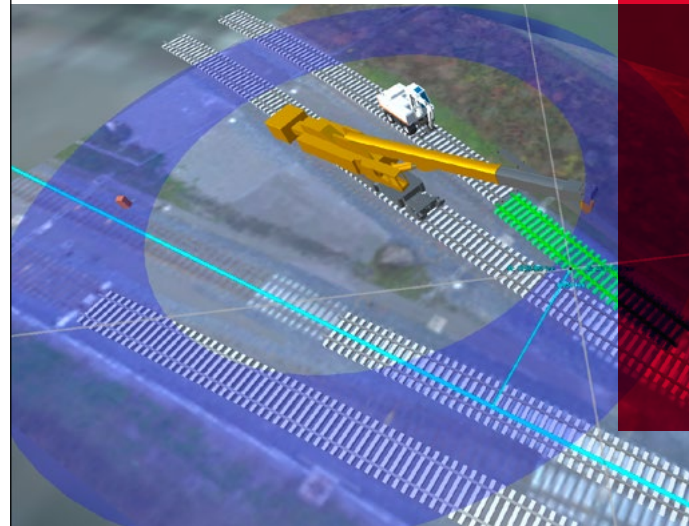
THE QUESTION AS TO WHETHER BUILDING INFORMATION MODELLING (BIM) WILL COME INTO USE IN THE RAILWAY SECTOR, IS NOW IRRELEVANT. THE QUESTION IS MERELY HOW FAST THE NEW WAY OF CREATING RAILWAY INFRASTRUCTURE WILL BECOME ESTABLISHED. RHOMBERG SERSA IS WORKING INTENSIVELY ON SOLUTIONS.

The clients in the domestic and core markets of the railway engineering group are working intensively to digitise their lines and processes. Software suppliers are expanding their portfolio in order to offer single-source solutions from planning through to project completion. Organisations such as “BuildingSMART” are in the process of creating, international standards with IFC Rail for the construction and maintenance of railway systems.

“As a technical pioneer in all things to do with railways, it is obvious to us that, in the context of BIM also, we should be offering our clients solutions in keeping with the times” says Thomas Bachhofner, CEO of Rhomberg Sersa Rail Group. That is why a team of experienced users and BIM experts are currently driving forward efforts in Germany, Austria and Switzerland, in the UK and in Australia, to introduce BIM processes – from 3D modelling through to construc-

tion workflow and process planning in 4D and semi-automated calculation (5D) through to data management in maintenance (7D). The objective is to optimise the use of digitisation to provide support for “high-performance infrastructure in all phases of the project”. Pilot projects such as that in Mellingen (see next page) offer valuable experiences.

“In addition to the multitude of projects in which we are now driving forward BIM together with our customers and partners, we are of course at all times excited to develop exchanges and partnerships surrounding methods” explains Ralf Sommer who leads implementation of BIM in the Group.” Only in this way can efficient and viable solutions be worked out that offer our clients genuine added value.”



A look to the future: virtual view of a railway construction site



Completed track construction

FROM BIM MODELLING THROUGH TO CONSTRUCTION MACHINE

In the Mellingen track replacement, Sersa tested a BIM application live for the first time.

Together with SBB, in this pilot project – 310 meters of replaced track, the refurbishment of six switches, and the replacement and conversion of the existing cable systems – the potential of data-supported collaboration between client developers, planners and entrepreneurs in the implementation phase was investigated. Amberg Engineering was commissioned with converting all the track renewal planning into a BIM model. This modelling enables precise representation of the ballast layer as a basis for 3D machine control. With the submission of the detailed schedule, the model became a 4D model in order to test the model-based work's progress documentation during the construction phase.

Model-based track renewal?

Sersa was responsible for construction. The focus was on the evaluation of the BIM model in implementation: the removed material and installation levels of the parametric model were been translated directly onto the construction machines so that the digital machine control systems of excavator (removed material) and dozers (installation) were supplied with the correct data at all times. Data transfer between model and construction machine happened on the Cloud, transferring the most up-to-date model data as a specified condition to the construction machine and feeding back data gathered during implementation on depth of extraction and height of installation. This made real time specified/actual comparisons possible. At the same time, the construction was documented with conclusion of the project on the model itself.

Value added and client developer's summary

While BIM-oriented execution in structural engineering is nothing new, this design project was a trailblazer in track renewal. It has proved that BIM is now also possible in line construction. The central collaboration platform proved advantageous as data redundancy can be minimised and document management becomes more efficient. With BIM, the planning and implementation process can be linked and designed as an end-to-end process. The result is a consistent process of data recording, measurement, stocktaking, planning and approval through to completion using heavy duty construction machinery.



SERIAL SUCCESS

Track maintenance:
Bahnbau Wels a reliable
partner to ÖBB

FOR MANY YEARS, THE COMMERCIAL TRACK CONSTRUCTION UNITS OF BAHNBAU WELS HAVE BEEN SUCCESSFULLY MAINTAINING SYSTEMS FOR THEIR CLIENT ÖBB. WITH THE COMPANY'S MANY YEARS' EXPERIENCE, IT SCORES HIGHLY WITH A CLIENT LESS KNOWLEDGEABLE IN THE SECTOR. THE CURRENT CONTRACT SITUATION PROVIDES PLANNING AND LEGAL SECURITY AS WELL AS COST TRANSPARENCY AND EFFICIENT IMPLEMENTATION. CONSTRUCTIVE PARTNERSHIP WITH THE CLIENT ÖBB IS A BASIS FOR SUCCESSFUL PROJECTS. THREE PROJECTS FROM 2019 PROVIDE GOOD EXAMPLES:



1 **RAIL REPLACEMENT PYHRN LINE IN SECTION NETTINGSDORF TO KRIFT**

Periodic inspections have shown that, on certain stretches of line, rails had to be replaced. Bahnbau Wels was appointed by ÖBB to replace the existing UIC54 rails over 120 metres with head-hardened long rails (HSH). In two construction phases distributed over several sections, rails were replaced mainly on the outside of curves. At the end of a shift, the rail had to be welded closed, tensioned, and the affected level crossings rendered usable once more.



2 **TRACK REPLACEMENT AND LEVEL CROSSING RENOVATION WORK ON THE HAIDING – ASCHACH SECTION OF LINE**

In the course of ÖBB renovation work on the Haiding – Aschach section, level crossings on the public road network were in need of renovation. The work involved obtaining full local authority approval and executing diversion measures as well as track construction work on the level crossings. Thereafter,

ancillary superstructure works in the course was ordered during rail traffic stoppages, for which Bahnbau Wels was responsible. This included in particular bridge timber replacement, individual sleeper replacement, ballast unloading for construction and maintenance tamping work, culvert renovation as well as the replacement of several smaller unofficial railway level crossings.



3 **ARLBERGSPERRE 2019**

The previous spring, Rhomberg Gleisbau GmbH, also a Bahnbau Wels company, won the contract to install safety caps in several sections of the Arlberg East and West ramp. In two sections on the East ramp, Rhomberg Gleisbau installed these on the following night after cleaning and track construction work. In a further two shifts, safety caps were to be installed, rail stops removed and rails exchanged in order to create a seamlessly welded track. On the west ramp too, safety caps were installed – at the entrance to the station and the station tracks in Dalaas as well as on two sections of line between Dalaas and Hintergasse. In the latter area rails were also to be replaced. The work was carried out in day and night-time shifts. The weather conditions were a challenge as it began to snow during the works and the track was partially covered with snow.

UNDER CHALLENGING CIRCUMSTANCES

Construction and maintenance work in the Magnacun tunnel.

THE 3.7 KILOMETER STRETCH OF LINE BETWEEN GUARDA AND ARDEZ TRAVELS THROUGH THE UNSPOILT LANDSCAPE OF THE LOWER ENGA-DINE, AND SOME CHALLENGING GEO-LOGICAL CONDITIONS: THE LINE OF THE RHAETIAN RAILWAY (RHB) HERE SKIRTS THE WESTERN EDGE OF THE “LOWER ENGADINE WINDOW”, WHERE OLDER LAYERS OF ROCK ARE OVER-LAID BY MORE RECENT STRATA.

The repair and thereby the increased safety of the stretch of line were therefore necessary, and extensive renovation of the Sagliains-Scuol-Tarasp section of line was decided upon by the client developer.

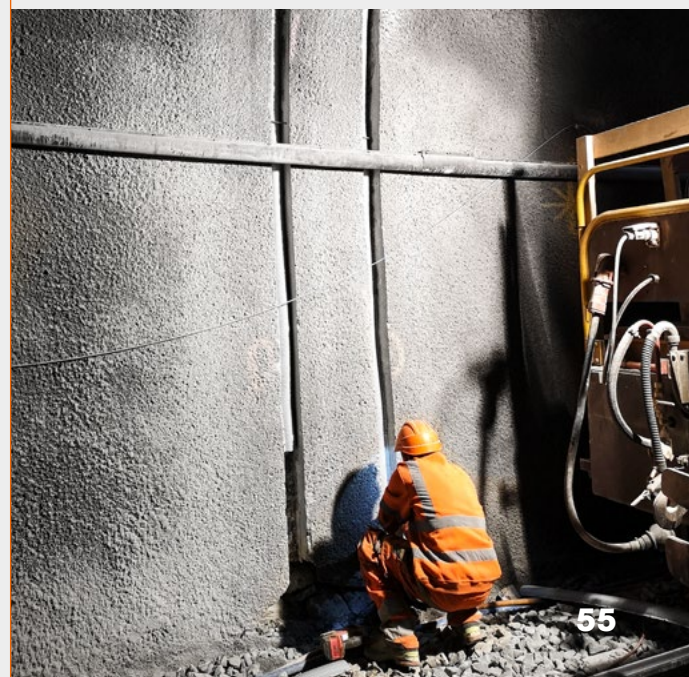
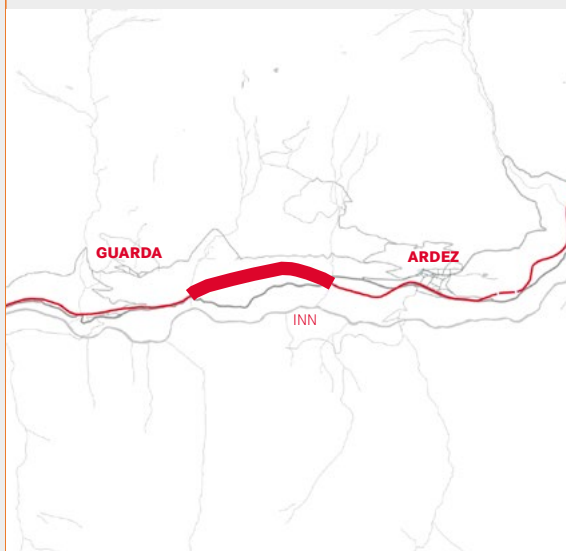
Rhomberg Bahntechnik won the contract to carry out local maintenance measures on the masonry of the Magnacun tunnel. The value of the contract was around two million Swiss francs. As all the technical rail systems had to function according

to specification on commissioning, it was a major challenge to keep the systems intact for the entire duration of the works.

Among the most important measures was replacement of the dome of a heavily-used eight-meter shear zone which was to be widened and reinforced with curved tunnel support sheets, steel lattice and sprayed concrete. In addition, sections of damaged masonry were to be replaced by an average of 30 centimetres of sprayed concrete. On the rock side, water-conducting backfill had to be installed which drained in the area at the base of the wall by drainage openings in the tunnel floor. Although the ingress of mountain water was not a threat in the tunnel, increased mountain water circulation had to be anticipated due to melting snow. Therefore, small to wide-area cleaning of the masonry and joints had to be carried out including joint upgrading using special sprayed mortar.

Profile shell to drain the mountain water

SWISS CANTON OF GRISONS





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