

Low-Vibration Rail Fixing for a Major Urban Tram Route

Królewska, Podchorążych
and Bronowicka Streets,
Kraków, Poland

Rail Fixing

Sika@Work



BUILDING TRUST



Project description

The reconstruction of Królewska, Podchorążych and Bronowicka Streets was a major modernization project for Kraków's public transport infrastructure. The works included the reconstruction of 4.3 km of single tram track, together with the traction network, drainage, lighting, roads, pavements, utilities and associated urban infrastructure. The existing tram line had last undergone major reconstruction more than 20 years earlier and serves tens of thousands of passengers every day.

Completed as part of a wider modernization of the route towards Bronowice, the project was designed to improve passenger comfort, operational reliability and tram speeds while reducing noise and vibration along this important urban transport corridor. The main construction contract ran from September 2018 to August 2019.

Project requirements

The reconstructed tram track incorporated several different surface configurations, including prefabricated reinforced concrete slabs, asphalt and paving stones. A rail-fixing system was therefore required that could be adapted to these different track constructions while providing reliable long-term performance.

As the tram route passes through densely developed urban areas, reducing structure-borne vibration and secondary noise was a key requirement. The track system also needed to provide electrical insulation to minimize stray currents and the associated risk of corrosion.

The extensive reconstruction had to be completed within a relatively short construction period and with restricted access to the work areas. Precise coordination of material deliveries was therefore essential to maintain the construction program.

Sika solutions

Sika supplied an integrated vibration-control and continuous rail-fixing solution for the reconstructed track.

Sylomer® MFSTP polyurethane vibration-isolation mats were installed along the tram route to reduce vibration transmission from the track structure into the surrounding environment.

The rails were continuously and elastically embedded using Icosit® KC 340/45. The polyurethane-based rail-fixing material provides high elastic recovery, absorbs vibration and reduces noise while providing excellent electrical insulation against stray currents.

Icosit® KC-330 Primer was used to prepare the substrates and improve adhesion, while Icosit® KC 330 FK provided flexible bonding of concrete, rubber and other filler blocks to the rail chambers. Sikadur®-53 was used where bonding to wet substrates or fresh concrete was required.



Sika products

Rail fixing:

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



Project participants	
Project owner	Gmina Miejska Kraków
Investor	Zarząd Infrastruktury Komunalnej i Transportu w Krakowie
Designer	PROGREG Sp. z o.o.
Main contractor	ZUE S.A.
Subcontractor	KZN RAIL Sp. z o.o.
Sika Organization	Sika Poland Sp. z o.o.

Any product name or reference reflects the Sika product name at the time of creation of this document and may differ from the product name or reference during past events.

Our most current General Sales Conditions shall apply. Please consult the most current local Product Data Sheet prior to any use.



Contact

Phone +41 58 436 40 40
sika.com

Sika Services AG

Tueffenwies 16
CH-8048 Zurich
Switzerland