

Zeitschrift: IABSE congress report = Rapport du congrès AIPC = IVBH
Kongressbericht

Band: 8 (1968)

Artikel: The Tatarna Bridge in Greece

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DOI: <https://doi.org/10.5169/seals-8829>

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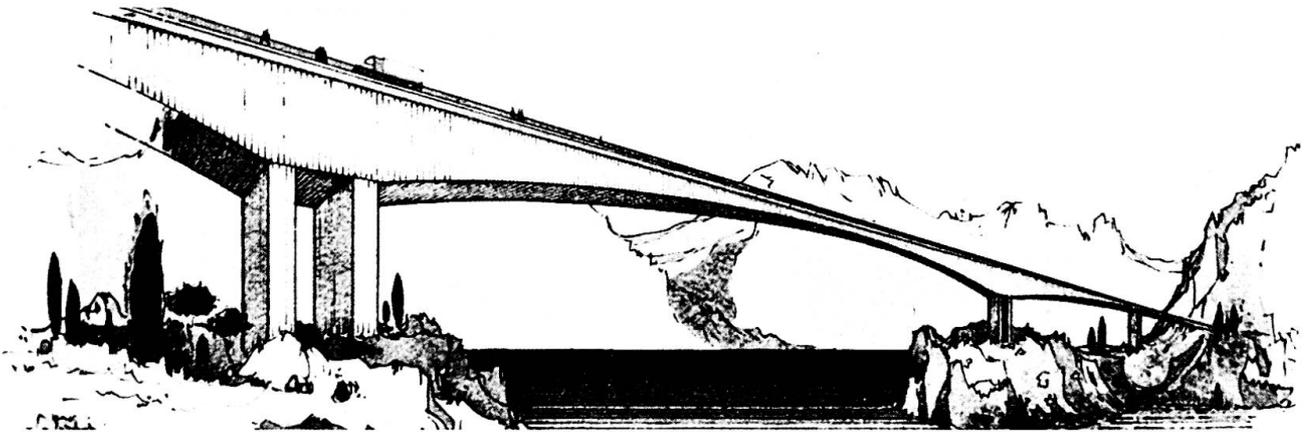
IVa

The Tatarna Bridge in Greece

Le pont Tatarna en Grèce

Die Tatarna Brücke in Griechenland

Dr. A. IKONOMOU



The Tatarna bridge is now under construction over the Kremasta reservoir (formerly Acheloos river) in West central Greece.

The bridge is 9,4 m wide and has an overall length of 470 m. It consists of three spans respectively 97, 196 and 150,5 m. long and rests on two 30 m. high piers and two abutments.

The special characteristics of the bridge are as follows: As far as bridges with prestressed concrete girders are considered, its central span (196 m) is the second longest in the world after the Bendorf bridge over Rhine in Germany (max span: 208 m).

The first span of the bridge (97 m) is strongly curved with a radius of 100 m. Each of the central piers of the bridge consists of two separated vertical walls each 1,5 m. thick, which are monolithically connected with the bridge deck. Concrete grade B 300 (according to the German Codes) and "sliding" forms are used for the construction of the piers. The foun-

dition was made on limestone rock before the filling of the reservoir.

The bridge deck consists of a box section with a height of 10,5 m at the piers reduced to 3,4 m at the middle of the main span, where a pin joint is formed.

The last 52,5 m of the third span form a cantilever beam with fixed end at the right abutment and a pin joint connection with the rest of the span. The pin joints contribute also to a more favorable earthquake response of the bridge system by reducing its statical indeterminacy.

Concrete B 450 is used for the construction of the deck. Longitudinal prestressing with 32 mm dia Sigma 80/105 steel bars, transverse prestressing of the deck slab and tendons at 45° inclination for the prestressing of the lateral box walls are applied in connection with the well known "cantilever beam" construction method (Freivorbau) and the DYWIDAG prestressing system. The design and construction method of the Tatarna bridge have been worked out by the engineering bureau of the author in Athens. Many special problems related to the following points had also to be solved:

- Selection of optimal support spacing
- Soil exploration and related problems
- Optimal form of structural members
- Loading and computational assumptions
- Statical analysis with the use of computers
- Construction materials and methods
- Joint form and details
- Temperature control
- Shear stress control
- Economic considerations for the whole project

The Tatarna bridge is an example of a highly complicated project in which the most modern computational and construction techniques were applied.

Die Tatarabrücke ist ein Beispiel eines hochkomplizierten Projektes in welchem die modernsten Berechnungs- und Konstruktionsmethoden angewandt sind.

Le pont de Tatarna est un exemple d'un projet très compliqué pour la réalisation duquel on a appliqué les méthodes de calcul et de construction les plus modernes.