SIKA AT WORK

MODERNIZATION OF TRACK AND NETWORK INFRASTRUCTURE ON TRAM LINE NO. 14 ALONG BYTOMSKA, STAROKOSCIELNA, SZYMANOWSKIEGO AND POWSTANCOW STREETS, MYSLOWICE

SIKA TECHNOLOGIES: RAILFIXING: SIKA® ICOSIT® KC SYSTEM, GROUTING MORTAR SIKAGROUT®-4 R

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DESCRIPTION

The modernization of track and network infrastructure on tram line No. 14 along Bytomska, Starokoscielna, Szymanowskiego, Powstancow streets in Myslowice is a part of the "Integrated Project for the Modernization and Development of Tram Infrastructure in the Silesian-Dabrowa Agglomeration along with the Purchase of Tram Rolling Stock" co-financed by the European Union. The task involved the reconstruction of the existing tram line from single-track to double-track with accompanying infrastructure, tram stops and road surface and adjacent pavements. Thanks to this investment, passengers using this route have gained a new quality of travel.

PROJECT REQUIREMENTS

Tram line No. 14 runs through the entire downtown of Myslowice and its reconstruction had a big impact on the surroundings and required complex traffic organization, which required special attention at the planning and design stage to minimize disruptions to tram and road traffic, reduce environmental impact, and ensure long-term infrastructure durability.
The task at this stage included the reconstruction of 1,420 meters of single-track into a double-track tram line and the development of a road-track turnout. To enable quick completion of the turnout reconstruction work, the innovative CONTRACK prefabricated turnout plate technology was used. It was one of the first constructions of the CONTRACK system.

SIKA SOLUTIONS

The use of innovative CONTRACK technology required precise preparation. Each slab was individually designed for tracks geometry, curves and turnouts, and then made in a precast concrete plant. The project uses 4 prefabricated slabs with a total area of about 50 m^2. Prefabricated modules include not only reinforced concrete slab and steel track structure, but also full equipment – including sensors, drainage, switch drives and heating systems.
The next stage of the preparatory work was a trial assembly, carried out at the KZN plant in a scale of 1:1, using a modular system specially developed for this investment. Then, the finished elements were transported from the production plant in Krakow to the installation site and assembled within a few hours. This precise preparation and trial assembly ensured safe and efficient execution of subsequent works. Unloading and laying of the CONTRACK system slabs was carried out without dismantling the tram traction with a hydraulic car crane with a lifting capacity of 30 t. The entire operation took just over one hour.

To meet the schedule, all materials used had to allow fast and easy application and rapid achievement of required properties. After positioning the slabs in the plan and profile, grouting with a high-strength mortar **SikaGrout®-4R** was made. SikaGrout®-4R is a ready-to-use, expansive, shrinkage compensating, self-levelling cement mortar with 0/4 mm grain size, with high strength and resistance to vibration and impact after curing.
For rail fixing and joint sealing, the proven Sika® Icosit® KC system was applied, ensuring durability and tightness. It consists of: **Sika® Icosit® KC 340/45** a flexible material based on polyurethanes with high elastic recovery, characterized by excellent insulation properties, eliminating the formation of stray currents and thus corrosion of steel elements located nearby. Sika® Icosit® KC 340/45 reduces secondary noise and absorbs vibration. It is designed for both manual and machine application, which allows for significant acceleration of work and obtaining the highest quality. 1-component polyurethane primer **Sika® Icosit KC-330 Primer** is used to prepare the substrate and improve adhesion. Rails and rail channels before bonding the filler blocks with **Sika® Icosit® KC 330 FK**, was primed with the epoxy resin **Sikadur®-53**.
The initial estimated time for replacing the road surface with the CONTRACK slab system was approx. 192 hours. Finally, thanks to the use of logistics and assembly standards developed on previous projects, the task was completed in less than 100 hours.
CONTRACK technology sets new standards for tram track construction in Poland and Europe, enabling fast and efficient modernization with minimal environmental impact while ensuring long-term durability through high-quality materials and precision workmanship.

PROJECT PARTICIPANTS

Owner:	Miasto Mysłowice
Investor:	Tramwaje Śląskie S.A.
Contractor:	KZN Rail Sp. z o.o.
Sika Poland:	Tomasz Wesołowski

SIKA POLAND SP. Z O.O.
ul. Karczunkowska 89
02-871 Warszawa

Contact
Tel: +48 22 27 28 700
sika.poland@pl.sika.com
www.sika.pl