

Elastic Rail Fixing for Reduced Noise and Vibration on Tram Tracks Bronowice Tram Route, Kraków, Poland

Rail Fixing | Paving

Sika@Work



BUILDING TRUST



Project description

As part of the comprehensive modernization of the tram corridor along Królewska, Podchorążych and Bronowicka Streets towards the Bronowice tram loop, more than 200 m of track was constructed with a paving-stone surface.

The paved track forms part of the 4.3 km single-track reconstruction and combines tramway infrastructure with the surrounding urban road environment. The solution had to accommodate the dynamic movements of the embedded rail system while providing a durable paved surface suitable for the demanding conditions of an intensively used urban transport corridor.

Project requirements

Paving stones installed immediately adjacent to tram rails are exposed to a demanding combination of dynamic railway loads, road traffic, vibration and environmental exposure. Conventional bedding materials can be susceptible to movement and deterioration under these conditions.

The paving system therefore required a high-strength, rapid-curing and low-shrinkage bedding material capable of securely supporting the paving stones and providing reliable long-term performance.

At the same time, the embedded rails required an elastic fixing system to absorb vibration and movement, reduce noise and provide electrical insulation against stray currents. The different materials forming the track surface therefore had to function together as an integrated system.

Sika solutions

For the more than 200 m of paved tram track, the paving stones installed between and alongside the rails were laid using the Sika® FastFix system.

The factory-prepared, one-component mineral mortar provides high mechanical strength and rapid curing while minimizing shrinkage through controlled expansion. These properties make the system particularly suitable for paving exposed to intensive traffic and dynamic loading.

The paving solution was combined with the Icosit® KC continuous rail-fixing system. Icosit® KC 340/45 elastically embeds the rails, absorbing vibration and reducing noise while providing high electrical resistance. Icosit® KC-330 Primer improves adhesion to the substrate, while Icosit® KC 330 FK provides flexible bonding of concrete, rubber and other filler elements to the rail.

Together, the Sika systems created a durable interface between the rigid paving construction and the dynamically loaded tram rails.



Sika products

Rail fixing:

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

Paving:

- Sika® FastFix

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.

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