



Bridge over the Najerilla river

Nájera, La Rioja, Spain / 2005

Structural type
Characteristics
Owner
Client
Constructor
Scope

arch bridge with composite deck and steel arch
45,00m span
Ayuntamiento de Nájera
Ayuntamiento de Nájera
EUROCONTRATAS S.A.
detailed design and construction monitoring



The structure of the project consists of a single 45.0m span between supports. It is composed of a composite deck, a steel arch, 5 closed galvanized-steel cables and pre-stressed concrete abutments. The total width of the structure is 14.00m, divided into a central zone of 9.00m for road traffic and two 2.50m lateral sections for pedestrian use.

The resistant longitudinal mechanism of the deck consists of a central steel box girder 9.00m in width as a result of the connection between two trapezoidal girders with a maximum depth of 0.82m. The upper concrete slab crowning this box is 0.18m thick and reaches a total maximum depth of 1.00m at the axis of the structure.

In order to complement this longitudinal mechanism which directly takes on the loads arising from road traffic - the width of 9.00m which coincides with the one attributed to the road surface with a 3.20m separation, ribs of a triangular cross-section and 2.50m in length which cantilever out from the box section have been projected.

This transversal mechanism takes on the eccentric pedestrian load and transfers it to the central box. Thus, the resulting transversal section is optimal as it minimizes the dead loads of the deck, above all in the outer areas of the axis of the structure (plan of hangers), being especially efficient to resist combined axial, shear and torsion forces.

The steel arch has a variable cross section. It has a circular line and a triangular cross section. Its rise of 6.40m allows an offset of 1/7.

The nominal diameter of the centrally distributed five hangers is 60 mm. The closed reinforced concrete abutments are peak-shaped with side walls parallel to the flow of the river. This highly versatile arrangement permits different possibilities of adaptation for future access modifications.



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