

Design of the Main Structure of The Pi River Water Viaduct

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Abstract

The Pi River Water Viaduct is a milestone in the Yangtze-to-Huai Water Diversion Project. From the structure point of view, it is a girder-arch composite system with a span configuration (68+110+68) m. It is the first aqueduct made of steel structures in China. And its span ranks the 1st in the world in terms of navigable aqueducts. Site selection, load features, structure type, durability are firstly discussed in the paper on the basis of construction conditions, and then a corresponding conceptual design is given. The reliability of the design solution is validated by a large number of scientific studies and tests, and guidance for detailed structural design is also summarized from the studies and tests.

Keywords: navigable water viaduct; girder-arch composite structure; composite stainless steel corrugated web; Water-filled test.



Figure 1. Panoramic view of the completed water viaduct