

Elastic Rail Fixing for Reduced Noise and Vibration on an Urban Tram Viaduct

Lipska-Wielicka Tram Viaduct, Kraków, Poland

Rail Fixing

Sika@Work



BUILDING TRUST



Project description

The Lipska–Wielicka section of the Kraków Fast Tram network provides an important public transport connection across existing railway and road infrastructure. Its key structure is a 620 m long tram viaduct, comprising approximately 460 m above railway tracks and a further 160 m above the existing road network. The new section was opened to traffic in 2015.

To provide durable rail support while reducing the impact of tram operations on the viaduct and surrounding environment, Sika supplied an elastic rail fixing and vibration isolation system for the new track construction.

Project requirements

Construction of tram tracks on the viaduct required a system with high mechanical resistance and long-term durability under repeated dynamic loading. Precise rail alignment was essential, together with effective electrical insulation to reduce stray currents and the associated risk of corrosion.

Reducing vibration and secondary structure-borne noise was another important requirement, particularly because vibration generated by passing trams can be transmitted through the track into the bridge structure.

The system also had to support rapid construction and provide reliable long-term performance with low life-cycle costs.

Sika solutions

Sika supplied a complete light mass-spring system combining prefabricated track slabs, continuous elastic rail fixing and vibration isolation.

Approximately 40 tons of Icosit® KC 340/45 were used to continuously embed and elastically support the rails within the prefabricated track slabs. The polyurethane system absorbs dynamic loads and vibration while providing high mechanical resistance and electrical insulation.

The track slabs were installed on carefully selected Sylomer® vibration-isolation mats, creating an elastic separation between the track and viaduct structure. This combination reduces the transmission of vibration and secondary noise while providing precise rail alignment, passenger comfort and durable track performance.

Sika products

Rail Fixing:

- Sika® Icosit® KC 340/45
- Sika® Icosit® KC 330 Primer
- Sika® Icosit® KC 330 FK
- Sikadur®-53
- Sylomer® MFSTP

Project participants

Project owner	City of Kraków
Investor	ZKiT Kraków
Designer	Fean Projekt
Main contractor	ZUE
Subcontractor	NTB
Sika Organization	Sika Poland Sp. z o.o.



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