



# SIKA AT WORK

## THE ANCIENT MITTELBERGHEIM RESERVOIR, FRANCE

### **RENOVATION AND REINFORCEMENT:**

STRUCTURAL STRENGTHENING: Sika CarboDur® Grid

MASONRY/CONCRETE REPAIR: 53 Lankostructure Carbogrid Mortar

WATERPROOFING: Lankocoat DW epoxy system

**BUILDING TRUST**



# MITTELBERGHEIM RESERVOIR

The first renovation case of a masonry tank: the reinforcement of heterogeneous masonry using the latest FRCM solution from Sika

## PROJECT DESCRIPTION

The Mittelbergheim reservoir was built in 1893. Located at an altitude of 300 m in Mittelbergheim (Alsace, France), it is of the semi-buried type and consists of two rectangular tanks with a total capacity of 270 m<sup>3</sup>. The structure, with a footprint of approx. 17 x 13 m, consists of heavy sandstone and limestone rubble walls and brick masonry vaults. The tanks were waterproofed by a cement plaster which had partially disappeared – dissolved by the corrosion of the water from the springs which feed it.

## PROJECT REQUIREMENTS

This project was the first case which has used the 'thick' reinforcement system because the masonry support had to be repaired and 'straightened' before the reinforcement system could be applied. The decision was made to proceed in two 'mixed' refurbishment stages in one single step.

A layer of mortar for levelling the masonry was applied first, then a layer of mortar of about 15 mm was sprayed on top of it. On this 15 mm layer of mortar, which was still 'fresh', the grid was laid and embedded. An additional layer of mortar was then sprayed on it to 'close' the reinforcement complex.

The Sika CarboDur® Grid system was chosen because it allowed the reinforcement to be completed in 'one step' and the waterproofing layer to be applied in an 'ultra short' time (in accordance with the recommendations of the Method Statement).

As this was an underground structure, the presence of moisture was not avoidable, only an FRCM system allowed the reinforcement to be carried out without taking any risks for the durability of this solution.

The high performance of the mortar used and the rapid increase in strength also made it possible to apply a composite watertightness system in a record time (less than 7 days after application of the reinforcement system), as the reinforcement system was applied directly into the plaster body of the masonry repair without delay.

Time saving, efficiency and durability – these are the choices of our customer, the SDEA of Alsace, who are very satisfied with the obtained result.



Masonry preparation.



Spraying the mortar for embed



Before refurbishment.



Masonry preparation.

## SIKA SOLUTIONS

Sika CarboDur® Grid system was supplied to the refurbishment project. This system is composed of the following Parex products:

- 32 LANKOSTRUCTURE CARBOGRID TRM
- 53 LANKOSTRUCTURE CARBOGRID Mortier
- 400 LANKOCOAT epoxy DW Primer
- 401 LANKOCOAT epoxy DW
- 402 LANKOCOAT ARMATURE DW 450

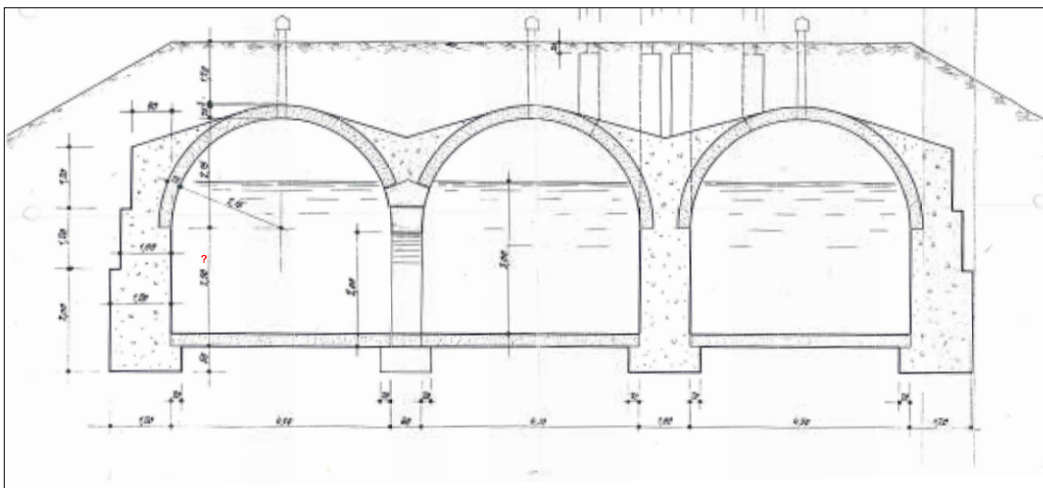
These are a complete range of products which are extremely compatible with each other, with less application time to complete the project. We have used just one single reinforcement system to fulfil the purpose of the project to repair and to reinforce the structure; within the system, we have just one single mortar for the repair and preparation of the substrate and for the embedding of the unique grid.

\* Parex – a Sika company

Products and systems under the Parex name also exist in the Sika offer under the Sika name.



Adding the reinforcement grid.



Projection, installation of the grid and smooth finishing of the mortar in a single phase.



# THE ANCIENT MITTELBERGHEIM RESERVOIR, FRANCE



## PROJECT PARTICIPANTS

Owner: SDEA Alsace (France)

Contractor: TEOS

Sika organization: PAREX France

Our most current General Sales Conditions shall apply. Please consult the most current local Product Data Sheet prior to any use.



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