KRAIBURG RELASTEC

SOLUTIONS FOR SOUND AND VIBRATION ISOLATION IN RAIL TRAFFIC

Providing peace and quiet along the track

DAMTEC®

EN #1 | 2019

Wätern, Germany
(with DAMTEC® SBM K)

KRAIBURG Relastec

COMPETENT SOLUTIONS FOR NOISE AND VIBRATION INSULATION IN RAIL TRAFFIC

KRAIBURG Relastec, as part of the KRAIBURG Holding, specialises in under ballast mats and bearings for mass-spring systems with its DAMTEC® division. KRAIBURG Relastec has already established itself through numerous international projects with its DAMTEC® products and offers its partners an extensive range of solutions to reduce noise and vibration problems in rail traffic.

DAMTEC® products have been tested in recognized external testing institutes and internally for the sometimes very demanding, project-specific conditions and specifications. It goes without saying that KRAIBURG Relastec is ISO 9001 certified and thus guarantees consistently high quality and complete traceability of its products.

DAMTEC® products are tested according to DIN 45673-5, DIN 45673-7 and other national standards.

Quality products - produced in harmony with nature

Environmental protection is a key strategic task at KRAIBURG Relastec. We are fully aware that sustainable growth is only possible if we live up to our commitments and responsibility for environmental protection. That`s why KRAIBURG Relastec has a consistent course here: environmental protection is our daily program!

Manufacturer-related product qualification (HPQ) and Q1 certification at Deutsche Bahn AG

KRAIBURG Relastec has been awarded the „Manufacturer-related Product Qualification (HPQ)" by Deutsche Bahn AG and the „Supplier`s Quality Capability" is classified as Q1 for the product range of under ballast mats by Deutsche Bahn AG (DB AG).

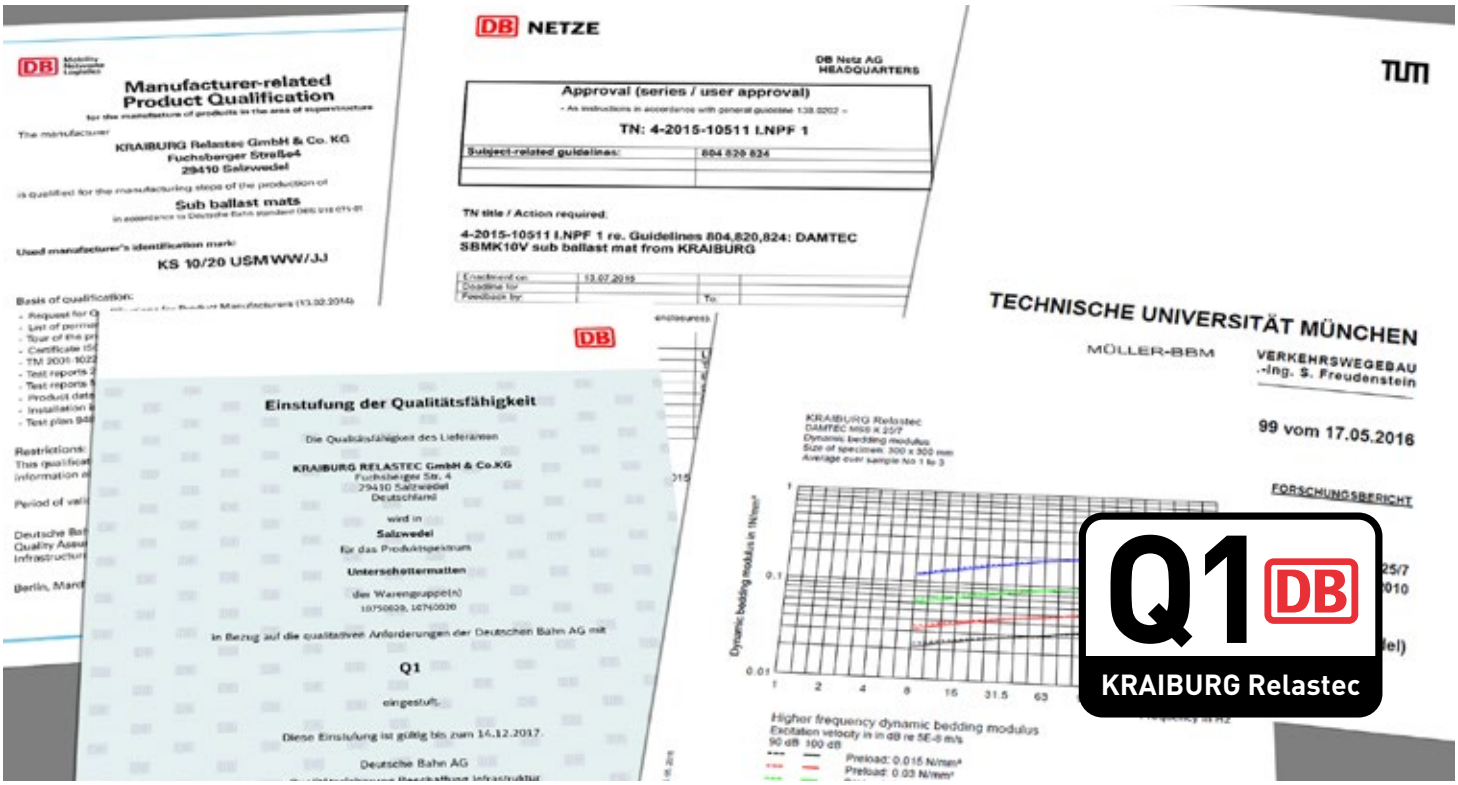
The HPQ qualifies a manufacturer to produce a particular product using specific processes already described in standards, drawings or other technical documentation. It is required every three years for the annual Q1 certification.

The Q1 certification is the classification of a company, which is audited within the scope of DB AG's supplier management with regard to quality capability. As a Q1-supplier of DB AG, one is authorised by the client DB AG to supervise prefabrication services on one's own responsibility. Project-related external production approvals are no longer mandatory.

Our under ballast mats comply with the technical delivery conditions and are approved for use in the DB AG network (according to DBTL 918071 and e. g. TM-2015-10511 LNPF 1).

Berlin, Germany
Central Station
(with DAMTEC® SBM K)

DAMTEC® products consist of special rubber granules, such as foamed rubber and polyurethane foam from the recycling of post-industrial materials, i. e. from unused new raw materials. This leads to the desired properties and takes environmental protection into account. An aging of the rubber granulate is thus excluded. In particular, used tyres are not used here. With the extensively tested formulations, the products meet special requirements resulting from the loads in the track area. These elastomer materials are also used in other demanding areas such as building construction, civil engineering and tunnelling. Particularly noteworthy is the long-term behaviour, which guarantees a constant high level of effectiveness over decades. In this way, they efficiently counteract the multi-frequency vibrations and shocks that are transmitted to the environment.



THE ADVANTAGES OF OUR PRODUCTS

environment-friendly

extend the life of the ballast

protect the sensitive waterproofing layer against damage by the ballast

reduce the transmission of structure-borne sound

keep track position stable for longer period of time

low water absorption

protect adjacent structures by reducing vibrations

reduce secondary airborne sound

extremely durable

reduce track maintenance costs

easy installation

extremely economical

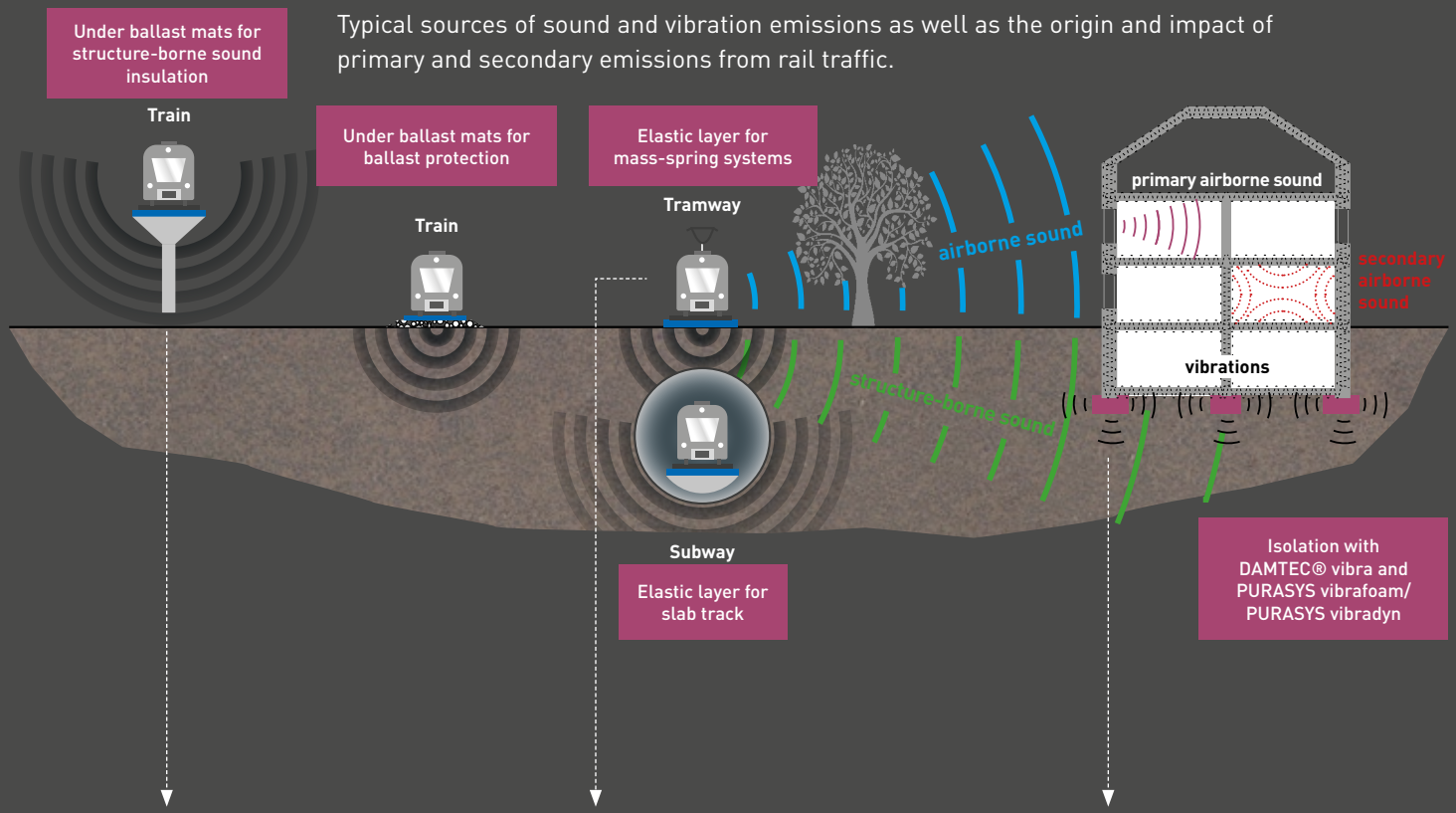
SOUND EMISSION AND IMMISSION

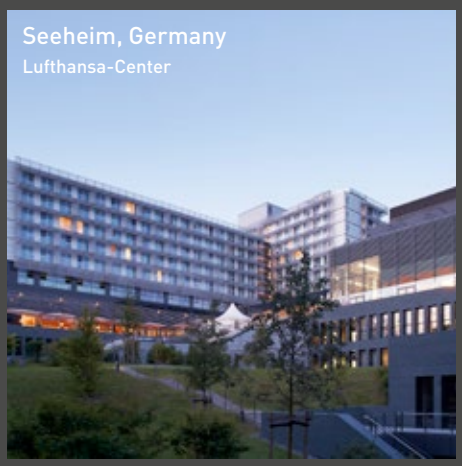
NOISE SOURCES DUE TO RAILWAY TRAFFIC

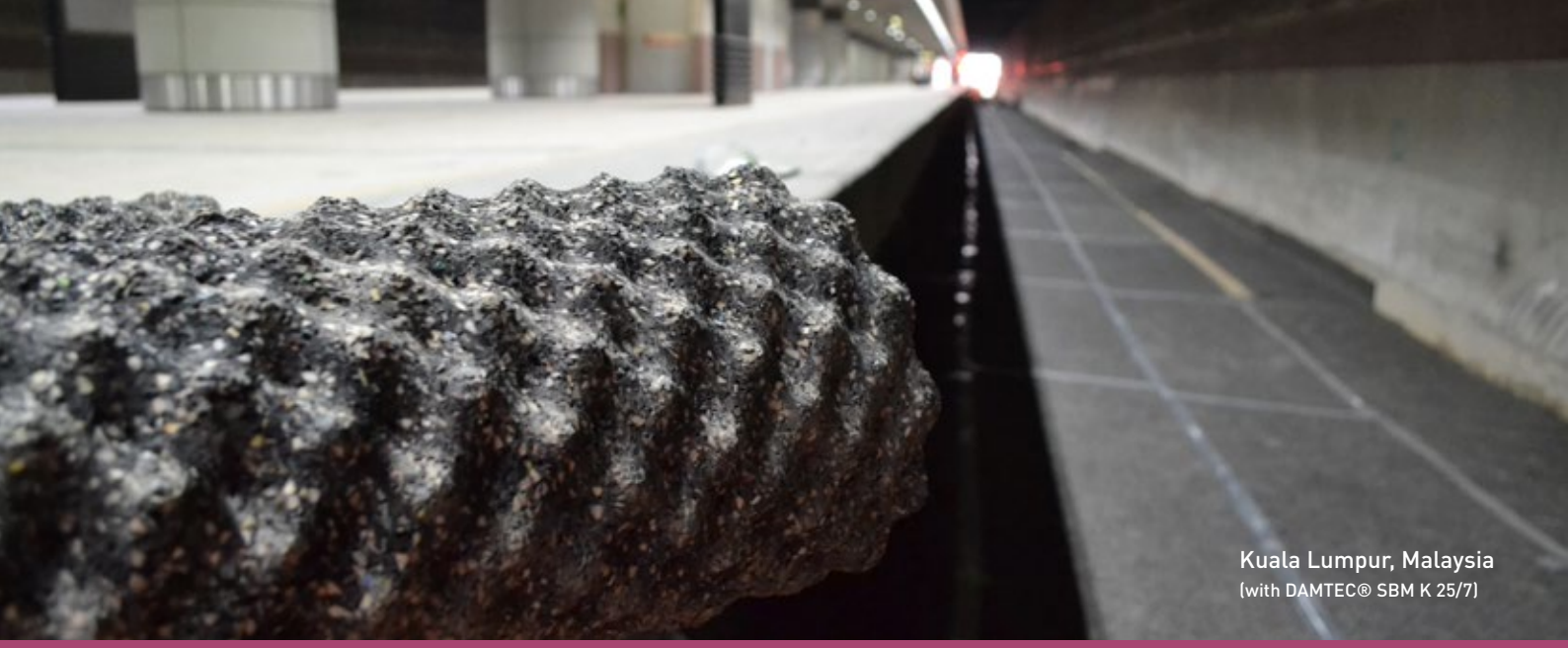
Railway vehicles generate rolling noises and vibrations during operation. This is due to roughness and imbalances on both the wheels and the rail running surfaces. Surface defects such as head checks, corrugations and slip waves on the rails are known to be among the most common sources of interference.

These vibrations are transmitted to the ground via the roadway and spread as structure-borne noise. If buildings are located along or near the track, a transfer is also carried out via their foundations. The buildings begin to vibrate and, with the appropriate intensity, they are also preceived by humans as perceptible vibration or disturbing noise. Another consequence of this transmission chain is the emission of vibrations from building parts, e. g. ceilings and walls, to the environment. This takes place via the air, which begins to vibrate itself and then become audible as socalled secondary airborne sound.

Typical sources of sound and vibration emissions as well as the origin and impact of primary and secondary emissions from rail traffic.



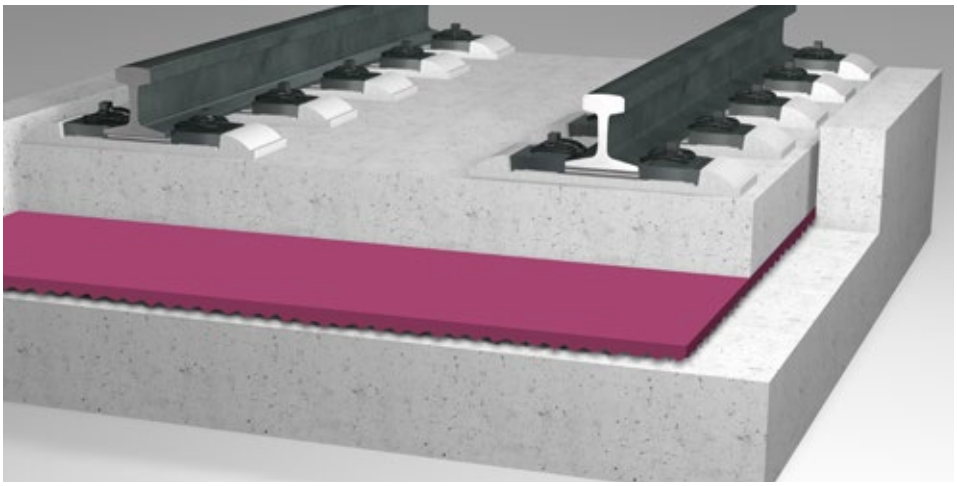




Kuala Lumpur, Malaysia
(with DAMTEC® SBM K 25/7)

DAMTEC® MSS

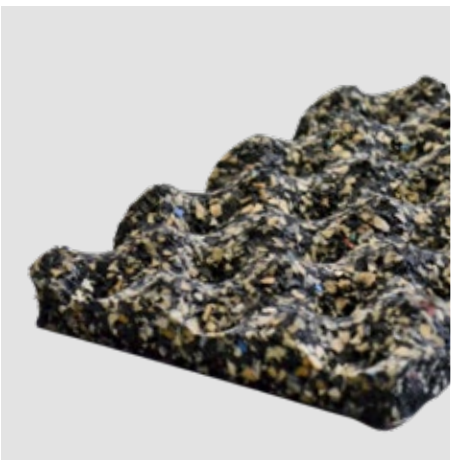
FULL SURFACE BEARINGS FOR MASS-SPRING SYSTEMS



DAMTEC® MSS products are decoupling and protective mats under rail systems tested according to DIN 45673-7 (Mechanical vibration - Elastic elements of the superstructure of rail tracks). They reduce structure-borne and secondary airborne noise and vibration emissions when used in „slab track“ (mass-spring system).

DAMTEC® MSS products are supplied in rolls. Mats are available on request.

DAMTEC® MSS K 17/8 roll



Detail wave cut profile
Bottom of DAMTEC® MSS K 25/7

Products:

DAMTEC® MSS K 10
DAMTEC® MSS K 20
DAMTEC® MSS K 23

Products with wave cut profile:

DAMTEC® MSS K 17/8
DAMTEC® MSS K 25/7

Schwieberdingen, Germany
(with DAMTEC® SBM K 10 V)

DAMTEC® SBM

UNDER BALLAST MATS

DAMTEC® SBM products are decoupling and protective mats under rail systems tested according to DIN 45673-5 (Mechanical vibrations - Elastic elements of the superstructure of rail tracks). They reduce structure-borne noise and secondary airborne sound as well as vibration emissions. In the case of ballasted track, the service life is extended by a lower and more uniform load. At the same time, they also protect engineering structures and seals.

DAMTEC® SBM K 10
roll

DAMTEC® SBM K 10

DAMTEC® SBM K 10 V

Products:

DAMTEC® SBM K 10 • K 10 V*
DAMTEC® SBM K 20 • K 20 V*
DAMTEC® SBM K 23 • K 23 V*

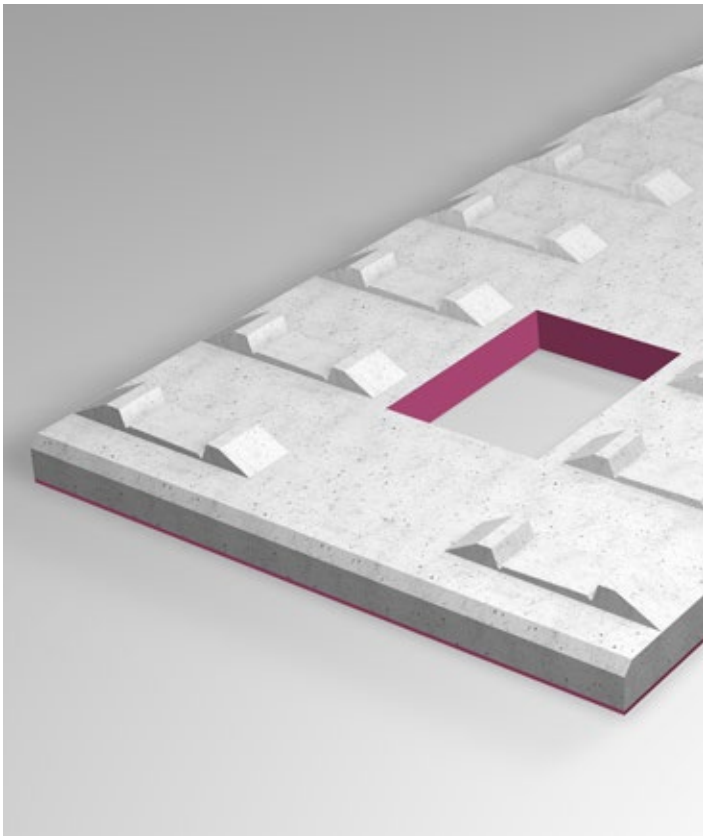
Products with wave cut profile:

DAMTEC® SBM K 17/8 • K 17/8 V*
DAMTEC® SBM K 25/7 • K 25/7 V*
* geotextile-laminated variant

Berlin, Germany
(with DAMTEC® STM)

DAMTEC® STM

FULL-SURFACE BEARINGS FOR TRACK SLABS



DAMTEC® STM products are elastic separating layers for decoupling of track slabs. They are attached to both the plate sole and the conical grouting holes. This minimizes vibrations emitted into the ground.

In combination with DAMTEC® STM, the slab becomes a lightweight mass-spring system with excellent structure-borne sound insulation.

Our comprehensive services for you

WE SUPPORT YOU WITH THE ENTIRE RAILWAY PROJECT

Solution Development & Detailed Solutions

Our many years of experience and our know-how with products for acoustic and vibration reduction are a guarantee for the solution of even very complex problems. Together with you, our specialists will develop effective systems to eliminate or minimize disruptive factors in the problem areas. In addition to standard solutions based on experience, we are of course also technically and personally in the position to implement completely new solutions, exactly adapted to your requirements.

Calculations, simulations and efficacy forecasts

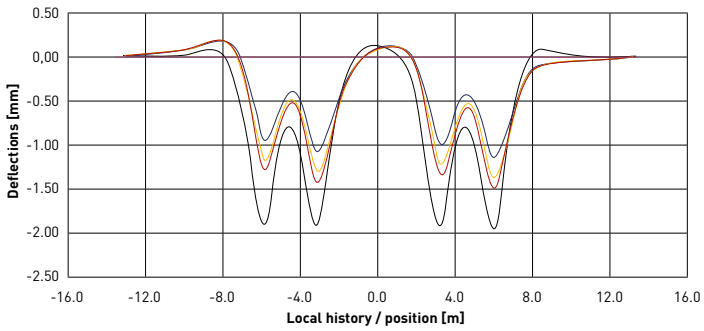
To find out how effective measures can be in dealing with an emission problem, you don't have to wait until they are implemented. After a first inspection and analysis of the conditions on site, our specialists are able to create a calculation model in which all relevant factors regarding vibration and damping behaviour with different material properties are taken into account. This results in a realistic simulation that allows fine-tuning of these factors and enables our specialists to develop the optimum solution.

At the end of the planning phase, you will receive proof of the expected effectiveness of the system. This efficacy forecast gives you the assurance in advance that your expectations will be met successfully.

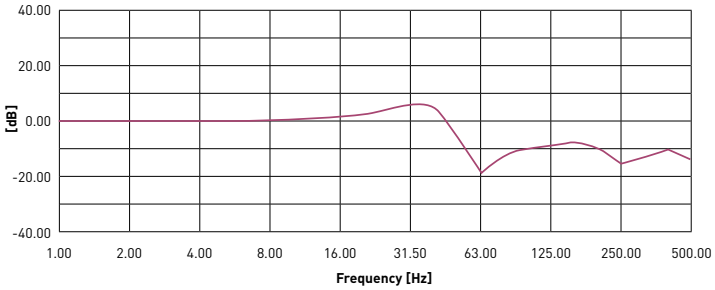
Our services at a glance

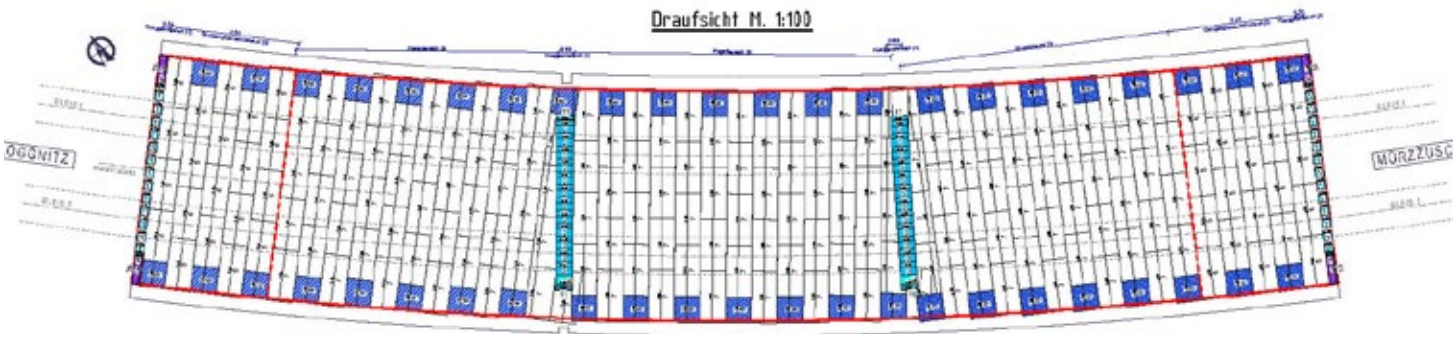
- material testing and measurement on our own large scale test bench
- project support from the beginning
- installation advice and site support
- preparation of installation plans
- vibration-technical, mech. measurements
- solution development
- calculation and simulation
- efficacy forecasts

Example „deflection"

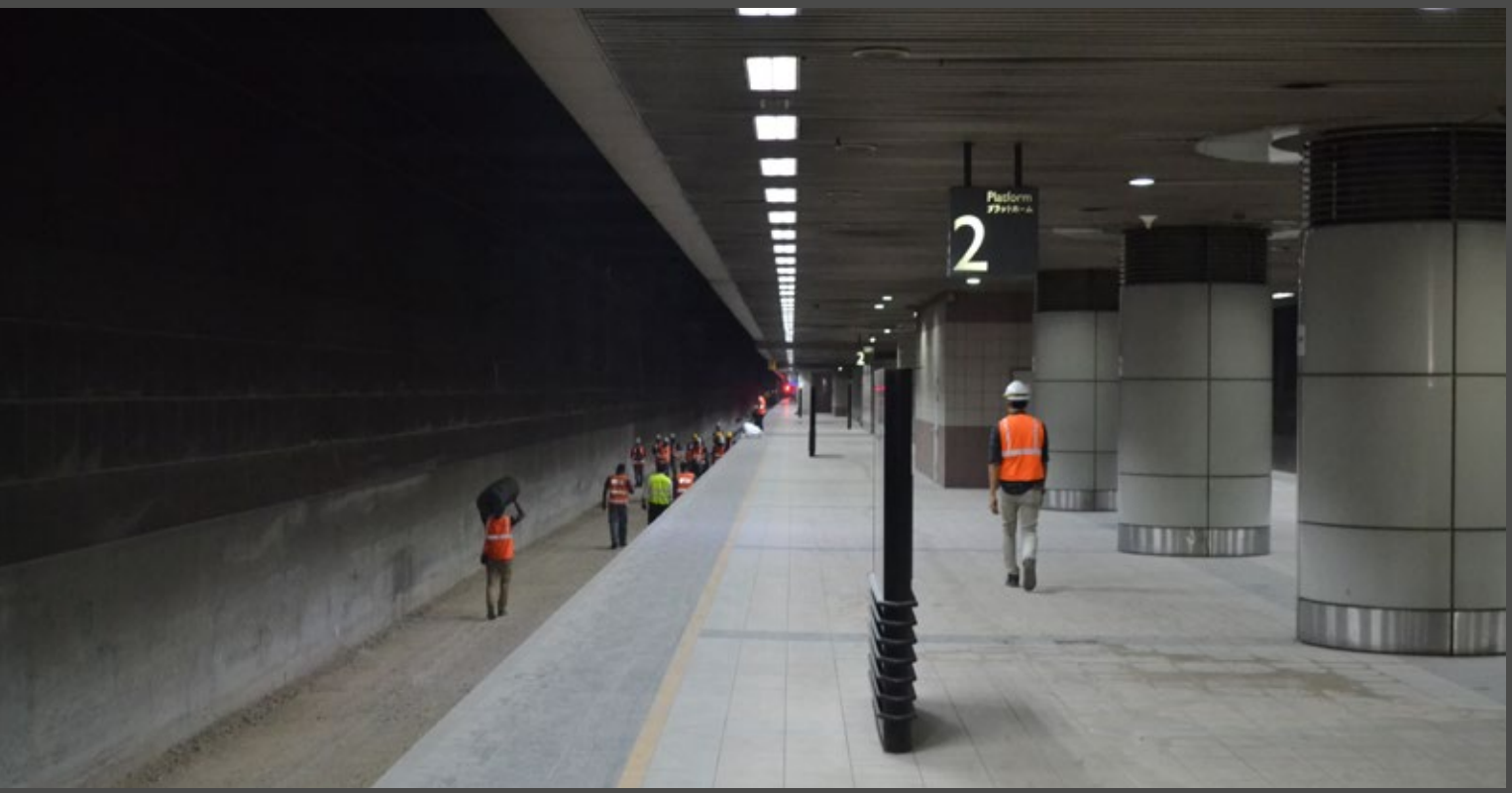


Example „insertion loss"





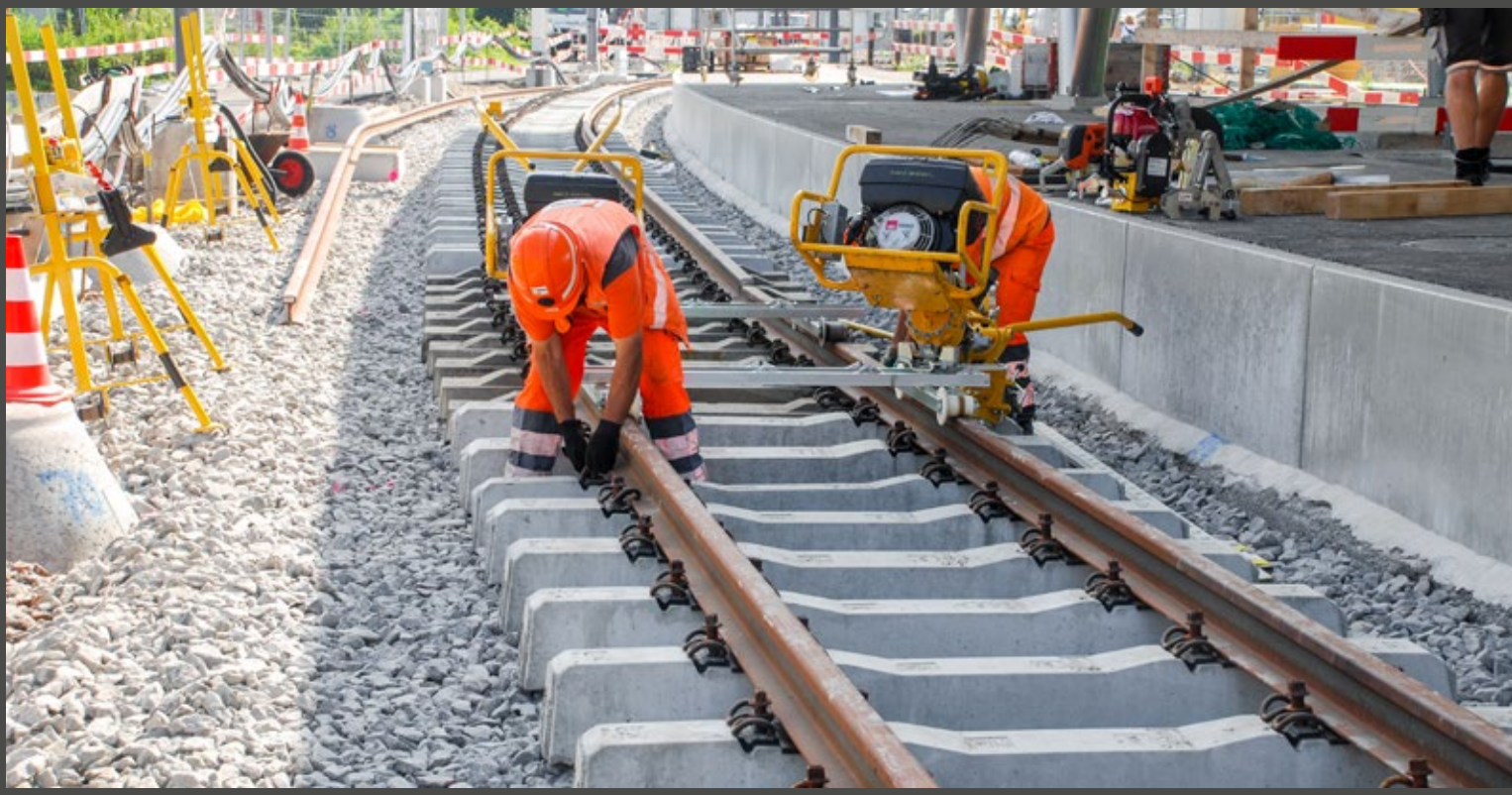
Kuala Lumpur, Malaysia, 2018
DAMTEC® SBM K 25/7



Wiener Linien, Austria, 2005
DAMTEC® SBM K 23 V

Freilassing, Germany, 2017
DAMTEC® SBM K 10 V

Brienz, Switzerland, 2018
DAMTEC® SBM K 20



DAMTEC® References

Kuvola Station, Finland, 2010

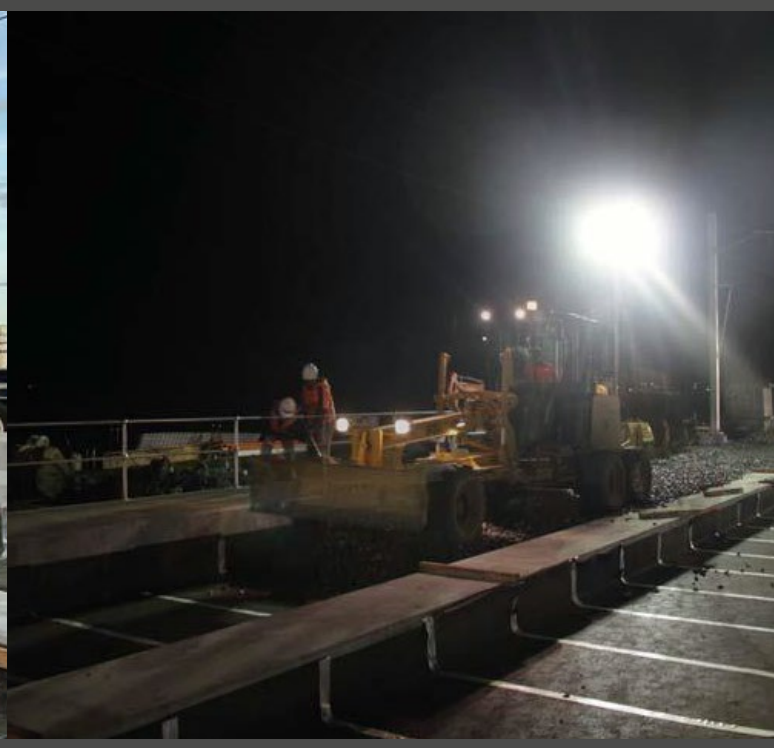
Full surface DAMTEC® SBM K 10

Schwieberdingen, Germany, 2016

DAMTEC® SBM K 10 V

Köln-Kalk, Germany
DAMTEC® SBM K 10

Officer Road, Officer, Australia, 2013
DAMTEC® SBM K 10



KRAIBURG PuraSys

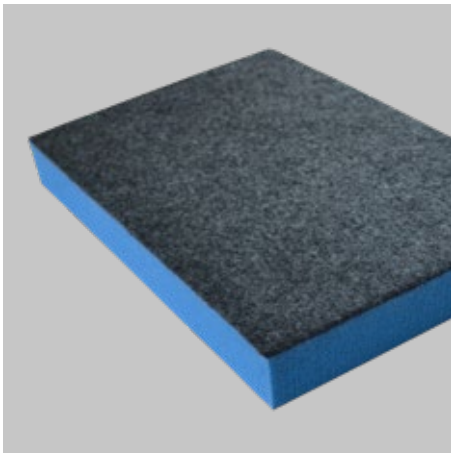
Products for the railway industry made of polyetherurethane

Polyurethane is a fascinatingly versatile material. KRAIBURG PuraSys GmbH & Co. KG with its 110 employees is an efficient partner for a wide range of industries and branches of industry. It cooperates with the automotive industry, the rehabilitation, health and leisure sector, furniture manufacturing, power tool and mechanical engineering, the construction industry and rail transport companies. The railway sector has made a name for itself with its high-quality products in numerous projects worldwide.

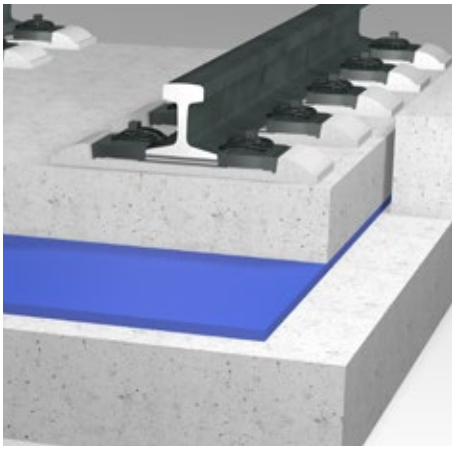
The products of our sister company, KRAIBURG PuraSys GmbH & Co. KG, consist of mixed-cell or closed-cell PU foam. These are cellular polyurethane elastomers with outstanding properties. Basic types with different properties are available for almost every application. Adaptation to individual applications is simple and is done by selecting the type.

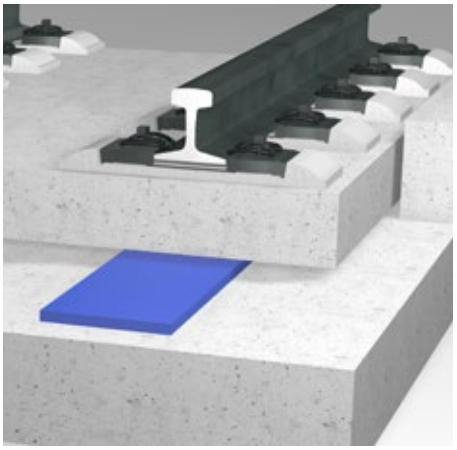
PURASYS products are tested in recognized external testing institutes and internally for the sometimes very demanding conditions and specifications. KRAIBURG PuraSys is certified in accordance with ISO 9001, thus guaranteeing consistently high quality and complete traceability of its products.

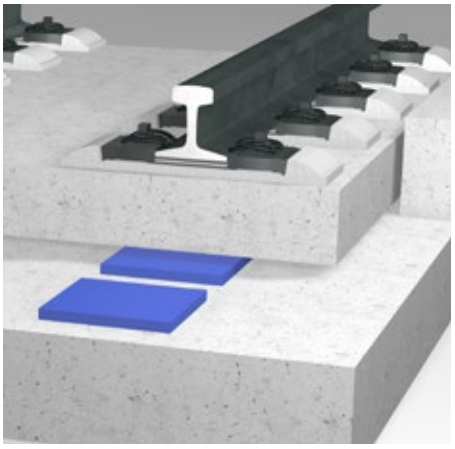
PURASYS SBM
Under ballast mats



PURASYS MSS
Full surface bearings, strip-like support and point bearings for mass-spring systems

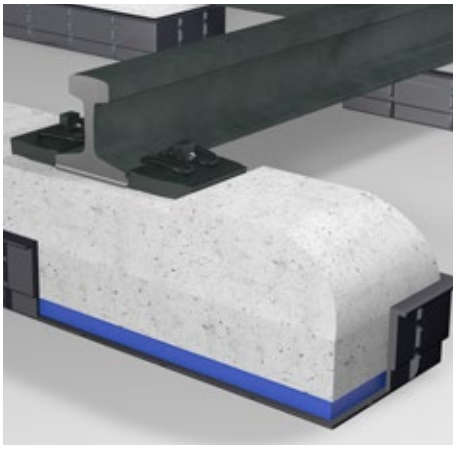




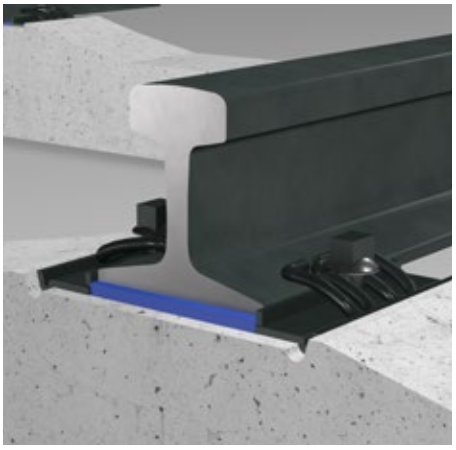


PURASYS BPP
Base plate pads

PURASYS ESB
Elastic sleeper boots



PURASYS ERP
Elastic rail pads



Beijing Metro Linie 6 , China, 2017
PURASYS SBM P 2025, SBM P 2032, MSS P 2025


Kartner Kogel, Austria, 2017
PURASYS MSS P 4025, P 3625 and PN 3225


Esfahan Metro Line, Iran, 2015
PURASYS MSS P 2023

KRAIBURG
PURASYS

ACOUSTIC & VIBRATION ISOLATION
made of polyurethane

Products for reducing noise and
vibration emissions in the rail sector

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DAMTEC®

Acoustics and Vibration Isolation
made from rubber granules

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ISO 50001:2011 NR. 00070/0

CERTIFIED IQNet MANAGEMENT SYSTEM

U.S. GREEN BUILDING COUNCIL MEMBER

NEW LIFE
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