

The right combination for a successful repair

Stronger crossing allows traffic to flow

Various changes have been made to the static system of the "Pont de Loveresse" bridge in Reconvilier (Switzerland) during the course of repair work. An important part of these changes involved strengthening the cantilevered girders. The construction professionals of construction company De Luca S. A. began by using jets of extremely high pressure water of up to 2,000 bar to expose and clean even the smallest of spaces. Then they opened up the road surface in several places along the carriageway with the resulting slots traversing the joints between the cantilevered girders. This created four notches on each girder, which, once reinforced, would absorb the tensile forces of the structure. The specialists filled the exposed cantilevered girders with the self-sealing PCI Nanocret R4 Fluid heavy-duty repair mortar. As the material has very good flow characteristics it easily filled the tight spaces without leaving any gaps. Then the carriageway was strengthened by inserting reinforcing steel in the previously created notches. The professionals filled the approximately 10-cm deep, 30-cm wide and 4-m long slots with the free-flowing PCI Repafast Fluid repair mortar, which anchored the reinforcing steel into the carriageway.

In order for the bridge in the Jura region of Switzerland to continue to be able to withstand loads and remain available for crossings as normal, not only the bridge deck slabs but also the cantilevered parapets, supports and contact areas were strengthened. To protect

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the reinforcing steel from corrosion, the construction professionals covered it with PCI Nanocret AP adhesive slurry. The major advantage of this is that the material is ideal for use as corrosion protection and as a bonding course on the reinforcement, and the cantilevered parapets could then be reprofiled with the PCI Nanocret R4 heavy-duty repair mortar. The supports of the Pont de Loveresse were also updated. The experts then spread PCI Nanocret FC over the PCI Nanocret R4 heavy-duty repair mortar, using the fibre-reinforced smoothing compound to create a resistant surface on the support plates. The product hardens without any stresses, which reduces the risk of cracks forming. To give the surfaces optimum protection against moisture and against frost and de-icing salt, the supports were then impregnated with the cream-like PCI Silconal 329 hydrophobising agent.

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Object data

Object:	"Pont de Loveresse" Bridge / Stronger crossing allows traffic to flow
Subtitle:	The right combination for a successful repair
Location:	Reconvilier, Switzerland
Completion year:	2012
Task:	Strengthen the cantilevered girders, anchor the reinforcing steel in the carriageway, corrosion protection, protect against moisture and against frost and de-icing salt
Products used:	PCI Nanocret R4 Fluid; PCI Repafast Fluid; PCI Nanocret AP; PCI Nanocret R4; PCI Nanocret FC; PCI Silconal 329
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Photos and captions



The construction professionals sprayed the cantilevered girders of the Pont de Loveresse with jets of extremely high pressure water to expose and clean them. This tried-and-tested process provides ideal results and is the best form of preparation for the necessary repair. The extremely high pressure jets of up to 2,000 bar not only cleaned the surface but also gently roughened it. This made it possible to expose the concrete without causing stress cracks to form as a result of vibrations.

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The exposed interior of the cantilevered girders are perfectly prepared as the jets of extremely high pressure water have ensured that particles and impurities are removed from the surface.

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First, falsework was set up around the cantilevered girders in order to both prevent the compound from leaking out and to ensure the area surrounding the joints was filled without any gaps. This filling and stiffening of the joints was best achieved using PCI Nanocret R4 Fluid heavy-duty repair mortar. The material has proven itself as ideal for statistically relevant concrete repair work. The self-sealing mortar aerates by gravity alone and is characterized by very good flow characteristics. A total of three tonnes of the mortar was used on the bridge.

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Since the Pont de Loveresse was to receive a new static system able to cope with even heavy loads, the carriageway was also strengthened by inserting reinforcing steel in the previously created notches.

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Tensile forces are absorbed by extra strong reinforcing steel. The construction professionals filled the approximately 10-cm deep, 30-cm wide and 4-m long slots with free-flowing PCI Repafast Fluid repair mortar, which firmly anchored the reinforcing steel in the carriageway.

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The cantilevered parapets of the bridge were also updated to the state of the art. In order to protect the reinforcing steel from corrosion, the construction professionals covered it with PCI Nanocret AP adhesive slurry. The major advantage of this is that the material is ideal for use as corrosion protection and as a bonding course on the reinforcements. Finally, the concrete structure was reprofiled using PCI Nanocret R4. The heavy-duty and reliably adhesive repair mortar is resistant to de-icing salt, water and all weather conditions, making it ideal for repairing roads. Its high compressive strength means it can also cope with the demands of any type of traffic.

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The cantilevered parapets were also prepared for the repair work by using jets of extremely high pressure water before being renovated with heavy-duty mortar.

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Following its comprehensive repair, the Loveresse bridge in Reconvilier is ready once again for heavy loads and daily traffic. The static design was also altered so that these daily loads are borne by larger areas. This is achieved by the reinforced cantilevered girders which strengthen the entire crossing. The whole project has provided a completely renovated structure for ensuring a safe crossing over the canton highway.

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About PCI

PCI Augsburg GmbH is part of the business unit Construction Chemicals of BASF and leader in the tile laying materials sector for specialist firms in Germany, Austria and Switzerland. In addition, the company supplies product systems for waterproofing, concrete protection and repair, as well as a complete product range for the soft flooring sector. PCI employs a staff of about 800 and generated sales of over €200 million net in 2012. Further information about PCI on the Internet under www.pci-augsburg.de.

BASF is the world's leading chemical company: The Chemical Company. Its portfolio ranges from chemicals, plastics, performance products and crop protection products to oil and gas. We combine economic success, social responsibility and environmental protection. Through science and innovation we enable our customers in almost all industries to meet the current and future needs of society. Our products and system solutions contribute to conserving resources, ensuring healthy food and nutrition and helping to improve the quality of life. We have summed up this contribution in our corporate purpose: We create chemistry for a sustainable future. BASF posted sales of about €78.7 billion in 2012 and had more than 113,000 employees as of the end of the year. BASF shares are traded on the stock exchanges in Frankfurt (BAS), London (BFA) and Zurich (AN). Further information on BASF is available on the Internet at www.basf.com.

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