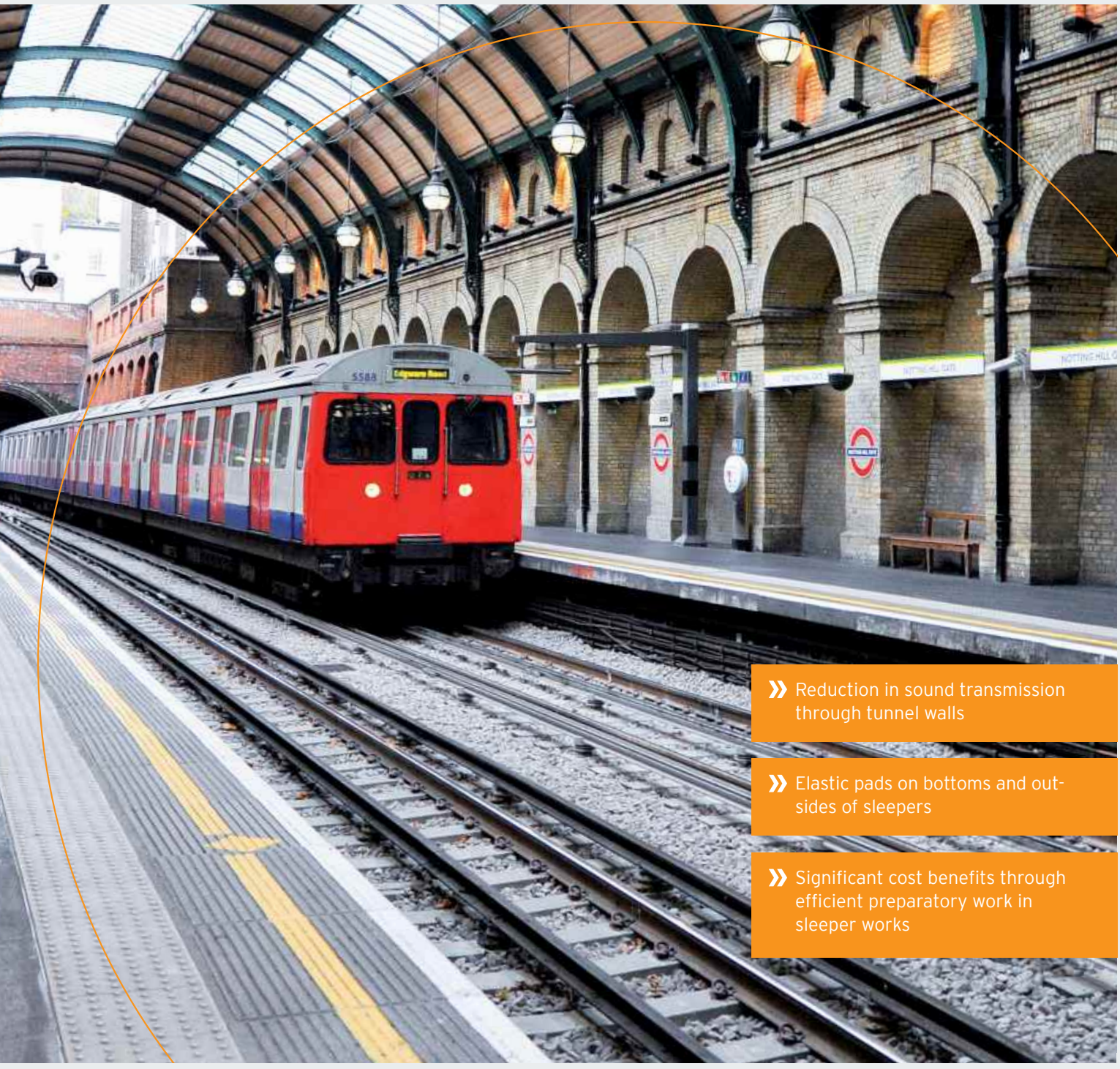
Case Study

London Underground



- Reduction in sound transmission through tunnel walls
- Elastic pads on bottoms and outsides of sleepers
- Significant cost benefits through efficient preparatory work in sleeper works

getzner
the good vibrations company

Sleeper Pads for Efficient Vibration Protection

Description of the project

Track renovation for London underground

The track of the London Underground District Line was completely renovated between Paddington and High Street Kensington stations in the city centre. Around 173 million passengers use this line every year. Between July and August 2011, this very busy section of track, which is also part of the Circle Line, was upgraded with new ballast, rails and brand new sleepers with pads supplied by Getzner Werkstoffe.

The elastic bearings on the sleepers protect the track superstructure and reduce the level of vibrations caused by the rail traffic. The latter also has a beneficial effect on the numerous dwellings alongside the track and noticeably improves the quality of life of local residents.

The Getzner solution

Padded railway sleepers as protection against vibrations

Providing elastic bearings for this stretch of the District Line was the first sleeper pad project for London Underground: the requirements called for the use of full-surface Sylodyn® sleeper pads. Deliveries were made both to the CEMEX sleeper works and directly to the operator. This renovated section of the District Line runs through very narrow tunnels. The tight track meant that the spacing between individual sleepers had to be closer than normal.

A particular challenge in this case was to prevent this closer spacing from causing in an increase in the level of sound transmission through the tunnel walls. Getzner found the solution for this as well: the elastic Sylodyn® bearings were for the first time placed not just on the bottom of the sleepers, but also on their sides. "These lateral bearings enabled us to drastically reduce the transmission of sound and vibrations through the tunnel wall and also enhanced the vibration-isolating effect. Both the functionality and the price/performance ratio of the proposed solution greatly impressed the customer", observed Stefan Potocan, Rail Product Manager at Getzner.

Cooperation during the pre-project phase facilitates new solution

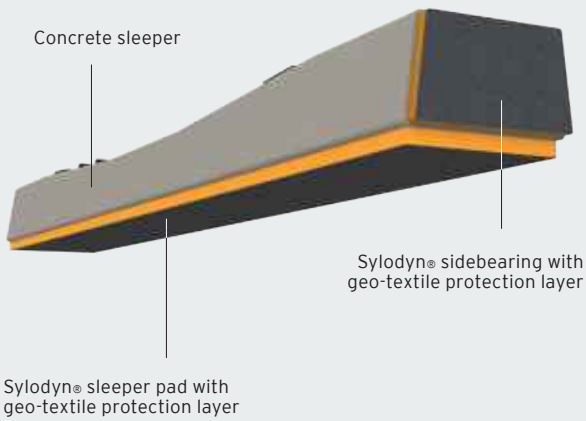
Around 7,000 pads for concrete sleepers and close to 1,000 pads for timber sleepers were used on a stretch of track extending over approximately 2.5 kilometres. CEMEX fitted the elastic bearings to the concrete sleepers in their works. London Underground themselves fitted the pads to the timber sleepers. Deliveries took place in four phases between March and July 2011.

In addition to the project manager, four Getzner employees from the product management, system development and application engineering departments were involved in the project; they provided the necessary level of professional support from delivery through to fitting and installation. Getzner, a specialist in vibration isolation materials, also acted as construction advisers: the company also assisted with a series of calculations and suggestions during the pre-project phase. The close cooperation between customer and Getzner resulted in an innovative and efficient solution for the project.

Cost benefits from pre-assembly

With its punctual delivery of the sleeper pads, Getzner laid the foundations for the timely execution of all the subsequent stages in the logistics process. The CEMEX sleeper works is an experienced partner of Getzner in the pre-assembly of sleeper pads. Tried and tested processes are in place that obviate the need for new trials in the factory.

"Of course, releasing the District Line for unrestricted operation again as quickly as possible had the highest priority. We had to adhere to a very precise schedule in everything we did. In the first instance, the excellent level of cooperation allowed the padded sleepers to be installed on time. On large projects in particular, it is important that everyone involved is able to rely on all the other partners", commented Lukas Mayer, the Getzner project manager.



Feedback

What does the sleeper manufacturer have to say about the project?

"We have worked with Getzner on recent projects for both Network Rail and London Underground. During the course of these projects we have gained valuable experience with the fitting of sleeper pads. Pads are fitted as part of our concrete sleeper manufacturing process here in our works, the process has become more or less routine for us. Sleepers are thus delivered with the pads fitted ready for use by track contractors.

Getzner have provided us with an excellent level of customer service and have been reliable in providing advice and on site support when required. We look forward to collaborating further with Getzner on future projects to the benefit of our customers", explains Andrew Carey Sales Manager of Cemex Rail Products.

Facts and figures at a glance

District Line/Circle Line track renovation between High Street Kensington and Paddington

Track length:	approx. 2.5 km

Order details

Scope of the order:	Padding of 8,000 sleepers 7,000 full-surface sleeper pads for concrete sleepers, 1,000 for timber sleepers
Innovation:	Additional elastic bearing on the sides of the sleepers
Client:	London Underground/CEMEX Rail Products
Operator:	London Underground/Transport for London
Project manager:	Lukas Mayer
Completion:	August 2011
Sleeper manufacturer:	CEMEX Rail Products
Construction company:	Balfour Beatty

Getzner Werkstoffe GmbH

Foundation:	1969 (as a subsidiary of Getzner, Mutter & Cie)
Managing Director:	Ing. Jürgen Rainalter
Employees:	212 in Bürs, 87 abroad
2011 turnover:	EUR 56.2 Mio.
Business areas:	Rail, construction, industry
2011 output:	7,209 tonnes of technical PU materials
2011 recycling:	51 tonnes of residual PU materials
Locations:	Bürs (AT), Munich (DE), Berlin (DE), Amman (JO), Tokyo (JP), Pune (IN), Beijing (CN), Kunshan (CN)
Ratio of exports:	80 percent

Construction references (selected)

- Birmingham Arena Tunnel (GB)
- Thameslink, Blackfriars Bridge/Station (GB)
- Extension of the East London Line (GB)
- Metro Seoul (KR)
- Metro Amsterdam, Eastern Line (NL)
- Bruchsal Tunnel (DE)
- Matstetten-Rothrist Line (CH)
- Umegaoka-Odakyu Electric Railway (JP)
- Britomart Station (NZ)