

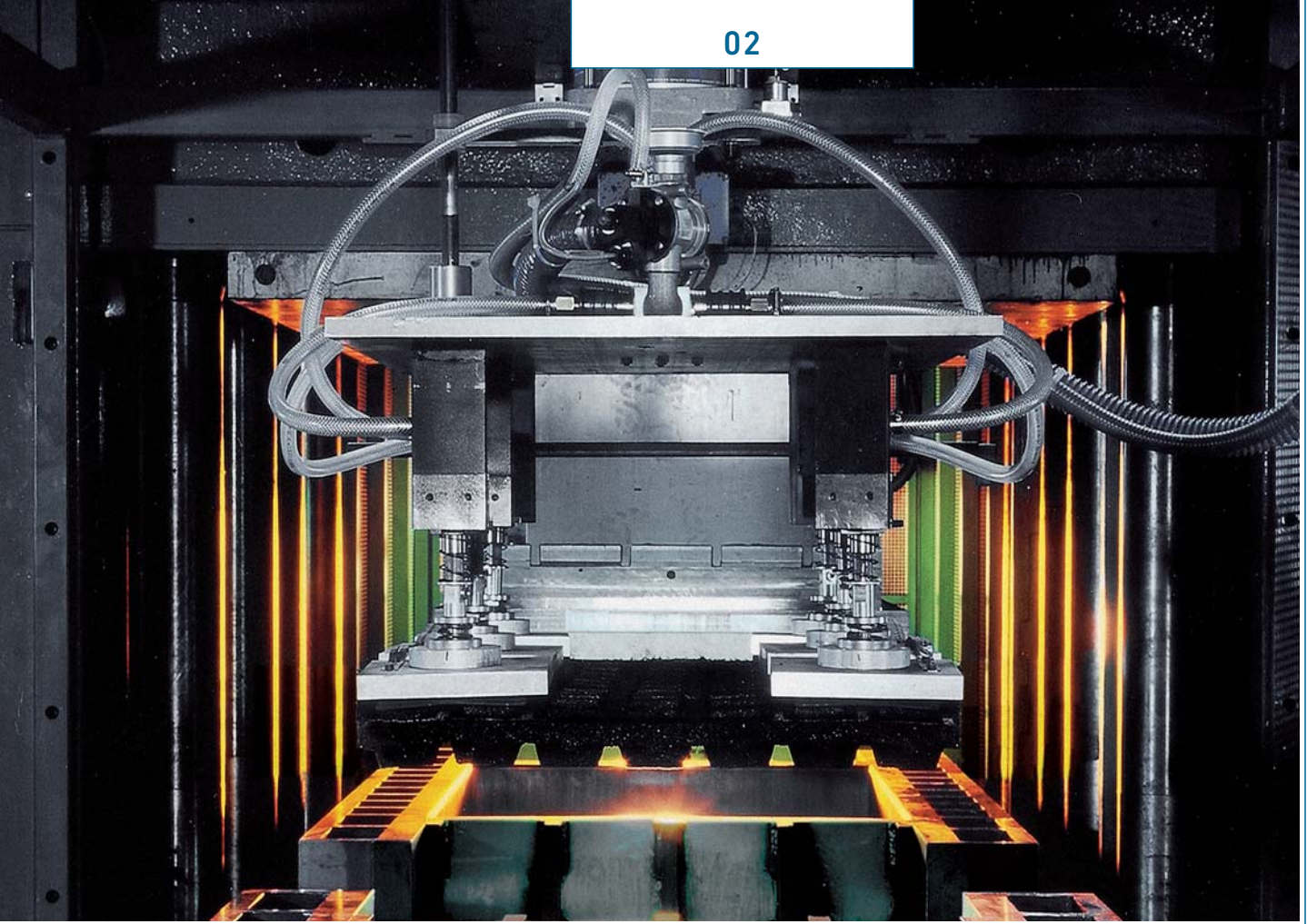
Regum

RAIL FILLER BLOCKS

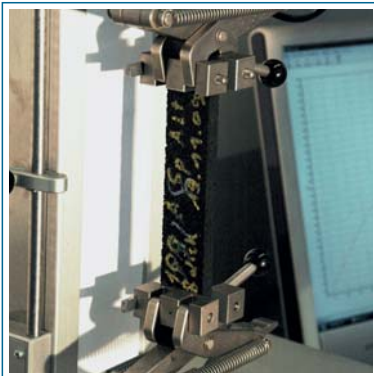
RAIL PRODUCTS

SERVICES





THE REGUM QUALITY CONCEPT



All our products feature an unsurpassed density and are solely manufactured at our plant location in Röthenbach (near Nuremberg), using homogenous recycled rubber.

Rail filler blocks fulfil vital technical functions. This is why guaranteed adherence to the specified properties is a top priority for our customers.

For this purpose, we have developed a multi-level QA concept which ensures us and our customers the highest possible level of safety. It includes the following measures:

- ☑ Continuous internal monitoring in our own laboratory
- ☑ ISO certification to DIN EN 9001 by the TÜV Süd technical inspection agency
- ☑ External monitoring by LGA Qualitest GmbH (TÜV Rheinland Group)
- ☑ External monitoring by the Technische Akademie Wuppertal



RAIL PRODUCTS AND SERVICES

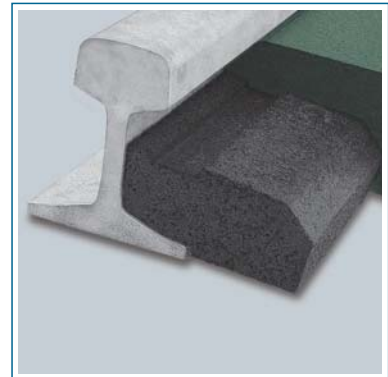
REGUM GmbH was founded in 2001 as subsidiary of BECO Bermüller & Co. GmbH. Since then, both companies have concentrated on specialty solutions for the construction of tramway tracks. REGUM GmbH produces rail web filler blocks near Nuremberg, Germany, from selected recycled rubber.

The high-density products contribute essentially to noise damping and prevention of stray currents in state-of-the-art track systems.

An extensive range of moulds permits us to adapt to the requirements of public transport companies and trackwork contractors as well as to individual site conditions. This

applies not only to slab track but also to lawn tracks which are becoming more and more popular.

Our activity, however, is not limited to the production of filler blocks for various types of rail, but also includes complete systems and services on site. REGUM rail filler blocks are manufactured from 100 % homogenous, polyurethane bonded recycling rubber on heated heavy duty presses using loads up to 2500 tons. Regarding quality and capacity, REGUM is one of the leading producers worldwide.



REGUM filler blocks have been tested by the Technical University of Munich and the Technical Academy in Wuppertal. The measured values exceed the minimum requirements considerably:

- ☑ Density: $> 0,9 \text{ kg / dm}^3$
- ☑ Water absorption: $< 1 \%$
- ☑ Typical conductance G' in S km^{-1} :
in dry condition: $< 0,3 \cdot 10^{-3}$
after immersion in 0,1 % NaCl: $< 0,8 \cdot 10^{-3}$
- ☑ Freeze-thaw and salt resistant
- ☑ Modulus of elasticity (stat.): $> 9,45 \text{ N/mm}^2$
- ☑ Tear strength: $1,14 \pm 0,09 \text{ N/mm}^2$
- ☑ Elongation at break: 66 %

Due to the extremely low conductivity, notorious stray current corrosion is considerably reduced.

TRAFFICABLE TRACKWORK

Acoustically decoupling the rail from its substrate and environment is becoming more and more standard practice. With our extensive range of multiple-use moulds we are able to quickly supply standard filler blocks in large quantities, for example for rail types 60 R 1, 60 R 2, 59 R 1, 53 R 1 and 49 E 1.

We produce special types for many customers in a large range of variations to meet local requirements. Consultants and

public transport companies make use of our technical support from the design phase onwards. We have the flexibility to adapt our products precisely to match the individual rail type. Recesses for rail fastenings are always where they ought to be.

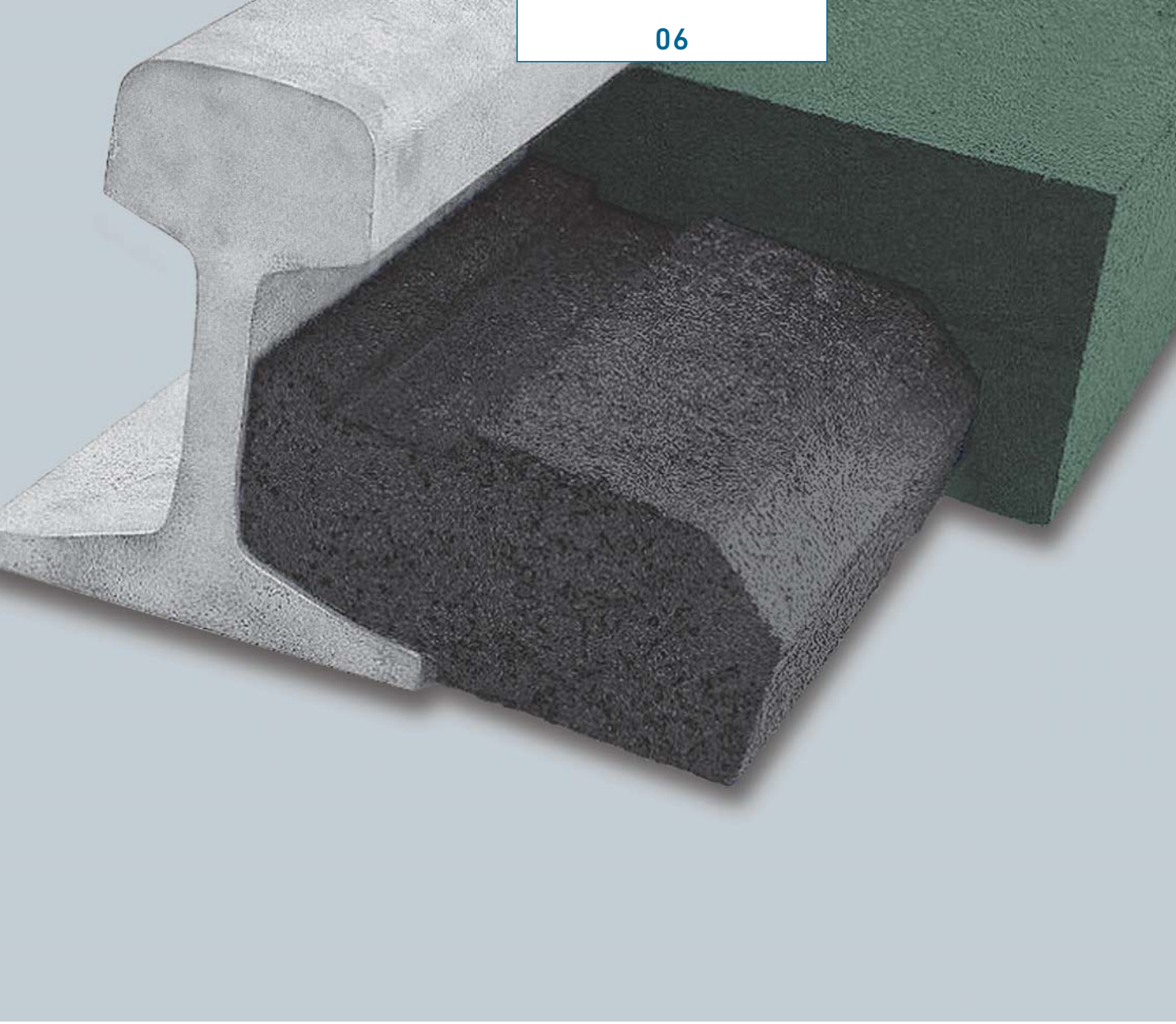
Optimum stray current insulation and noise reduction are obtained when REGUM filler blocks are firmly attached to the rail. Our special adhesive ensures durable bonding.



For those who prefer an easy separation of rail and filler block or who want to reduce the extent of installation work, self-locking filler blocks can be provided which are perfectly fixed to the rail. We have developed a self-sealing patented system for this application.

We devise functional and economical solutions in research and development together with public transport companies and civil engineering contractors.



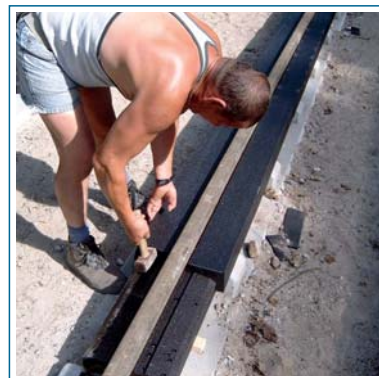


LAWN TRACK

Where segregated tram tracks are concerned, lawn track is becoming more and more popular. City planners and transport companies are increasingly turning functional trackwork into a green environment. These green surfaces are aesthetic highlights in cities. They make an important contribution to the microclimate and delay the flow of surface water into the drains.

The reduction of airborne noise emissions is another very positive effect of this design.

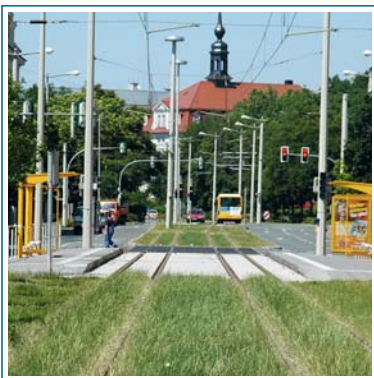
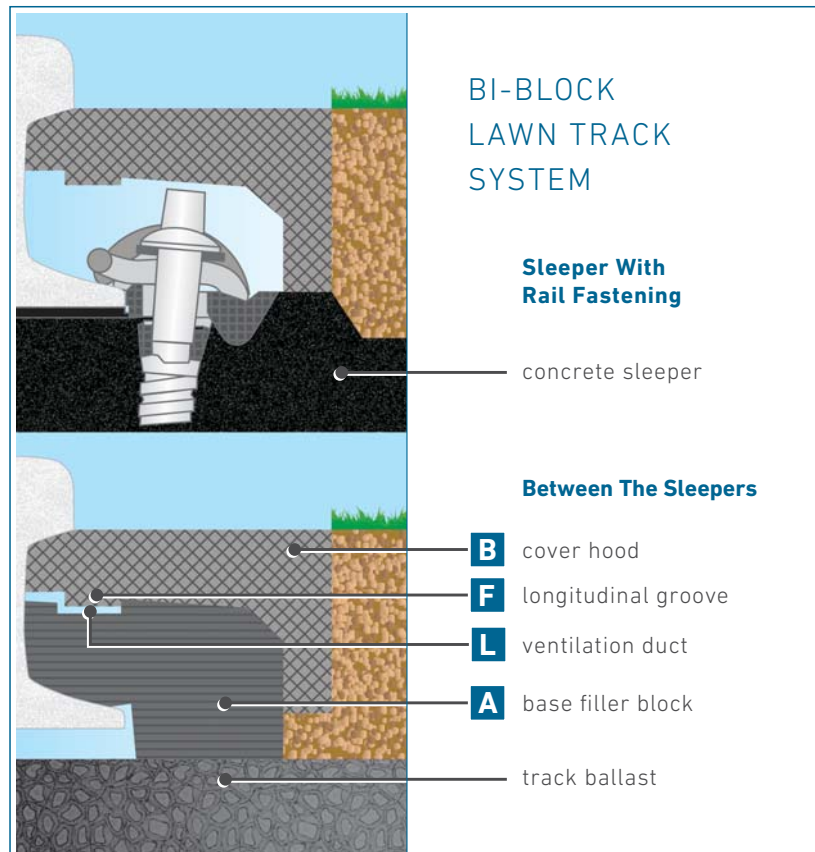
In-depth long-term studies have proved that maintenance expenditure is also reduced with lawn tracks.



REGUM LAWN TRACK SYSTEM

Filler blocks of the first generation were heavy and had to be cut to size on site with great effort. Our patented bi-block system represents a technological leap and provides a host of significant advantages.

The base filler block **(A)** is discretely fixed to the rail bottom and is fully supported by the substrate. The length of the blocks is variable, corresponding to the distance between the concrete sleepers or the rail fastenings. The longitudinal groove **(F)** of the cover hoods **(B)** permits optimum anchorage to the base blocks. The cover block can be removed manually at any time to check the rail fastening. The ventilation duct **(L)** ensures continuous aeration and venting of all steel parts.



ADVANTAGES



The Advantages of the Bi-Block REGUM Lawn Track System

- ☑ The precisely tailored bi-block system permits easy and fast installation.
- ☑ The base block fills the space between sleepers completely and provides stable support.
- ☑ The length and shape of the base block are adapted to the requirements of each project.
- ☑ Seeping of moisture between the sleepers is prevented as the base block rests firmly on the substrate.
- ☑ The complete system combines high stability with high load capacity.
- ☑ The formation of rust remains very limited due to the extremely low exposure to moisture.
- ☑ Furthermore, rust formation on the steel parts is kept to a minimum by the continuous aeration and venting between the base and cover blocks.
- ☑ The cover block can be removed quickly and easily for inspection and maintenance work without dismantling the complete setup.
- ☑ Refitting of the cover block is very fast and easy.
- ☑ The cutting procedure at the weld seams every 15 – 18 metres requires little effort since only the cover block has to be adjusted.
- ☑ All REGUM rail trackwork products have exceptional density resulting in minimum water absorption and low conductance.

Compared with other systems, the significant advantages of the REGUM bi-block lawn track system are obvious.

Products with extremely long recesses at the bottom which lead to instability cannot compete with the REGUM system solution!

In conclusion, there are few arguments in favour of mechanically bonded elements which involve major installation work, are difficult to remove and require cost-intensive sawing in the case of different sleeper spacing.



SWITCHES AND CROSSINGS

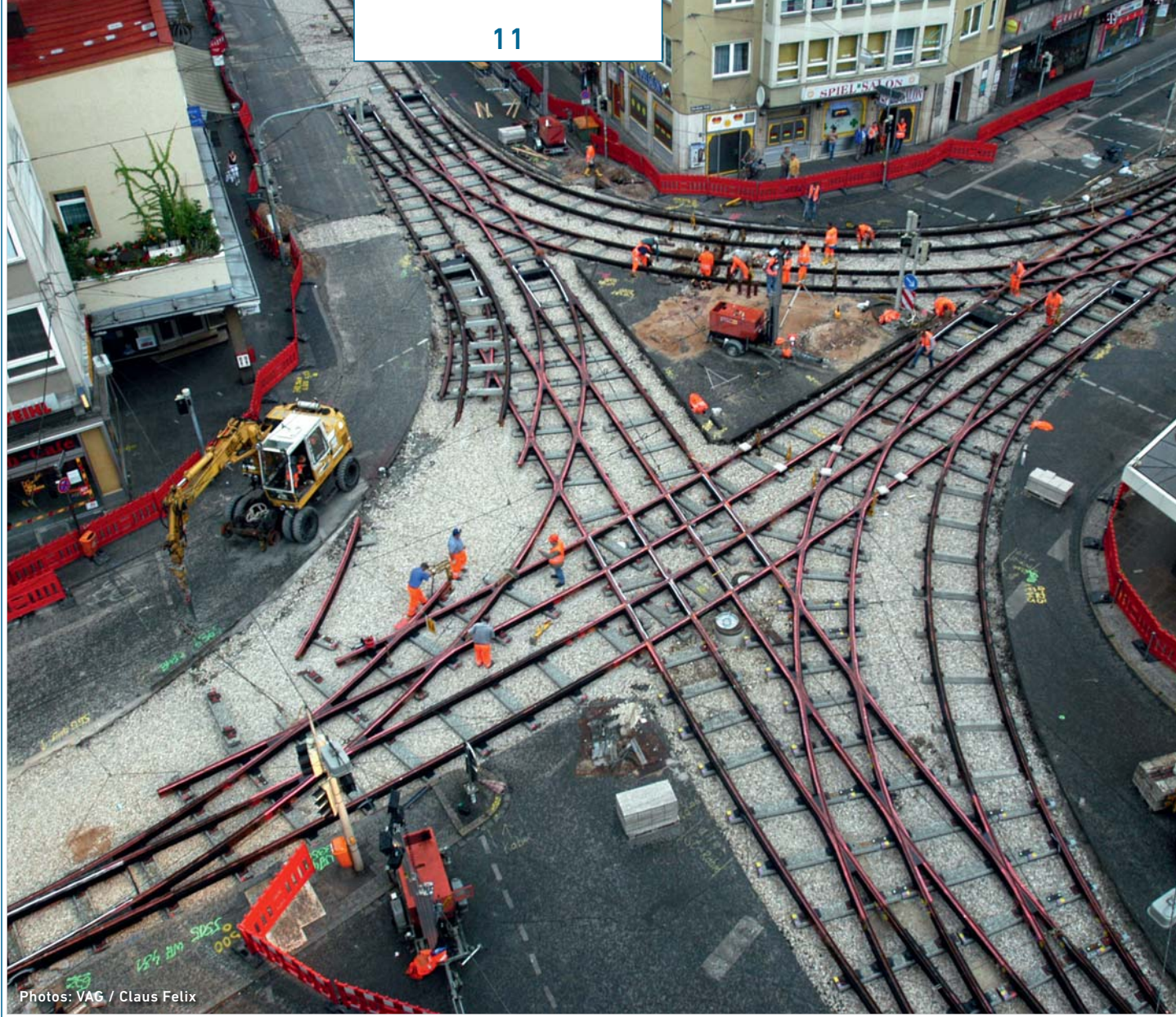


The requirements of public transport companies regarding riding comfort, reduction of noise and wear and prevention of electrical interference of trackwork are becoming more and more stringent.

Vibrations and noise emissions are more distinct near switches and crossings compared to normal tracks. An elastic bedding of the rail is therefore very important to level out the variations in flexural stiffness of the individual switch components.



Photos: VAG / Claus Felix



Elastic bedding and electrical insulation of rails is state-of-the-art with most public transport companies.

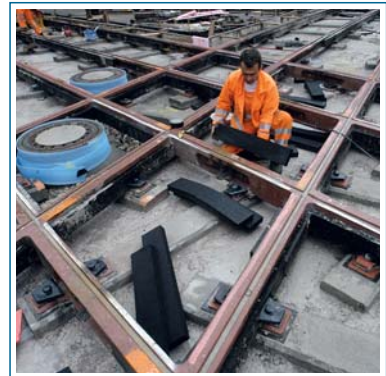
However, the required results in terms of riding comfort, durability and electrical insulation can only be achieved if this principle is applied continuously, i.e. also for switches and crossings.

We manufacture special filler blocks for switches and crossings according to the specifications of public transport companies or manufacturers of switches.

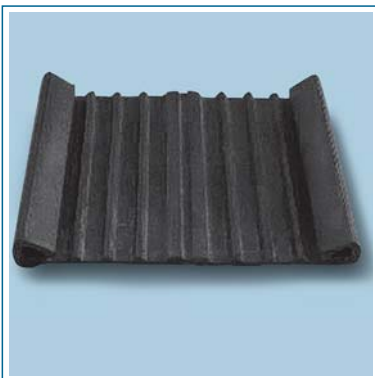
The construction of preassembled switches and crossings in the factory is useful and efficient since there the fastening of the blocks is independent of the season and weather.

The faster installation of switches and crossings results in considerably shorter shutdowns of transport services and lower consequential costs due to shorter substitute transport periods.

Besides the delivery of high quality products, we also offer installation in the factory or directly at site.



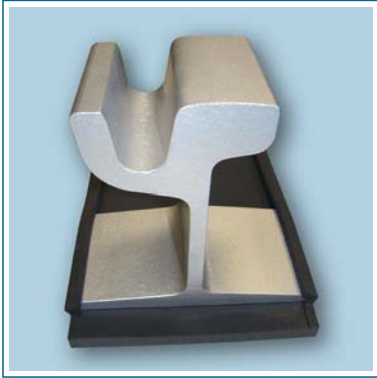
ELASTIC TRACK BEDDING AND INSULATION



As already mentioned, the vibration transmission from the track to the environment is one of the main problems of rail traffic in cities. The elastic bedding of tracks in combination with electrical insulation reduces structure-borne noise and minimizes maintenance costs for transport companies.

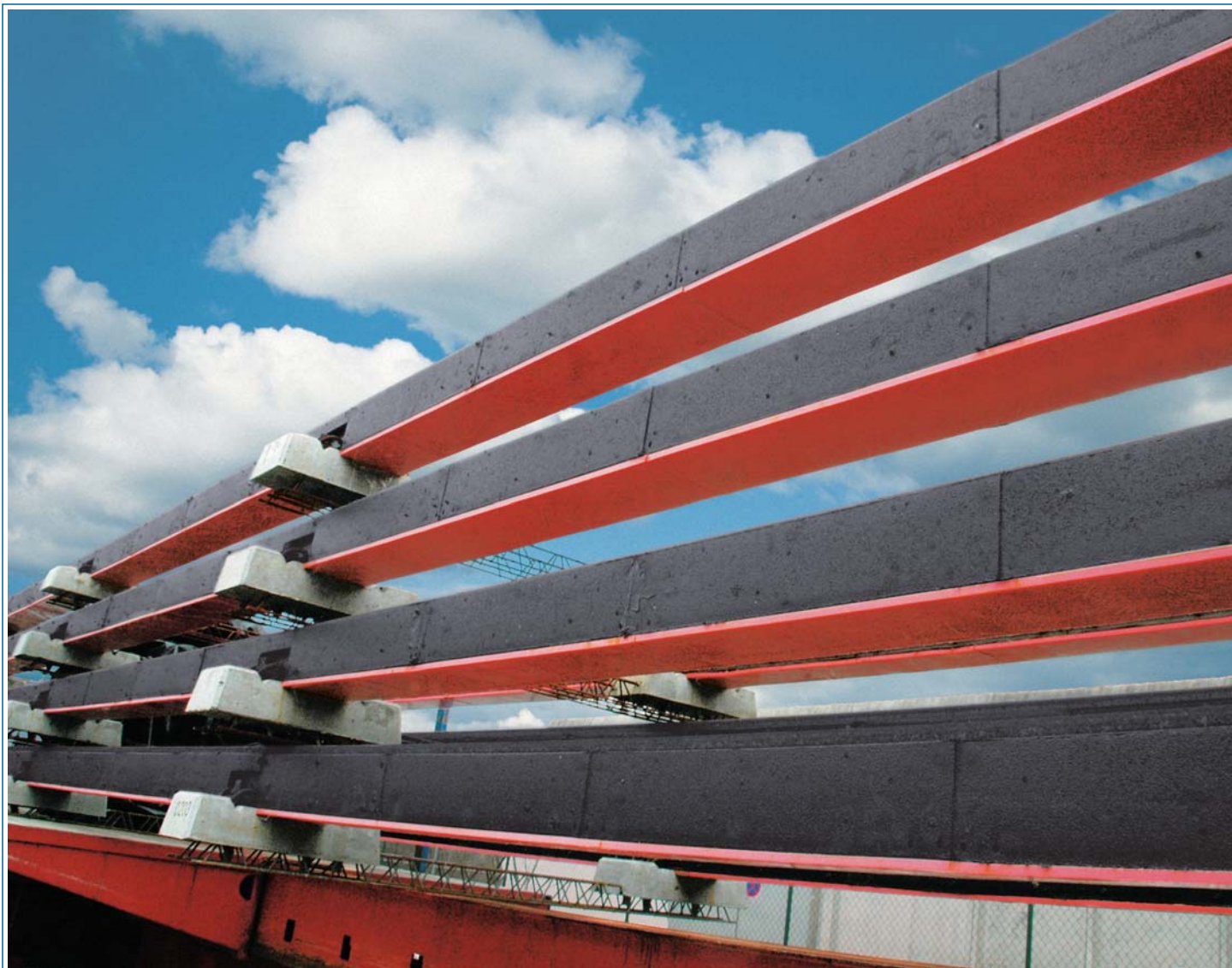
We therefore offer a wide range of elastic bedding systems combined with our rail filler blocks.

In cooperation with renowned manufacturers, we are able to meet the requirements of operators and our customers in almost all cases.



- ☑ Rail boots made of NR/IR-rubber or SBR-rubber for rail deflections of 0.5 mm to 1.5 mm at an axle load of 10 or 12 tons for various rail types.
- ☑ Elastic PUR mats in various widths and lengths as required by the transport companies.
- ☑ SBR rubber gauge bar sheaths in rolls or cut-to-size.
- ☑ Undersealing of rails with 2-pack flexible polyurethane or rigid cementitious grout.

All products are electrically insulating as well as resistant to frost and de-icing salt.



SERVICES



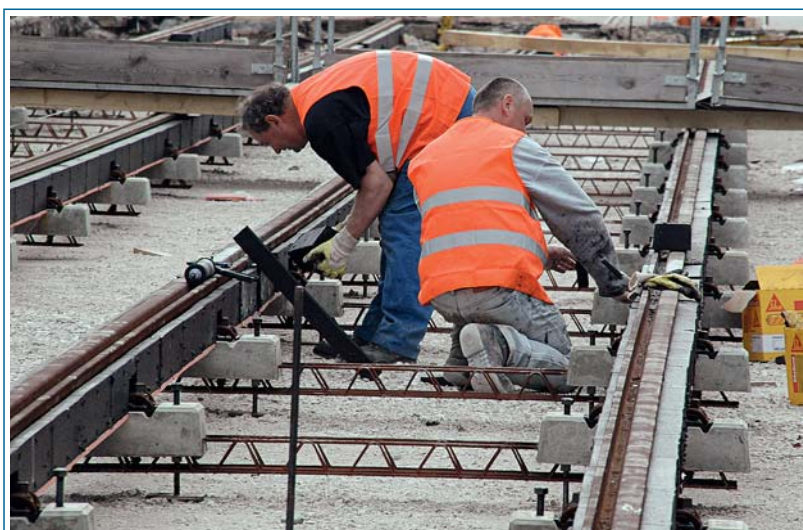
We are not only manufacturers and suppliers of elastic filler blocks and other special products, but also offer services around trackwork installations. The correct installation of our high performance products is the basis for reliable function.

REGUM track products can be installed rapidly and professionally by our experienced service-team. Thus there is no split responsibility.

Some transport companies prefer preassembly of all items in the depot and final assembly at site. This leads to shorter installation times.

We offer the following services:

- ☒ Delivery and installation of elastic REGUM rail filler blocks.
- ☒ Delivery and installation of rail boots or elastic mats.
- ☒ Delivery and installation of cladding for gauge tie bars.
- ☒ Insulation of track siding, drainage- and interlocking boxes.
- ☒ Application of elastic rail levelling grouts from renowned manufacturers or installation of cementitious grouts.
- ☒ Milling, cutting and sealing of rail joints.



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