



SIKA AT WORK

Repair of tram bridge, Křížkovského street, Brno

Repair of reinforced concrete structures, repair of rail fixing

BUILDING TRUST



History of the bridge

The tram bridge designed by architect František Kočí is a visually impressive example of bridge architecture from the period of the former Czechoslovakia. This reinforced pre-stressed concrete bridge, 9 metres wide with a tramway track, originally had a straight plan. However, the curved shape was created because of its termination at the semicircular main entrance to the exhibition centre and the proximity of the Mitrovský Summer Palace.

The bridge impresses not only by its curvature, but also by the variable thickness of the beam, which changes from one closing wall to another. The narrowest point of the beam is located in the middle of the bridge span. The uniqueness of the bridge also lies in the structural design, which allowed the bridge to be bridged without a single pier, and in the considerable angle of inclination, which placed high demands on the statics and technical design. The construction of this unique bridge took only six months.

Requirements

The intention of the project was to carry out a comprehensive repair of the bridge. One of the parts of the repair was work on the bridge structure and abutments, consisting of reprofiling of the reinforced concrete structure and renewal of the protective coating. Another part of the repairs concerned the renewal of the rail fixings. The investor's requirement was to attenuate the loads transmitted and their dynamic effects on the bridge structure.



Sika solutions



SikaEmaco® Repair System:

Time-tested concrete rehabilitation systems have been used, consisting of a complete system of concrete rehabilitation technologies:

- SikaEmaco® P 5000 AP – 1-component polymer-cement anti-corrosion coating for reinforcement
- SikaEmaco® S 488 – 1-component rough repair mortar of class R4
- SikaEmaco® N 305 FC – 1-component Class R2 fine screed
- Sikagard®-330 EL – 1-component acrylic protective coating with crack bridging capability



Sika® Icosit® KC system:

The advantage of the Sika® Icosit® KC solution was the flexibility of the material height under the substrate and the speed of application. Due to the longitudinal and transverse slope of the bridge deck, this feature of Sika® Icosit® KC proved to be crucial. Another challenge was the repair method itself, which was carried out in a partial lockout, with shuttle traffic. The full range of Sika® Icosit® KC products and Sika AnchorFix®-3030 anchor fixing material were used to fix the rails.

The solution is functional, aesthetic, fast and almost maintenance-free.

- Sika® Icosit® KC 330 Primer – primer to increase the adhesion of the grout to the substrate
- Sika® Icosit® KC 340/4 – 2-component PU-based material for underlayment, dampens noise and vibration, has electrical insulating properties
- Sika Anchorfix®-3030 – 2-component chemical anchor with anchor fixing certificate.
- Sikadur®-12 Pronto – 2-component extremely fast material for making up height differences and when application thicknesses are exceeded.



Investor: Dopravní podnik města Brna a.s.
 Designer: Rušar mosty, s.r.o.
 Suppliers:
 SUPER-KRETE CZECH s.r.o.
 Dopravní stavby Brno, s.r.o.

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