



## Case Study

### Kocherpark-Hirschengraben, Bern, Switzerland, 2019

Mass-spring system

Providing peace and quiet along the track.





## Project

**Track replacement Kocherpark-Hirschengraben, BERNMOBIL, in 3011 Bern**

**Protection against vibrations from the tram traffic in neighbouring buildings**

**Track support using a mass-spring system**

PURASYS **vibra**foam and PURASYS **vibra**dyn

## Task

The aim is to reduce the effect of these undesirable interference energies to a minimum through targeted measures so that the users of neighbouring buildings do not feel disturbed by vibrations and radiated structure-borne noise.

## Starting position

Bern is a tram city. BERNMOBIL transports almost 50 million passengers annually on the five tram lines. Due to the constantly increasing number of passengers and the dense offer, the tram rails are heavily used. Especially affected are the busy sections with switches, crossings and tight curves. To ensure safe and reliable tram operation, BERNMOBIL had to replace track sections in the Kocherpark, Hirschengraben and Bubenberplatz area in summer 2019. The tram passages are perceived as disturbing noise by the users of neighbouring buildings, as they cause considerable vibrations which are transmitted into the buildings via the underground and are perceived as disturbing in the form of radiated structure-borne noise.

## Solution

A mass-spring system was chosen as the solution, in which an elastic separation of high-quality PUR insulation mats of the type PURASYS **vibra**foam and PURASYS **vibra**dyn was installed between the concrete mass slab of the road and the substrate.

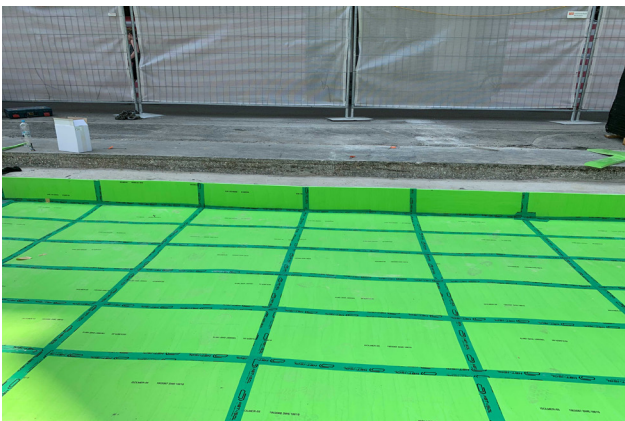




Preparation of the substructure and shuttering. The concrete expansion ledgers for fixing the track trough in the curve area were decoupled with insulating mats of the type PURASYS **vibra**dyn.



The concrete slab of the tram trough is elastically supported on insulating mats type PURASYS **vibra**foam. The mats are laid flush with the level of the substructure or glued vertically to the negative concrete and the shuttering.



All mat joints are glued with a high-quality sealing tape to make them buoyancy-proof. Instead of the adhesive tape, this protection can also be provided by a tightly bonded PE foil.



The insulation mats were seamlessly led to the insulation under the existing tram troughs. The stiffness of the mats in the transition area between the new mass-spring system and the existing tram troughs was specifically adjusted.



Ready laid horizontal and vertical PURASYS **vibra**foam insulation mats. A protective concrete was placed on the mats immediately after installation.



Laying and alignment of the tracks on the protective concrete over the PURASYS **vibra**foam insulation mats. In a next step the tram trough could be concreted out.



KRAIBURG PuraSys GmbH & Co. KG

Porschestraße 1 · D-49356 Diepholz  
Fon +49 (0) 5441. 5954-0 · Fax +49 (0) 5441. 5954-24  
[info@kraiburg-purasys.com](mailto:info@kraiburg-purasys.com) · [www.purasys.com](http://www.purasys.com)

© KRAIBURG PuraSys GmbH & Co. KG Alle Angaben ohne Gewähr. Änderungen vorbehalten.