Project Report/March 2024

StoCretec Structural Reinforcement: The Economic System Solution for Higher Load-bearing Capacity

The town Schlechtnau is located in the river plains of the Wiesental area and it is a part of the city of Todtnau in the district of Lörrach in Baden-Wuerttemberg, Germany. In order to reach the town area west of the river Wiese, residents and suppliers use the Kresselstrasse Bridge from the main road B 317.

The bridge has a span of 10,80 metres and is 3,70 meter wide. It was built in 1960 and was prohibited for vehicles weighing more than 16 tons. The town faced a major challenge by this restriction and by modern day usage, where a much greater weight limit was required for example to allow for material deliveries for construction works.

For this reason, the expert team consisting of the investor, planner and applicator decided to strengthen the bridge. The goal: Achieving the load capacity of bridge class SLW 30 for heavy goods vehicles with a total weight of 30 tons and more. The **StoConcrete Carbon Plate** reinforcement system with Sto S&P CFRP plates offered the best solution here. Instead of expensive and time-consuming demolition and building new, the bridge was reinforced with Sto S&P CFRP plates. Before the specialist applicator bonded the CFRP plates, the areas of the existing bridge intended for the slats were sanded. According to the static calculations by Simpson Strong-Tie GmbH, Bad Nauheim (DE), the specialist applicator applied the CFRP plates and additionally increased their reinforcing effect by anchoring bars.

Properties of **StoConcrete Carbon Plate**

- StoCretec CFK reinforcing system
- For reinforcing concrete structures
- For increasing or restoring the load-bearing capacity
- Applicable by bonding in the slot, or bonding flat
- Economic, efficient, visually inconspicuous
- Without significant interventions in the architecture

- Short downtimes
- High durability without material fatigue
- Low weight
- Simple application
- System approved by German building inspectorate
- Structural calculation and assessment software for Sto S&P FRP systems, advice on planning and structural calculation and assessment from Simpson Strong-Tie GmbH

Finalising the strengthening project, the underside of the bridge received a protective coating of StoCryl V 200, a rigid coating for the protection of concrete. It prevents the ingress of water and harmful substances dissolved in water. The coating regulates the moisture balance of the substrate and at the same time protects the Sto S&P CFRP plates from UV radiation.

Increasing the load-bearing capacity of the Kresselstrasse Bridge with the German official structure name TO 028 using **StoConcrete Carbon Plate** ensures residents and access traffic greater mobility in the long term.

StoConcrete Carbon Plate. Economic, efficient, visually inconspicuous.

Who & What

Project:	Structural reinforcement bridge, Schlechtnau, DE
Investor:	City Todtnau, Todtnau, DE
Planner:	Weber-Ingenieure GmbH, Villingen-Schwenningen, DE
Applicator:	TBS Technischer Bauschutz GmbH, Freiburg im Breisgau, DE
Verifiable statics:	Simpson Strong-Tie GmbH, Bad Nauheim, DE
Realisation:	10/2023
StoCretec Competence:	**StoConcrete Carbon Plate**
	Reinforcing element — Sto S&P CFK Lamella
	Adhesive — StoPox SK 41
	Corrosion protection — StoPox ZNP
	Primer — StoCryl GQ
	Coating — StoCryl V 200

(Photos: Weber-Ingenieure GmbH)


CFK 150/2000

StoCretec GmbH
Gutenbergstraße 6
DE-65830 Kriftel

Technisches InfoCentre:
Tel. +49 6192 401-104
Fax +49 6192 401-105

Internet: www.stocretec.de
E-Mail: stocretec@sto.com